Technical Report EL-99-1
January 1999

US Army Corps of Engineers
Waterways Experiment Station

Richard B. Russell Phase III Completion Report: Impacts of Four-Unit Pumpback Operation

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19990128 071

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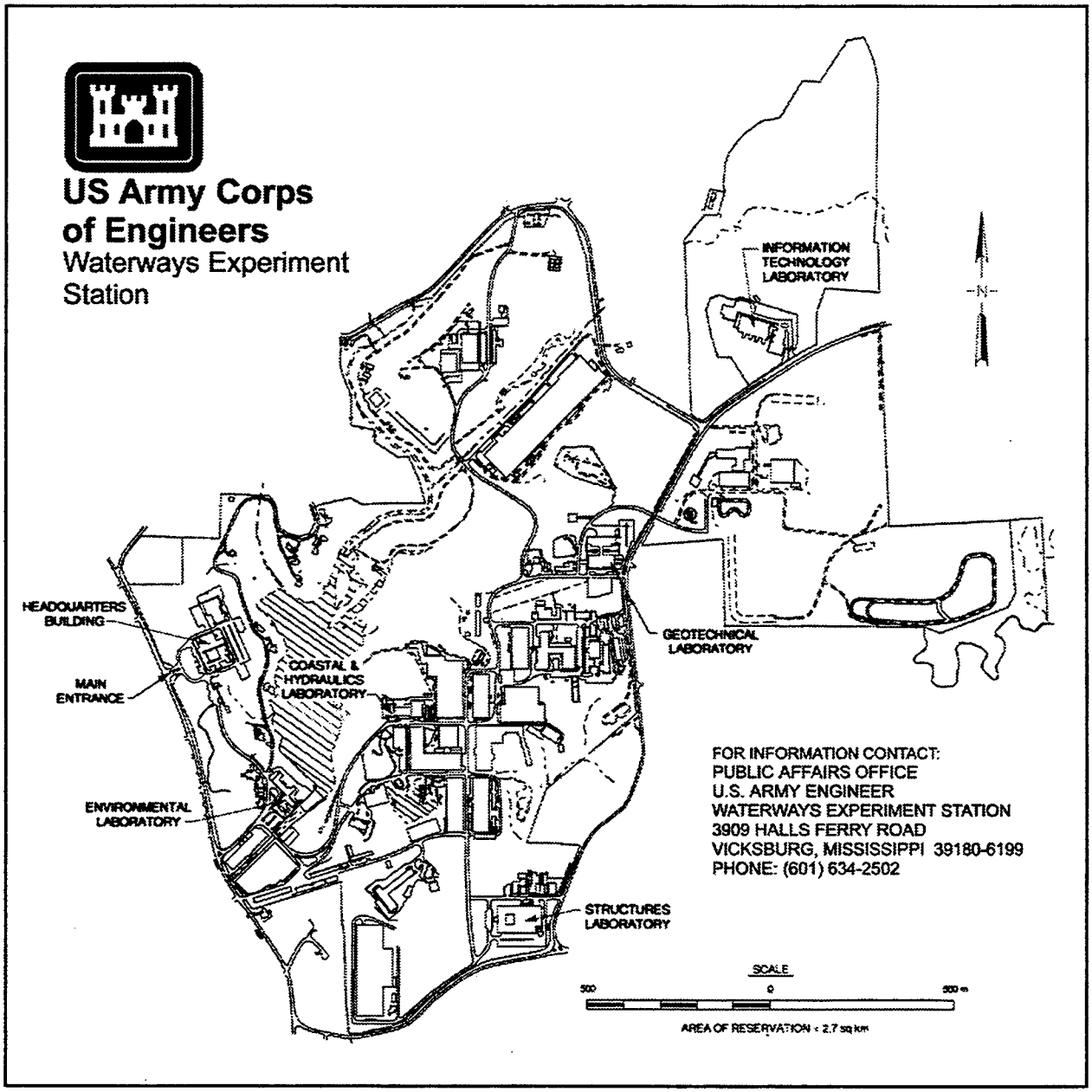

Waterways Experiment Station Cataloging-in-Publication Data

Richard B. Russell. Phase III, Completion report : impacts of four-unit pumpback operation / by John M. Nestler ... [et al.] ; prepared for U.S. Army Engineer District, Savannah.
675 p. : ill. ; 28 cm. — (Technical report ; EL-99-1)
Includes bibliographical references.
1. Monitoring of fishes. 2. Fishes — Georgia — Environmental aspects. 3. Fishes — South Carolina — Environmental aspects. 4. Richard B. Russell Lake (Ga. and S.C.) 5. J. Strom Thurmond Lake (Ga. and S.C.) I. Nestler, John M. II. United States. Army. Corps of Engineers. Savannah District. III. U.S. Army Engineer Waterways Experiment Station. IV. Environmental Laboratory (U.S. Army Engineer Waterways Experiment Station) V. Title: Impacts of four-unit pumpback operation. VI. Series: Technical report (U.S. Army Engineer Waterways Experiment Station) ; EL-99-1.
TA7 W34 no.EL-99-1

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Preface

This report presents detailed results of Phase III sampling and summaries of Phase I and Phase II sampling for the Richard B. Russell Fish Entrainment Study as required by amendment dated 3 April 1992 to the original Consent Order from the United States District Court for the District of South Carolina signed on 6 December 1991. Phase III data presented in this report include: 1. pumped storage fish entrainment sampling using full (entire intake plume is netted) or partial (approximately 50 percent of the intake plume is netted) recovery nets; 2. summaries of conventional netting results obtained prior to collection of Phase III data; 3. supporting studies such as recovery net calibration and fish mortality testing; 4. results of calibration for fixed-aspect hydroacoustics sampling of fish entrainment; 5. ichthyoplankton entrainment; 6. summaries of baseline data collection; 7. population estimates for threadfin shad and blueback herring; 8. risk assessment of pumped storage operation using population modeling; 9. mobile hydrocoustics summaries; 10. commercial and sport harvest; 11. predictions of future entrainment; 12. summary water quality impacts on striped bass.

This report was prepared by the Environmental Laboratory (EL) of the U.S. Army Engineer Waterways Experiment Station (WES), Vicksburg, MS; AScI, Trotters Shoals Research Facility, Calhoun Falls, SC; the National Biological Survey Fish and Wildlife Cooperative Research Unit (Coop Unit) at the University of Georgia, Athens, GA, Aquacoustics, Inc., and U.S. Army Engineer District, Savannah. The report was prepared for the U.S. Army Engineer District, Savannah, as part of the Richard B. Russell Fish Entrainment Study.

The authors of this report are Dr. John M. Nestler of the Water Quality and Contaminant Modeling Branch (WQCMB), Environmental Processes and Effects Division, (EPED), EL, WES; Messrs. Don Dennerline and Mark Weiland of the Coop Unit, Mr. Gary Weeks of AScI, Mr. Don Degan and Ms. Sandra Howie of Aquacoustics, Inc., and Mr. Jamie Sykes of Savannah District. The report was prepared under the direct supervision of Dr. Mark Dortch, Chief, WQCMB, and under the general supervision of Dr. Richard Price, Chief, EPED, and Dr. John Harrison, Director, EL. Technical reviews by Mr. Tom Cole of WES, and Ms. Toni Schneider of WES are appreciated.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander of WES was COL Robin R. Cababa, EN.

This report should be cited as follows:

Nestler, J. M., Dennerline, D., Weiland, M., Weeks, G., Degan, D., Howie, S., and Sykes, J. (1999). "Richard B. Russell Phase III Completion Report: Impacts of Four-Unit Pumpback Operation," Technical Report EL-99-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

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Executive Summary

Background

The U.S. Army Engineer District, Savannah, operates Richard B. Russell (RBR) Dam and Lake which is located on the Savannah River approximately 16 miles southeast of Elberton, Georgia. RBR Lake is located between two other Federal project; Hartwell Dam and Lake on the upstream side, and J. Strom Thurmond (JST) Dam and Lake on the downstream side. The RBR powerhouse contains four conventional generation units, and four reversible pump-turbines. The pump-turbines can be used to generate power, or they can be reversed and used as pumps to move water from JST Lake to RBR Lake during periods of low power demand to replenish upstream storage for subsequent peak generation needs.

Potential environmental concerns associated with pump storage include entrainment of fish from the afterbay (JST Lake) during pumping, an increase in entrainment of fish from the forebay (RBR Lake) during generation resulting from generating with eight units versus four, and changes in the water quality regime of both RBR and JST Lakes.

In view of these potential environmental concerns, the Savannah District initiated an exhaustive study in 1986, the Richard B. Russell Fish Entrainment Study. The major objectives of this study were to provide baseline data on the fish community of JST Lake, predict entrainment and fish mortality, develop fish protection measures, and monitor entrainment through the units. Ongoing water quality studies in JST and RBR Lakes were modified and expanded to supplement the fishery studies and address water quality concerns. No study identified any factor which indicated that commercial operation of the pumpback units at RBR would produce irreparable impacts to the aquatic ecosystems at RBR and JST Lakes.

Testing and Monitoring Plan

The initial results of the above studies were presented in a Final Supplement to Final Environmental Impact Statement on Pump Storage in July 1991. This

document presented the study data, results of various modeling efforts to address fish entrainment and water quality in JST and RBR Lakes, results of various fish protection investigations, and entrainment predictions based on the study results. This document recommended a phased approach for bringing the pump-turbines into operation involving extensive testing and monitoring. The document became the basis for the development of the RBR Testing and Monitoring Plan (T&MP). The general study design and conduct of the T&MP is described in a Consent Order granted by the Charleston, SC United States District Court on December 6, 1991. An amendment (April 3, 1992) to this Consent Order required the Corps of Engineers conduct specific tests and studies to complete mechanical and environmental testing of the units. The T&MP was attached to this amendment and described the specific studies to be conducted and their timing. The T&MP identifies all environmental concerns and describes both water quality and fishery studies that the Corps of Engineers, State of South Carolina, State of Georgia, U.S. Fish and Wildlife Service, and the National Wildlife Federation felt were required to quantify the impacts of operating the pumpback units on RBR and JST Lakes. All studies were conducted to be consistent with the following four general provisions of the T&MP:

a. A phased approach for bringing the units into operation which provides for a period of testing the units prior to committing them for dependable, commercial power production.

b. Installation and operation of a high frequency sound and light fish protection system.

c. Extensive fishery monitoring to determine the impacts of pump storage operation at RBR and the effectiveness of the fish protection system.

d. Analysis of the data obtained from the monitoring plan to determine if additional fish protection measures and/or fishery mitigation is needed.

The studies conducted during the Richard B. Russell Fish Entrainment Study and reported in this document fulfill all the testing requirements of the T&MP. As specified in that plan, these studies were conducted using procedures approved by an interagency Coordination Group.

Phases I and II of the T&MP

The T&MP essentially involves three phases of testing and monitoring. Phase I provided for monitoring to avoid significant fish kills during initial testing of the pump-turbines in regards to their mechanical and electrical certification. In Phase II, one or more pump-turbines were sampled at regular intervals during the pumpback phase and during more than four-unit conventional generation (2 to 4 days per month) to assess the impacts of fish entrainment and mortality. A report describing the results of Phase II testing, "Richard B. Russell Phase II

Completion Report: Impacts of Two-Unit Operation" was completed and coordinated with the natural resource agencies in February 1995.

Phase III of the T&MP

This report presents detailed results of Phase III testing and monitoring as provided for in the T&MP. Phase III studies were conducted (April 1 to October 31, 1996) under operational scenarios as close to full-scale commercial operation levels as the sampling constraints of recovery netting allowed. Phase III data presented in this report include:

a. Pumped storage fish entrainment sampling using full or partial recovery net.

b. Summaries of conventional netting results obtained prior to collection of Phase III data.

c. Supporting studies such as recovery net calibration and fish mortality testing.

d. Results of calibration for fixed-aspect hydroacoustics sampling of fish entrainment.

e. Ichthyoplankton entrainment.

f. Summaries of baseline data collection.

g. Population estimates for threadfin shad and blueback herring.

h. Risk assessment of pump storage operation using population modeling.

i. Mobile hydroacoustics summaries.

j. Commercial and sport harvest

k. Predictions of future entrainment.

l. Summary water quality impacts on striped bass.

The studies provided for in the RBR Fish Entrainment Studies and the T&MP have been exhaustive and produced a wealth of complex fishery and water quality data. This summary provides only a synopsis of the results. For more detailed information, the reader should examine the main reports.

Phase III-Entrainment Results

Phase III monitoring was conducted in 1996 from April 1 to October 31, because long-term baseline fish sampling indicated the time period of maximum biological activity downstream of RBR Dam occurred during these months. Since Phase III monitoring did not include sampling of pump storage entrainment for the months of November through March, Phase II data were reanalyzed to develop species-specific proportionalities to expand Phase III entrainment data to provide an estimate of annual entrainment. Species-specific entrainment mortality studies were also conducted to determine how many fish could survive passage through the dam. Based on this work, the following conclusions were drawn:

a. Using the expanded annual entrainment estimates, a total of about 10.1 million fish are projected to be entrained during pumping operations at RBR in a dry year, compared to about 1.2 million fish projected to be entrained during pumping operations in a wet year. In both cases, entrainment is dominated by threadfin shad (92 percent in dry years and 94 percent in wet years).

b. Entrainment of fish during Phase III pump storage operation is a small percentage of the total numbers of fish in JST Lake (maximum annual estimate of 0.47 percent by number and 0.69 percent by biomass). Projected annual entrainment totals by species are less than 1.0 percent of population estimates for all common species except white perch, for which 1.3 percent of the population is entrained.

c. Based on data collected during Phase III monitoring and adjusted for the percentage of each species that successfully pass through the dam, pumpback entrainment by number is dominated by threadfin shad (90.9 percent), blueback herring (6.4 percent), and white perch (1.3 percent).

Phase III-Adjustment for Survival

Not all fish die that are entrained. Passage survival studies for entrained fish during pumping operation found mortality ranging from 0.0 to 100.0 percent. The results were dependent upon the species tested and the month in which the test was conducted. As an example, survival of passed fish is substantially greater during cooler water temperatures (April and May). Passage mortality estimates in this study are conservative (high) because fish passage mortality is generally not reduced by mortality resulting from capture, handling, transport, and holding of fishes associated with mortality studies. Based on Phase III work, the following conclusions were made:

a. Total entrainment mortality during Phase III was 3.66 million fish with a biomass of 13,016 kilograms (1 kg = 2.2 lb); 90 percent of these fish were less than 3.5 in.

b. Total annual entrainment mortality is predicted to be 8.07 million fish (0.45 percent of total population) for a dry year and 1.13 million fish (0.06 percent of total population) for a wet year with a biomass of 23,434 kg (dry year), and 3,032 kg (wet year). In an average year, annual entrainment mortality is predicted to be 6.10 million fish (0.34 percent of total population) with a biomass of 22,118 kg.

Summary-Composition of Entrained Fish

The percentages that each species of fish will contribute to entrainment will vary by water year. This variation occurs because of the interplay between seasonal patterns of entrainment and relative changes in the proportion of hours of pumping each month. Based on Phase III data, the following determinations were made:

a. Threadfin shad (90.9 percent by number and 35.5 percent by biomass), blueback herring (6.4 percent by number and 33.7 percent by biomass), white perch (1.3 percent by number and 19.2 percent by biomass), and black crappie (0.7 percent by number and 6.1 percent by biomass) dominated the entrainment samples. These four species constituted 99.3 percent by number and 94.5 percent by biomass of the entrainment samples.

b. Entrainment percentages for other species important to the sport fishery of JST Lake were largemouth bass (0.03 percent by number and 0.02 percent by biomass), striped bass (0.02 percent by number and 0.78 percent by biomass), and hybrid bass (0.01 percent by number and 0.73 percent by biomass).

Summary-Size Composition of Entrained Fishes

Based on Phase III testing and monitoring, the following conclusions were reached:

a. 99.85 percent of all fishes entrained were less than 8.5 in. long.

b. Size composition of entrained fishes refle the species composition, with 90 percent of netted entrained fishes occurring in the 1.5 to 3.4-in. size class.

c. The 3.5- to 5.4-in. size class accounted for 4 percent of the total and the 5.5- to 8.4-in. size class account for 6 percent.

d. Size composition of key sport species also was generally characterized by these smaller size classes. The most commonly entrained sport fish was white perch. Of the white perch estimated to have passed through the

turbines during Phase III, about 36 percent were of harvestable size (greater than or equal to 6.5 inches long) with the intermediate size class (4.5- to 6.4-in. fish) containing 58 percent of the sample. About 6 percent of the sample was in the fingerling (less than 4.4 in. in length) size class.

e. For black crappie, the intermediate-size class (4.5 to 6.4 in.) fish dominated the sample (84 percent). About 9 percent of the total take of black crappie were in the harvestable size class (greater than 6.5 in. in length).

f. A total of 595 striped bass were estimate to have been killed passing through the dam (556) or impinged on the bar screen veneer (39) during Phase III sampling. Of that total, 97 percent were less than 15 in. long and only 3 percent were 15 in. or longer.

g. A total of 279 hybrid bass were estimated to have been killed either passing through the dam (246) or impinged on the bar screen veneer (33) during Phase III sampling. Of this total, 84 percent were less than 15 in. long, and only 16 percent were 15 in. long or longer.

Summary-Conventional Generation Passage

Conventional generation passage was not monitored during Phase III studies. The results of netting surveys conducted prior to Phase III were employed to estimate conventional generation entrainment that could have been expected. The following estimates of the effects of the addition of pumped storage on conventional generation entrainment were derived:

a. Data indicates that less fish pass during worst-case (dry year) conventional generation than pass during pump storage operation, with most passage occurring during the winter time (total annual estimate not adjusted for survival of 5.9 million fish).

b. Threadfin shad (87 percent), blueback herring (6.7 percent), and yellow perch (4.2 percent) comprise 98.2 percent of entrainment by hourly rate.

c. It is highly probable that survival of fishes entrained during generation is greater than during pumping operation.

Summary-Water Quality Impacts, Striped Bass Habitat, in JST Lake

Water temperature, dissolved oxygen (DO) monitoring and multi-dimensional water quality modeling both indicated temperature impacts associated with pump storage operation in the tailwater of RBR Dam. This is important because the

RBR tailwater is considered to be an important striped bass fishery, and temperature and DO are critical parameters in determining suitable striped bass habitat. Water quality data collected from the summer period (July through September, 1992-1996) were examined to characterize tailwater as well as lakewide striped bass habitat dynamics in JST Lake.

Two categories of striped bass habitat were defined by the following bounds: preferred habitat (water having DO greater than 3.0 parts per million and temperature less than 24 degrees C) and restricted habitat (DO greater than 3.0 parts per million and temperature less than 27 degrees C). The following conclusions were reached:

a. Striped bass restricted habitat in the RBR tailwater did not decrease with RBR operations in 1996 compared to conditions in 1993, a year having similar lake elevation patterns to 1996 but without pumpback operation.

b. A loss in striped bass preferred habitat in the RBR tailwater was evident in July and August. This was related to an increase in the mean water temperature released from RBR Dam which increased bottom temperatures recorded in the RBR tailwater. In 1996, water temperatures in the tailwater may have exceeded the preferred habitat criteria resulting in an outmigration of striped bass into the main body of the lake (based on an apparent reduction of sport harvest of striped bass, 1996 creel data). The tailwater area comprises less than 2 percent of JST Lake.

c. Lakewide restricted habitat did not show a noticeable decrease in 1996 compared to 1993. Lakewide preferred habitat was lowest in September, 1996, but was similar to 1993 estimates. Preferred habitat was available in portions of the lake other than the tailwater.

Summary-Water Quality Changes in RBR Lake

Pumped storage operation of RBR Dam resulted in warming of the bottom-layer of water in RBR Lake with no noticeable change in water temperature in the upper-layer of water in RBR Lake. Despite the slight warming of the bottom-layer of water in the RBR forebay, the volume of RBR Lake providing high enough oxygen levels to support fish increased. Pump storage operation resulted in improvements to the dissolved oxygen levels in the bottom-layer of RBR Lake.

Summary-Ichthyoplankton Entrainment

The Phase III arithmetic mean ichthyoplankton entrainment total of 125 million was dominated by clupeids, with estimated totals of 54 million for threadfin shad when ichthyoplankton could be keyed to species and 111 million when identification was limited to the family level. The number of ichthyoplankton that could

reasonably be expected to occur in JST Lake was estimated at 160 billion. Phase III ichthyoplankton total entrainment projected for dry year pumping is 266 million. The number of ichthyoplankton entrained under worst-case pump storage operation is about 0.17 percent of the estimated total ichthyoplankton number that could be reasonably expected to be produced during the spawning season for the entire lake.

Summary-Predictions of Future Entrainment

Expansions to predict entrainment (all adjusted for survival) to future operation are based on the hourly fish passage rate obtained from netting samples for each month multiplied times the unit hours of operation anticipated for wet, average, and dry years. The following predictions were derived:

a. The anticipated annual entrainment totals, adjusted for survival, for the various water years differ substantially, from 1.1 million for a wet year, 6.1 million for an average year, to 8.1 million for a dry year. For the worst-case (dry year), this means that approximately 0.45 percent by number and 0.28 percent by weight of the fish in JST can reasonably be expected to be killed by turbine passage during a dry year.

b. About 313,000 blueback herring can reasonably be expected to be killed during a dry year operation. On an annual basis, the blueback herring mortality is 0.46 percent of the total population in JST Lake.

c. Approximately 7.6 million threadfin shad could be expected to be killed during dry year pumping operation. This represents about 0.58 percent of the population of threadfin shad that were estimated in JST Lake in August of 1996.

d. Entrainment data for white perch indicates that 98 percent of the mortality for this species occurs during the October through April timeframe. White perch shows the greatest potential for impact of any species investigated with 1.33 percent of the population being killed by pumping operation during April through October.

e. The total estimated number of black crappie that would be killed is 0.52 percent of the long-term average abundance of black crappie in JST Lake of 6.4 million and 0.23 percent of the over 14 million black crappie that were estimated for JST Lake in 1994.

f. Approximately 1,484 striped bass or 0.66 percent are estimated to be killed on an annual basis under worst-case pumping conditions. The total population of striped bass in JST is unknown. However, the management goal is 3 striped bass per acre of lake area. Therefore approximately 225,000 catchable striped bass could be reasonably expected to occur in JST Lake.

g. For an annual cycle of operation under worst-case conditions, a total of 1,016 hybrid bass or 0.19 percent can reasonably be expected to be killed. The total number of hybrid bass in JST Lake, is unknown. The management goal is to have an abundance of 7 hybrid bass per acre of lake area. Consequently, approximately 525,000 catchable hybrid bass could be reasonably expected to occur in JST Lake.

Summary-Population Decline Risk Assessment

Risk based population modeling was used to assess the impacts of pumped storage operation on five species: threadfin shad, blueback herring, striped bass, hybrid bass, and black crappie. Two different scenarios were used to evaluate population decline potential. "Scenario B" simulations were restricted to evaluations of Phase III monthly rates projected to annual average water year entrainment. Scenario B simulations were based on the most complete data sets to simulate commercial operation at RBR. Results of the risk analysis are presented as the maximum risk (probability) that population levels will fall below baseline simulation results at least once over a period of 50 years. The following predictions were obtained:

a. Population levels of threadfin shad appear to be unaffected by entrainment losses.

b. Population levels of blueback herring appear to be minimally affected by projected average year entrainment losses with a maximum increase in the probability of decline of 3 percent. Under extreme entrainment conditions, the risk assessment modeling shows a maximum increased risk of 53 percent above background that the population will drop below 11.3 million fish once over a period of 50 years. This entrainment scenario of the modeled baseline population is 14 times higher than the dry year annual worst-case loss obtained from Phase III data.

c. Hybrid bass population size under the projected mean annual entrainment total shows a stable population reduction of 10,000 fish and a maximum increased risk of decline of 3 percent. The maximum entrainment scenario of 6 percent increases the risk by 15 percent that the population will decline below 46,000 fish at least once over the next 50 years. The 6 percent entrainment scenario is over 7 times the projected dry year annual worst-case loss of 2,134 fish. Based on the model, the loss of hybrid bass can be completely compensated by increasing the stocking rate to 746,000 fish per year (20 percent increase).

d. Striped bass Scenario B entrainment produced a maximum increased risk of decline of 4 percent. The maximum entrainment scenario of 8 percent of the baseline modeled population increases the risk by 22 percent that the population will decline below 50,000 fish at least once over a period of 50 years. This scenario is 4 times the projected dry year worst-case loss of

2,789 fish based on annual projections using Phase III data. Based on the model, the loss of striped bass can be completely compensated by increasing the stocking rate to 286,700 fish (28 percent increase).

e. There was not enough data on the black crappie population in JST Lake to produce a model with any certainty.

Summary

Conclusions

The final phase of passage monitoring and impact assessment to determine the effects of pumped storage operation on fish communities and water quality conditions in both J. Strom Thurmond (JST) Lake and Richard B. Russell (RBR) Lake was completed on 31 October 1996. Analysis of the data generated the following general conclusions. Additional conclusions having fishery implications which were obtained from water quality studies are documented in a separate completion report.

- Long-term, baseline fishery studies and creel surveys of JST Lake, the downstream lake from RBR Dam, indicate the presence of an abundant and diverse fish community supporting a valuable multi-species fishery.

- Entrainment of fish during Phase III (commercial pumping rates) pumped storage operation is a small percentage (maximum annual estimate of 0.47 percent by number and 0.69 percent by biomass) of the total numbers of fish in JST Lake. Projected annual entrainment totals by species are less than 1.0 percent of population estimates for all common species except white perch for which 1.3 percent of the population is entrained.

- Based on data collected from April to October and adjusted for the percentage of each species that successfully pass through the dam, pumpback entrainment by number is dominated by threadfin shad (90.9 percent), blueback herring (6.4 percent), and white perch (1.3 percent), with no other species contributing more than 1.0 percent of the total.

- Total entrainment mortality during Phase III was 3.66 million fish (0.20 percent) with a biomass of 13,016 kilograms (1 kg= 2.2 lb), 90 percent of these fish were less than 3.5 inches. For Phase III months, projected worst case (dry year) entrainment mortality was 4.84 million fish (0.27 percent) with a biomass of 20,010 kg. Total annual entrainment mortality is estimated at 8.07 million fish (0.45 percent) for a dry year and 1.13 million fish (0.06 percent) for a wet year with a biomass of 23,434 kg (dry year) and 3,032 kg (wet year).

- Conventional generation passage estimates that can be attributed to operation of the 4 pumped storage units are based on data collected prior to Phase III. These data indicates that less fish pass during worst-case conventional generation (total annual estimate not adjusted for survival of 5,918,426) than pass during pumped storage operation, with most passage occurring during the winter time. Threadfin shad comprise 87 percent of the annual passage of fish through the RBR Dam during conventional generation.

- Direct testing of the fish protection system and overall reductions in entrainment as the protection system became finalized during the phased testing program indicate the fish protection system is effective and should be an integral part of future operation.

- All monitoring data collected since August 31, 1993 combined with population risk assessment indicate that pumped storage operation at RBR Dam is possible with minimal impact on the fishery of JST Lake. Risk assessment was performed by comparing population model predictions of abundance of threadfin shad, blueback herring, hybrid bass, striped bass, and black crappie with and without entrainment losses. The risk assessments indicate that the probability of local extinction is negligible for the five species evaluated. Mean entrainment rates based on all data combined from August 31, 1993 to October 31, 1996 and mean Phase III annual entrainment data, increases the maximum risk of population decline at any population level by a maximum of 7.0 percent or less for threadfin shad and blueback herring. The mean entrainment rates for all data combined and annual Phase III data for hybrid bass and striped bass also indicate a maximum risk of decline of 7 percent. According to model predictions, increased stocking rates for these two species can completely compensate for even multiples of worst case entrainment. Due to a lack of vital information on black crappie, the authors of the population model recommend that the results of the black crappie model be regarded with skepticism. The risk of decline as described in these models is the risk that the population will decline to a certain level at least once in a 50 year period.

- Pumped storage operation of RBR Dam results in warming of the bottom-layer of water in RBR Lake with no noticeable change in water temperature in the upper-layer of water in RBR Lake. Despite the slight warming of the bottom-layer of water in RBR Lake forebay, cool water habitat for striped bass and hybrid bass, i.e., water with dissolved oxygen concentrations greater than 3.0 parts per million and water temperatures less than 27 °C, will increase with pumped storage operations. This is due to improvements in dissolved oxygen levels in the bottom-layer of water in RBR Lake.

- Temperature and dissolved oxygen patterns in lower JST Lake generally fell within historic ranges during Phase III. There were no discernable changes in JST down lake patterns that could be attributed to pumped

storage operation. In the tailwater of RBR Lake, water temperatures increased to levels that were below 27 °C (a commonly employed upper threshold above which striped bass cease to feed) but high enough (24 °C) to possibly cause cool water fish to redistribute to the main lake area of JST during July and August. Cool water habitat of sufficient dissolved oxygen (greater than 3.0 parts per million) was available within JST Lake to support cool water fishes in all months.

- The temperature of releases from JST Dam were not substantially different in 1996 than in previous years. However, the releases contained higher levels of DO than observed in previous years.

- The volume of RBR Lake providing high enough oxygen levels to support fish has been increased by pumped storage operation suggesting an increase in volume of lake habitat available to fish in the main part of RBR Lake and, therefore, an increase in fish production in RBR Lake.

- Entrainment of fish eggs and larval fish was estimated at 125 million (-0.08 percent) of the 160 billion estimated to have been produced during the spawning season of JST Lake. Larval fish entrainment was dominated by threadfin shad and blueback herring with no fish eggs collected in the samples.

- Substantial numbers of fish of different species can survive passage through the turbines during pumped storage operation when water temperatures are cooler in the winter and spring.

- The fixed-aspect hydroacoustics monitoring system met the performance criteria required in the Testing and Monitoring Plan (TMP).

- Population estimates of threadfin shad and blueback herring indicate springtime populations of 57 million and 68 million respectively. Summertime total population abundance of 1.322 billion was obtained for threadfin shad. A mark-recapture based population estimate indicated the presence of 84 million adult blueback herring (mean length = 5.5 in. $\pm$ .2 in.).

- The estimate of average annual commercial catch of blueback herring of over 500,000 fish exceeds entrainment losses.

- Mobile hydroacoustics monitoring indicates a high correlation between entrainment of threadfin shad and the population abundance of threadfin shad in the RBR tailwater.

- No adverse impact on fish distribution or entrainment as a result of construction of the conveyance channel was observed.

Background

The U.S. Army Corps of Engineers, Savannah District (CESAS), develops and manages water resources on the Savannah River by constructing and operating reservoir projects. RBR Dam and Lake, begun in 1974, is the most recent of the Savannah River impoundments. RBR dam has four reversible turbines and four conventional turbines. The reversible turbines can be used as pumps during periods of low power demand to replenish upstream storage for peak generation needs.

JST Lake, located immediately downstream of RBR Dam, has an established sport fishery that is monitored and managed (which includes annual stocking) by the states of Georgia and South Carolina. A partial list of species important to the JST Lake fishery includes striped bass, white bass, crappie, several species of sunfish, white catfish, channel catfish, bullhead, hybrid bass, largemouth bass, yellow perch, gizzard shad, blueback herring, threadfin shad, flathead catfish, and, recently, white perch. The States of Georgia and South Carolina, the U.S. Fish and Wildlife Service, and the District all agreed that potential turbine mortality of entrained fishes during pumpback at RBR and the potential impact on the JST fishery should be addressed.

In 1986 the Corps of Engineers (CE) initiated an exhaustive study, the Richard B. Russell Fish Entrainment Study (RBRFES), to provide baseline data on the fish community of JST, predict entrainment and fish mortality, develop fish protection measures, and monitor entrainment through the units as part of a three-phase Testing and Monitoring Plan (TMP) agreed to by the CE and resource agencies. This report presents results and findings of Phase III testing and summarizes all findings since the inception of the TMP as an aid to decision-making regarding pumped storage operation at RBR Dam. Phase I and II entrainment sampling and pumping operation were considerably less than Phase III pumping operation. Phase III studies were conducted under operational scenarios as close to full-scale commercial operation levels as the sampling constraints of recovery netting allowed. Duration and timing of pumped storage operation are affected by limitations imposed by deployment and retrieval of the recovery nets. Results from the phased testing program are employed to determine if commercial pumped storage operation at Richard B. Russell Dam is possible without jeopardizing the fisheries of either RRB or JST Lakes.

The most important Phase III sampling activities include estimating fish entrainment under commercial levels of operation using partial and full recovery nets. All data collection activities described in this report meet the sampling requirements described in the TMP or were adjustments to the requirements of the TMP suggested by and agreed to by the Technical Coordination Group (CG). In addition to recovery netting, Phase III activities included estimating fish mortality rate resulting from turbine passage during pumping operation, supporting studies such as recovery net calibration, validation of fixed-aspect hydroacoustics to recovery net sampling, ichthyoplankton entrainment monitoring, summaries of baseline data collection, risk assessment of pumped storage operation using

population modeling, population estimation for threadfin shad and blueback herring, mobile hydroacoustics surveys, summary of water quality impacts on striped bass, and comparisons of projected entrainment totals to the total numbers of ichthyoplankton, juvenile, and adult fishes estimated to be in JST.

Phase III Baseline Data Collection

Baseline data are used to assist in determining if pumpback operation affects the composition of the fish community or the spatial or temporal distribution of fishes. Baseline sampling for the RBRFES was initiated on JST in 1986 and has been dynamic over the eleven-year study period. The sampling gears used, the locations of sampling, and the frequency of sampling changed over time in response to the changing informational needs and objectives of the RBRFES. Baseline sampling occurred throughout JST reservoir from 1986 to 1990 to evaluate reservoir wide trends. From 1990 to 1996, sampling was limited to the upper end of the reservoir to monitor near-field trends below RBR dam. Also in 1990, sampling was initiated on the lower third of RBR Lake to monitor near-field trends upstream of RBR dam.

The general objectives of baseline monitoring activities were to determine:

- What are the principal components of the fish communities in the two reservoirs?
- How do the communities vary spatially within reservoirs in terms of species composition and biomass?
- How do the communities vary seasonally and annually in terms of species composition and biomass?
- Is the tailwater area immediately below Russell dam unique?

Baseline monitoring activities included gillnetting, electrofishing, cove rotenone sampling, larval fish and zooplankton sampling, purse seining and draft tube sampling. General information obtained from each sampling gear is briefly described below. Gillnetting, electrofishing and rotenone sampling were used to describe the fish communities and to assess spatial and temporal trends in abundance of fishes; larval fish sampling was used to describe spatial and temporal patterns of fish reproduction; zooplankton sampling was used to describe spatial and temporal trends in abundance of zooplankton; purse seining was used to describe size distributions of fish and verify target strengths for hydroacoustics sampling; and, lastly, draft tube sampling was used to determine the species, numbers, and sizes of fish that are attracted to the draft tubes thus being potentially susceptible to immediate entrainment during pumpback.

Phase III Netting Description

Phase III entrainment monitoring was conducted from 1 April to 31 October, 1996. This time period was selected for sampling because long-term baseline fish sampling using a variety of gears indicated the time period of maximum biological activity downstream of Richard B. Russell Dam occurred during these months. The number of hours per month of recovery net sampling contrasted to the number of hours per month of Phase III pumpback operation is shown in Table S-1 as are the number of hours of operation projected for wet, average, and dry years. Note that the number of hours of sampling was generally constant varying from 66.3 hours in April to 84.4 hours in August. In general, recovery net samples were collected 16 times per month during Phase III with each of the four pump turbines being sampled four times per month.

A total of 3129 unit hours of pumping operation occurred at RBR Dam between the months of April to October. This total approximates an anticipated average water year of pumping operation of 3830 unit hours during these same months. Phase III operation was substantially greater (factor of 4) than anticipated wet year pumping operation of 803 unit hours and about 33 percent less than dry year condition pumping operation of 4633 unit hours for the same months. The Phase III data set should be a good predictor of fish entrainment to be expected under average water year conditions (Table S-1).

Phase III Pumpback Netting Results

During Phase III, a total of 577,686 fish (0.03 percent of total population) with a biomass of 3442 kilograms (0.04 percent of total biomass) were collected by full recovery netting (net covers all or most of exit jet) or partial recovery netting (net covers one of two bays of intake flow) during pumped storage operation. This estimate is corrected for net efficiency and for coverage for partial recovery netting. The number of recovered fish was expanded to estimate total power plant passage during pumping operation by calculating an arithmetic mean monthly passage rate (fish/hour) separately for each of the four pump units. An overall species specific entrainment rate for the power house was obtained as the mean of the entrainment rate of each unit. Basing the overall entrainment rate on the mean of the mean entrainment rate for each unit prevented the overall entrainment rate from being biased by units that were sampled proportionally more than other units. A monthly estimate of entrainment was obtained by expanding the calculated rate by the total number of unit hours of operation for that month. During Phase III, a minimum of sixteen net samples were collected per month with each sampling duration lasting a minimum of four hours. A total of 3,853,317 fish (0.21 percent of total population) greater than or equal to 1.5-in. long having a biomass of 17,673 kg (0.21 percent of total biomass) were estimated to have been entrained through the pump units during Phase III pumpback operation (Table S-2). An additional 85 fish having a biomass of 56 kg were estimated to have been impinged on the bar screen veneers that physically exclude fish greater than about

12 in. long from entering the draft tube openings during pumping operation (Table S-3). Total impingement of fish on the bar rack veneers during Phase III sampling was estimated at 326 fish with a biomass of 172 kg. Impingement of fishes on the screens is a very minor component of impact on the fish community of J Strom Thurmond Lake resulting from pumped storage operation of Richard B. Russell Dam (Table S-3).

Phase III monitoring did not include sampling of pumped storage entrainment in the months of November, December, January, February, or March. Phase II data, collected from August 1993 to August of 1994, were reanalyzed to develop species-specific proportionalities, defined as (annual entrainment)/(April-October entrainment), that were used to expand Phase III entrainment data to provide an estimate of annual entrainment that could be reasonably expected to occur during unsampled months to generate an annual estimate of turbine loss for each commonly entrained species. This proportionality should be considered an approximate guide only because the relative abundances of fish can change substantially, particularly species that reproduce in large numbers like threadfin shad. Table S-5 presents the results of this expansion for entrainment without adjusting for turbine passage survival. Using the expanded annual entrainment estimates, a total of about 10.1 million fish (0.56 percent of total population) are projected to be entrained during a dry year pumping operation compared to about 1.2 million fish (0.07 percent of total population) projected to be entrained during a wet year pumping operation. In both cases, entrainment is dominated by threadfin shad (92 percent in dry years and 94 percent in wet years). Note that threadfin shad is the only commonly entrained fish for which winter time entrainment totals approached April-October entrainment totals for dry year conditions (48% of threadfin shad entrainment would occur during Phase III months).

Adjustments for Survival for Pumpback

Passage survival studies for entrained fish during pumping operation found mortality ranging from 0.0 to 100.0 percent. The results were dependent upon the species tested and the month in which the test was conducted. The addition of survival information changed the numbers of fish impacted by pumping by only 4.9 percent because the numbers are dominated by threadfin shad passed during the late summer and early fall when estimated turbine passage mortality of threadfin shad approached 100.0 percent. However, addition of survival information changed the biomass of fish impacted by pumping by 26 percent because passage of larger fish was greater during the spring months when estimated turbine passage mortality was reduced. The survival adjustment for annual estimates of turbine passage produces a proportionally greater reduction in fish loss than the survival adjustment for Phase III months. Survival of passed fish is substantially greater during cold water temperatures (November through March) that were not part of Phase III (compare Table S-5 with Table S-7). Turbine passage mortality estimates are conservative because fish passage mortality is generally not reduced by mortality resulting from capture, handling, transport, and holding of fishes (all components of control mortality) associated with conducting mortality studies.

These stresses are known to result in mortality of some recovered fish, but were not incorporated into turbine passage mortality estimates. Considerable effort was made to estimate control mortality with limited success for abundant species such as blueback herring and threadfin shad, particularly in the summertime. Some success for hardy species such as bluegill and catfish was achieved. The total entrainment mortality during Phase III was 3.66 million fish (0.20 percent of total population) having a biomass of 13,016 kg (0.15 percent of total biomass) (Table S-6).

Species Composition of Entrained Fish

The following general trends in fish entrainment data are based on net data (net sample expanded for efficiency and coverage) adjusted by survival information (Table S-6). Note, however, that percentages that each species will contribute to total entrainment will vary by water year. This variation occurs because of the interplay between seasonal patterns of entrainment and relative changes in the proportion of hours of pumping for each month. The proportion hat each month of pumpback capacity contributes to total annual pumpback capacity will change with water year (Table S-1).

Based on Phase III data, threadfin shad (90.9 percent by number and 35.5 percent by biomass), blueback herring (6.4 percent by number and 33.7 percent by biomass), white perch (1.3 percent by number and 19.2 percent by biomass), and black crappie (0.7 percent by number and 6.1 percent by biomass) dominated the entrainment samples (Table S-6). These four species constituted 99.3 percent by number and 94.5 percent by biomass of the entrainment samples. Entrainment percentages for other species important to the sport fishery of JST Lake were largemouth bass (0.03 percent by number and 0.02 percent by biomass), striped bass (0.02 by number and 0.78 percent by biomass), and hybrid bass (0.01 percent by number and 0.73 percent by biomass). An additional 39 striped bass and 33 hybrid bass were impinged on the bar screen veneers used to physically exclude large fish from the turbines.

Size Composition of Pumpback Entrained Fishes

For purposes of comparability, fish size categories used to describe predicted entrainment in the Final Supplement to the Environmental Impact Statement are used to describe Phase III fish entrainment in this report. Size composition of entrained fishes reflected species composition with 90 percent of netted entrained fishes occurring in the 1.5- to 3.4-in. size class (Table S-8), the same percentage as the percent composition of threadfin shad (Table S-6). Nearly 100 percent of all fishes entrained were less than 8.5 in. long (Table S-8). The abundance of the next two size classes appears to be inverted with the 3.5- to 5.4-in. size class at 4 percent of the total and the 5.5- to 8.4-in. size class at 6 percent of the total (Table S-8). The apparent inversion in abundance of the next two size classes

reflects both the increased number of inch classes in the 5.5- to 8.4 in. size category and the species composition of entrained fish. Blueback herring, the second most abundant species in the entrainment sample occur mostly in the 5.5- to 8.4 in. size class. Substantially less than one percent (0.15 percent) of the entrainment sample was in the greater than 8.5 in. size class.

Size composition of key sport species entrained during Phase III sampling also was generally characterized by the smaller size classes (Table S-8). The most commonly entrained sport fish was white perch (Table S-6). Of the 26,459 white perch estimated to have been killed passing through the turbines during Phase III, about 36 percent were of harvestable size (greater than or equal to 6.5 in. long) with the intermediate size class (4.5- to 6.4-in. fish) containing 58 percent of the sample. About 6 percent of the sample was in the fingerling (less than 4.4 in. in length) size class. Similarly, total black crappie numbers killed by passage through the pump turbines was estimated at 20,104 with intermediate-size (4.5 to 6.4 in.) fish dominating the sample (84 percent of the total). About 9 percent of the total take of black crappie was in the harvestable size class (greater than 6.5 in. in length).

Striped bass and hybrid bass entrainment was identified as a key issue early in project planning. Both state resource agencies stock hybrid bass and striped bass and both species are considered to be valuable sport fishes important to the economies of the local area. Four size classes were used to characterize striped bass and hybrid bass entrainment (Table S-8) so that entrainment of large fish (greater than 14 in. long), of special interest to anglers and resource agencies, could be described. A total of 595 striped bass were estimated to have been killed passing through the dam (556) or impinged on the bar screen veneer (39) during Phase III sampling (Tables S-6 and S-4). Of the total, 97 percent were less than 15 in. long and only 3 percent were 15 in. long or longer (Table S-8). Similarly, 84 percent of the total 279 hybrid bass estimated to either have been killed either passing through the dam (246) or impinged on the bar screen veneer (33) during Phase III sampling (Tables S-6 and S-4) were less than 15 in. long and only 16 percent were 15 in. long or longer (Table S-1).

Conventional Generation Passage

Conventional generation passage was not monitored during Phase III studies. In lieu of conventional generation monitoring during Phase III, the results of netting surveys conducted prior to Phase III were employed to estimate conventional generation entrainment and are presented here to depict entrainment rates that would have been reasonable both during Phase III conventional generation monitoring and also during months not included in Phase III sampling. Note that Phase III passage totals are generally low, with worst case passage estimated at 626,225, and are not of the same magnitude as Phase III pumpback passage (Table S-9). However, passage totals during non-Phase III months of November, December, January, February, and March are substantially higher than during the Phase III sampling, increasing the estimate of fish passing through the dam for a

full annual cycle to 5,918,426 (Table S-10). Considerable passage of fishes during the winter is common at hydropower dams, particularly for threadfin shad. Mortality of threadfin shad is common as the summer boom of threadfin shad is substantially reduced during winter die off. The conventional generation data should be used with caution because in many cases the netting summaries represent passage when only a single unit was running in conventional generation mode. Mean annual entrainment rates (fish/hour) by species for conventional generation netting are presented in Table S-11 to provide an estimate of species composition. Entrainment is dominated by threadfin shad (87.3 percent), blueback herring (6.7 percent), and yellow perch (4.2 percent). These three species together comprise 98.2 percent of entrainment by hourly rate. No direct population estimates are available for threadfin shad and blueback herring in RBR Lake as were performed for JST Lake. However, cove rotenone data were available to allow a comparison of the abundance ranking of threadfin shad and yellow perch in the two reservoirs. From the cove rotenone data,threadfin shad are the most abundant fish in RBR Lake. Entrainment of sport fishes during conventional generation is relatively low for both the Phase III months and non-Phase III months compared to pumpback entrainment. For example, only 72 striped bass, 304 hybrid bass, and 14,075 black crappie are projected to be entrained by worst-case conventional generation compared to 2,789 striped bass, 2,134 hybrid bass, and 69,465 black crappie during worst-case pumpback operation (numbers not adjusted for passage survival). These comparisons are not adjusted for survival, although it is highly probable that survival during conventional generation is greater than during pumping operation.

Striped Bass Temperature Habitat

Water temperature and dissolved oxygen (DO) monitoring and multi-dimensional water quality modeling both indicated temperature impacts associated with pumped storage operation in the tailwater area of RBR Dam. These impacts coincided with an apparent decline in striped bass and hybrid bass harvest in 1996. Water quality data collected from the critical summer period (July-September, 1992-1996) were examined to characterize tailwater and lakewide striped bass habitat dynamics in JST Lake. Water quality dynamics relative to striped bass requirements are presented because they are better known and more restrictive than hybrid bass water quality requirements.

Two categories of striped bass habitat were defined by the following bounds: preferred habitat (water having DO greater than 3.0 parts per million and temperature less than 24 °C) and restricted habitat (DO greater than 3.0 parts per million and water temperature less than 27 °C). Striped bass restricted habitat in the RBR tailwater did not decrease with RBR operations in 1996 compared to conditions in 1993, a year having similar lake elevation patterns to 1996. However, a loss in striped bass preferred habitat was evident in the RBR tailwaters. The loss in preferred habitat was related to an increase in the mean water temperature released from RBR Dam and increased bottom temperatures recorded in the RBR tailwaters. The warming of the tailwater of RBR Dam may have contributed to

the apparent reduction of sport harvest of striped bass and hybrid bass in the RBR Dam tailwater.

Lakewide restricted habitat did not show a noticeable decrease in 1996 compared to 1993. Lakewide preferred habitat was lowest during September, 1996, but was similar to 1993 estimates. Preferred habitat was available in other portions of the lake other than the tailwater. In 1996 water temperatures in the tailwater may have exceeded the preferred habitat criteria resulting in an outmigration of striped bass and other cool water species into the main body of the lake. Lakewide habitat volumes estimated from the CE-QUAL-W2 water quality model indicated less habitat in years when lake levels are lower.

Ichthyoplankton

Ichthyoplankton entrainment during pumpback operation was monitored during Phase III and crude temporal and spatial distributions of ichthyoplankton in the tailwater of RBR were described using mobile sampling. During Phase III, ichthyoplankton entrainment was monitored by consolidating gravity flow from 3/4-in. diameter pipes previously installed to service pressure meters, unlike in previous years when ichthyoplankton entrainment was monitored with plankton nets fished in the discharge jet during pumping operation (Table S-12). Mobile surveys in the tailwater indicated that ichthyoplankton density varied from about 1 per $100m^{-3}$ near the dam to about 50 per $100m^{-3}$ in Russell Creek, a small tributary near RBR Dam. Phase III arithmetic mean ichthyoplankton entrainment total of 125 million (0.08 percent of total population) was dominated by clupeids with estimated totals of 54 million for threadfin shad when ichthyoplankton could be keyed to species and 111 million when identification was limited to the family level. Projected ichthyoplankton total entrainment for dry year pumping is 266 million (0.17 percent of total population). Lakewide ichthyoplankton surveys were not conducted during Phase III. The number of ichthyoplankton that could reasonably be expected to occur in JST Lake was estimated at 160 billion. This estimate is obtained by expanding area-specific arithmetic mean density estimates for different parts of JST from data collected in 1987, 1988, and 1989. The number of ichthyoplankton entrained under worst-case pumped storage operation is about 0.17 percent of the estimated total ichthyoplankton number that could be reasonably expected to be produced during the spawning season for the entire lake.

Predictions of Future Entrainment

Expansions to predict entrainment (all adjusted for survival) to future operation are based on the hourly fish passage rate obtained from netting samples for each month multiplied times the unit hours of operation anticipated for wet, average, and dry water years. Assessment of entrainment is made at a lakewide scale because the results of both mark-recapture studies for blueback herring and radio telemetry studies on striped bass and hybrid bass indicate that fish are widely

distributed within the reservoir on an annual basis and are not restricted to one portion of the lake. Localized or seasonal effects on fish distributions are presented in the section on temperature habitat for striped bass. Tables S-2 and S-5 (not adjusted for survival) and Tables S-6 and S-7 (adjusted for survival) include columns in which both the numbers and biomasses of netted fish are expanded to predict entrainment under different water years. The anticipated entrainment totals, adjusted for survival, for the various water years differ substantially, from 1,040,553 (0.06 percent) for a wet year to 4,842,477 (0.27 percent) under dry year conditions during April through October. For the entire year (adjusted for survival), entrainment is estimated at 1,125,431 (0.06 percent) for a wet year and 8,067,489 (0.45 percent) for a dry year. For April through October, the average year predicted entrainment mortality of 4,294,869 (0.23 percent) is close to the dry year prediction of 4,842,477 (0.27 percent) because the biggest difference between average and dry year conditions is in the amount of spring-time pumping when the entrainment of fish by number is substantially less than in late summer. However, the April-October difference by biomass between dry water year entrainment (20010 kg) and average water year entrainment (16002 kg) is greater because larger fish are entrained during spring and early summer pumpback operation.

Entrainment samples provide estimates of the numbers of fish passing through the pump-turbines. Species likely to be impacted by turbine passage were evaluated using population modeling based risk assessment. Impacts that are proportionally small are difficult to assess with population modeling because the impact is small relative to the uncertainty in population vital statistics. Therefore, entrainment numbers are also compared to population estimates and to commercial harvest, sport harvest (Table S-3), and other sources of mortality to allow entrainment totals to be placed in a relative context. For example, projected entrainment of 4,842,477 fishes weighing 20,010 kg are projected to be killed under worst case operations (dry water year) for April through October. This is 0.27 percent by number and 0.24 percent by biomass of the total of approximately 1.807 billion fish in JST (Table S-14) with a biomass of 8.4 million kilograms estimated to occur in JST during the late summer (by convention, the time period when many reservoir fishery assessments are made) of 1996. For the entire year, approximately 0.45 percent (8,067,489) by number and 0.28 percent (23,434 kg) by weight of the fish in JST Lake can be reasonably expected to be killed by turbine passage during a dry year.

Population estimates (using two different methods) and commercial harvest data are available for blueback herring against which entrainment totals can be compared. Mobile hydroacoustics provides a total spring-time population estimate of 68 million blueback herring. A total of 294,110 (0.43 percent) blueback herring of all sizes are projected to be killed during maximum pumpback operation (projected dry year operations) during April through October. About 313,069 (0.46 percent) can be reasonably expected to be killed during an entire 12 month cycle. Percentages are based on an estimated total of 68 million blueback herring in JST. Commercial harvest for 6 months of 1994 is 542,854 fish and for the full year in 1995 is 555,377 fish. Harvest in 1995 was considerably reduced because

of an abundance of small fish that are not useable as bait by fishermen. It appears that commercial harvest loss of blueback herring considerably exceeds projected worst-case entrainment losses using Phase III entrainment data. The marked-recapture study to estimate the number of adult blueback herring in the lake sacrificed 144,227 adult fish which is 49 percent of the estimated April-October mortality resulting from worst case pumpback operation.

Population estimates using mobile hydroacoustics are available for threadfin shad greater than 1.2 inches in both March and August of 1996. The March population estimate is 56,577, 931 fish, and the August estimate is 1,322,185,433 fish. The estimated turbine mortality loss of threadfin shad under maximum pumpback operation during Phase III months is 4,426,610 or 0.33 percent of the total or for an annual cycle 7,616,835 individuals representing 0.58 percent of the total numbers using the August population estimate. Threadfin shad have great reproductive potential and typically exhibit "boom and bust" cycles particularly when reduced winter water temperatures result in winter kill of this species. The August estimate is used because entrainment of threadfin shad is highest in August and September during their period of maximum abundance.

No direct population estimates are available for black crappie, white perch, striped bass, or hybrid bass. However, creel surveys are available against which entrainment of harvestable sizes of these species can be contrasted. In addition, routine gillnet surveys have been conducted for 11 years as part of baseline studies in JST Lake and offer a gauge against which to measure pumpback entrainment at Richard B. Russell Dam. Stocking goals are also known for striped bass and hybrid bass and can be used as a crude population estimate against which entrainment can be compared.

Under worst case conditions (dry year pumping operation), 55,197 total and 19,724 harvestable white perch are estimated to be killed by pumped storage operation during the biologically active (Phase III) time period by entrainment (54,939) or impingement (258). This compares to an estimated total of 4,184,270 white perch obtained from cove rotenone expansions for 1994, the first year in which white perch become a significant proportion of the JST fish community. White perch show the greatest potential for impact of any species investigated with 1.33 percent of the population being killed by pumping operation from April through October. Separate annual estimates of entrainment mortality for white perch are not presented because 98 percent of the entrainment of this species occurs during the April through October time frame (Table S-7). Although lake-wide numbers provide no evidence of impact, sport harvest of white perch for 1996 was estimated at 67,816 which is over three times the entrainment totals of harvestable-size fish (19,466) projected during worst-case operation (Table S-8). White perch are the fish population most likely to be impacted by pumped storage operation on the basis of percent of population entrained. As an additional consideration, it is likely that the population estimate used in the analysis (1994 cove rotenone areal expansions) substantially underestimate the abundance of this species. The sport catch for this species was 3,900 in 1994 compared to 67,816 for 1996, suggesting more than an order of magnitude increase in the number of

harvestable white perch in the three-year period. Also, baseline monitoring using gillnets shows that the catch rate for this species has increased at all JST stations from 1992 to 1996.

Black crappie mortality under worst-case pumping scenarios during Phase III months is estimated to be 33,154 fish with 2963 fish being of harvestable size. Long-term sport harvest of black crappie from 1983 to 1996 averages 255,335 fish/year with 203,032 black crappie caught in 1996. Entrainment mortality of harvestable-sized fish is only 1.16 percent of the long term average sport catch and 1.46 percent of the estimated sport catch in 1996 (Table S-13). The total number of black crappie killed is 0.52 percent of the long-term average abundance of black crappie in JST Lake of 6,428,593 and 0.23 percent of the over 14 million black crappie that were estimated for JST Lake in 1994, the most recent year in which cove rotenone data are available. Separate annual estimates for black crappie are not presented because 99 percent of the entrainment mortality loss of this one species occurred during the April through October time frame (Table S-7).

Striped bass mortality under April-October worst case pumping scenarios are estimated to be 1124 fish (1056 entrained and 68 impinged) with 557 being of harvestable size (9 to 14 in. long) and 37 being of desirable size (15 in. long or longer). For an annual cycle, 1484 striped bass can be reasonably expected to be killed by turbine mortality (1394 by entrainment mortality and 90 by impingement mortality) with similar relative size composition presented for the April through October time frame. Annual impingement obtained by expanding Phase III impingement by the Phase II annual expansion factor. The total population size of striped bass in JST Lake is unknown, although the management goal is to have an abundance of 3 striped bass per acre of lake area. Using this as a general guide approximately 225,000 catchable striped bass could be reasonably expected to occur in JST Lake. The worst case April through October entrainment mortality total of 594 (entrainment and impingement) for the two largest size-groups of striped bass is 2.6 percent of the management target. The long term average sport harvest of striped bass is 18,504 fish/year (Table S-11). April through October entrainment mortality of the largest two size classes of striped bass (594) is 3.2 percent (594 / 225000) of harvest and entrainment mortality of the largest size group of striped bass (probably most representative of sport harvest) compared to the sport harvest is 0.02 percent (37/225000). Routine and moratorium gillnetting (an accepted fishery assessment tool) has been conducted in JST Lake from 1986 to the present to provide relative estimates of spatial and temporal patterns of distribution of large, active fishes such as striped bass and hybrid bass. Average catch of striped bass in gill nets is 187 fish/ year with 59 percent in the desirable length category (15 in. long and longer) or 110 fish/year compared to 37 fish/year of the 15-in. and larger length group entrained by the dam. Effects of the baseline netting program has substantially greater impact on numbers of the largest length group of striped bass than does pumped storage operation under worst-case (dry year) operations.

Hybrid bass mortality under worst case pumping scenario from April to October are estimated to be 616 fish (536 by passage mortality and 80 by impingement) with 329 being of harvestable size (9-14 in. long) and 111 being of desirable size (15 in. long or longer). For an annual cycle of operation, a total of 1016 hybrid bass (884 by passage mortality and 132 by impingement) can be reasonably expected to be killed by pumped-storage operation. The total population size of hybrid bass in JST Lake is unknown, although the management goal is to have an abundance of 7 hybrid bass per acre of lake area. Using this as a general guide, approximately 525,000 catchable hybrid bass could be reasonably expected to occur in JST Lake. The worst case April through October entrainment mortality total of 440 (360 by passage mortality and 80 by impingement) for the two largest size-groups of hybrid bass is 0.08 percent of the management target density. The long term average sport harvest of hybrid bass is 60,304 fish/year. April through October entrainment and impingement mortality of the largest two size classes of hybrid bass is 1.19 percent of harvest and entrainment mortality of the largest size group of hybrid bass (probably most representative of sport harvest) compared to the sport harvest is 0.30 percent (Table S-13). Routine and moratorium gillnetting has been conducted in JST Lake from 1986 to the present. Average catch of hybrid bass in gill nets is 617 fish/year with 69.0 percent in the desirable length category (15 inches long and longer) or 426 fish/year compared to 111 fish/year of the same length group entrained or impinged by the dam. Remarkably, like for striped bass, the effects of the baseline netting program has substantially greater impact on the numbers of larger hybrid bass than does pumped storage operation under worst case conditions. All other species are based on a combination of both states creel estimates.

Population Decline Risk Assessment

In addition to these comparative assessments, risk based population modeling was also used to assess the impacts of pumped-storage operation on five species: threadfin shad, blueback herring, striped bass, hybrid bass, and black crappie. Threadfin shad and blueback herring are both short-lived and their growth is strongly regulated by density (i.e., expansion in numbers at high population levels is inhibited). Striped bass and hybrid bass are long-lived species whose abundance is maintained by stocking. Compared to the other four species, relatively little is known about the vital statistics of black crappie, a naturally reproducing sport fish within JST Lake.

Assessments were performed at two levels: Scenario A is based on entrainment data collected from August 31, 1993 to October 31, 1996 (includes high entrainment events observed between Phases II and III). Scenario A simulations include effects of average water year entrainment rates on each species population as well as the effects of more extreme entrainment rates to determine the sensitivity of the models. Entrainment for extreme events was obtained by adding 3 standard errors to mean entrainment rates for each month and expanding by the number of hours of pumping for each month. Scenario B simulations were restricted to evaluations of Phase III monthly rates projected to annual average water year entrainment.

Scenario B simulations are based on the most complete data sets to simulate commercial operation at RBR because: (1) entrainment rates and population vital statistics are available; (2) all fish protection system and channel modifications were completed and all systems remained constant during the testing period; (3) Phase III samples are the only entrainment data collected under conventional generation and water quality conditions that could be expected under commercial pumpback operation.

Results of the risk analysis are presented as the maximum risk (probability) that population levels will fall below baseline simulation results at least once over a simulation period of 50 years. Results of the risk assessments indicates that entrainment affects the five species to varying degrees.

Threadfin Shad: Population levels of threadfin shad appear to be unaffected by entrainment losses under Scenario B. Under Scenario A the worst case entrainment loss (mean rates plus 3 standard errors) performed as a sensitivity test indicates that the maximum risk of decline increases only 5 percent at a population level of 6 million adults. Even the worst-case entrainment conditions indicate a minimal impact on population levels the risk that the population will decline to any threshold is barely discernible from background.

Blueback herring: Population levels of blueback herring appear to be minimally affected by projected average year entrainment losses under either scenario with a maximum increase in the probability of decline of 7 percent and 3 percent, respectively, above background for Scenarios A and B. Under extreme entrainment conditions (mean entrainment plus 3 standard errors or 12 percent), the risk assessment modeling shows a maximum increased risk of 53 percent above background that the population will dip below 11.3 million fish at least once over a period of 50 years. The 12 percent entrainment scenario of the modeled baseline population (0.12×51.3 M = 6.15 M) is 14 times higher than the dry year annual worst-case loss obtained from Phase III data.

Hybrid Bass: Population size under the projected mean annual entrainment total for Scenario A or B shows a stable population reduction of 10,000 fish and a maximum increased risk of decline of 3 percent. The maximum entrainment scenario of 6 percent increases the risk by 15 percent that the population will decline below 46,000 fish at least once over a period of 50 years. The 6 percent entrainment scenario of the modeled baseline population ($0.06 \times 270{,}000 = 16{,}200$) is over 7 times the projected dry year annual worst-case loss of 2,134 fish. Based on the model, the loss of hybrid bass can be completely compensated by increasing the stocking rate to 746,000 fish per year (20 percent increase).

Striped Bass: Population size under projected mean annual entrainment total for Scenario A shows a reduction of 10,000 to 20,000 fish and a maximum increased risk of decline of 7 percent. Scenario B entrainment produced a maximum increased risk of decline of 4 percent. The maximum entrainment scenario of 8 percent of the baseline modeled population increases the risk by 22 percent that the population will decline below 50,000 fish at least once over a period of

50 years. The 8 percent entrainment scenario is more than 4 times the projected dry year worst case loss of 2,789 fish based on annual projections using Phase III data. Based on the model, the loss of striped bass can be completely compensated by increasing the stocking rate to 286,700 fish (28 percent increase).

Black Crappie: The black crappie modeled baseline population stabilized at a mean abundance of 350,000 fish. The average annual harvest of black crappie from 1983 to 1996 was 255,335 fish. The abundance of black crappie in 1994 was over 6 million based on the cove rotenone data. It is therefore unlikely that the model predicted baseline population is correct. The authors of the population model note that there is not sufficient data on the black crappie population in JST to produce a model with any certainty, and skepticism when reviewing the results is recommended.

Hydroacoustics Studies

Hydroacoustics was used to monitor fish entrainment on all intake bays during pumpback operations at the RBR Dam during the Phase III study period. Study objectives for hydroacoustics sampling during Phase III were: (1) determine whether hydroacoustics could be used to predict entrainment rates; (2) measure entrainment through time, among intakes, and depths sampled; and (3) determine whether the entrainment rate changed with the number of units operating. Hydroacoustics sampled 5 times more unit hours of pump operation than the nets during the study period, and provided information about fish entrainment unavailable with net sampling.

Results relating net entrainment rates to hydroacoustics entrainment rates reveal that hydroacoustics can be used to predict monthly entrainment rates. The predictive equations developed were based on both PrePhase III and Phase III data because the differences in entrainment rates, species of fish entrained, fish sizes, and fish depths over the two study periods differed, and either study period alone would not adequately predict entrainment.

Entrainment varied during the Phase III study period. The highest entrainment events predicted with hydroacoustics occurred in July, August and early September when threadfin shad numerically dominated the net catches. During this same period, the fish counted with hydroacoustics tended to be more surface oriented than other months, and the mean fish size entrained dropped from 6.5 in. to 4 in..

Single and multi-unit pump comparisons were made to determine if the number of fish entrained per unit would increase or decrease as more units were brought on line. Results from these comparisons showed that hourly entrainment rates for a single unit pump was half of the entrainment rate by unit for a multi-unit pump event. However, the entrainment rate per unit for a two, three or four unit pump event was not significantly different.

Entrainment rates were also compared between pump events that were preceded by conventional generation within a 24-hour period (pre-generation pumps), and pump events that were not directly preceded by conventional generation (non pre-generation pumps). Entrainment rates for all pumpback units were higher during non pregeneration than pre-generation unit pump events except during the month of June. Although non pre-generational unit events comprised only 13 percent of the total unit pump events during the period of highest entrainment (July-August 1996) for Phase III, 78 percent of the events with entrainment rates >10,000 fish per hour were non pre-generation pumps.

History of Phase Entry and Entrainment Patterns

Initial implementation of the Testing and Monitoring Plan (TMP) identified major challenge areas that had to be resolved before the steps required in the TMP could be completed. These challenges consisted of the following: (1) sampling of the pumpback jet with full recovery nets or fixed aspect hydroacoustics was more difficult than anticipated; (2) the behavior of blueback herring relative to pumpback operation was not well known resulting in high entrainment levels; (3) the entrainment of striped bass and hybrid bass was initially substantially higher than expected. Savannah District committed to the phased study approach in which entry into a succeeding phase of the TMP would not be attempted until the monitoring system was optimized, entrainment was minimized to the lowest level practicable, and challenge areas identified in preceding phases were addressed or resolved prior to entry into succeeding phases. Phase III net sampling to characterize entrainment during pumpback operation consisted of 115 samples over 517 hours of pumping operation. During Phase III, all components of the fish protection system were deployed, all units were operated and sampled, and the full suite of water quality changes associated with commercial operation of the pump units were in effect. In contrast, Phase II (August 1993 to August 1994) sampling was restricted to 50 samples over 296 hours of operation with most sampling (46 of the 50 samples) occurring at unit 5. PrePhase III (September 1994 to March 1996) sampling included 121 samples over 254 hours of operation. Many of the PrePhase III samples were of relatively short duration and the sample was collected primarily to obtain a hydroacoustic/net correlation. Operation was often restricted to the netted unit. During Phase II and PrePhase III operation was insufficient to establish the water quality patterns associated with commercial operation. Phase III data represent the most comprehensive data set available that were collected under the conditions that could be expected with commercial operation.

The high entrainment of blueback herring was minimized three ways. First, daytime pumpback operation was limited because blueback herring were found to concentrate in the deepest water available during the daytime which in the RBR tailrace is immediately in front of the turbines. This behavior may have resulted in the high entrainment in daytime tests. On 30-31 March 1993 a total of 113,000 fish in 8.5 hours passed through Unit 5. On 1 May 93, a total of 77,000 fish passed in 1.5 hours through Unit 5. In 3 daytime samples in July

1992, an estimated 50,994 fish were entrained through Unit 6 in 5.9 hours, although most of the entrainment occurred in approximately 15 minutes. The problem may have been exacerbated by substantial leakage of water (estimated at approximately 200 cubic feet per second) through the wicket gates of the pumped storage units before wicket gate seals were repaired. This leakage may have produced a density flow of cool, well oxygenated water that would attract blueback herring to the draft tube openings, particularly during the day in the summer time. Wicket gates seals have since been repaired. In addition to restriction of daytime pumping, the blueback herring protection system was improved by reconfiguring and expanding the high-frequency sound repulsion system to provide greater acoustical coverage near the dam and expanding the system of pole-mounted lights used to attract blueback herring (and other species of fishes that attract to lights) away from the draft tube openings of the pump-storage units. The final component of the fish protection system for blueback herring was the elimination of a vortex in front of unit 8. This vortex appeared to attract and entrain large numbers of blueback herring into unit 8 and also interfered with the fixed-aspect hydroacoustics monitoring system. On 30-31 March 1995 a Unit 5 net catch expanded to a four unit total passage of approximately 400,000 fish. On 13-14 April, the CG agreed to a passage estimate (based on visual observations and extrapolations from Unit 5 netting) for Unit 8 of 227,000 fish in 4.5 hours and on 25-26 April the CG estimated (the recovery net partially failed) that 169,000 fish passed through unit 8 in 1.5 hours. The high entrainment rates, the inability of the monitoring system to characterize high entrainment, and scheduling considerations suggested that entry into Phase III be delayed until these problems could be solved. A rock berm, anchored to the shore and extending laterally for 300 feet into the channel, was constructed 600 feet downstream of the spillway of the dam to eliminate the vortex as a significant hydraulic feature downstream of the dam. Additional lights were installed along the South Carolina shore to attract blueback herring away from the pump units. Phase III data, collected with the full and complete protection system for blueback herring, did not produce a single high entrainment event for blueback herring as was observed on a number of occasions during Phase I or pre-Phase III sampling. Comparison of mobile hydroacoustics estimates for the upper arm of the Savannah River between 1995 and 1996 indicates that fish abundances were approximately equal between the two years. Similarity in fish abundance downstream of RBR dam in conjunction with substantially reduced entrainment from 1995 to 1996 suggests that the elimination of the vortex by the rock berm and the additional lights may be responsible for the reduction in spring time entrainment of blueback herring from 1995 to 1996.

Entrainment of striped bass and hybrid bass was reduced directly by installing a barrier that physically excluded fish larger than about 12 in. long from entry into the draft tubes. This barrier was further improved by reducing the gap around the edge of the barrier and the draft tube walls to no more than 2.0 in. Entrainment of these two species may also have been indirectly reduced by more efficiently redistributing blueback herring and threadfin shad away from the dam with the reconfigured sound repulsion system or the expanded lighting system. It is reasonable that a predatory fish would redistribute with the prey species. Entrainment of most species was also reduced by restricting project operation within 60 minutes

of official sunrise or official sunset. Phase II evaluations and consistent reductions of entrainment over Phase II and Phase III demonstrates that the fish protection system is providing a significant level of entrainment reduction and should be considered for continued implementation during commercial operation.

Table S-1. Summaries of Phase III sampling effort (in unit hours netted) compared to total Phase III pumping operation (in unit hours) and projected total plant pumping operation (in unit hours) for all pump units combined for each month of Phase III sampling.

Month	Total hrs. Netted Phase III	Total hrs. Pumping Phase III	Projected hrs. Pumping Wet Year	Projected hrs. Pumping Average Year	Projected hrs. Pumping Dry Year
January			0	389.7	690.8
February			33.1	314.9	629.7
March			0	194.9	478.3
April	66.3	159.9	34.3	308.6	497.1
May	66.9	364.4	35.4	389.7	549.1
June	65.5	256.5	68.6	497.1	634.3
July	73.5	604.6	194.9	690.9	744.0
August	84.4	544.6	141.7	690.9	744.0
September	78.0	649.4	257.1	668.6	720.0
October	82.5	549.6	70.9	584.6	744.0
November			0	394.3	685.7
December			35.4	442.9	690.9
Total Phase III	517.1	3129	802.9	3830.4	4632.5
Total Year	517.1	3129	871.4	5567.1	7807.9

Table S-2. Summaries of numbers and biomass for fish greater than or equal to 1.5-inches long based on Phase III netting months, estimated Phase III totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during Phase III sampling. Note that shifts in relative abundance may occur between species. These shifts occur because the numbers of hours of pumpback operation is not constant and changes substantially across Phase III sampling and different water years. Data are not adjusted for passage survival. All projections include 2 & 3 standard deviations of the mean.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
THREADFIN SHAD	498599	86.31	866	25.15	3452839	4702682	5327604	5755	7796	8817
BLUEBACK HERRING	46119	7.98	1061	30.82	255131	521386	654514	5841	12147	15300
WHITE PERCH	13518	2.34	903	26.24	49937	73867	85831	3146	4711	5494
BLACK CRAPPIE	8104	1.40	253	7.35	41004	73912	90366	1313	2301	2796
CHANNEL CATFISH	2801	0.48	121	3.51	14087	20003	22962	563	846	988
YELLOW PERCH	2415	0.42	45	1.31	9884	16614	19979	183	297	354
BLUEGILL	2227	0.39	27	0.78	11765	17426	20257	152	222	257
SPOTTAIL SHINER	1533	0.27	14	0.41	5566	9028	10759	51	84	100

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
1003164	1364652	1545396	1657	2237	2527	4053373	5522892	6257651	6826
40668	77881	96488	917	1768	2194	299678	603173	754920	6900
8690	12599	14553	538	790	916	72889	106661	123548	4721
6251	10459	12564	218	353	420	50431	88427	107425	1608
2708	3764	4293	111	161	186	17195	24260	27792	721
2103	3510	4214	39	63	75	14473	23836	28518	270
2856	4207	4883	39	57	66	15727	23748	27759	195
1122	1852	2217	10	17	20	8819	14352	17118	80

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
9262	10480	4538666	6205194	7038457	7741	10562	11973
14137	17755	395655	803259	1007062	9103	18844	23714
6946	8058	106649	155175	179439	7046	10287	11908
2749	3319	68892	121243	147419	2162	3718	4496
1064	1235	22983	32477	37224	983	1447	1679
429	509	19891	32437	38710	373	588	695
288	334	19561	29657	34705	239	353	410
133	160	12654	20533	24473	116	192	230

Table S-2. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
GIZZARD SHAD	598	0.10	44	1.27	3866	7484	9292	218	386	469
WHITE CATFISH	592	0.10	17	0.50	3645	5785	6855	102	203	253
STRIPED BASS	255	0.04	37	1.08	1004	1634	1949	128	195	229
LARGEMOUTH BASS	189	0.03	1	0.02	1200	2421	3032	4	9	12
HYBRID BASS	140	0.02	36	1.04	485	863	1052	111	204	250
LONGNOSE GAR	101	0.02	2	0.05	423	1153	1519	9	28	37
CHAIN PICKEREL	67	0.01	0	0.00	268	550	691	0	0	1
WHITE CRAPPIE	67	0.01	5	0.15	351	717	901	28	58	73

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
1183	2304	2864	57	101	122	4468	8669	10770	297
894	1432	1702	27	54	68	4094	6508	7715	120
182	314	380	22	35	42	1397	2258	2689	191
343	674	839	1	3	3	1465	2961	3709	6
76	127	152	20	37	45	719	1214	1462	183
116	315	415	3	10	13	786	2152	2835	12
73	150	188	0	0	0	507	1027	1288	0
61	128	161	6	12	16	410	837	1051	33

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
528	644	5030	9719	12064	374	665	810
241	302	4912	7803	9249	142	287	359
285	332	2026	3226	3827	289	425	493
15	19	1656	3368	4224	7	18	24
328	400	1097	1824	2188	281	494	600
34	46	993	2723	3588	14	40	53
1	1	643	1300	1628	0	1	1
68	86	559	1135	1424	44	91	114

Table S-2. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
WARMOUTH	66	0.01	2	0.07	308	621	777	11	22	28
GOLDEN SHINER	64	0.01	0	0.01	228	670	890	1	3	3
BROWN BULLHEAD	35	0.01	1	0.04	210	492	633	6	17	22
TESSELATED DARTER	35	0.01	0	0.01	199	643	865	2	6	8
BLACK BULLHEAD	22	0.00	1	0.04	138	376	495	8	22	30
WHITEFIN SHINER	21	0.00	0	0.01	107	524	733	1	4	6
SPOTTED BASS	20	0.00	0	0.01	135	356	466	1	4	6
GREEN SUNFISH	18	0.00	1	0.02	79	292	399	2	8	11

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
63	133	168	2	4	5	439	869	1084	14
57	168	224	0	1	1	390	1135	1507	1
59	139	179	1	4	5	263	620	799	9
60	190	255	1	2	2	256	839	1131	2
45	121	159	2	4	6	150	410	540	9
20	99	139	0	1	1	147	710	992	1
52	133	174	0	1	2	145	387	508	2
11	39	53	0	2	2	102	378	516	4

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
29	37	576	1130	1407	19	40	51
4	5	527	1516	2010	2	5	7
28	37	316	750	968	12	37	49
8	11	286	942	1271	3	9	12
25	33	174	477	629	11	33	44
6	8	184	886	1237	2	7	10
8	10	157	421	553	3	10	13
15	20	145	539	737	6	23	32

Table S-2. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
REDBREAST	15	0.00	0	0.01	88	228	297	2	6	8
REDEAR	14	0.00	1	0.04	80	409	574	11	56	78
SILVER REDHORSE	13	0.00	1	0.04	88	438	613	7	35	49
FLATHEAD CATFISH	8	0.00	2	0.05	55	169	226	11	40	54
WHITE BASS	7	0.00	1	0.04	35	126	172	5	17	24
YELLOW BULLHEAD	6	0.00	0	0.01	29	153	215	1	6	9
BLACKBANDED DARTER	3	0.00	0	0.00	15	132	191	0	0	0
CREEK CHUB	3	0.00	0	0.00	9	78	113	0	0	0

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
21	55	72	1	1	2	111	291	381	3
22	115	161	4	21	29	98	502	703	13
11	56	78	1	3	5	93	466	653	8
20	59	79	4	16	22	61	188	251	11
10	37	51	1	5	7	50	180	244	8
6	32	45	0	1	1	35	185	260	1
1	13	19	0	0	0	16	141	204	0
2	17	24	0	0	0	17	151	219	0

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
8	11	133	349	457	4	10	13
63	88	113	581	814	14	71	99
38	53	119	597	836	11	53	74
41	56	66	202	270	12	44	60
29	39	60	215	292	11	40	55
7	10	41	216	304	2	10	13
0	0	22	199	288	0	0	0
0	0	27	244	352	0	0	0

Table S-2. (Continued).

NAME ERRORS	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERRORS	PHASE 3 TOTAL MASS PLUS 3 STAND.
NORTHERN HOGSUCKER	3	0.00	0	0.00	11	55	76	0	0	0
RIVER CHUB	3	0.00	0	0.00	17	151	218	0	0	0
STRIPED KILLIFISH	3	0.00	0	0.00	15	135	195	0	0	0
FLIER	2	0.00	0	0.00	16	148	214	0	0	0
TOTALS	577686	99.96	3442	100.08	3853317	5461721	6265925	17673	29733	35766

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND.	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND.	PROJECTED AVERAGE YEAR MASS(KG)
3	15	20	0	0	0	21	106	148	0
2	15	21	0	0	0	18	161	233	0
1	13	19	0	0	0	16	145	209	0
4	39	56	0	0	0	21	188	272	0
1070960	1485856	1693305	3682	5764	6803	4548880	6441027	7387104	22249

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ER	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ER	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERRORS	DRY YEAR TOTAL MASS PLUS 3 STAND. ERRORS
0	0	27	135	189	0	0	0
0	0	25	227	328	0	0	0
0	0	23	204	294	0	0	0
0	0	23	203	293	0	0	0
36817	44098	5204911	7441106	8559210	29026	48404	58091

Table S-3. Summary of fish impinged on the bar screen veneers during Phase III sampling, expanded for total Phase III impingement, and projected for different water years. Projections are for April through October time frame.

PHASE III IMPINGEMENT SUMMARY												
Species	**Expanded Number Collected**	**Percent By Number**	**Expanded Mass(Kg) Collected**	**Percent By Mass**	**Phase III Expanded Numbers**	**Phase III Total Mass(Kg)**	**Projected Wet Year Number**	**Projected Wet Year Mass(Kg)**	**Projected Avg. Year Number**	**Projected Avg. Year Mass(Kg)**	**Projected Dry Year Number**	**Projected Dry Year Mass(Kg)**
White Perch	32	37.65	5.19	9.27	98.34	17.31	17.65	2.98	169.97	27.04	258.0	41.17
Gizzard Shad	17	20.00	5.38	9.61	70.21	21.46	17.57	5.35	109.18	34.16	145.6	46.02
Hybrid Bass	10	11.76	13.42	23.96	32.85	39.89	6.08	7.74	52.9	68.15	80.08	105.45
Longnose Gar	9	10.59	25.48	45.49	48.38	60.68	4.77	5.98	52.49	65.86	73.94	92.74
Striped Bass	8	9.41	4.48	8.00	39.20	22.60	10.74	6.14	54.01	30.90	68.24	38.44
Channel Catfish	5	5.88	0.79	1.41	20.99	3.91	2.63	0.42	26.91	4.48	39.81	6.37
Black Crappie	2	2.35	0.15	0.27	4.88	0.37	1.04	0.07	9.42	0.72	15.18	1.16
Yellow Perch	1	1.18	0.26	0.46	5.42	1.41	0.53	0.14	5.88	1.53	8.28	2.15
Common Carp	1	1.18	0.86	1.54	5.37	4.60	0.53	0.45	5.83	4.99	8.21	7.03
Total	**85**	**100.00**	**56.01**	**100.00**	**325.64**	**172.23**	**61.54**	**29.27**	**483.59**	**237.83**	**697.34**	**340.53**

Table S-4. Summary of striped bass and hybrid bass size composition for fish impinged on the bar screen veneers during Phase III sampling, expanded totals for Phase III, and projected for different water years. Projections are for April through October time frame.

PHASE III HYBRID AND STRIPED BASS IMPINGEMENT SUMMARY												
Species	**Expanded Number Collected**	**Percent By Number**	**Expanded Mass (Kg) Collected**	**Percent By Mass**	**Phase III Expanded Numbers**	**Phase III Total Mass (Kg)**	**Projected Wet Year Number**	**Projected Wet Year Mass (Kg)**	**Projected Avg. Year Number**	**Projected Avg. Year Mass (Kg)**	**Projected Dry Year Number**	**Projected Dry Year Mass (Kg)**
Striped Bass												
< or = 4"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
5" - 8"	1	5.56	0.09	0.50	2.44	0.23	0.52	0.05	4.71	0.44	7.59	0.71
9" - 14"	4	22.22	1.29	7.21	21.38	8.88	6.34	2.77	28.22	10.73	35.43	12.34
> or = 15"	3	16.67	3.10	17.32	15.38	13.49	3.88	3.32	21.08	19.73	25.22	25.39
Hybrid Bass												
< or = 4"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
5" - 8"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
9" - 14"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
> or = 15"	10	55.56	13.42	74.97	32.85	39.89	6.08	7.74	52.9	68.15	80.08	105.45
Total	**18**	**100.00**	**17.90**	**100.00**	**72.05**	**62.49**	**16.82**	**13.63**	**106.91**	**99.05**	**148.32**	**143.89**

Table S-5. Annual projected entrainment obtained by expanding Phase III entrainment using an expansion factor defined as (Phase II annual entrainment) divided by (Phase II April October entrainment). These data are for all fish greater than or equal to 1.5-inches long and the data are not adjusted for passage survival. Missing values indicate that a species was not recovered during Phase II November-March and a 1.0 indicates that a species was not recovered during the April-October time period. The expansion factor was also applied to the mean hourly entrainment rate, by month, for projected entrainment for wet, average, and dry water years. Projections for entrainment of 2 and 3 standard errors of the mean are also provided.

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
THREADFIN SHAD	1131503.90	1539238.91	1743106.41	0.88658	1732.54	2338.98	2642.20	0.95640
BLUEBACK HERRING	41390.69	79264.98	98202.64	0.98254	939.83	1812.01	2248.62	0.97571
WHITE PERCH	8693.86	12604.59	14559.46	0.99956	540.50	793.67	920.26	0.99537
BLACK CRAPPIE	6259.27	10472.83	12580.62	0.99868	218.00	353.00	420.00	1.00000
CHANNEL CATFISH	2829.22	3932.49	4485.17	0.95715	140.21	203.37	234.95	0.79167
YELLOW PERCH	2459.53	4105.06	4928.41	0.85504	44.45	71.80	85.48	0.87743
BLUEGILL	2886.44	4251.83	4935.04	0.98946	40.16	58.69	67.96	0.97115
SPOTTAIL SHINER	1171.16	1933.14	2314.14	0.95803	10.37	17.63	20.74	0.96429
GIZZARD SHAD	1820.09	3544.79	4406.37	0.64997	71.67	127.00	153.41	0.79528
WHITE CATFISH	910.24	1458.01	1732.91	0.98216	27.35	54.70	68.88	0.98726
STRIPED BASS	186.77	322.24	389.97	0.97444	22.31	35.50	42.60	0.98592
LARGEMOUTH BASS	347.44	682.72	849.86	0.98722	1.00	3.00	3.00	1.00000

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
6729098.13	9168680.56	10388470.95	0.60236	9638.23	11532.01	13048.52	0.80316	9316803.21
318434.79	640925.48	802170.29	0.94110	9922.02	15408.94	19352.46	0.91745	433431.15
74099.75	108432.73	125600.24	0.98366	7204.80	7102.55	8239.61	0.97796	109456.79
50689.52	88880.29	107975.68	0.99490	2166.00	2754.09	3325.15	0.99815	69465.43
21956.56	30977.97	35488.03	0.78314	2131.46	2307.09	2677.87	0.46119	32617.99
23302.74	38377.94	45916.35	0.62109	542.97	624.49	740.95	0.68696	40807.61
17341.82	26186.40	30609.24	0.90688	279.83	337.20	391.06	0.85409	22618.94
10491.55	17073.90	20364.48	0.84058	140.65	161.26	194.00	0.82474	15547.58
10456.71	20288.55	25205.64	0.42729	751.49	1060.92	1294.00	0.49768	17030.12
5002.07	7951.50	9426.22	0.81846	172.39	292.57	366.62	0.82374	6530.59
1762.48	2848.73	3392.49	0.79263	365.85	360.79	420.29	0.78993	2789.07
1500.92	3033.61	3799.95	0.97607	7.00	15.00	19.00	1.00000	1731.48

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
12737789.34	14448280.35	0.48715	10737.05	14649.87	16606.98	0.72096
879952.16	1103213.75	0.91284	10342.62	21410.12	26943.30	0.88014
159260.35	184163.16	0.97435	7299.73	10657.45	12336.82	0.96524
122252.18	148646.06	0.99175	2168.70	3729.53	4509.94	0.99691
46092.08	52829.13	0.70461	2608.73	3840.12	4455.81	0.37681
66546.50	79415.95	0.48743	666.06	1049.98	1241.05	0.56001
34293.23	40130.37	0.86481	301.24	444.92	516.76	0.79340
25228.27	30069.23	0.81389	145.72	241.19	288.93	0.79605
32905.72	40845.21	0.29536	1079.13	1918.78	2337.16	0.34657
10374.23	12296.72	0.75215	187.73	379.42	474.60	0.75642
4441.04	5268.40	0.72641	413.00	607.36	704.53	0.69975
3521.52	4416.54	0.95641	7.16	18.41	24.55	0.97778

Table S-5. (Continued).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
HYBRID BASS	85.41	142.72	170.81	0.88987	21.92	40.55	49.32	0.91250
LONGNOSE GAR	116.00	315.00	415.00	1.00000	3.00	10.00	13.00	1.00000
CHAIN PICKEREL	73.00	150.00	188.00	1.00000	.	.	.	.
WHITE CRAPPIE	61.00	128.00	161.00	1.00000	6.00	12.00	16.00	1.00000
WARMOUTH	63.66	134.40	169.77	0.98958	2.00	4.00	5.00	1.00000
GOLDEN SHINER	57.00	168.00	224.00	1.00000	0.00	1.00	1.00	1.00000
BROWN BULLHEAD	60.12	141.64	182.40	0.98138	1.02	4.07	5.09	0.98246
TESSELATED DARTER	60.00	190.00	255.00	1.00000	1.00	2.00	2.00	1.00000
BLACK BULLHEAD	45.00	121.00	159.00	1.00000	2.00	4.00	6.00	1.00000
WHITEFIN SHINER	73.33	363.00	509.67	0.27273	.	.	.	.
SPOTTED BASS	52.00	133.00	174.00	1.00000	.	.	.	.
GREEN SUNFISH	11.00	39.00	53.00	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
1148.09	1938.50	2334.50	0.62626	459.50	536.35	654.09	0.61154	2133.93
786.00	2152.00	2835.00	1.00000	14.00	34.00	46.00	1.00000	993.00
507.00	1027.00	1288.00	1.00000	0.00	1.00	1.00	1.00000	643.00
620.44	1266.61	1590.45	0.66082	58.24	90.00	113.82	0.75556	1063.52
461.31	913.16	1139.08	0.95164	20.58	31.42	40.08	0.92308	632.08
390.00	1135.00	1507.00	1.00000	2.00	4.00	5.00	1.00000	527.00
293.61	692.15	891.98	0.89576	12.62	29.44	38.90	0.95122	377.64
310.20	1016.64	1370.46	0.82527	3.86	10.29	14.14	0.77778	371.60
150.00	410.00	540.00	1.00000	11.00	25.00	33.00	1.00000	174.00
523.53	2528.60	3532.91	0.28079	.	.	.	0.00000	776.44
294.03	784.75	1030.11	0.49315	.	.	.	0.00000	416.39
403.84	1496.57	2042.94	0.25258	.	.	.	.	771.77

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
3548.13	4256.20	0.51407	585.56	1029.41	1250.30	0.47989
2723.00	3588.00	1.00000	14.00	40.00	53.00	1.00000
1300.00	1628.00	1.00000	0.00	1.00	1.00	1.00000
2159.38	2709.21	0.52561	68.34	141.34	177.06	0.64384
1240.03	1544.00	0.91127	21.49	45.24	57.68	0.88421
1516.00	2010.00	1.00000	2.00	5.00	7.00	1.00000
896.30	1156.82	0.83677	12.90	39.77	52.67	0.93040
1223.94	1651.42	0.76964	3.90	11.70	15.60	0.76923
477.00	629.00	1.00000	11.00	33.00	44.00	1.00000
3738.73	5219.87	0.23698	.	.	.	0.00000
1116.57	1466.65	0.37705	.	.	.	0.00000
2868.87	3922.74	0.18788	.	.	.	0.00000

Table S-5. (Continued)

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
REDBREAST	.	.	.	.	.	.	.	.
REDEAR	.	.	.	.	.	.	.	.
SILVER REDHORSE	11.00	56.00	78.00	1.00000	1.00	3.00	5.00	1.00000
FLATHEAD CATFISH	20.00	59.00	79.00	1.00000	.	.	.	.
WHITE BASS	30.00	111.00	153.00	0.33333	1.00	5.00	7.00	1.00000
YELLOW BULLHEAD	6.00	32.00	45.00	1.00000	0.00	1.00	1.00	1.00000
BLACKBANDED DARTER	.	.	.	.	.	.	.	.
CREEK CHUB	.	.	.	.	.	.	.	.
NORTHERN HOGSUCKER	.	.	.	.	.	.	.	.
RIVER CHUB	.	.	.	.	.	.	.	.
STRIPED KILLIFISH	.	.	.	.	.	.	.	.
FLIER	.	.	.	.	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
93.00	466.00	653.00	1.00000	11.00	38.00	53.00	1.00000	119.00
99.72	307.34	410.33	0.61170	456.00	1558.00	2128.00	0.02632	133.06
257.14	925.71	1254.86	0.19444	49.50	130.50	175.50	0.22222	428.89
35.00	185.00	260.00	1.00000	2.00	7.00	10.00	1.00000	41.00
.	.	.	.	.	.	.	.	.
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ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	.	.	.	.	.
.	.	.	.	.	.	.
597.00	836.00	1.00000	11.00	53.00	74.00	1.00000
407.26	544.35	0.49600	780.00	2860.00	3900.00	0.01538
1536.85	2087.26	0.13990	56.83	206.67	284.17	0.19355
216.00	304.00	1.00000	2.00	10.00	13.00	1.00000
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Table S-5. (Concluded).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
AMERICAN EEL	.	.	.	1.00000	.	.	.	1.00000
BLUEHEAD CHUB	.	.	.	1.00000	.	.	.	.
BROWN TROUT	.	.	.	1.00000	.	.	.	1.00000
CARP	.	.	.	1.00000	.	.	.	1.00000
COASTAL SHINER	.	.	.	1.00000	.	.	.	.
COOSA BASS	.	.	.	1.00000	.	.	.	1.00000
FLAT BULLHEAD	.	.	.	1.00000	.	.	.	1.00000
MADTOM	.	.	.	1.00000	.	.	.	.
RAINBOW TROUT	.	.	.	1.00000	.	.	.	1.00000
RIVER CARPSUCKER	.	.	.	1.00000	.	.	.	1.00000
TADPOLE MADTOM	.	.	.	1.00000	.	.	.	.
	1201283.12	1664095.35	1895507.63		3827.32	5955.97	7018.48	

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	0.83204	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
7270509.94	10170902.70	11621100.20		34422.97	44451.90	53382.06		10078432.31

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	1.00000	.	.	.	1.00000
.	.	0.75599	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
14148221.68	16183128.40		37525.89	63423.27	76369.91	

Table S-6. Summaries of numbers and biomasses for fish greater than or equal to 1.5-inches long based on Phase III netting months, estimated Phase III totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during Phase III sampling. Note that shifts in relative abundance may occur between species. These shifts occur because the numbers of hours of pumpback operation is not constant and changes substantially across Phase III sampling and different water years. All projections include 2 & 3 standard deviations of the mean. Data adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
THREADFIN SHAD	484648	90.87	826	35.49	3406181	4629135	5240613	5619	7575	8553
BLUEBACK HERRING	34038	6.38	783	33.65	192479	386054	482842	4403	8960	11238
WHITE PERCH	6917	1.30	446	19.15	26459	39084	45397	1594	2397	2799
BLACK CRAPPIE	3843	0.72	143	6.13	20105	35094	42588	765	1298	1565
BLUEGILL	1222	0.23	16	0.70	7113	10343	11958	101	146	169
YELLOW PERCH	687	0.13	13	0.54	2961	4795	5713	54	85	101
GIZZARD SHAD	575	0.11	37	1.58	3779	7313	9080	197	346	420
SPOTTAIL SHINER	447	0.08	4	0.17	1734	2857	3419	15	26	32

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
993025	1348895	1526830	1631	2195	2477	3976658	5402627	6115611	6608
33727	63325	78123	757	1424	1758	227763	450350	561644	5247
4729	6835	7887	276	407	472	38049	55674	64487	2362
3505	5661	6739	142	223	263	24914	42413	51163	939
1917	2762	3185	28	40	47	9102	13463	15644	124
707	1133	1345	13	20	24	4548	7198	8523	84
1163	2265	2816	53	92	111	4331	8406	10443	259
402	670	803	3	6	7	2915	4800	5743	26

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
8914	10066	4426610	6029906	6831554	7422	10056	11373
10531	13173	294110	587621	734376	6771	13760	17254
3491	4056	54939	79983	92504	3494	5123	5937
1559	1870	33154	56789	68606	1233	2064	2479
181	209	10858	16159	18809	145	214	248
129	151	5953	9362	11066	110	168	197
457	557	4839	9357	11616	318	562	685
44	54	3942	6471	7736	35	60	73

Table S-6. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
CHANNEL CATFISH	246	0.05	10	0.43	1651	2289	2608	69	100	116
LARGEMOUTH BASS	143	0.03	1	0.02	916	1839	2301	3	6	8
STRIPED BASS	131	0.02	18	0.78	556	930	1117	68	108	127
WHITE CATFISH	95	0.02	3	0.13	623	1001	1189	19	39	48
HYBRID BASS	68	0.01	17	0.73	245	445	546	55	104	128
CHAIN PICKEREL	47	0.01	0	0.00	188	380	476	0	0	0
WHITE CRAPPIE	38	0.01	3	0.15	202	420	529	19	40	50
WARMOUTH	36	0.01	2	0.07	182	398	506	7	17	22

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
435	600	682	18	26	30	1818	2523	2875	77
261	509	633	1	2	2	1100	2209	2764	4
105	188	229	12	20	24	748	1239	1485	97
196	316	376	6	12	15	680	1093	1299	22
37	64	77	10	18	22	354	610	738	89
51	103	129	0	0	0	359	722	903	0
42	88	111	4	9	12	240	498	627	22
39	88	112	1	3	4	250	531	671	9

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
112	130	2123	2954	3370	89	131	152
9	12	1237	2501	3134	5	11	14
150	176	1055	1718	2049	144	218	255
43	54	762	1223	1454	24	48	60
163	199	535	907	1093	135	242	296
1	1	457	917	1147	0	1	1
47	60	321	660	830	29	61	77
22	28	322	677	855	13	29	38

Table S-6. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
GOLDEN SHINER	26	0.00	0	0.00	101	303	404	0	1	1
SPOTTED BASS	16	0.00	0	0.01	110	288	378	1	2	3
TESSELATED DARTER	15	0.00	0	0.01	81	262	352	1	3	3
REDEAR	11	0.00	1	0.05	60	309	433	9	46	65
SILVER REDHORSE	10	0.00	1	0.03	70	350	490	4	18	25
WHITEFIN SHINER	10	0.00	0	0.00	45	216	302	0	2	3
REDBREAST	9	0.00	0	0.01	56	144	189	1	4	5
GREEN SUNFISH	8	0.00	1	0.03	31	114	156	2	6	8

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
27	79	106	0	0	0	180	535	712	0
42	108	142	0	1	1	117	311	408	1
24	77	104	0	1	1	110	364	491	1
18	93	131	3	17	24	75	385	540	10
9	45	63	0	2	2	74	372	521	4
10	46	65	0	0	1	71	333	464	1
15	39	51	0	1	1	69	182	238	2
5	18	24	0	1	2	44	166	226	3

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
1	2	233	688	916	1	2	2
4	6	126	337	443	2	5	7
4	5	126	420	567	1	4	6
52	73	85	436	611	12	58	81
19	27	95	476	666	5	27	38
3	4	89	419	584	1	4	5
5	6	79	208	273	2	5	7
11	16	65	243	332	5	18	25

Table S-6. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
BROWN BULLHEAD	6	0.00	0	0.00	46	105	134	1	2	2
LONGNOSE GAR	6	0.00	0	0.02	30	81	106	2	6	9
BLACK BULLHEAD	5	0.00	0	0.01	34	91	120	1	3	4
WHITE BASS	5	0.00	1	0.03	26	91	124	3	10	14
BLACKBANDED DARTER	3	0.00	0	0.00	15	132	191	0	0	0
CREEK CHUB	3	0.00	0	0.00	9	78	113	0	0	0
RIVER CHUB	3	0.00	0	0.00	17	151	218	0	0	0
STRIPED KILLIFISH	3	0.00	0	0.00	15	135	195	0	0	0

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
14	32	42	0	0	1	52	120	153	1
9	23	31	1	2	3	50	133	175	2
12	32	42	0	1	1	36	96	127	1
8	27	37	1	3	4	35	123	168	4
1	13	19	0	0	0	16	141	204	0
2	17	24	0	0	0	17	151	219	0
2	15	21	0	0	0	18	161	233	0
1	13	19	0	0	0	16	145	209	0

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
2	3	57	132	169	1	3	4
7	9	61	164	215	3	8	10
3	4	39	106	140	1	4	5
16	22	40	144	196	6	22	29
0	0	22	199	288	0	0	0
0	0	27	244	352	0	0	0
0	0	25	227	328	0	0	0
0	0	23	204	294	0	0	0

Table S-6. (Concluded).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
FLATHEAD CATFISH	2	0.00	1	0.02	16	47	63	3	11	16
FLIER	2	0.00	0	0.00	16	148	214	0	0	0
NORTHERN HOGSUCKER	2	0.00	0	0.00	8	39	55	0	0	0
YELLOW BULLHEAD	1	0.00	0	0.00	6	31	44	0	1	1
	533327	99.98	2327	99.94	3666166	5125492	5855163	13016	21362	25535

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
6	17	22	1	4	6	17	53	70	3
4	39	56	0	0	0	21	188	272	0
2	11	15	0	0	0	15	76	107	0
1	8	11	0	0	0	7	39	55	0
1040553	1434254	1631102	2961	4530	5315	4294869	5998430	6850212	16002

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
12	16	18	57	76	3	13	17
0	0	23	203	293	0	0	0
0	0	19	97	136	0	0	0
1	1	8	43	60	0	1	1
25993	30990	4842477	6812252	7797138	20010	32922	39376

Table S-7. Annual projected entrainment obtained by expanding Phase III entrainment using an expansion obtained from Phase II data. The expansion factor was also applied to the mean hourly entrainment rate, by month, for projected entrainment for wet, average, and dry water years. Projections for entrainment of 2 and 3 standard errors of the mean also provided. Data adjusted for passage survival.

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
THREADFIN SHAD	1077009.75	1462977.33	1655961.12	0.92202	1680.86	2262.11	2552.73	0.97033
BLUEBACK HERRING	34121.18	64065.10	79036.05	0.98845	769.34	1447.22	1786.66	0.98396
WHITE PERCH	4730.63	6837.35	7889.72	0.99966	277.84	409.71	475.15	0.99338
BLACK CRAPPIE	3507.06	5664.33	6742.96	0.99941	142.00	223.00	263.00	1.00000
BLUEGILL	1927.99	2777.84	3203.27	0.99430	29.04	41.48	48.74	0.96429
YELLOW PERCH	762.41	1221.80	1450.41	0.92732	13.87	21.33	25.60	0.93750
GIZZARD SHAD	1578.53	3074.26	3822.12	0.73676	62.14	107.86	130.14	0.85294
SPOTTAIL SHINER	415.22	692.03	829.40	0.96817	3.00	6.00	7.00	1.00000
CHANNEL CATFISH	435.00	600.00	682.00	1.00000	18.00	26.00	30.00	1.00000
LARGEMOUTH BASS	262.24	511.42	636.01	0.99526	1.00	2.00	2.00	1.00000
STRIPED BASS	107.20	191.94	233.80	0.97949	12.24	20.41	24.49	0.98000
WHITE CATFISH	196.00	316.00	376.00	1.00000	6.00	12.00	15.00	1.00000

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
5763695.35	7830468.73	8863854.69	0.68995	8682.74	10428.18	11775.87	0.85480	7616835.07
237333.59	469273.68	585244.25	0.95967	7178.61	11164.96	13966.01	0.94322	313069.32
38582.60	56454.78	65391.38	0.98617	3554.39	3551.34	4126.10	0.98301	56175.25
24982.39	42529.42	51303.44	0.99726	1233.00	1559.00	1870.00	1.00000	33309.12
9662.28	14291.72	16606.97	0.94201	165.10	206.08	237.96	0.87828	11904.76
5821.91	9214.19	10910.33	0.78119	134.67	157.93	184.87	0.81680	8813.36
8283.50	16077.38	19973.36	0.52285	544.44	782.41	953.62	0.58409	12804.00
3450.94	5682.51	6798.88	0.84470	42.13	52.96	65.00	0.83077	4841.82
1868.57	2593.18	2954.98	0.97294	97.90	123.20	143.00	0.90909	2217.60
1120.80	2250.77	2816.27	0.98144	5.00	9.00	12.00	1.00000	1278.70
912.29	1511.13	1811.16	0.81992	172.23	179.40	210.50	0.83611	1394.17
705.96	1134.72	1348.59	0.96323	24.94	44.68	56.10	0.96250	807.84

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
10375614.63	11755004.41	0.58116	9430.43	12777.21	14450.60	0.78703
625501.02	781716.34	0.93944	7390.79	15019.54	18833.37	0.91614
81782.79	94585.54	0.97799	3589.63	5263.21	6099.49	0.97336
57054.70	68926.99	0.99534	1236.05	2069.11	2485.14	0.99753
17716.79	20622.26	0.91207	176.10	259.89	301.19	0.82341
13860.35	16383.11	0.67545	152.55	232.99	273.20	0.72107
24758.64	30735.96	0.37793	751.29	1327.74	1618.34	0.42327
7948.11	9501.87	0.81416	43.86	75.19	91.48	0.79798
3085.63	3520.17	0.95734	105.18	154.82	179.64	0.84615
2585.30	3239.64	0.96739	5.00	11.00	14.00	1.00000
2270.32	2707.73	0.75672	190.82	288.88	337.91	0.75464
1296.57	1541.46	0.94326	25.57	51.14	63.93	0.93855

Table S-7. (Continued).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
HYBRID BASS	39.77	68.79	82.76	0.93038	10.59	19.06	23.29	0.94444
CHAIN PICKEREL	51.00	103.00	129.00	1.00000	.	.	.	.
WHITE CRAPPIE	42.00	88.00	111.00	1.00000	4.00	9.00	12.00	1.00000
WARMOUTH	39.54	89.23	113.56	0.98623	1.00	3.00	4.00	1.00000
GOLDEN SHINER	27.00	79.00	106.00	1.00000	0.00	0.00	0.00	1.00000
SPOTTED BASS	42.00	108.00	142.00	1.00000	.	.	.	.
TESSELATED DARTER	24.00	77.00	104.00	1.00000	.	.	.	.
REDEAR	.	.	.	.	.	.	.	.
SILVER REDHORSE	9.00	45.00	63.00	1.00000	0.00	2.00	2.00	1.00000
WHITEFIN SHINER	40.00	184.00	260.00	0.25000	.	.	.	.
REDBREAST	.	.	.	.	.	.	.	.
GREEN SUNFISH	5.00	18.00	24.00	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
494.51	852.13	1030.93	0.71586	194.06	234.31	286.06	0.69565	884.39
359.00	722.00	903.00	1.00000	.	.	.	.	457.00
327.44	679.44	855.43	0.73296	34.80	56.40	72.00	0.83333	540.87
259.43	551.03	696.31	0.96366	13.93	23.57	30.00	0.93333	344.85
180.00	535.00	712.00	1.00000	1.00	1.00	2.00	1.00000	233.00
225.00	598.08	784.62	0.52000	.	.	.	0.00000	309.96
126.13	417.39	563.01	0.87209	2.00	8.00	10.00	0.50000	155.57
.	.	.	.	.	.	.	.	.
74.00	372.00	521.00	1.00000	5.00	19.00	27.00	1.00000	95.00
255.60	1198.80	1670.40	0.27778	.	.	.	.	378.25
.	.	.	.	.	.	.	.	.
110.54	417.02	567.76	0.39806	.	.	.	.	205.00

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
1499.33	1806.80	0.60494	240.12	430.43	526.48	0.56222
917.00	1147.00	1.00000	.	.	.	.
1112.07	1398.51	0.59349	39.68	83.47	105.37	0.73077
725.03	915.66	0.93375	14.20	31.68	41.51	0.91549
688.00	916.00	1.00000	1.00	2.00	2.00	1.00000
829.02	1089.78	0.40650	.	.	.	0.00000
518.57	700.07	0.80992	1.50	6.00	9.00	0.66667
.	.	.	.	.	.	.
476.00	666.00	1.00000	5.00	27.00	38.00	1.00000
1780.75	2482.00	0.23529	.	.	.	.
.	.	.	.	.	.	.
766.38	1047.08	0.31707	.	.	.	.

Table S-7. (Continued).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
BROWN BULLHEAD	14.00	32.00	42.00	1.00000	0.00	0.00	1.00	1.00000
LONGNOSE GAR	9.00	23.00	31.00	1.00000	1.00	2.00	3.00	1.00000
BLACK BULLHEAD	12.00	32.00	42.00	1.00000	0.00	1.00	1.00	1.00000
WHITE BASS	16.00	54.00	74.00	0.50000	.	.	.	0.00000
BLACKBANDED DARTER	.	.	.	.	.	.	.	.
CREEK CHUB	.	.	.	.	.	.	.	.
RIVER CHUB	.	.	.	.	.	.	.	.
STRIPED KILLIFISH	.	.	.	.	.	.	.	.
FLATHEAD CATFISH	6.00	17.00	22.00	1.00000	.	.	.	.
FLIER	.	.	.	.	.	.	.	.
NORTHERN HOGSUCKER	.	.	.	.	.	.	.	.
YELLOW BULLHEAD	1.00	8.00	11.00	1.00000	0.00	0.00	0.00	1.00000
TADPOLE MADTOM	.	.	.	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
52.00	120.00	153.00	1.00000	1.00	2.00	3.00	1.00000	57.00
50.00	133.00	175.00	1.00000	3.00	7.00	9.00	1.00000	61.00
36.00	96.00	127.00	1.00000	1.00	3.00	4.00	1.00000	39.00
165.45	581.45	794.18	0.21154	27.00	72.00	99.00	0.22222	248.00
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
19.19	59.84	79.03	0.88571	.	.	.	0.00000	21.18
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
7.00	39.00	55.00	1.00000	0.00	1.00	1.00	1.00000	8.00
.	.	.	1.00000	.	.	.	.	.

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
132.00	169.00	1.00000	1.00	3.00	4.00	1.00000
164.00	215.00	1.00000	3.00	8.00	10.00	1.00000
106.00	140.00	1.00000	1.00	4.00	5.00	1.00000
892.80	1215.20	0.16129	30.00	110.00	145.00	0.20000
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
67.06	89.41	0.85000	.	.	.	0.00000
.	.	.	.	.	.	.
.	.	.	.	.	.	.
43.00	60.00	1.00000	0.00	1.00	1.00	1.00000
.	.	1.00000	.	.	.	.

Table S-7. (Concluded).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
AMERICAN EEL	.	.	.	1.00000	.	.	.	.
BLUEHEAD CHUB	.	.	.	1.00000	.	.	.	.
BROWN TROUT	.	.	.	1.00000	.	.	.	1.00000
CARP	.	.	.	1.00000	.	.	.	1.00000
COASTAL SHINER	.	.	.	1.00000	.	.	.	.
COOSA BASS	.	.	.	1.00000	.	.	.	1.00000
FLAT BULLHEAD	.	.	.	1.00000	.	.	.	1.00000
MADTOM	.	.	.	1.00000	.	.	.	.
RAINBOW TROUT	.	.	.	1.00000	.	.	.	1.00000
RIVER CARPSUCKER	.	.	.	1.00000	.	.	.	1.00000
	1125430.52	1549955.42	1762220.19		3031.92	4615.18	5406.80	

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	0.66423	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
6099161.48	8458854.38	9638701.96		22117.93	28686.44	34144.10		8067489.06

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	1.00000	.	.	.	1.00000
.	.	0.54749	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
11224191.88	12802543.00		23433.77	38237.30	45635.62	

Table S-8. Summaries of numbers and biomass for different fish taxa greater than or equal to 1.5-inches long based on Phase III netting, estimated Phase III totals, projected wet water year (25 percent exceedance) for April to October, projected average water year (50 percent exceedance) for April to October, and projected dry water year (75 percent exceedance) for April to October for all species recovered during Phase III sampling corrected for survivorship. Size classes for black crappie and white perch are fingerling <= 4 inch fish, intermediate >4 & <=6, and harvestable >8. Size classes for striped bass and hybrid bass are fingerling <= 4 inch fish, intermediate >4 & <=8, harvestable >8 & <= 14, and desirable > 14 inches. Round-off errors produce small discrepancies between this table and Table S-6.

ALL FISH

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
1.5-3.5	477796	89.59	737	31.69	3370205	5123	983264	1490	3931395	5994	4370834	6684
3.5-5.5	23638	4.43	322	13.85	128636	1734	26794	327	155351	2085	200008	2735
5.5-8.5	31110	5.83	1089	46.83	164348	5473	29840	993	203783	6924	265442	9177
GT_8.5	783	0.15	177	7.61	3023	692	662	154	4390	1005	6260	1420
SUM	533327	100.00	2327	99.98	3666212	13022	1040560	2964	4294919	16008	4842544	20016

WHITE PERCH

FISH SIZE	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	404	5.85	2	0.42	2706	13	693	3	3130	14	3592	17
INTERMEDIATE	4008	57.95	186	42.15	14748	685	2514	117	21818	1013	31882	1481
HARVESTABLE	2504	36.20	257	58.24	9005	897	1522	156	13100	1334	19466	1996
SUM	6916	100.00	445	100.81	26459	1595	4729	276	38048	2361	54940	3494

BLACK CRAPPIE

FISH SIZE	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	268	6.97	3	2.36	1327	17	204	3	1687	21	2294	29
INTERMEDIATE	3242	84.35	109	76.47	16724	563	2806	94	20787	697	27897	938
HARVESTABLE	333	8.67	30	20.90	2053	185	495	46	2440	221	2963	266
SUM	3843	99.99	142	99.73	20104	765	3505	143	24914	939	33154	1233

Table S-8. (Concluded).

STRIPED BASS

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	6	4.39	0	0.27	42	0	13	0	51	0	55	0
INTERMEDIATE	58	44.19	4	19.60	262	15	43	2	334	19	467	28
HARVESTABLE	66	50.19	13	74.42	248	50	49	9	355	71	522	106
DESIRABLE	1	1.14	1	7.16	4	3	1	1	9	6	12	10
SUM	131	99.91	18	101.45	556	68	106	12	749	96	1056	144

HYBRID BASS

NAME	EXPANDED NUMBER	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	0	0	0	0	0	0	-	-	-	-	-	-
INTERMEDIATE	22	32.61	1	8.51	93	6	12	1	118	8	176	12
HARVESTABLE	42	61.69	9	54.92	141	31	23	5	215	48	329	73
DESIRABLE	4	5.64	6	36.99	12	19	2	4	20	33	31	50
SUM	68	99.94	16	100.42	246	56	37	10	353	89	536	135

Table S-9. Summaries of numbers of fish greater than or equal to 1.5-inches long estimated to have passed during conventional generation during Phase III and projected to pass during the Phase III months (April - October) of a wet water year (25 percent exceedance), average water year (50 percent exceedance), and dry water year (75 percent exceedance) based on PrePhase III netting. Data are not adjusted for passage survival.

NAME	PHASE III PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PLUS 2 STAND. ERROR KG	PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
THREADFIN SHAD	172960	48.3080	314923	385904	230	408	496	195145
BLUEBACK HERRING	79477	22.1981	141217	172087	451	759	913	55960
YELLOW PERCH	52053	14.5385	73367	84023	247	330	371	19414
WHITE CATFISH	20695	5.7803	31010	36167	284	424	494	21828
BLUEGILL	10214	2.8529	15519	18171	35	55	65	8550
BLACK CRAPPIE	8252	2.3049	19195	24667	42	96	122	4403
BROWN BULLHEAD	4876	1.3618	9582	11935	109	219	274	6168
WHITE PERCH	5229	1.4605	8152	9613	94	148	174	168
WHITE CRAPPIE	1160	0.3239	2654	3402	16	37	47	438
CHANNEL CATFISH	693	0.1937	1655	2136	10	26	34	520

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
352143	430642	247	425	514	255423	51.939	464346	568807
98598	119917	369	612	734	103350	21.016	182795	222518
27179	31061	120	158	177	61515	12.509	86771	99399
32661	38077	309	461	536	29205	5.939	43766	51047
12935	15128	28	45	54	13946	2.836	21126	24715
11210	14614	23	57	75	9894	2.012	23435	30206
12266	15315	128	258	323	7464	1.518	14724	18353
332	414	6	14	18	5447	1.108	8543	10091
1196	1576	6	18	24	1376	0.280	3206	4121
1436	1894	3	8	11	918	0.187	2271	2948

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
335	589	716	292599	535605	657108	394	704	859
602	1007	1210	141095	247530	300747	767	1282	1539
301	402	452	100747	143026	164165	460	618	698
405	605	704	33375	50056	58397	459	686	799
47	74	88	18371	27684	32340	61	96	113
50	117	151	13409	31100	39945	68	154	197
163	327	409	8297	16383	20427	183	367	459
100	158	187	10515	16526	19531	191	300	354
19	45	58	2289	5055	6438	31	71	90
11	31	41	1236	2903	3736	20	55	73

Table S-9. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
CARP	495	0.1382	916	1126	147	276	341	528
GIZZARD SHAD	431	0.1205	740	895	47	78	94	469
YELLOW BULLHEAD	290	0.0811	871	1161	17	51	68	313
SPOTTAIL SHINER	320	0.0893	581	712	1	3	3	27
WARMOUTH	248	0.0693	565	723	2	4	5	182
SPOTTED BASS	114	0.0317	341	454	0	0	0	121
BLACK BULLHEAD	100	0.0279	288	383	1	3	4	30
GREEN SUNFISH	68	0.0189	199	264	0	1	1	43
HYBRID BASS	78	0.0217	185	239	24	59	77	0
REDBREAST SUNFISH	49	0.0136	146	194	1	2	2	45

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
959	1174	161	299	367	720	0.146	1324	1626
793	955	50	81	97	632	0.128	1080	1304
938	1250	18	55	73	424	0.086	1273	1698
62	80	0	0	0	345	0.070	627	768
413	529	1	3	3	330	0.067	751	962
364	485	0	0	0	164	0.033	492	655
89	118	0	1	1	114	0.023	330	438
128	171	0	1	1	85	0.017	251	334
0	0	0	0	0	80	0.016	194	250
135	179	0	1	2	69	0.014	206	274

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
216	403	497	805	1494	1838	242	456	564
68	113	136	724	1256	1523	79	132	159
25	75	100	467	1400	1867	27	82	109
1	3	4	674	1189	1447	3	5	7
2	6	7	456	1039	1331	4	8	10
0	0	1	185	554	739	0	0	1
1	3	4	194	556	737	2	5	7
0	1	2	114	331	440	1	2	2
25	62	81	160	392	508	51	127	165
1	2	3	88	264	352	1	4	5

Table S-9. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
RAINBOW TROUT	32	0.0089	69	87	6	14	17	34
WHITEFIN SHINER	31	0.0087	93	124	0	0	0	30
TESSELATED DARTE	33	0.0091	67	84	0	1	1	0
SILVER REDHORSE	25	0.0070	60	78	9	22	29	0
NORTHERN HOGSUCKR	20	0.0055	59	79	0	0	0	10
SNAIL BULLHEAD	19	0.0054	58	77	0	0	0	10
GOLDEN SHINER	20	0.0055	52	68	0	0	0	0
STRIPED BASS	19	0.0052	50	65	1	3	5	0
LARGEMOUTH BASS	11	0.0032	34	46	4	12	17	16
SMALLMOUTH BASS	10	0.0027	29	39	0	0	0	0

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
74	94	7	15	19	47	0.009	101	127
89	118	0	0	0	44	0.009	132	176
0	0	0	0	0	32	0.007	66	83
0	0	0	0	0	25	0.005	60	77
31	42	0	0	0	23	0.005	70	93
30	41	0	0	0	23	0.005	68	91
0	0	0	0	0	22	0.004	57	74
0	0	0	0	0	20	0.004	52	68
48	64	6	17	23	18	0.004	55	73
0	0	0	0	0	11	0.002	32	43

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
9	20	25	51	111	140	10	22	28
0	0	1	53	159	212	0	1	1
0	1	1	56	116	145	1	1	2
9	22	29	45	108	140	17	40	52
0	0	0	31	93	124	0	0	0
0	0	0	30	90	120	0	0	0
0	0	0	48	126	166	0	0	1
1	4	5	40	104	135	3	8	11
7	20	26	20	60	81	7	22	29
0	0	0	24	72	95	0	0	0

Table S-9. (Concluded).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
FLATHEAD CATFISH	5	0.0014	15	21	0	0	0	0
COOSA BASS	5	0.0013	14	18	1	2	3	0
WHITE BASS	3	0.0007	8	11	1	2	2	0
	358035	99.9993	622714	755053	1780	3035	3659	314452

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
0	0	0	0	0	6	0.001	17	23
0	0	0	0	0	4	0.001	13	18
0	0	0	0	0	3	0.001	9	12
554109	673938	1482	2529	3052	491779	100.000	858243	1041472

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
0	0	1	13	38	51	0	1	1
1	2	3	8	24	31	1	4	5
1	2	2	6	19	26	1	4	5
2400	4094	4944	626225	1085463	1315082	3084	5257	6345

Table S-10. Summaries of numbers of fish greater than or equal to 1.5-inches long estimated to have passed during conventional generation during Phase III and projected to pass during an annual cycle for a wet water year (25% average water year (50% exceedance), and dry water year (75% exceedance) based on PrePhase III net sampling. Data are not adjusted for passage survival.

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
THREADFIN SHAD	172960	48.3080	314923	385904	230	408	496	1768672
BLUEBACK HERRING	79477	22.1981	141217	172087	451	759	913	136327
YELLOW PERCH	52053	14.5385	73367	84023	247	330	371	57371
WHITE CATFISH	20695	5.7803	31010	36167	284	424	494	27289
BLUEGILL	10214	2.8529	15519	18171	35	55	65	9253
BLACK CRAPPIE	8252	2.3049	19195	24667	42	96	122	4605
BROWN BULLHEAD	4876	1.3618	9582	11935	109	219	274	6728
WHITE PERCH	5229	1.4605	8152	9613	94	148	174	523
CHANNEL CATFISH	693	0.1937	1655	2136	10	26	34	1553
SPOTTAIL SHINER	320	0.0893	581	712	1	3	3	534

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
3349035	4139217	367	645	783	3664632	87.5827	6952158	8595921
246027	300876	580	1000	1209	281410	6.7255	508974	622756
81265	93212	280	410	475	144824	3.4612	204773	234748
40288	46788	372	550	639	42118	1.0066	61741	71553
14205	16681	32	53	63	15572	0.3722	24062	28307
11654	15178	28	68	88	10367	0.2478	24472	31525
13409	16749	135	271	339	8785	0.2100	17417	21732
1119	1418	13	29	37	6214	0.1485	10242	12256
4020	5253	19	44	56	3396	0.0812	8469	11006
1101	1384	2	4	5	1494	0.0357	2998	3750

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
615	1098	1339	5169590	9819750	12144830	777	1407	1722
1078	1879	2280	399854	721153	881803	1461	2549	3094
652	954	1105	227301	323434	371501	1004	1474	1710
554	816	947	50756	74428	86264	659	972	1128
55	92	111	20704	31914	37519	73	121	145
62	141	181	14075	32563	41807	84	187	239
178	358	448	10143	20140	25138	203	411	514
115	191	229	11699	19150	22875	214	350	417
51	116	148	4448	10941	14188	73	168	216
5	11	13	2388	4687	5837	9	17	21

Table S-10. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
WHITE CRAPPIE	1160	0.3239	2654	3402	16	37	47	438
GIZZARD SHAD	431	0.1205	740	895	47	78	94	561
CARP	495	0.1382	916	1126	147	276	341	540
YELLOW BULLHEAD	290	0.0811	871	1161	17	51	68	379
WARMOUTH	248	0.0693	565	723	2	4	5	220
FLATHEAD CATFISH	5	0.0014	15	21	0	0	0	145
SPOTTED BASS	114	0.0317	341	454	0	0	0	131
HYBRID BASS	78	0.0217	185	239	24	59	77	42
BLACK BULLHEAD	100	0.0279	288	383	1	3	4	34
GREEN SUNFISH	68	0.0189	199	264	0	1	1	43

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
1196	1576	6	18	24	1376	0.0329	3206	4121
1013	1239	60	105	128	845	0.0202	1589	1961
994	1221	167	316	391	748	0.0179	1407	1736
1109	1474	19	57	76	585	0.0140	1688	2240
513	659	1	3	4	421	0.0101	989	1273
338	434	3	7	9	353	0.0084	825	1061
393	524	1	3	4	187	0.0045	561	748
111	145	9	23	30	172	0.0041	437	570
103	138	0	1	2	124	0.0030	361	480
128	171	0	1	1	85	0.0020	251	334

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
19	45	58	2289	5055	6438	31	71	90
91	168	207	1027	1981	2459	111	211	262
229	444	552	843	1610	1993	261	514	640
27	80	106	698	1998	2649	30	89	119
3	6	8	586	1378	1773	4	9	11
8	17	22	465	1096	1411	10	23	29
2	7	10	214	643	858	3	9	12
44	111	144	304	774	1009	81	205	267
1	4	6	211	607	805	2	7	9
0	1	2	114	331	440	1	2	2

Table S-10. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
SNAIL BULLHEAD	19	0.0054	58	77	0	0	0	35
REDBREAST SUNFISH	49	0.0136	146	194	1	2	2	45
SILVER REDHORSE	25	0.0070	60	78	9	22	29	10
RAINBOW TROUT	32	0.0089	69	87	6	14	17	34
GOLDEN SHINER	20	0.0055	52	68	0	0	0	9
WHITEFIN SHINER	31	0.0087	93	124	0	0	0	30
STRIPED BASS	19	0.0052	50	65	1	3	5	9
LARGEMOUTH BASS	11	0.0032	34	46	4	12	17	22
TESSELATED DARTER	33	0.0091	67	84	0	1	1	0
NORTHERN HOGSUCKR	20	0.0055	59	79	0	0	0	10

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
105	140	0	1	2	81	0.0019	243	325
135	179	0	1	2	69	0.0016	206	274
30	41	3	10	13	49	0.0012	131	173
74	94	7	15	19	47	0.0011	101	127
27	37	0	0	0	44	0.0010	123	163
89	118	0	0	0	44	0.0011	132	176
28	37	2	7	9	39	0.0009	111	146
66	88	8	23	31	33	0.0008	99	132
0	0	0	0	0	32	0.0008	66	83
31	42	0	0	0	23	0.0006	70	93

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
1	3	4	112	336	448	1	4	6
1	2	3	88	264	352	1	4	5
17	45	59	78	209	274	27	72	94
9	20	25	51	111	140	10	22	28
0	0	1	80	222	293	0	1	1
0	0	1	53	159	212	0	1	1
6	18	24	72	199	263	10	31	41
11	34	45	42	125	166	14	42	57
0	1	1	56	116	145	1	1	2
0	0	0	31	93	124	0	0	0

Table S-10. (Concluded).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
WHITE BASS	3	0.0007	8	11	1	2	2	5
SMALLMOUTH BASS	10	0.0027	29	39	0	0	0	0
COOSA BASS	5	0.0013	14	18	1	2	3	0
	358035	99.9993	622714	755053	1780	3035	3659	2015597

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
11	14	1	2	2	13	0.0003	32	42
0	0	0	0	0	11	0.0003	32	43
0	0	0	0	0	4	0.0001	13	18
3768617	4645127	2115	3667	4441	4184197	100.000	7827979	9649873

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
2	6	7	22	57	74	4	10	13
0	0	0	24	72	95	0	0	0
1	2	3	8	24	31	1	4	5
3837	6670	8089	5918426	11075620	13654214	5160	8988	10900

Table S-11. Mean annual entrainment rate calculated as mean of each mean monthly entrainment rate.

NAME	MEAN ANNUAL ENTRAINMENT (#/HR)	PERCENT OF TOTAL (#/HR)	MEAN ANNUAL ENTRAINMENT (KG/HR)	PERCENT OF TOTAL (KG/HR)
THREADFIN SHAD	765.425	87.286	0.10249	14.089
BLUEBACK HERRING	58.361	6.655	0.20456	28.119
YELLOW PERCH	36.596	4.173	0.16146	22.194
WHITE CATFISH	6.301	0.718	0.08053	11.070
BLUEGILL	2.894	0.330	0.01003	1.379
WHITE PERCH	2.074	0.237	0.03780	5.196
BLACK CRAPPIE	2.010	0.229	0.01205	1.656
BROWN BULLHEAD	1.185	0.135	0.02400	3.299
CHANNEL CATFISH	0.605	0.069	0.01043	1.434
WHITE CRAPPIE	0.378	0.043	0.00521	0.716
SPOTTAIL SHINER	0.375	0.043	0.00138	0.190
GIZZARD SHAD	0.130	0.015	0.01410	1.938
CARP	0.100	0.011	0.03084	4.239
YELLOW BULLHEAD	0.084	0.010	0.00349	0.480
WARMOUTH	0.083	0.009	0.00059	0.081
FLATHEAD CATFISH	0.062	0.007	0.00136	0.187
HYBRID BASS	0.053	0.006	0.01456	2.001
BLACK BULLHEAD	0.036	0.004	0.00041	0.056
SPOTTED BASS	0.026	0.003	0.00041	0.056
GREEN SUNFISH	0.016	0.002	0.00009	0.012
SNAIL BULLHEAD	0.014	0.002	0.00017	0.024
GOLDEN SHINER	0.013	0.002	0.00005	0.007
STRIPED BASS	0.013	0.001	0.00189	0.260
REDBREAST SUNFISH	0.012	0.001	0.00018	0.025
SILVER REDHORSE	0.012	0.001	0.00415	0.571
TESSELATED DARTER	0.010	0.001	0.00011	0.015
BLACKBANDED DARTER	0.007	0.001	0.00000	0.000
WHITEFIN SHINER	0.007	0.001	0.00002	0.003
RAINBOW TROUT	0.006	0.001	0.00116	0.160
LARGEMOUTH BASS	0.005	0.001	0.00170	0.234
SMALLMOUTH BASS	0.005	0.001	0.00000	0.000
NORTHERN HOGSUCKER	0.004	0.000	0.00000	0.000
WHITE BASS	0.004	0.000	0.00072	0.099
WALLEYE	0.003	0.000	0.00000	0.000
LONGNOSE GAR	0.003	0.000	0.00130	0.179
COOSA BASS	0.001	0.000	0.00023	0.031
	876.914	100.000	0.72747	100.000

Table S-12 Estimated ichthyoplankton entrainment during phase III, April-September 1996, at RBR dam and estimates for dry, average, and wet years.

	Phase III	Wet Year	Average Year	Dry Year
Clupeid	44,609,474	7,670,738	66,400,964	89,372,665
Blueback herring	4,107,578	1,008,727	7,383,629	9,495,024
Dorosoma sp.	192,561	40,389	367,065	590,393
Threadfin shad	54,806,786	12,792,165	93,821,464	121,278,146
Gizzard shad	7,685,036	2,042,633	14,712,877	18,768,540
Yellow perch	3,004,185	404,676	4,293,517	6,235,492
Common carp	644,880	171,405	1,234,611	1,574,937
Spottail shiner	510,377	135,655	977,109	1,264,453
Pomoxis sp.	48,020	5,748	64,049	90,161
Lepomis sp.	7,352,259	2,066,356	12,517,219	15,511,699
Bluegill	1,005,690	235,501	1,145,996	1,233,894
Redbreast	598,089	158,968	1,145,031	1,460,663
Total	124,564,935	26,732,961	204,063,531	266,858,067

Table S-13. JST creel survey harvest estimates total number by species.

YEAR	Striped Bass	Hybrid Bass	Crappie	Largemouth Bass	Yellow Perch	White Perch
1983	4,103	62,102	210,893	98,462	0	0
1984	2,568	59,384	396,190	159,526	0	0
1985	13,018	55,246	285,366	108,594	5,447	0
1986	5,691	36,016	189,311	103,878	2,350	0
1987	29,274	40,690	246,063	152,500	8,072	0
1988	No Creel					
1989	4,374	41,204	249,844	187,166	5,293	0
1990	13,531	67,195	415,446	302,137	15,438	0
1991	30,424	63,440	250,119	158,663	4,662	908
1992	11,056	77,367	252,813	209,751	3,894	4,184
1993	35,234	85,693	168,669	182,457	5,861	11,128
1994	46,525	106,591	183,994	213,489	3,633	3,900
1995	29,717	51,972	267,610	144,783	9,509	61,215
1996*	15,035	37,058	203,032	70,783	1,516	67,816
Total	240,546	783,958	3,319,350	2,092,189	65,675	149,151
AVG.	18,504	60,304	255,335	160,938	5,970	24,859

* 1996 striped bass, hybrid bass, and white perch estimates are from the South Carolina DNR creel estimates and only include the area from the confluence of the Savannah and Broad Rivers downstream to Thurmond Dam. The Georgia DNR creel estimate which includes the area from the confluence of the Savannah and Broad Rivers upstream to Russell Dam had a combined striped bass, hybrid bass, white bass, and white perch harvest of 6,564 fish, but does not include species specific estimates. All other species are based on a combination of both states creel estimates.

Table S-14. Projected numbers and percentages of fish killed by entrainment during commercial pumped storage operation under dry (maximum), average, and wet (minimum) conditions and total fish numbers in JST. Total fish in JST obtained by combining arithmetic mean cove rotenone expansions (CR) excluding threadfin shad and blueback herring. Threadfin shad estimates were obtained from August 1996 mobile hydroacoustics survey (HAT). Estimates for adult blueback herring obtained from mark recapture study (MRB). TT=cell total. Entrainment numbers based on Phase III data, April to October.

SIZE CLASS ALL SPECIES	TOTAL # FISH BY SIZE IN JST[1]	#/PERCENT ENTRAINED DRY YEAR MAXIMUM[2]	#/PERCENT ENTRAINED AVERAGE YEAR	#/PERCENT ENTRAINED WET YEAR MINIMUM
1.2"-3.4"	CR- 345,161,127 HAT- 1,306,372,203 TT- 1,651,533,330	4,370,834[3] 0.26%	3,931,395 0.24%	983,264 0.06%
3.5"-5.4"	CR- 36,770,382 HAT- 15,560,376 TT-52,330,758	200,008 0.38%	155,351 0.30%	29,840 0.06%
5.5"-8.4"	CR- 13,161,897 HAT- 252,854 MRB- 84,165,737 TT- 97,580,488	265,442 0.27%	203,783 0.21%	26,794 0.03%
≥ 8.5"	CR- 5,361,769 HA- 0 TT- 5,361,769	6,260 0.12%	4,390 0.08%	662 0.01%
TOTALS:	CR- 400,615,422 HA+MR- 1,443,546,991 TT-1,806,806,345	4,842,544 0.27%	4,294,919 0.24%	1,040,560 0.06%

Introduction

Background

The U.S. Army Corps of Engineers, Savannah District (SAS), develops and manages water resources on the Savannah River by constructing and operating reservoir projects. Richard B. Russell (RBR) Dam and Lake, begun in 1974, is the most recent of the Savannah River impoundments. The RBR project is located on the Savannah River between Hartwell Lake to the northwest and J. Strom Thurmond (JST) Lake to the southeast and forms part of the boundary of the states of Georgia and South Carolina. RBR dam has four reversible turbines and four conventional turbines. The reversible turbines can be used as pumps during periods of low power demand to replenish upstream storage for peak generation needs.

Experience at other hydropower projects, both conventional and pumped storage projects, in which an upstream project discharges into the headwaters of a downstream reservoir, indicates that the major effects of operation are experienced by the downstream reservoir. Pumped storage operation, in particular, can result in high entrainment rates of fish with attendant mortality. The mortality is primarily related to the differential distribution and abundance of fishes between the forebay and afterbay. During generation, water is released from the deeper parts of the upstream reservoir where the density of fishes is generally low. Therefore, turbine mortality during generation is generally negligible at large, hydropower storage projects. However, during pumped storage operation, water is pumped back from a shallow and narrow part of the downstream reservoir where the concentration of fishes can, at times, be high. The reduced conveyance area in the downstream reservoir produces higher water velocities during the pumping phase of pumped storage operation. This problem is most pronounced in tandem projects when blockage of spawning migrations by the upstream project may cause high, spring-time concentrations of fishes in the vicinity of the powerhouse. Alternatively, cool, oxygenated releases from the dam may attract cool water fishes such as blueback herring (*Alosa aestivalis*) and striped bass (*Morone saxatilis*). Fish may be unable to swim against the reversed flow at RBR dam and be eventually drawn into the units or fish could follow the flow lines to the dam until velocities become too high for them to escape from the entraining flow. Fish eggs and ichthyoplankton could also be entrained into the units.

JST Lake has an established sport fishery that is monitored and managed (which includes annual stocking) by the states of Georgia and South Carolina. A partial list of species important to the JST Lake fishery includes striped bass, white bass, crappie, several species of sunfish, sauger, white catfish, channel catfish, bullhead, hybrid bass, largemouth bass, yellow perch, gizzard shad, blueback herring, threadfin shad, walleye, and flathead catfish. In the FSEIS prepared prior to construction of the pumpback project, the District committed to evaluate potential turbine mortality of entrained fishes during pumpback at RBR and the potential impact on the JST fishery should be addressed.

Consequently, in 1986 the Corps of Engineers (CE) initiated an exhaustive study, the Richard B. Russell Fish Entrainment Study (RBRFES), to provide baseline data on the fish community of J. Strom Thurmond Lake, predict the potential for entrainment and fish mortality, develop fish protection measures, and monitor entrainment through the units. The District can compare total numbers of fishes entrained by species to their numbers within the lakes. It will be possible to assess impacts by direct comparison if numbers of entrained fish are small compared to population estimates (a few percent - the uncertainty in population modeling exceeds the effect of pumping operation) or by population modeling if the numbers of fish entrained are a significant percentage of the total in JST Lake.

Much of the information generated by the RBRFES and additional studies, such as water quality measurements and predictions, was used to fulfill commitments made in the Final Supplement to the Environmental Impact Statement (FSEIS) for RBR dam.

Recent Events

Studies conducted at RBR are closely coordinated among the states of Georgia and South Carolina, the U.S. Fish and Wildlife Service, the Department of Energy, and the CE. General study design and conduct is described under the Consent Order from the Charleston, SC, United States District Court, signed on 6 December 1991. A subsequent amendment, dated 3 April 1992, to the original Consent Order requires that the CE conduct specific tests and studies to complete mechanical and environmental testing of the units. These specific studies and their timing are described in the "Testing and Monitoring Plan pumped storage Operations Richard B. Russell Dam and Lake" (TMP), dated 23 March 1992, as attached to the amendment to the Consent Order. An additional amendment to the Consent Order, dated 27 February, 1996, made changes to the attached "Testing and Monitoring Plan" eliminating the requirement for hydroacoustic monitoring and increasing the number of net samples required per month for Phase III environmental testing. This amendment also permitted construction of a rock structure to correct the unit 8 vortex problem.

Testing and Monitoring Plan

The TMP identifies all environmental concerns and describes both water quality and fishery studies that the CE, State of South Carolina, State of Georgia, and National Wildlife Federation feel are required to quantify the impacts of pumpback operation on the environmental quality of RBR and JST lakes. All studies were conducted to be consistent with the following four general provisions of the TMP:

a. A phased approach for bringing the units into operation which provides for a period of testing the units prior to committing them for dependable, commercial production.

b. Installation and operation of a high frequency sound and light protection system.

c. Extensive fishery monitoring to determine the impacts of pumped storage operation at RBR and the effectiveness of the fish protection system.

d. Analysis of data from the monitoring plan to determine if additional fish protection measures and/or fishery mitigation is needed.

Activities to bring the units to commercial operation were separated into three phases. In Phase I, monitoring was employed to insure that no significant fish kills occurred during testing for mechanical and electrical certification. In Phase II, one or more pump-turbines were sampled at regular intervals during pumping operation and during more than four-unit conventional hydropower operation (2-4 days per month) to assess the impacts of fish entrainment and mortality. A second major objective of Phase II was to obtain an acceptable correlation between recovery net catches and the data obtained from fixed-aspect hydroacoustics monitoring. This objective is carried forward into Phase III. This report summarizes data collected during Phases I and II and documents Phase III data collection activities to document fish entrainment and mortality during capacity pumpback with all four units. Water quality studies described in the TMP are submitted under a separate cover and are not described or discussed further in this report. The following environmental concerns (not involving water quality) were identified during preparation of the supplement to the RBR environmental impact statement as listed in the TMP:

a. Entrainment of fish from JST Lake during pumpback operations.

b. Entrainment of fish from RBR Lake during generation with more than four units.

c. Changes in fish distribution resulting from pumped storage operations.

d. Commercial and recreational access to the RBR tailrace and tailwater.

e. Commercial and recreational fishing success in the RBR tailrace and tailwater.

Dam Description

Complete understanding of study results requires an understanding of the configuration of the dam. Richard B. Russell Dam is a concrete gravity dam with a total water line width in the afterbay of about 1200 feet. The dam consists of a powerhouse housing 8 turbines with a total width of about 640 feet on the Georgia side of the river and a spillway about 560 feet long on the South Carolina side of the river (Figure 1 [Figure 2-1 from FSEIS]). The turbines are numbered sequentially beginning with unit number 1 on the east side of the powerhouse and ending with unit number 8 nearest the spillway. Units 1-4 are conventional Francis units, and units 5-8 are Francis pump-turbines. The four 80-megawatt (MW) pump-turbines can be used as conventional power generators to supplement the four conventional power generators at the project during periods of peak demand or as pumps during periods of low demand to replenish upstream storage for later generation. During conventional generation, up to 648 megawatts of power can be generated as Richard B. Russell Dam releases up to 60,000 cfs into J. Strom Thurmond Lake (JST), the downstream reservoir. During pumped storage operation, up to a maximum of 30,000 cfs can be pumped from J ST back into Richard B. Russell Lake.

Several conventions were employed throughout the report. The term "tailrace" refers to the rip-rapped portion of the Savannah River arm of JST and is equivalent to station 1. The tailrace extends from the foot of RBR Dam downstream for a distance of 450 m. "Tailwater" refers to the entire Savannah River arm of JST extending from the downstream end of the tailrace to the confluence with the Broad River (a distance of approximately 8 km). Tributary stations are stations that are located in the three major tributaries of JST: The Broad River, The Little River entering from the Georgia side of the lake and a separate river sharing the name Little River entering from the South Carolina side of the lake.

Study Participants

The RBRFES was partnered with both Federal and state agencies to incorporate regional expertise and to achieve consensus on study design, data handling, and interpretations. The RBRFES was managed by the SAS and executed by the U.S.A.E. Waterways Experiment Station in Vicksburg, MS. Baseline fisheries monitoring using conventional methods such as nets, electroshocking, and cove rotenone studies were performed by the National Biological Survey, Georgia Fish and Wildlife Cooperative Research Unit (Georgia Coop Unit) at the University of Georgia. The Coop Unit was also responsible for all "hands-on" processing of fish collected during conventional and pumpback full (entire intake plume is netted) or partial (approximately 50 percent of the intake plume is netted) recovery

net sampling and the conduct of net calibration studies to determine the recovery efficiency of the nets. Net design, deployment, retrieval, and storage were performed cooperatively by WES, SAS, and contractor personnel. The Coop Unit participated in analysis of all data collected by them. National Biological Survey, South Carolina Fish and Wildlife Cooperative Research Unit (Clemson Coop Unit) at Clemson University, South Carolina, developed estimates of commercial harvest of blueback herring. Mobile hydroacoustics data were collected and processed by WES staff and under contract Normandeau and Associates and Kleinschmidt, Inc. Fixed-aspect hydroacoustics data were collected and processed by on-site contract personnel with the assistance of WES. Further processing, analysis, equipment calibration, and QA/QC was performed by Aquacoustics, Inc. Elements of the fish protection system were identified by WES and designed and constructed cooperatively by WES and SAS personnel.

Study coordination and agency input were obtained through a Technical Coordination Group (CG) established under the TMP. The CG met monthly during Phase III to discuss study progress, study content, schedules, data, and other pertinent topics. A written log was used to transmit agency recommendations to the District Engineer. In case of disagreements within the CG, procedures were outlined by which agency concerns could be elevated to the District Engineer level.

Purpose and Objective

The purpose of the TMP was to develop a knowledge and data base sufficient to support decision-making regarding pumped storage operation at RBR dam. Specific Phase III study objectives were to evaluate fish entrainment and mortality during pumpback operation at as close to full commercial operation levels as feasible.

Phase III Study Summaries

Report contents and organization

The following studies represent each of the major components of the RBRFES. Detailed descriptions of the methods used for the studies can be found in Appendix A for entrainment studies (studies quantifying spatial and temporal patterns of entrainment) and Appendix B for baseline studies (studies presenting information on the abundance or spatial distribution of biological resources in either lake). Each of the study descriptions is preceded by a brief summary and is then presented in its entirety, that is, the introduction, materials and methods, results, and discussion are presented within each task area. Figures and tables for each task area are located at the end of the text for that specific task area. All appendices are bound under a separate cover.

1 Pumpback Full and Partial Recovery Netting

Summary

The only direct method for quantifying the passage of fish through a turbine is to employ nets to recover passed fishes. By agreement with the states, recovery netting was employed to estimate entrainment for impact assessment. Netting data are adjusted for net efficiency because nets capture fish of different species or sizes at different efficiencies. For example, the efficiency with which the recovery gear recovers 2-in. threadfin shad is only about 20 percent. To estimate the passage of 2-in. threadfin shad, the net sample must be expanded by a factor of 5.0 to account for this relatively low efficiency of recovery. Conversely, the recovery of fish greater than 10 in. approaches 100 percent so that minimal adjustments must be made to the netting data. The adjusted rate of passage (fish/hour) estimated from 16 net samples per month (with each unit sampled four times per month) is expanded by the number of pump unit hours of operation for that month to estimate total monthly passage during Phase III or to project entrainment based on that rate for different hydrologic conditions.

During Phase III, a total of 577,686 fish with a biomass of 3441 kilograms were collected by recovery nets. A total of 3,853,317 fish greater than or equal to 1.5-in. long having a biomass of 17,673 kg were estimated to have been entrained through the pump units during Phase III pumpback operation. However, passage survival studies demonstrated that not all fish were killed during passage. Incorporation of survival information reduces the numbers of fish killed by 4.9 percent but reduces the biomass of fish killed by 26 percent. For an annual cycle 10,078,432 fish could be reasonably expected (dry year entrainment) to pass through the dam and 8,067,489 could reasonably be expected to be killed during turbine passage.

During Phase III, threadfin shad (90.9 percent by number and 35.5 percent by biomass), blueback herring (6.4 percent by number and 33.7 percent by biomass), white perch (1.3 percent by number and 19.2 percent by biomass), and black crappie (0.7 percent by number and 6.1 percent by biomass) dominated the entrainment samples (Tables 1-2 and 1-3). These four species constituted 99.3 percent

by number and 94.5 percent by biomass of the entrainment samples. Entrainment percentages for other species important to the sport fishery of JST Lake were largemouth bass (0.027 percent by number and 0.0219 percent by biomass), striped bass (0.02 by number and 0.78 percent by biomass), and hybrid bass (0.01 percent by number and 0.73 percent by biomass). An additional 39 striped bass and 33 hybrid bass were estimated to have impinged on the bar screen veneers used to physically exclude large fish from the turbines.

Introduction

The only direct method for quantifying the passage of fish through a turbine is to employ nets to recover passed fishes. The rate at which fish are recovered by the nets must be corrected for net efficiency because nets are seldom 100 percent at recovering fishes (Table 1-1). Two types of netting were employed to recover fishes that passed through the turbines. A full recovery net covered the intake of pump-turbine unit number 5 and filtered most of the pumpback jet. A recovery barge connected to the furthest end of the net provided a platform from which fishes could be sampled in real time for identification, enumeration, and measurement. Fishes purposely inducted or entrained into the pump units could also be recovered for studies of immediate and delayed mortality. Full recovery netting is dangerous, complicated, and labor intensive compared to partial recovery netting (or fyke nets). Fyke nets were deployed into one of the two operational gate slots of each unit-the other bay was left unnetted as a safety measure to prevent pressure build up on the trash rack in case the fyke net on the netted bay clogged with debris or fish. The fyke nets were usually fished for one to five hours after which they were pulled and emptied. The fyke nets are much easier to deploy and retrieve but cannot be used for mortality studies or collection of real time samples. This section presents the species, size, and temporal composition of fish entrainment for pump storage operation at RBR dam.

Sampling Description

Phase III entrainment monitoring was conducted from 1 April 1996 to 31 October 1996. This time period was selected for sampling because long-term baseline fish sampling using a variety of gears indicated the time period of maximum biological activity downstream of Richard B. Russell Dam occurred during these months. The number of hours per month of recovery net sampling contrasted to the number of hours per month of Phase III pumpback operation is shown in Table 1-2 as well as the number of hours of operation projected for wet, average, and dry years. Note that the number of hours of sampling was generally constant varying from 66.3 hours in April to 84.4 hours in August. In general, recovery net samples were collected 16-18 times per month during Phase III with each of the four pump turbines being netted at least four times per month.

Phase III operation involved a total of 3129 unit hours of pumping operation at Richard B. Russell Dam between the months of April to October 1996. This total approximates an anticipated average water year of pumping operation of 3830 unit hours during these same months. Phase III operation was substantially greater (factor of 4) than anticipated wet year pumping operation of 803 unit hours and about 33 percent less than dry year condition pumping operation of 4633 unit hours for the same months. Consequently, the Phase III data set should be a good predictor of entrainment under average water year conditions (Table 1-2).

Phase III Netting Results - April through October 1996

During Phase III, a total of 577,686 fish with a biomass of 3441 kilograms were collected by full recovery netting (net covers all or most of exit jet) or partial recovery netting (net covers one of two bays of intake flow) during pumped storage operation. This estimate is corrected for net efficiency and for coverage for partial recovery netting. Recovered fish were expanded to estimate total power plant passage during pumping operation by calculating an arithmetic mean passage rate (fish/hour) from data obtained by recovery netting of the netted units and expanding the calculated rate by the total number of unit hours of operation for that month. During Phase III, sixteen net samples were collected per month with each sampling duration lasting a minimum of four hours. A total of 3,853,317 fish greater than or equal to 1.5-in. long having a biomass of 17,673 kg were estimated to have been entrained through the pump units during Phase III pumpback operation (Table 1-3). An additional 85 fish having a biomass of 56 kg were estimated to have impinged on the bar screen veneers that physically exclude fish greater than about 12 in. long from entering the draft tube openings during pumping operation (Table 1-9). Total impingement of fish on the bar rack veneers during Phase III sampling was estimated at 326 fish with a biomass of 172 kg. Impingement of fishes on the screens is a very minor component of impact on the fish community of J Strom Thurmond Lake resulting from pumped storage operation of Richard B. Russell Dam. Conventional generation passage was not monitored during Phase III studies. Prior to Phase III, the resource agencies agreed that monitoring activities should concentrate on the pumping phase of pumped-storage operation.

Adjustments for Survival

Passage survival studies for entrained fish during pumping operation found mortality ranging from 0.0 percent to 100.0 percent and was dependent upon the species tested and the month in which the test was conducted. Corrected for survival, a total of 533,327 fish having a biomass of 2327 kg were estimated to have been killed passing through the netted unit during Phase III (Table 1-4). A total of 3.66 million fish having a biomass of 13,016 kg were estimated to have been killed

by pumped storage operation during Phase III testing (Table 1-4). The addition of survival information changed the numbers of fish impacted by pumping by only 4.9 percent because the numbers are dominated by threadfin shad passed during the late summer and early fall when estimated turbine passage mortality of threadfin shad is near 100.0 percent. However, addition of survival information changed the biomass of fish impacted by pumping by 26 percent because passage of larger fish was greater during the spring months when estimated turbine passage mortality was reduced. Including survival into annual estimates of turbine passage produces a proportionally greater reduction in fish loss than including survival during Phase III. April 1996 survival data were applied to December, January, February, and March entrainment and June 1996 survival data were applied to November entrainment. These substitutions were based primarily similar water temperatures. Survival of passed fish is substantially greater during the cold water temperatures that characterize November through April (compare relative change in entrainment from Table 1-3 to Table 1-4 with relative change in entrainment from Table 1-15 to Table 1-19). For example, addition of turbine passage survival information changes Phase III loss estimates during dry year pumping from 5,204,911 to 4,842,477 (change of 7.0 percent). However, annual loss estimates change from 10,078,432 without considering turbine survival to 8,067,489 (change of 20 percent). Consequently, addition of survival information provides a substantial reduction in estimated total annual loss.

Turbine passage mortality estimates are conservative because fish passage mortality is not reduced by mortality resulting from capture, handling, transport, and holding of fishes (all components of control mortality) associated with conducting mortality studies. That is, for most species collected, recovered fish experienced stress from capture, handling, transport, and holding. These stresses are known to produce mortality of some recovered fish, but were not incorporated into turbine passage mortality estimates.

Species Composition of Pumpback Entrained Fish - April through October 1996

The following general trends in fish entrainment data are based on net data (net sample adjusted for efficiency and coverage) adjusted by survival information (Table 1-4). Note, however, that percentages that each species will contribute to total entrainment will vary by water year. This variation occurs because of the interplay between seasonal patterns of entrainment and monthly changes in pumping durations. The proportion that each month of pumpback capacity contributes to total annual pumpback capacity will change with water year (Table 1-2).

During Phase III, threadfin shad (90.9 percent by number and 35.5 percent by biomass), blueback herring (6.4 percent by number and 33.7 percent by biomass), white perch (1.3 percent by number and 19.2 percent by biomass), and black crappie (0.7 percent by number and 6.1 percent by biomass) dominated the entrainment samples. These four species constituted 99.3 percent by number and

94.5 percent by biomass of the entrainment samples. Entrainment percentages for other species important to the sport fishery of JST Lake were largemouth bass (0.027 percent by number and 0.0219 percent by biomass), striped bass (0.02 by number and 0.78 percent by biomass), and hybrid bass (0.01 percent by number and 0.73 percent by biomass). An additional 39 striped bass and 33 hybrid bass were estimated to have impinged on the bar screen veneers used to physically exclude large fish from the turbines.

Seasonal Patterns of Entrainment - April through October 1996

Phase III sampling included the critical spring and summer months when entrainment potential was high and fish activity was pronounced. There were several patterns observed in entrainment. These patterns are described in detail in Table 1-5 and summarized in Table 1-6. Entrainment of most species except threadfin shad was highest in the spring months. This corresponds to findings from the gillnetting results conducted as part of the baseline monitoring where the catch of species other than threadfin shad that exhibited a distinct spatial trend were most abundant near the dam in March, April, and May. This pattern was most evident for blueback herring, white perch, black crappie, striped bass, and hybrid bass. Threadfin shad were entrained in large numbers during the late summer and early fall (August through September) coinciding with the time period when juveniles have grown large enough to be effectively sampled by the recovery nets. Impingement of fishes on the bar rack veneer followed the same general seasonal pattern as was observed for entrainment of species other than threadfin shad. Impingement of large fish peaked in April and was negligible after May (Table 1-11(b)).

Unit-by-Unit Comparisons of Entrainment

Entrainment was summarized by unit to determine if any one unit tended to entrain more fish than other units (Table 1-7). No substantial differences in entrainment rate was observed except for Unit 5 April entrainment. Finer resolution to perform unit-by-unit comparisons is available from the fixed-aspect hydroacoustics system results of which are documented later in this report.

Size Composition of Pumpback Entrained Fishes - April through October 1996

For purposes of comparability, fish size categories used to describe predicted entrainment in the Final Supplement to the Environmental Impact Statement are used to describe Phase III entrainment in this report. Size composition of

entrained fishes reflected species composition with 90 percent of entrained fishes occurring in the 1.6- to 3.5-in. size class (Table 1-8), the same percentage as the percent composition of threadfin shad (Table 1-4). Over 99.8 percent of Phase III entrained fish were less than 8.5 in. long (Table 1-8). The abundance of the next two size classes appears to be inverted with the 3.6- to 5.5-in. size class at 4 percent of the total being less abundant than the 5.6- to 8.5-in. size class at 6 percent (Table 1-8). The apparent inversion in abundance of the next two size classes reflects both the increased number of inch classes in the 5.6- to 8.5 in. size category and also reflects species composition of entrained fish. Blueback herring, the second most abundant species in the entrainment sample occur mostly in the 5.6- to 8.5-in. size class.

Size composition of key sport species entrained also was generally characterized by the smaller size classes (Table 1-8). The most commonly entrained sport fish was white perch. Of the 26,459 white perch estimated to have been killed passing through the turbines during Phase III, about 36 percent were of harvestable size (greater than 6.5 in. long) with the intermediate size class (4.5 to 5.4-in. fish) containing 58 percent of the sample. Less than 6 percent of the sample was in the fingerling size class. Similarly, total black crappie numbers killed by passage through the pump turbines was estimated at 20,104 with intermediate-size fish dominating the sample (84 percent of the total) and only about 9 percent of the total take of black crappie was in the harvestable size class.

Striped bass and hybrid bass entrainment was identified as a key issue early in project planning. Both state resource agencies stock hybrid and striped bass and both species are considered to be valuable sport fishes important to the economies of the local area as noted in the creel section of this report. Unlike the size distributions for black crappie and white perch, four size classes were used to characterize striped bass and hybrid bass entrainment (Table 1-8) so that entrainment of large fish (greater than 14 in. long), of interest to anglers and the resource agencies, could be described. A total of 595 striped bass were estimated to have been either killed passing through the dam (556) or impinged on the barrack veneer (39) during Phase III sampling (Tables 1-8 and 1-9). Of the total, 97 percent were less than 15 inches long (Table 1-8). Similarly, 84 percent of the total 279 hybrid bass estimated to either have been killed either passing through the dam (246) or impinged on the bar screen veneer (33) during Phase III sampling (Tables 1-8 and 1-9) were less than 15 in. long.

Phase III Entrainment Expanded to Annual Estimates

Phase III samples were collected from 1 April through 31 October, 1996. Consequently, entrainment during November, December, January, February, and March was not monitored during Phase III. Entrainment rates that could be reasonably expected during the unsampled months were estimated by reanalyzing Phase II data that were collected from August 1993 through August 1994 to

develop expansion factors that could be applied to the Phase III data. However, Phase II data were collected much less frequently than Phase III data with only four samples per month collected during the biologically active period and only two samples per month collected during the remaining months. This compares to 16 samples per month collected during Phase III. Consequently, any use of Phase II data to expand Phase III data to provide estimates of entrainment for November, December, January, February, and March should be viewed as a general guide only. The end of Phase II and the beginning of Phase III were separated by 19 months during which time the composition of the fish community may have changed and also the sampling effort differed significantly between the two phases.

Phase II expansion factors were developed by resummarizing Phase II data by monthly arithmetic passage rates (fish/hour) for each species recovered similar to the methods employed to analyze Phase III data. The resulting rates were multiplied times Phase III sampling and the expected monthly pumpback hours of operation to be expected for wet year, average year, and dry year pumping operations. Species-specific monthly totals of Phase II data were summed for the months of April through October (Table 1-12) to generate a Phase II data set that covered the same months as Phase III sampling. All months of Phase II sampling were then summed, for each species separately, to generate an estimate of total annual passage (Table 1-13). Expansion factors were then developed to determine the proportion of total annual entrainment that occurred during April to October for each species (Table 1-14). These factors were then applied to the Phase III entrainment totals for April to October to project annual entrainment for each species (Table 1-15). The annual expanded values for the worst case (dry year) projections (10,078,432) were numerically dominated by threadfin shad (9,316,803 - 92 percent), and blueback herring (433,431 -4.3 percent), white perch (109,456 - 1.1 percent). No other species made up more than 1.0 percent of the total.

A similar procedure was used to estimate the numbers of fish that could reasonably be expected to be killed (as opposed to passing through the units) during an annual cycle, that is, estimates of fish passage survival were used to adjust the entrainment rates by those proportions of the fish that could survive entrainment through the pump units. Turbine passage survival rates obtained from Phase III were applied to Phase II data. April 1996 survival data were applied to December, January, February, and March entrainment and June 1996 survival data were applied to November entrainment. Revised tables were then generated for April through October (Table 1-16) entrainment and total annual entrainment (Table 1-17). From the revised tables, adjustment factors were generated (Table 1-18) that could be applied to Phase III entrainment data to project entrainment that could be reasonably expected for the different water years (Table 1-19). Projected worst case entrainment mortality of 8,067,489 per year, based on expansions of Phase III data, is dominated by threadfin shad (7,616,835 - 94.4 percent), blueback herring (313,069 - 3.9 percent), and white perch (56,175 - 0.7 percent). Projections revised for survival decrease substantially from entrainment estimates because passage survival appears to be inversely related to temperature. Winter time survival is substantially higher than summer time

survival because water temperatures in December through March are substantially lower than during most of Phase III sampling.

Note that projected numbers for various water years for Phase II and Phase III for the months of April through October are very close although biomasses deviate more substantially. The difference in biomass is probably related to the differential seasonal entrainment of threadfin shad between Phases II and III. Phase III entrainment was dominated by threadfin shad passage during August-September whereas these high rates were not as pronounced during Phase II. Consequently, the mean size of fish was greater in the summer of Phase II than in the summer of Phase III. This difference was most pronounced for the wet year projections where most pumpback operation occurs in the late summer. During the summer of Phase II, proportionally more blueback herring were entrained whereas in Phase III, proportionally more threadfin shad were entrained.

Additional Data Summaries

The TMP plan requires that summaries of Phase II findings be presented in the Phase III documentation. Entrainment totals based on arithmetic means from Phase II are presented in Tables 1-12 (April-October) and 1-13 (all months) along with water year expansions. These data are presented in greater detail in the Phase II Completion Report. Several instances were found where an entrainment sample was assigned to the wrong month. Misassigned data were corrected; however, the change will result in small differences between Phase II summaries presented here compared to other arithmetic summaries. The largest differences between summaries presented in this report compared to earlier summaries is caused by treatment of the data. As agreed to by the CG, the Phase II Completion Report presents summaries based on geometric means whereas the Phase II summaries presented in this report are based on arithmetic means, as the CG later requested.

Summaries from PrePhase III sampling from August 1994 to March 1996 are presented in Table 1-20 (not adjusted for turbine passage survival) and Table 1-21 (adjusted for turbine passage survival). PrePhase III data should be interpreted with caution because the data were not collected as part of a systematic monitoring program but instead were collected for a variety of purposes ranging from improving the hydroacoustic-net calibration to collecting flow field data. Also, entrainment rates for some samples of April of 1995 are underestimated because of net failure. Passage estimates when nets failed were recommended by the CG. Passage estimates for those months are as follows: On 13-14 April, the CG agreed to an estimated (based on visual observation and extrapolation from catch rates at Unit 5) passage through Unit 8 of 227,000 fish in 4.5 hours and on 25-26 April we estimated (the recovery net partially failed) that 169,000 fish passed through unit 8 in 1.5 hours.

Entrainment summaries for Phase I (before official beginning of Phase II) are presented in Tables 1-22 (not corrected for survival) and 1-23 (corrected for

survival). These two tables include all data for August 1993 except for 30-31 August, 1993 which is included in Phase II tables. As with the pre-Phase III sampling, these data must also be used with caution since they were not part of a rigorous sampling program, but rather were collected to test recovery gear or for similar reasons. Phase I data also include a number of daytime tests during which time entrainment rates were substantially higher than during night time testing. By agreement, day time testing and operation of pumped storage was suspended.

A listing of all data along with monthly standard error estimates are presented in Tables 1-24. These calculations combine data from all units during each month in order to calculate a sample mean and measure of dispersion. As directed by the CG, mean entrainment rate was obtained as the grand mean of the mean of hourly entrainment rates for each unit. Both methods will produce the same result if each unit is sampled an equal amount for each month. However, neither sampling duration nor sampling location was exactly uniform for Phase III. Consequently, the means obtained for calculating the measure of dispersion will vary slightly from the mean entrainment rates used to summarize entrainment. For purposes of consistency, values for dispersion about the mean (i.e., the standard errors tabulated in Table 1-24) were added back to the mean entrainment rate calculated by weighing each unit equally. As recommended by consultation between WES statistician and Clemson University, the mean +/- 2 and 3 standard deviations were used as an interval measure for the entrainment data in lieu of confidence limits. The mean +/- 2 and +/- 3 standard errors has at least a 75% and a 89% chance, respectively, of including the population mean.

Table 1-1. Monthly full recovery (a) and partial recovery net (b) calibration estimates used for entrainment by species group and size group.

(a) Full Recovery Net - Species/Size Group												
Month	Golden shiner 1-2"	Golden shiner 3-4"	Blueback herring 5-10"	Yellow perch 3-4"	Yellow perch 5-10"	Bluegill 1-2"	Bluegill 3-5"	Bluegill 6-10"	White perch 3-4"	White perch 5-10"	Catfish 2-5"	Catfish 6-10"
April	31.4	28.0	54.6	38.3	38.3	49.2	49.2	89.2	50.0	50.0	59.0	59.0
May	17.2	28.8	54.5	38.0	43.4	48.2	48.2	89.2	68.0	66.8	59.0	59.0
June	15.1	28.5	53.9	37.8	44.5	17.5	47.8	82.2	68.0	60.8	41.6	41.6
July	15.2	29.1	53.9	37.8	44.5	17.3	49.5	82.2	68.0	62.4	32.7	41.6
Aug	13.9	29.4	53.9	37.8	44.5	18.1	49.6	82.2	68.0	62.4	21.7	41.6
Sept	14.0	28.8	53.9	37.8	44.5	18.1	49.6	82.2	68.0	62.4	21.7	41.6
Oct	13.6	28.4	53.9	37.8	44.5	16.2	48.6	82.2	68.0	62.4	21.7	41.6

(b) Partial Recovery Net - Species/Size Group												
Month	Golden shiner 1-2"	Golden shiner 3-4"	Blueback herring 5-10"	Yellow perch 3-4"	Yellow perch 5-10"	Bluegill 1-2"	Bluegill 3-5"	Bluegill 6-10"	White perch 3-4"	White perch 5-10"	Catfish 2-5"	Catfish 6-10"
April	11.37	77.46	91.67	76.17	87.91	22.11	82.34	75.33	88.79	83.54	81.48	91.77
May	11.69	75.48	85.83	76.17	87.91	22.90	83.15	82.25	90.19	89.92	81.48	91.44
June	17.04	73.81	85.83	76.17	87.91	29.13	84.61	89.35	91.67	91.22	81.48	91.44
July	19.70	73.37	88.33	76.64	87.91	33.87	85.26	89.35	91.67	93.46	83.61	91.44
Aug	17.54	73.22	89.78	76.51	87.91	32.44	82.80	90.96	91.67	93.21	82.22	91.44
Sept	18.89	72.14	92.08	76.51	87.25	35.27	82.41	90.96	91.67	93.21	82.22	91.44
Oct	18.57	70.68	92.08	76.51	87.25	40.38	82.34	90.96	91.67	93.21	82.22	91.44

Table 1-2
Summaries of Sampling Effort Compared to Total Pumping Unit Hours and Projected Total Plant Pumping Unit Hours For All Pump Units Combined for Each Month of Phase III Sampling

Month	Total Hr Netted Phase III	Total Hr Pumping Phase III	Projected Hr Pumping Wet Year	Projected Hr Pumping Average Year	Projected Hr Pumping Dry Year
January			0	389.7	690.8
February			33.1	314.9	629.7
March			0	194.9	478.3
April	66.3	159.9	34.3	308.6	497.1
May	66.9	364.4	35.4	389.7	549.1
June	65.5	256.5	68.6	497.1	634.3
July	73.5	604.6	194.9	690.9	744.0
August	84.4	544.6	141.7	690.9	744.0
September	78.0	649.4	257.1	668.6	720.0
October	82.5	549.6	70.9	584.6	744.0
November			0	394.3	685.7
December			35.4	442.9	690.9
Total Phase III	517.1	3129	802.9	3830.4	4632.5
Total Year	517.1	3129	871.4	5567.1	7807.9

Table 1-3. Summaries of numbers and biomass for fish greater than or equal to 1.5-inches long based on Phase III netting months, estimated Phase III totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during Phase III sampling. Note that shifts in relative abundance may occur between species. These shifts occur because the numbers of hours of pumpback operation is not constant and changes substantially across Phase III sampling and different water years. All projections include 2 & 3 standard deviations of the mean. Results are not adjusted for survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
THREADFIN SHAD	498599	86.31	866	25.15	3452839	4702682	5327604	5755	7796	881 7
BLUEBACK HERRING	46119	7.98	1061	30.82	255131	521386	654514	5841	12147	15300
WHITE PERCH	13518	2.34	903	26.24	49937	73867	85831	3146	4711	5494
BLACK CRAPPIE	8104	1.40	253	7.35	41004	73912	90366	1313	2301	2796
CHANNEL CATFISH	2801	0.48	121	3.51	14087	20003	22962	563	846	988
YELLOW PERCH	2415	0.42	45	1.31	9884	16614	19979	183	297	354
BLUEGILL	2227	0.39	27	0.78	11765	17426	20257	152	222	257
SPOTTAIL SHINER	1533	0.27	14	0.41	5566	9028	10759	51	84	100

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
1003164	1364652	1545396	1657	2237	2527	4053373	5522892	6257651	6826
40668	77881	96488	917	1768	2194	299678	603173	754920	6900
8690	12599	14553	538	790	916	72889	106661	123548	4721
6251	10459	12564	218	353	420	50431	88427	107425	1608
2708	3764	4293	111	161	186	17195	24260	27792	721
2103	3510	4214	39	63	75	14473	23836	28518	270
2856	4207	4883	39	57	66	15727	23748	27759	195
1122	1852	2217	10	17	20	8819	14352	17118	80

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
9262	10480	4538666	6205194	7038457	7741	10562	11973
14137	17755	395655	803259	1007062	9103	18844	23714
6946	8058	106649	155175	179439	7046	10287	11908
2749	3319	68892	121243	147419	2162	3718	4496
1064	1235	22983	32477	37224	983	1447	1679
429	509	19891	32437	38710	373	588	695
288	334	19561	29657	34705	239	353	410
133	160	12654	20533	24473	116	192	230

Table 1-3. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
GIZZARD SHAD	598	0.10	44	1.27	3866	7484	9292	218	386	469
WHITE CATFISH	592	0.10	17	0.50	3645	5785	6855	102	203	253
STRIPED BASS	255	0.04	37	1.08	1004	1634	1949	128	195	229
LARGEMOUTH BASS	189	0.03	1	0.02	1200	2421	3032	4	9	12
HYBRID BASS	140	0.02	36	1.04	485	863	1052	111	204	250
LONGNOSE GAR	101	0.02	2	0.05	423	1153	1519	9	28	37
CHAIN PICKEREL	67	0.01	0	0.00	268	550	691	0	0	1
WHITE CRAPPIE	67	0.01	5	0.15	351	717	901	28	58	73

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
1183	2304	2864	57	101	122	4468	8669	10770	297
894	1432	1702	27	54	68	4094	6508	7715	120
182	314	380	22	35	42	1397	2258	2689	191
343	674	839	1	3	3	1465	2961	3709	6
76	127	152	20	37	45	719	1214	1462	183
116	315	415	3	10	13	786	2152	2835	12
73	150	188	0	0	0	507	1027	1288	0
61	128	161	6	12	16	410	837	1051	33

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
528	644	5030	9719	12064	374	665	810
241	302	4912	7803	9249	142	287	359
285	332	2026	3226	3827	289	425	493
15	19	1656	3368	4224	7	18	24
328	400	1097	1824	2188	281	494	600
34	46	993	2723	3588	14	40	53
1	1	643	1300	1628	0	1	1
68	86	559	1135	1424	44	91	114

Table 1-3. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
WARMOUTH	66	0.01	2	0.07	308	621	777	11	22	28
GOLDEN SHINER	64	0.01	0	0.01	228	670	890	1	3	3
BROWN BULLHEAD	35	0.01	1	0.04	210	492	633	6	17	22
TESSELATED DARTR	35	0.01	0	0.01	199	643	865	2	6	8
BLACK BULLHEAD	22	0.00	1	0.04	138	376	495	8	22	30
WHITEFIN SHINER	21	0.00	0	0.01	107	524	733	1	4	6
SPOTTED BASS	20	0.00	0	0.01	135	356	466	1	4	6
GREEN SUNFISH	18	0.00	1	0.02	79	292	399	2	8	11

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
63	133	168	2	4	5	439	869	1084	14
57	168	224	0	1	1	390	1135	1507	1
59	139	179	1	4	5	263	620	799	9
60	190	255	1	2	2	256	839	1131	2
45	121	159	2	4	6	150	410	540	9
20	99	139	0	1	1	147	710	992	1
52	133	174	0	1	2	145	387	508	2
11	39	53	0	2	2	102	378	516	4

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
29	37	576	1130	1407	19	40	51
4	5	527	1516	2010	2	5	7
28	37	316	750	968	12	37	49
8	11	286	942	1271	3	9	12
25	33	174	477	629	11	33	44
6	8	184	886	1237	2	7	10
8	10	157	421	553	3	10	13
15	20	145	539	737	6	23	32

Table 1-3. (Continued)

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
REDBREAST	15	0.00	0	0.01	88	228	297	2	6	8
REDEAR	14	0.00	1	0.04	80	409	574	11	56	78
SILVER REDHORSE	13	0.00	1	0.04	88	438	613	7	35	49
FLATHEAD CATFISH	8	0.00	2	0.05	55	169	226	11	40	54
WHITE BASS	7	0.00	1	0.04	35	126	172	5	17	24
YELLOW BULLHEAD	6	0.00	0	0.01	29	153	215	1	6	9
BLACKBANDED DARTR	3	0.00	0	0.00	15	132	191	0	0	0
CREEK CHUB	3	0.00	0	0.00	9	78	113	0	0	0

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
21	55	72	1	1	2	111	291	381	3
22	115	161	4	21	29	98	502	703	13
11	56	78	1	3	5	93	466	653	8
20	59	79	4	16	22	61	188	251	11
10	37	51	1	5	7	50	180	244	8
6	32	45	0	1	1	35	185	260	1
1	13	19	0	0	0	16	141	204	0
2	17	24	0	0	0	17	151	219	0

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
8	11	133	349	457	4	10	13
63	88	113	581	814	14	71	99
38	53	119	597	836	11	53	74
41	56	66	202	270	12	44	60
29	39	60	215	292	11	40	55
7	10	41	216	304	2	10	13
0	0	22	199	288	0	0	0
0	0	27	244	352	0	0	0

Table 1-3. (Continued)

NAME ERRORS	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERRORS	PHASE 3 TOTAL MASS PLUS 3 STAND.
NORTHERN HOGSUCKR	3	0.00	0	0.00	11	55	76	0	0	0
RIVER CHUB	3	0.00	0	0.00	17	151	218	0	0	0
STRIPED KILLIFISH	3	0.00	0	0.00	15	135	195	0	0	0
FLIER	2	0.00	0	0.00	16	148	214	0	0	0
	577686	99.96	3442	100.08	3853317	5461721	6265925	17673	29733	35766

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERRORS	WET YEAR TOTAL MASS PLUS 3 STAND. ERRORS	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND.	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND.	PROJECTED AVERAGE YEAR MASS(KG)
3	15	20	0	0	0	21	106	148	0
2	15	21	0	0	0	18	161	233	0
1	13	19	0	0	0	16	145	209	0
4	39	56	0	0	0	21	188	272	0
1070960	1485856	1693305	3682	5764	6803	4548880	6441027	7387104	22249

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ER	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ER	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERRORS	DRY YEAR TOTAL MASS PLUS 3 STAND. ERRORS
0	0	27	135	189	0	0	0
0	0	25	227	328	0	0	0
0	0	23	204	294	0	0	0
0	0	23	203	293	0	0	0
36817	44098	5204911	7441106	8559210	29026	48404	58091

Table 1-4. Summaries of numbers and biomasses for fish greater than or equal to 1.5-inches long based on Phase III netting months, estimated Phase III totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during Phase III sampling. Note that shifts in relative abundance may occur between species. These shifts occur because the numbers of hours of pumpback operation is not constant and changes substantially across Phase III sampling and different water years. All projections include 2 & 3 standard deviations of the mean. Data adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
THREADFIN SHAD	484648	90.87	826	35.49	3406181	4629135	5240613	5619	7575	8553
BLUEBACK HERRING	34038	6.38	783	33.65	192479	386054	482842	4403	8960	11238
WHITE PERCH	6917	1.30	446	19.15	26459	39084	45397	1594	2397	2799
BLACK CRAPPIE	3843	0.72	143	6.13	20105	35094	42588	765	1298	1565
BLUEGILL	1222	0.23	16	0.70	7113	10343	11958	101	146	169
YELLOW PERCH	687	0.13	13	0.54	2961	4795	5713	54	85	101
GIZZARD SHAD	575	0.11	37	1.58	3779	7313	9080	197	346	420
SPOTTAIL SHINER	447	0.08	4	0.17	1734	2857	3419	15	26	32

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
993025	1348895	1526830	1631	2195	2477	3976658	5402627	6115611	6608
33727	63325	78123	757	1424	1758	227763	450350	561644	5247
4729	6835	7887	276	407	472	38049	55674	64487	2362
3505	5661	6739	142	223	263	24914	42413	51163	939
1917	2762	3185	28	40	47	9102	13463	15644	124
707	1133	1345	13	20	24	4548	7198	8523	84
1163	2265	2816	53	92	111	4331	8406	10443	259
402	670	803	3	6	7	2915	4800	5743	26

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
8914	10066	4426610	6029906	6831554	7422	10056	11373
10531	13173	294110	587621	734376	6771	13760	17254
3491	4056	54939	79983	92504	3494	5123	5937
1559	1870	33154	56789	68606	1233	2064	2479
181	209	10858	16159	18809	145	214	248
129	151	5953	9362	11066	110	168	197
457	557	4839	9357	11616	318	562	685
44	54	3942	6471	7736	35	60	73

Table 1-4. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
CHANNEL CATFISH	246	0.05	10	0.43	1651	2289	2608	69	100	116
LARGEMOUTH BASS	143	0.03	1	0.02	916	1839	2301	3	6	8
STRIPED BASS	131	0.02	18	0.78	556	930	1117	68	108	127
WHITE CATFISH	95	0.02	3	0.13	623	1001	1189	19	39	48
HYBRID BASS	68	0.01	17	0.73	245	445	546	55	104	128
CHAIN PICKEREL	47	0.01	0	0.00	188	380	476	0	0	0
WHITE CRAPPIE	38	0.01	3	0.15	202	420	529	19	40	50
WARMOUTH	36	0.01	2	0.07	182	398	506	7	17	22

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
435	600	682	18	26	30	1818	2523	2875	77
261	509	633	1	2	2	1100	2209	2764	4
105	188	229	12	20	24	748	1239	1485	97
196	316	376	6	12	15	680	1093	1299	22
37	64	77	10	18	22	354	610	738	89
51	103	129	0	0	0	359	722	903	0
42	88	111	4	9	12	240	498	627	22
39	88	112	1	3	4	250	531	671	9

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
112	130	2123	2954	3370	89	131	152
9	12	1237	2501	3134	5	11	14
150	176	1055	1718	2049	144	218	255
43	54	762	1223	1454	24	48	60
163	199	535	907	1093	135	242	296
1	1	457	917	1147	0	1	1
47	60	321	660	830	29	61	77
22	28	322	677	855	13	29	38

Table 1-4. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
GOLDEN SHINER	26	0.00	0	0.00	101	303	404	0	1	1
SPOTTED BASS	16	0.00	0	0.01	110	288	378	1	2	3
TESSELATED DARTER	15	0.00	0	0.01	81	262	352	1	3	3
REDEAR	11	0.00	1	0.05	60	309	433	9	46	65
SILVER REDHORSE	10	0.00	1	0.03	70	350	490	4	18	25
WHITEFIN SHINER	10	0.00	0	0.00	45	216	302	0	2	3
REDBREAST	9	0.00	0	0.01	56	144	189	1	4	5
GREEN SUNFISH	8	0.00	1	0.03	31	114	156	2	6	8

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
27	79	106	0	0	0	180	535	712	0
42	108	142	0	1	1	117	311	408	1
24	77	104	0	1	1	110	364	491	1
18	93	131	3	17	24	75	385	540	10
9	45	63	0	2	2	74	372	521	4
10	46	65	0	0	1	71	333	464	1
15	39	51	0	1	1	69	182	238	2
5	18	24	0	1	2	44	166	226	3

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
1	2	233	688	916	1	2	2
4	6	126	337	443	2	5	7
4	5	126	420	567	1	4	6
52	73	85	436	611	12	58	81
19	27	95	476	666	5	27	38
3	4	89	419	584	1	4	5
5	6	79	208	273	2	5	7
11	16	65	243	332	5	18	25

Table 1-4. (Continued).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
BROWN BULLHEAD	6	0.00	0	0.00	46	105	134	1	2	2
LONGNOSE GAR	6	0.00	0	0.02	30	81	106	2	6	9
BLACK BULLHEAD	5	0.00	0	0.01	34	91	120	1	3	4
WHITE BASS	5	0.00	1	0.03	26	91	124	3	10	14
BLACKBANDED DARTER	3	0.00	0	0.00	15	132	191	0	0	0
CREEK CHUB	3	0.00	0	0.00	9	78	113	0	0	0
RIVER CHUB	3	0.00	0	0.00	17	151	218	0	0	0
STRIPED KILLIFISH	3	0.00	0	0.00	15	135	195	0	0	0

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
14	32	42	0	0	1	52	120	153	1
9	23	31	1	2	3	50	133	175	2
12	32	42	0	1	1	36	96	127	1
8	27	37	1	3	4	35	123	168	4
1	13	19	0	0	0	16	141	204	0
2	17	24	0	0	0	17	151	219	0
2	15	21	0	0	0	18	161	233	0
1	13	19	0	0	0	16	145	209	0

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
2	3	57	132	169	1	3	4
7	9	61	164	215	3	8	10
3	4	39	106	140	1	4	5
16	22	40	144	196	6	22	29
0	0	22	199	288	0	0	0
0	0	27	244	352	0	0	0
0	0	25	227	328	0	0	0
0	0	23	204	294	0	0	0

Table 1-4. (Concluded).

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE 3 TOTAL NUMBER	PHASE 3 TOTAL NUMBER PLUS 2 STAND. ERROR	PHASE 3 TOTAL NUMBER PLUS 3 STAND. ERROR	PHASE III TOTAL MASS(KG)	PHASE 3 TOTAL MASS PLUS 2 STAND. ERROR	PHASE 3 TOTAL MASS PLUS 3 STAND. ERROR
FLATHEAD CATFISH	2	0.00	1	0.02	16	47	63	3	11	16
FLIER	2	0.00	0	0.00	16	148	214	0	0	0
NORTHERN HOGSUCKER	2	0.00	0	0.00	8	39	55	0	0	0
YELLOW BULLHEAD	1	0.00	0	0.00	6	31	44	0	1	1
	533327	99.98	2327	99.94	3666166	5125492	5855163	13016	21362	25535

PROJECTED WET YEAR NUMBER	WET YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	WET YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED WET YEAR MASS(KG)	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	WET YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR NUMBER	AVERAGE YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	AVERAGE YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED AVERAGE YEAR MASS(KG)
6	17	22	1	4	6	17	53	70	3
4	39	56	0	0	0	21	188	272	0
2	11	15	0	0	0	15	76	107	0
1	8	11	0	0	0	7	39	55	0
1040553	1434254	1631102	2961	4530	5315	4294869	5998430	6850212	16002

AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	AVERAGE YEAR TOTAL MASS PLUS 3 STAND. ERROR	PROJECTED DRY YEAR NUMBER	DRY YEAR TOTAL NUMBER PLUS 2 STAND. ERROR	DRY YEAR TOTAL NUMBER PLUS 3 STAND. ERROR	PROJECTED DRY YEAR MASS(KG)	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR	DRY YEAR TOTAL MASS PLUS 3 STAND. ERROR
12	16	18	57	76	3	13	17
0	0	23	203	293	0	0	0
0	0	19	97	136	0	0	0
1	1	8	43	60	0	1	1
25993	30990	4842477	6812252	7797138	20010	32922	39376

Table 1-5. Comparison of mean monthly species entrainment rates (number/hour) for pumpback units. Rates for units 6,7,& 8 are doubled to expand for unsampled bay sampling rate of 0.0 indicates no members of that species were collected for that unit. Data have not been corrected for turbine passage survival.

MONTH=APRIL

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	696.12	16.25	4	286.91	16.00	5	320.09	18.17	5	347.13	16.00	4	412.56
WHITE PERCH	130.89	16.25	4	93.66	16.00	5	144.69	18.17	5	78.66	16.00	4	111.97
BLUEBACK HERRING	113.42	16.25	4	15.00	16.00	5	36.38	18.17	5	26.53	16.00	4	47.83
BLACK CRAPPIE	10.39	16.25	4	25.19	16.00	5	25.52	18.17	5	14.27	16.00	4	18.84
YELLOW PERCH	40.78	16.25	4	10.00	16.00	5	11.13	18.17	5	6.28	16.00	4	17.05
SPOTTAIL SHINER	35.60	16.25	4	4.74	16.00	5	3.09	18.17	5	8.55	16.00	4	13.00
CHANNEL CATFISH	13.21	16.25	4	10.59	16.00	5	15.42	18.17	5	9.78	16.00	4	12.25
STRIPED BASS	2.30	16.25	4	3.82	16.00	5	2.18	18.17	5	0.53	16.00	4	2.21
BLUEGILL	3.15	16.25	4	2.19	16.00	5	2.50	18.17	5	0.93	16.00	4	2.19
HYBRID BASS	1.65	16.25	4	1.71	16.00	5	1.00	18.17	5	1.37	16.00	4	1.43
GIZZARD SHAD	1.04	16.25	4	0.40	16.00	5	0.20	18.17	5	0.38	16.00	4	0.50
WHITE CATFISH	0.32	16.25	4	0.37	16.00	5	0.56	18.17	5	0.46	16.00	4	0.43
GOLDEN SHINER	0.00	16.25	4	0.00	16.00	5	1.32	18.17	5	0.32	16.00	4	0.41
WHITE CRAPPIE	0.65	16.25	4	0.27	16.00	5	0.00	18.17	5	0.00	16.00	4	0.23
WARMOUTH	0.07	16.25	4	0.00	16.00	5	0.37	18.17	5	0.15	16.00	4	0.15
BROWN BULLHEAD	0.21	16.25	4	0.00	16.00	5	0.34	18.17	5	0.00	16.00	4	0.14
GREEN SUNFISH	0.00	16.25	4	0.27	16.00	5	0.00	18.17	5	0.00	0.00	0	0.07
CREEK CHUB	0.00	0.00	0	0.22	16.00	5	0.00	0.00	0	0.00	0.00	0	0.05
BLACK BULLHEAD	0.00	16.25	4	0.00	16.00	5	0.00	18.17	5	0.14	16.00	4	0.03
WHITE BASS	0.06	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	16.00	4	0.02
BLACKBANDED DARTER	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
CARP	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	0.00	0	0.00
CHAIN PICKEREL	0.00	16.25	4	0.00	16.00	5	0.00	18.17	5	0.00	16.00	4	0.00
COOSA BASS	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
FLATHEAD CATFISH	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	16.00	4	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
LARGEMOUTH BASS	0.00	16.25	4	0.00	16.00	5	0.00	18.17	5	0.00	16.00	4	0.00
LONGNOSE GAR	0.00	16.25	4	0.00	16.00	5	0.00	18.17	5	0.00	16.00	4	0.00
MARGINED MADTOM	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
REDBREAST	0.00	16.25	4	0.00	16.00	5	0.00	18.17	5	0.00	16.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
REDEAR	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	0.00	0	0.00
RIVER CARPSUCKER	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	16.00	5	0.00	0.00	0	0.00	0.00	0	0.00
SILVER REDHORSE	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	0.00	0	0.00
SPOTTED BASS	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	16.00	4	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
TESSELATED DARTER	0.00	16.25	4	0.00	0.00	0	0.00	18.17	5	0.00	16.00	4	0.00
WHITEFIN SHINER	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
YELLOW BULLHEAD	0.00	16.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
SUM	1049.85			455.34			564.78			495.46			641.36

Table 1-5. (Continued).

MONTH=MAY

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
BLUEBACK HERRING	120.29	17.58	4	632.38	16.00	4	1077.94	16.37	4	11.15	17.00	4	460.44
BLACK CRAPPIE	51.92	17.58	4	172.67	16.00	4	37.45	16.37	4	43.36	17.00	4	76.35
WHITE PERCH	101.73	17.58	4	37.35	16.00	4	65.23	16.37	4	38.12	17.00	4	60.61
THREADFIN SHAD	167.98	17.58	4	9.28	16.00	4	6.00	16.37	4	13.82	17.00	4	49.27
CHANNEL CATFISH	25.43	17.58	4	7.02	16.00	4	9.02	16.37	4	4.72	17.00	4	11.55
BLUEGILL	15.08	17.58	4	4.07	16.00	4	4.25	16.37	4	6.46	17.00	4	7.47
YELLOW PERCH	8.71	17.58	4	12.53	16.00	4	3.94	16.37	4	2.98	17.00	4	7.04
SPOTTAIL SHINER	6.73	17.58	4	3.02	16.00	4	6.46	16.37	4	1.05	17.00	4	4.31
STRIPED BASS	1.15	17.58	4	0.96	16.00	4	1.47	16.37	4	0.87	17.00	4	1.11
WHITE CRAPPIE	0.13	17.58	4	0.00	16.00	4	1.32	16.37	4	1.03	17.00	4	0.62
HYBRID BASS	0.25	17.58	4	0.42	16.00	4	0.65	16.37	4	1.10	17.00	4	0.60
WHITE CATFISH	0.10	17.58	4	0.44	16.00	4	1.17	16.37	4	0.26	17.00	4	0.49
WARMOUTH	0.32	17.58	4	0.15	16.00	4	0.15	16.37	4	0.58	17.00	4	0.30
GREEN SUNFISH	0.65	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	0.00	0	0.16
GIZZARD SHAD	0.05	17.58	4	0.29	16.00	4	0.00	16.37	4	0.17	17.00	4	0.13
REDBREAST	0.13	17.58	4	0.15	16.00	4	0.00	16.37	4	0.00	17.00	4	0.07
RIVER CHUB	0.00	0.00	0	0.18	16.00	4	0.00	0.00	0	0.00	0.00	0	0.05
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.17	17.00	4	0.04
BLACKBANDED DARTER	0.16	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.04
REDEAR	0.00	17.58	4	0.00	0.00	0	0.14	16.37	4	0.00	0.00	0	0.04
BLACK BULLHEAD	0.11	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.03
YELLOW BULLHEAD	0.11	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.03
SILVER REDHORSE	0.06	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	0.00	0	0.02
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
BROWN BULLHEAD	0.00	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.00
CARP	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	0.00	0	0.00
CHAIN PICKEREL	0.00	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.00
COOSA BASS	0.00	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
FLATHEAD CATFISH	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	17.00	4	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
GOLDEN SHINER	0.00	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.00
LARGEMOUTH BASS	0.00	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.00
LONGNOSE GAR	0.00	17.58	4	0.00	16.00	4	0.00	16.37	4	0.00	17.00	4	0.00
MARGINED MADTOM	0.00	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
RIVER CARPSUCKER	0.00	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
SPOTTED BASS	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	17.00	4	0.00
TESSELATED DARTER	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	17.00	4	0.00
WHITE BASS	0.00	17.58	4	0.00	0.00	0	0.00	16.37	4	0.00	17.00	4	0.00
WHITEFIN SHINER	0.00	17.58	4	0.00	0.00	0	0.00	0.00	0	0.00	17.00	4	0.00
SUM	501.08			880.93			1215.20			125.82			680.76

Table 1-5. (Continued).

MONTH=JUNE

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	258.37	17.50	4	17.58	16.00	4	92.95	16.00	4	134.31	16.00	4	125.80
BLUEBACK HERRING	60.97	17.50	4	47.12	16.00	4	71.89	16.00	4	24.58	16.00	4	51.14
WHITE PERCH	36.49	17.50	4	7.13	16.00	4	9.09	16.00	4	12.34	16.00	4	16.26
BLACK CRAPPIE	10.84	17.50	4	21.47	16.00	4	11.01	16.00	4	17.32	16.00	4	15.16
BLUEGILL	27.08	17.50	4	7.13	16.00	4	6.27	16.00	4	4.75	16.00	4	11.30
YELLOW PERCH	10.79	17.50	4	2.66	16.00	4	3.13	16.00	4	4.55	16.00	4	5.28
SPOTTAIL SHINER	3.86	17.50	4	3.13	16.00	4	2.38	16.00	4	8.46	16.00	4	4.46
LONGNOSE GAR	0.05	17.50	4	0.33	16.00	4	0.33	16.00	4	5.25	16.00	4	1.49
CHANNEL CATFISH	1.92	17.50	4	0.83	16.00	4	0.99	16.00	4	2.05	16.00	4	1.45
CHAIN PICKEREL	0.62	17.50	4	0.91	16.00	4	0.43	16.00	4	1.98	16.00	4	0.98
WHITE CATFISH	0.52	17.50	4	0.62	16.00	4	0.14	16.00	4	0.79	16.00	4	0.51
LARGEMOUTH BASS	0.42	17.50	4	0.43	16.00	4	0.00	16.00	4	0.86	16.00	4	0.43
WARMOUTH	0.88	17.50	4	0.00	16.00	4	0.30	16.00	4	0.32	16.00	4	0.37
GOLDEN SHINER	0.00	17.50	4	0.00	16.00	4	0.00	16.00	4	1.47	16.00	4	0.37
GIZZARD SHAD	1.32	17.50	4	0.00	16.00	4	0.13	16.00	4	0.00	16.00	4	0.36
WHITEFIN SHINER	0.54	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.14
TESSELATED DARTER	0.00	17.50	4	0.00	0.00	0	0.43	16.00	4	0.00	16.00	4	0.11
REDBREAST	0.19	17.50	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.05
NORTHERN HOGSUCKER	0.00	17.50	4	0.00	0.00	0	0.17	16.00	4	0.00	0.00	0	0.04
GREEN SUNFISH	0.00	17.50	4	0.15	16.00	4	0.00	16.00	4	0.00	0.00	0	0.04
REDEAR	0.00	17.50	4	0.00	0.00	0	0.14	16.00	4	0.00	0.00	0	0.04
WHITE BASS	0.00	17.50	4	0.00	0.00	0	0.00	16.00	4	0.14	16.00	4	0.03
BROWN BULLHEAD	0.00	17.50	4	0.00	16.00	4	0.14	16.00	4	0.00	16.00	4	0.03
HYBRID BASS	0.06	17.50	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.02
STRIPED BASS	0.06	17.50	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.02
SPOTTED BASS	0.05	17.50	4	0.00	0.00	0	0.00	16.00	4	0.00	16.00	4	0.01
BLACK BULLHEAD	0.00	17.50	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.00
BLACKBANDED DARTER	0.00	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
CARP	0.00	17.50	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
COOSA BASS	0.00	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
FLATHEAD CATFISH	0.00	17.50	4	0.00	0.00	0	0.00	16.00	4	0.00	16.00	4	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
MARGINED MADTOM	0.00	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
RIVER CARPSUCKER	0.00	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
SILVER REDHORSE	0.00	17.50	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
WHITE CRAPPIE	0.00	17.50	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.00
YELLOW BULLHEAD	0.00	17.50	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
SUM	415.03			109.49			199.90			219.16			235.89

Table 1-5. (Continued).

MONTH=JULY

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	1080.00	25.25	4	1257.45	16.00	4	1293.28	16.00	4	1243.01	16.00	4	1218.44
BLUEBACK HERRING	39.49	25.25	4	16.80	16.00	4	23.97	16.00	4	14.49	16.00	4	23.69
BLUEGILL	6.63	25.25	4	2.87	16.00	4	5.06	16.00	4	3.07	16.00	4	4.41
BLACK CRAPPIE	2.19	25.25	4	1.17	16.00	4	4.33	16.00	4	8.37	16.00	4	4.02
GIZZARD SHAD	8.18	25.25	4	0.00	16.00	4	5.37	16.00	4	1.01	16.00	4	3.64
WHITE PERCH	2.26	25.25	4	2.41	16.00	4	2.27	16.00	4	1.81	16.00	4	2.19
YELLOW PERCH	2.66	25.25	4	0.91	16.00	4	1.59	16.00	4	3.31	16.00	4	2.12
CHANNEL CATFISH	1.27	25.25	4	0.27	16.00	4	1.28	16.00	4	1.57	16.00	4	1.10
SPOTTAIL SHINER	0.67	25.25	4	0.14	16.00	4	0.34	16.00	4	1.67	16.00	4	0.70
LARGEMOUTH BASS	0.11	25.25	4	0.00	16.00	4	0.00	16.00	4	0.74	16.00	4	0.21
TESSELATED DARTER	0.46	25.25	4	0.00	0.00	0	0.37	16.00	4	0.00	16.00	4	0.21
WHITE CATFISH	0.10	25.25	4	0.29	16.00	4	0.29	16.00	4	0.14	16.00	4	0.20
BROWN BULLHEAD	0.00	25.25	4	0.14	16.00	4	0.00	16.00	4	0.15	16.00	4	0.07
STRIPED BASS	0.00	25.25	4	0.00	16.00	4	0.14	16.00	4	0.13	16.00	4	0.07
LONGNOSE GAR	0.09	25.25	4	0.00	16.00	4	0.00	16.00	4	0.14	16.00	4	0.06
REDBREAST	0.08	25.25	4	0.00	16.00	4	0.15	16.00	4	0.00	16.00	4	0.06
GOLDEN SHINER	0.00	25.25	4	0.00	16.00	4	0.17	16.00	4	0.00	16.00	4	0.04
BLACK BULLHEAD	0.00	25.25	4	0.00	16.00	4	0.00	16.00	4	0.14	16.00	4	0.03
CHAIN PICKEREL	0.11	25.25	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.03
REDEAR	0.08	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.02
BLACKBANDED DARTER	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
CARP	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
COOSA BASS	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
FLATHEAD CATFISH	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	16.00	4	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
GREEN SUNFISH	0.00	25.25	4	0.00	16.00	4	0.00	16.00	4	0.00	0.00	0	0.00
HYBRID BASS	0.00	25.25	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.00
MARGINED MADTOM	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
RIVER CARPSUCKER	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
SILVER REDHORSE	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
SPOTTED BASS	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	16.00	4	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
WARMOUTH	0.00	25.25	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.00
WHITE BASS	0.00	25.25	4	0.00	0.00	0	0.00	16.00	4	0.00	16.00	4	0.00
WHITE CRAPPIE	0.00	25.25	4	0.00	16.00	4	0.00	16.00	4	0.00	16.00	4	0.00
WHITEFIN SHINER	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
YELLOW BULLHEAD	0.00	25.25	4	0.00	0.00	0	0.00	0.00	0	0.00	16.00	4	0.00
SUM	1144.36			1282.45			1338.60			1279.74			1261.29

Table 1-5. (Continued).

MONTH=AUGUST

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	1689.85	31.50	5	3550.35	17.75	4	1608.82	20.00	4	2718.20	20.00	4	2391.80
BLUEBACK HERRING	50.51	31.50	5	169.83	17.75	4	55.63	20.00	4	25.91	20.00	4	75.47
BLACK CRAPPIE	1.74	31.50	5	3.10	17.75	4	7.90	20.00	4	4.75	20.00	4	4.37
WHITE PERCH	3.73	31.50	5	4.34	17.75	4	5.11	20.00	4	2.00	20.00	4	3.79
YELLOW PERCH	1.58	31.50	5	0.75	17.75	4	7.95	20.00	4	0.61	20.00	4	2.72
BLUEGILL	2.23	31.50	5	1.67	17.75	4	1.43	20.00	4	1.58	20.00	4	1.73
CHANNEL CATFISH	2.23	31.50	5	2.39	17.75	4	1.46	20.00	4	0.56	20.00	4	1.66
LARGEMOUTH BASS	0.85	31.50	5	2.10	17.75	4	0.31	20.00	4	0.13	20.00	4	0.85
WHITE CATFISH	1.39	31.50	5	0.24	17.75	4	0.35	20.00	4	0.71	20.00	4	0.67
GIZZARD SHAD	0.88	31.50	5	0.13	17.75	4	1.06	20.00	4	0.00	20.00	4	0.52
SPOTTAIL SHINER	0.30	31.50	5	0.57	17.75	4	0.69	20.00	4	0.41	20.00	4	0.49
STRIPED BASS	0.05	31.50	5	0.22	17.75	4	0.32	20.00	4	0.00	20.00	4	0.15
BROWN BULLHEAD	0.10	31.50	5	0.15	17.75	4	0.00	20.00	4	0.14	20.00	4	0.10
TESSELATED DARTER	0.34	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.09
WARMOUTH	0.00	31.50	5	0.15	17.75	4	0.12	20.00	4	0.00	20.00	4	0.07
GOLDEN SHINER	0.22	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	20.00	4	0.06
WHITE CRAPPIE	0.09	31.50	5	0.00	17.75	4	0.00	20.00	4	0.11	20.00	4	0.05
REDEAR	0.17	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.04
YELLOW BULLHEAD	0.14	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.04
FLATHEAD CATFISH	0.00	31.50	5	0.00	0.00	0	0.12	20.00	4	0.00	20.00	4	0.03
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.12	20.00	4	0.03
REDBREAST	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.12	20.00	4	0.03
WHITE BASS	0.00	31.50	5	0.00	0.00	0	0.11	20.00	4	0.00	20.00	4	0.03
WHITEFIN SHINER	0.10	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.03
SPOTTED BASS	0.08	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.02
BLACK BULLHEAD	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	20.00	4	0.00
BLACKBANDED DARTER	0.00	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
CARP	0.00	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
CHAIN PICKEREL	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	20.00	4	0.00
COOSA BASS	0.00	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	17.75	4	0.00	0.00	0	0.00	0.00	0	0.00
GREEN SUNFISH	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	0.00	0	0.00
HYBRID BASS	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	20.00	4	0.00
LONGNOSE GAR	0.00	31.50	5	0.00	17.75	4	0.00	20.00	4	0.00	20.00	4	0.00
MARGINED MADTOM	0.00	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
RIVER CARPSUCKER	0.00	31.50	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	17.75	4	0.00	0.00	0	0.00	0.00	0	0.00
SILVER REDHORSE	0.00	31.50	5	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
SUM	1756.60			3735.99			1691.37			2755.34			2484.82

Table 1-5. (Continued).

MONTH=SEPTEMBER

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	1426.00	28.00	4	1068.28	16.00	4	1363.64	16.00	4	1562.59	17.98	4	1355.13
BLUEBACK HERRING	15.96	28.00	4	6.53	16.00	4	29.68	16.00	4	4.83	17.98	4	14.25
CHANNEL CATFISH	5.13	28.00	4	1.29	16.00	4	2.75	16.00	4	3.72	17.98	4	3.22
BLUEGILL	2.89	28.00	4	0.91	16.00	4	1.79	16.00	4	2.61	17.98	4	2.05
WHITE CATFISH	4.06	28.00	4	0.63	16.00	4	0.76	16.00	4	2.25	17.98	4	1.93
WHITE PERCH	1.10	28.00	4	1.64	16.00	4	1.74	16.00	4	2.82	17.98	4	1.83
BLACK CRAPPIE	1.25	28.00	4	1.13	16.00	4	1.95	16.00	4	1.89	17.98	4	1.55
GIZZARD SHAD	2.90	28.00	4	1.38	16.00	4	0.30	16.00	4	0.13	17.98	4	1.17
LARGEMOUTH BASS	0.99	28.00	4	0.00	16.00	4	0.33	16.00	4	0.71	17.98	4	0.51
YELLOW PERCH	0.66	28.00	4	0.00	16.00	4	0.00	16.00	4	0.44	17.98	4	0.27
SPOTTED BASS	0.39	28.00	4	0.00	0.00	0	0.35	16.00	4	0.00	17.98	4	0.19
BLACK BULLHEAD	0.42	28.00	4	0.00	16.00	4	0.00	16.00	4	0.12	17.98	4	0.13
WHITE CRAPPIE	0.00	28.00	4	0.14	16.00	4	0.14	16.00	4	0.11	17.98	4	0.10
STRIPED BASS	0.11	28.00	4	0.00	16.00	4	0.13	16.00	4	0.13	17.98	4	0.09
BROWN BULLHEAD	0.00	28.00	4	0.00	16.00	4	0.32	16.00	4	0.00	17.98	4	0.08
FLATHEAD CATFISH	0.09	28.00	4	0.00	0.00	0	0.00	16.00	4	0.15	17.98	4	0.06
WARMOUTH	0.00	28.00	4	0.15	16.00	4	0.00	16.00	4	0.00	17.98	4	0.04
REDEAR	0.00	28.00	4	0.00	0.00	0	0.14	16.00	4	0.00	0.00	0	0.03
WHITE BASS	0.06	28.00	4	0.00	0.00	0	0.00	16.00	4	0.00	17.98	4	0.01
LONGNOSE GAR	0.04	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.01
BLACKBANDED DARTER	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
CARP	0.00	28.00	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
CHAIN PICKEREL	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.00
COOSA BASS	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
GOLDEN SHINER	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.00
GREEN SUNFISH	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	0.00	0	0.00
HYBRID BASS	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.00
MARGINED MADTOM	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	28.00	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
REDBREAST	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
RIVER CARPSUCKER	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00	0.00	0	0.00
SILVER REDHORSE	0.00	28.00	4	0.00	0.00	0	0.00	16.00	4	0.00	0.00	0	0.00
SPOTTAIL SHINER	0.00	28.00	4	0.00	16.00	4	0.00	16.00	4	0.00	17.98	4	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
TESSELATED DARTER	0.00	28.00	4	0.00	0.00	0	0.00	16.00	4	0.00	17.98	4	0.00
WHITEFIN SHINER	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
YELLOW BULLHEAD	0.00	28.00	4	0.00	0.00	0	0.00	0.00	0	0.00	17.98	4	0.00
SUM	1462.04			1082.07			1404.03			1582.50			1382.66

Table 1-5. (Concluded).

MONTH=OCTOBER

COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED	ENTRAIN MEAN RATE ALL UNITS (#/HR)
THREADFIN SHAD	542.15	23.00	4	829.43	19.25	4	779.07	20.00	4	887.08	20.00	4	759.43
CHANNEL CATFISH	8.96	23.00	4	6.17	19.25	4	7.06	20.00	4	5.05	20.00	4	6.81
BLUEBACK HERRING	3.98	23.00	4	3.07	19.25	4	5.72	20.00	4	1.08	20.00	4	3.46
WHITE CATFISH	5.68	23.00	4	1.43	19.25	4	0.49	20.00	4	3.51	20.00	4	2.78
WHITE PERCH	0.57	23.00	4	2.75	19.25	4	1.92	20.00	4	3.51	20.00	4	2.19
BLUEGILL	2.56	23.00	4	0.31	19.25	4	2.03	20.00	4	1.35	20.00	4	1.56
BLACK CRAPPIE	0.79	23.00	4	0.29	19.25	4	0.92	20.00	4	1.37	20.00	4	0.84
GIZZARD SHAD	1.19	23.00	4	0.37	19.25	4	0.38	20.00	4	0.98	20.00	4	0.73
YELLOW PERCH	0.99	23.00	4	0.12	19.25	4	0.42	20.00	4	0.64	20.00	4	0.54
LARGEMOUTH BASS	0.88	23.00	4	0.00	19.25	4	0.00	20.00	4	0.38	20.00	4	0.32
SILVER REDHORSE	0.00	23.00	4	0.00	0.00	0	0.60	20.00	4	0.00	0.00	0	0.15
SPOTTAIL SHINER	0.00	23.00	4	0.00	19.25	4	0.42	20.00	4	0.14	20.00	4	0.14
STRIPED BASS	0.11	23.00	4	0.13	19.25	4	0.00	20.00	4	0.21	20.00	4	0.11
WHITEFIN SHINER	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.42	20.00	4	0.11
HYBRID BASS	0.00	23.00	4	0.13	19.25	4	0.00	20.00	4	0.10	20.00	4	0.06
BROWN BULLHEAD	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.23	20.00	4	0.06
WARMOUTH	0.00	23.00	4	0.00	19.25	4	0.12	20.00	4	0.00	20.00	4	0.03
BLACK BULLHEAD	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.11	20.00	4	0.03
GOLDEN SHINER	0.00	23.00	4	0.09	19.25	4	0.00	20.00	4	0.00	20.00	4	0.02
BLACKBANDED DARTER	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
CARP	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
CHAIN PICKEREL	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.00	20.00	4	0.00
COOSA BASS	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
CREEK CHUB	0.00	0.00	0	0.00	19.25	4	0.00	0.00	0	0.00	0.00	0	0.00
FLATHEAD CATFISH	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.00
FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
GREEN SUNFISH	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.00	0.00	0	0.00
LONGNOSE GAR	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.00	20.00	4	0.00
MARGINED MADTOM	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
NORTHERN HOGSUCKER	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
REDBREAST	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.00	20.00	4	0.00
REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
REDEAR	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	0.00	0	0.00
RIVER CARPSUCKER	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
RIVER CHUB	0.00	0.00	0	0.00	19.25	4	0.00	0.00	0	0.00	0.00	0	0.00
SPOTTED BASS	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.00
STRIPED KILLIFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
TESSELATED DARTER	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.00
WHITE BASS	0.00	23.00	4	0.00	0.00	0	0.00	20.00	4	0.00	20.00	4	0.00
WHITE CRAPPIE	0.00	23.00	4	0.00	19.25	4	0.00	20.00	4	0.00	20.00	4	0.00
YELLOW BULLHEAD	0.00	23.00	4	0.00	0.00	0	0.00	0.00	0	0.00	20.00	4	0.00
SUM	567.87			844.28			799.14			906.15			779.36

Table 1-6. Seasonal patterns of mean entrainment rate (fish/hr) for commonly entrained species. Data have not been adjusted for passage survival.

Common Name	April	May	June	July	August	September	October
THREADFIN SHAD	412.56	49.27	125.80	1218.44	2391.80	1355.13	759.43
BLUEBACK HERRING	47.83	460.44	51.14	23.69	75.47	14.25	3.46
WHITE PERCH	111.97	60.61	16.26	2.19	3.79	1.83	2.19
BLACK CRAPPIE	18.84	76.35	15.16	4.02	4.37	1.55	0.84
BLUEGILL	2.19	7.47	11.30	4.41	1.73	2.05	1.56
YELLOW PERCH	17.05	7.04	5.28	2.12	2.72	1.83	0.54
GIZZARD SHAD	0.50	0.13	0.36	3.64	0.52	1.17	0.73
SPOTTAIL SHINER	13.00	4.31	4.46	0.70	0.49	0.00	0.14
CHANNEL CATFISH	12.25	11.55	1.45	1.10	1.66	3.22	6.81
LARGEMOUTH BASS	0.00	0.00	0.43	0.21	0.85	0.51	0.32
STRIPED BASS	2.21	1.11	0.02	0.07	0.15	0.09	0.11
WHITE CATFISH	0.43	0.49	0.51	0.20	0.67	1.93	2.78
HYBRID BASS	1.43	0.60	0.02	0.00	0.00	0.00	0.06

Table 1-7. Comparison of mean monthly entrainment rates across pumpback units for all species combined calculated as sum of mean monthly species entrainment rates for each species. Data have not been adjusted for turbine passage survival.

MONTH	UNIT 5 MEAN ENTRAINMENT RATE (NUM/HR)	UNIT 6 MEAN ENTRAINMENT RATE (NUM/HR)	UNIT 7 MEAN ENTRAINMENT RATE (NUM/HR)	UNIT 8 MEAN ENTRAINMENT RATE (NUM/HR)	MEAN ENTRAIN ALL UNITS (NUM/HR)
APRIL	1049.85	455.34	564.78	495.46	641.36
MAY	501.08	880.93	1215.20	125.82	680.76
JUNE	415.03	109.49	199.90	219.16	235.89
JULY	1144.36	1282.45	1338.60	1279.74	1261.29
AUGUST	1756.60	3735.99	1691.37	2755.34	2484.82
SEPTEMBER	1462.04	1082.07	1404.03	1582.50	1382.66
OCTOBER	567.87	844.28	799.14	906.15	779.36

Table 1-8. Summaries of numbers and biomass for different fish taxa greater than or equal to 1.5-inches long based on Phase III netting, estimated Phase III totals, projected wet water year (25 percent exceedance) for April to October, projected average water year (50 percent exceedance) for April to October, and projected dry water year (75 percent exceedance) for April to October for all species recovered during Phase III sampling corrected for survivorship. Size classes for black crappie and white perch are fingerling <= 4 inch fish, intermediate >4 & <=6, and harvestable >8. Size classes for striped bass and hybrid bass are fingerling <= 4 inch fish, intermediate >4 & <=8, harvestable >8 & <= 14, and desirable > 14 inches. Round-off errors produce small discrepancies between this table and Table S-6.

ALL FISH

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
1.5-3.5	477796	89.59	737	31.69	3370205	5123	983264	1490	3931395	5994	4370834	6684
3.5-5.5	23638	4.43	322	13.85	128636	1734	26794	327	155351	2085	200008	2735
5.5-8.5	31110	5.83	1089	46.83	164348	5473	29840	993	203783	6924	265442	9177
GT_8.5	783	0.15	177	7.61	3023	692	662	154	4390	1005	6260	1420
SUM	533327	100.00	2327	99.98	3666212	13022	1040560	2964	4294919	16008	4842544	20016

WHITE PERCH

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	404	5.85	2	0.42	2706	13	693	3	3130	14	3592	17
INTERMEDIATE	4008	57.95	186	42.15	14748	685	2514	117	21818	1013	31882	1481
HARVESTABLE	2504	36.20	257	58.24	9005	897	1522	156	13100	1334	19466	1996
SUM	6916	100.00	445	100.81	26459	1595	4729	276	38048	2361	54940	3494

BLACK CRAPPIE

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	268	6.97	3	2.36	1327	17	204	3	1687	21	2294	29
INTERMEDIATE	3242	84.35	109	76.47	16724	563	2806	94	20787	697	27897	938
HARVESTABLE	333	8.67	30	20.90	2053	185	495	46	2440	221	2963	266
SUM	3843	99.99	142	99.73	20104	765	3505	143	24914	939	33154	1233

Table 1-8. (Concluded).

STRIPED BASS

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
HARVESTABLE	66	50.19	13	74.42	248	50	49	9	355	71	522	106
INTERMEDIATE	58	44.19	4	19.60	262	15	43	2	334	19	467	28
FINGERLING	6	4.39	0	0.27	42	0	13	0	51	0	55	0
DESIRABLE	1	1.14	1	7.16	4	3	1	1	9	6	12	10
SUM	131	99.91	18	101.45	556	68	106	12	749	96	1056	144

HYBRID BASS

FISH SIZE (INCHES)	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III TOTAL NUMBER	PHASE III TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
FINGERLING	0	0	0	0	0	0	-	-	-	-	-	-
INTERMEDIATE	22	32.61	1	8.51	93	6	12	1	118	8	176	12
HARVESTABLE	42	61.69	9	54.92	141	31	23	5	215	48	329	73
DESIRABLE	4	5.64	6	36.99	12	19	2	4	20	33	31	50
SUM	68	99.94	16	100.42	246	56	37	10	353	89	536	135

Table 1-9. Summary of fish impinged on the bar screen veneers during Phase III.

PHASE III IMPINGEMENT SUMMARY												
Species	Expanded Number Collected	Percent By Number	Expanded Mass(Kg) Collected	Percent By Mass	Phase III Expanded Numbers	Phase III Total Mass(Kg)	Projected Wet Year Number	Projected Wet Year Mass(Kg)	Projected Avg. Year Number	Projected Avg. Year Mass(Kg)	Projected Dry Year Number	Projected Dry Year Mass(Kg)
White Perch	32	37.65	5.19	9.27	98.34	17.31	17.65	2.98	166.97	27.04	258.0	41.17
Gizzard Shad	17	20.00	5.38	9.61	70.21	21.46	17.57	5.35	109.18	34.16	145.6	46.02
Hybrid Bass	10	11.76	13.42	23.96	32.85	39.89	6.08	7.74	52.9	68.15	80.08	105.45
Longnose Gar	9	10.59	25.48	45.49	48.38	60.68	4.77	5.98	52.49	65.86	73.94	92.74
Striped Bass	8	9.41	4.48	8.00	39.20	22.60	10.74	6.14	54.01	30.90	68.24	38.44
Channel Catfish	5	5.88	0.79	1.41	20.99	3.91	2.63	0.42	26.91	4.48	39.81	6.37
Black Crappie	2	2.35	0.15	0.27	4.88	0.37	1.04	0.07	9.42	0.72	15.18	1.16
Yellow Perch	1	1.18	0.26	0.46	5.42	1.41	0.53	0.14	5.88	1.53	8.28	2.15
Common Carp	1	1.18	0.86	1.54	5.37	4.60	0.53	0.45	5.83	4.99	8.21	7.03
Total	85	100.00	56.01	100.00	325.64	172.23	61.54	29.27	483.59	237.83	697.34	340.53

Table 1-10. Summary of striped bass and hybrid bass size composition for fish impinged on the bar screen veneers.

PHASE III HYBRID AND STRIPED BASS IMPINGEMENT SUMMARY												
Species	Expanded Number Collected	Percent By Number	Expanded Mass (Kg) Collected	Percent By Mass	Phase III Expanded Numbers	Phase III Total Mass (Kg)	Projected Wet Year Number	Projected Wet Year Mass (Kg)	Projected Avg. Year Number	Projected Avg. Year Mass (Kg)	Projected Dry Year Number	Projected Dry Year Mass (Kg)
Striped Bass												
< or = 4"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
5" - 8"	1	5.56	0.09	0.50	2.44	0.23	0.52	0.05	4.71	0.44	7.59	0.71
9" - 14"	4	22.22	1.29	7.21	21.38	8.88	6.34	2.77	28.22	10.73	35.43	12.34
> or = 15"	3	16.67	3.10	17.32	15.38	13.49	3.88	3.32	21.08	19.73	25.22	25.39
Hybrid Bass												
< or = 4"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
5" - 8"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
9" - 14"	0	0.00	0	0.00	0	0	0	0	0	0	0	0
> or = 15"	10	55.56	13.42	74.97	32.85	39.89	6.08	7.74	52.9	68.15	80.08	105.45
Total	**18**	**100.00**	**17.90**	**100.00**	**72.05**	**62.49**	**16.82**	**13.63**	**106.91**	**99.05**	**148.32**	**143.89**

Table 1-11. Monthly summaries of impinged fish by species and size for 1995 (a) and Phase III (b) . If a month is missing then no impinged fish were collected in that month.

(A) 1995 IMPINGEMENT SUMMARY								
MONTH	SPECIES	LENGTH	NUMBER COLLECTED	EXPANDED NUMBER COLLECTED	UNIT HOURS SAMPLED	RATE PER HOUR	TOTAL UNIT HOURS	TOTAL EXPANDED NUMBER
APRIL	Striped Bass	14	1	2	35.25	0.057	207.25	11.8
	Hybrid Bass	17	7	12	35.25	0.340	207.25	70.8
	Hybrid Bass	18	1	2	35.25	0.057	207.25	11.8
	Hybrid Bass	21	1	2	35.25	0.057	207.25	11.8
	White Perch	8	2	4	35.25	0.113	207.25	23.5
	White Perch	11	2	4	35.25	0.113	207.25	23.5
	White Perch	14	1	2	35.25	0.057	207.25	11.8
	Gizzard Shad	11	1	2	35.25	0.057	207.25	11.8
	Gizzard Shad	12	1	2	35.25	0.057	207.25	11.8
	Gizzard Shad	13	6	12	35.25	0.340	207.25	70.8
	Gizzard Shad	14	4	7	35.25	0.199	207.25	41.2
MAY	Longnose Gar	32	1	1	22.21	0.045	22.21	1
AUG	Hybrid Bass	12	1	2	17.21	0.116	107.17	12.5
	Gizzard Shad	10	2	4	17.21	0.232	107.17	24.9
	Gizzard Shad	12	2	4	17.21	0.116	107.17	12.5
SEP	Yellow Perch	14	1	2	12.97	0.154	61.38	9.5
TOTAL	APR - SEP 1995		34	64				361

Table 1-11 (Continued).

(b) Phase III Impingement Summary

Species	Size (in)	Expanded Number Collected	Percent By Number	Expanded Mass Collected	Percent By Mass	Projected Wet		Projected Ave		Projected Dry	
						Number	Mass	Number	Mass	Number	Mass
APRIL											
Gizzard Shad	8	2.44	2.00	0.19	0.38	0.52	0.04	4.71	0.36	7.59	0.59
Gizzard Shad	12	9.78	8.01	2.68	5.36	2.10	0.57	18.87	5.16	30.40	8.32
Gizzard Shad	14	4.89	4.00	2.16	4.33	1.05	0.46	9.44	4.18	15.20	6.73
Gizzard Shad	15	2.44	2.00	1.34	2.68	0.52	0.29	4.71	2.58	7.59	4.17
Striped Bass	8	2.44	2.00	0.23	0.45	0.52	0.05	4.71	0.44	7.59	0.71
Striped Bass	9	2.44	2.00	0.32	0.65	0.52	0.07	4.71	0.62	7.59	1.00
Striped Bass	10	2.44	2.00	0.44	0.88	0.52	0.09	4.71	0.85	7.59	1.37
Striped Bass	21	2.44	2.00	4.01	8.04	0.52	0.86	4.71	7.74	7.59	12.48
Hybrid Bass	16	2.44	2.00	2.05	4.11	0.52	0.44	4.71	3.96	7.59	6.39
Hybrid Bass	17	2.44	2.00	2.48	4.97	0.52	0.53	4.71	4.79	7.59	7.71
Hybrid Bass	18	7.33	6.00	8.90	17.82	1.57	1.91	14.15	17.18	22.79	27.66
Hybrid Bass	20	2.44	2.00	4.11	8.24	0.52	0.88	4.71	7.93	7.59	12.79
Hybrid Bass	21	2.44	2.00	4.79	9.59	0.52	1.02	4.71	9.24	7.59	14.88
Hybrid Bass	23	2.44	2.00	6.35	12.72	0.52	1.35	4.71	12.26	7.59	19.75
Chan Catfish	4	2.44	2.00	0.02	0.05	0.52	0.00	4.71	0.04	7.59	0.06
Chan Catfish	8	2.44	2.00	0.18	0.35	0.52	0.04	4.71	0.34	7.59	0.55
Black Crappie	6	2.44	2.00	0.11	0.22	0.52	0.02	4.71	0.21	7.59	0.34
Black Crappie	8	2.44	2.00	0.26	0.53	0.52	0.05	4.71	0.51	7.59	0.82
White Perch	6	7.33	6.00	0.34	0.69	1.57	0.07	14.15	0.67	22.79	1.07
White Perch	7	7.33	6.00	0.55	1.10	1.57	0.12	14.15	1.05	22.79	1.70
White Perch	8	12.22	10.00	1.36	2.73	2.62	0.29	23.58	2.63	37.99	4.23
White Perch	9	17.11	14.01	2.71	5.43	3.67	0.58	33.02	5.23	53.19	8.43
White Perch	10	17.11	14.01	3.72	7.45	3.67	0.80	33.02	7.18	53.19	11.56
White Perch	11	2.44	2.00	0.62	1.24	0.52	0.15	4.71	1.36	7.59	2.20
Total		122.14	100.00	49.92	100.00	26.20	10.67	235.72	96.53	379.71	155.50
MAY											
Carp	15	5.37	5.26	4.60	6.05	0.53	0.45	5.83	4.99	8.21	7.03
Chan Catfish	6	5.37	5.26	0.16	0.21	0.53	0.01	5.83	0.17	8.21	0.24
Chan Catfish	7	5.37	5.26	0.26	0.34	0.53	0.03	5.83	0.28	8.21	0.39
Chan Catfish	16	5.37	5.26	3.29	4.33	0.53	0.33	5.83	3.65	8.21	5.13
Gizzard Shad	12	5.37	5.26	1.47	1.93	0.53	0.15	5.83	1.60	8.21	2.25
Longnose Gar	12	21.48	21.03	1.32	1.74	2.12	0.13	23.30	1.44	32.83	2.02
Longnose Gar	30	16.11	15.77	21.04	27.67	1.59	2.08	17.48	22.83	24.62	32.15
Longnose Gar	40	5.37	5.26	18.28	24.05	0.53	1.81	5.83	19.85	8.21	27.96
Longnose Gar	41	5.42	5.31	20.04	26.36	0.53	1.96	5.88	21.74	8.28	30.61
White perch	7	5.37	5.26	0.40	0.53	0.53	0.04	5.83	0.44	8.21	0.61
White perch	8	10.74	10.52	1.20	1.58	1.06	0.12	11.65	1.30	16.42	1.83
White perch	13	5.37	5.26	2.56	3.37	0.53	0.25	5.83	2.79	8.21	3.92
Yellow Perch	12	5.42	5.31	1.41	1.86	0.53	0.14	5.88	1.53	8.28	2.15
Total		102.13	100.00	76.03	100.00	10.06	7.49	110.79	82.60	156.10	116.31
JUNE											
Gizzard Shad	13	15.85	100.00	5.57	100.00	4.19	1.47	30.35	10.66	38.73	13.60
JULY											
Gizzard Shad	12	16.5	50.00	4.51	35.71	5.30	1.45	18.80	5.14	20.25	5.54
Striped Bass	14	16.5	50.00	8.12	64.27	5.30	2.61	18.80	9.26	20.25	9.97
Total		33.00	100.00	12.64	100.00	10.61	4.06	37.60	14.40	40.49	15.51
AUGUST											
Gizzard Shad	12	12.94	50.00	3.54	27.20	3.36	0.92	16.37	4.48	17.63	4.82
Striped Bass	16	12.94	50.00	9.48	72.83	3.36	2.46	16.37	11.99	17.63	12.91
Total		25.88	100.00	13.01	100.00	6.72	3.38	32.75	16.47	35.26	17.74
OCTOBER											
White Perch	11	13.32	50.00	3.85	25.58	1.91	0.56	15.20	4.39	19.34	5.62
Hybrid Bass	16	13.32	50.00	11.21	74.45	1.91	1.61	15.20	12.79	19.34	16.27
Total		26.64	100.00	13.44	100.00	3.82	2.17	28.33	17.18	38.68	21.89

Table 1-12. Summaries of numbers and biomass for fish greater than or equal to 1.5-inches long based on April through October of Phase II netting, projected to monthly Phase III sampling, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered. Data not adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III MONTHS TOTAL NUMBER	PHASE III MONTHS TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
THREADFIN SHAD	157172	68.98	621	25.41	2700434	10566	797670	3115	3034072	12012	3462594	13792
BLUEBACK HERRING	55304	24.27	1407	57.62	650144	16482	165837	4218	822626	20862	903857	22904
YELLOW PERCH	6148	2.70	96	3.91	117146	1738	31994	451	148424	2212	171523	2585
BLUEGILL	2582	1.13	21	0.87	47819	385	12668	101	60081	480	70320	553
BLACK CRAPPIE	1611	0.71	26	1.05	24865	418	5292	95	32968	540	41208	645
SPOTTAIL SHINER	1503	0.66	11	0.46	20570	152	3629	27	32048	240	48358	363
WHITE PERCH	1102	0.48	53	2.16	18699	895	4507	215	24502	1198	29475	1444
WHITE CATFISH	799	0.35	34	1.38	14506	611	3469	155	16474	701	18961	795
GIZZARD SHAD	636	0.28	61	2.48	10736	1101	3010	303	13289	1395	15102	1649
CHANNEL CATFISH	282	0.12	9	0.38	4982	172	1251	38	6056	202	6815	234
BROWN BULLHEAD	120	0.05	11	0.47	2346	194	685	56	2810	234	3081	254
STRIPED BASS	118	0.05	23	0.96	1758	364	305	70	2324	455	3125	571
WARMOUTH	110	0.05	3	0.13	1916	57	475	15	2460	72	2927	84
WHITE CRAPPIE	81	0.04	2	0.07	1198	27	194	4	1582	34	2206	47
LARGEMOUTH BASS	55	0.02	2	0.08	1066	30	309	4	1305	33	1426	44
HYBRID BASS	51	0.02	36	1.47	846	582	202	146	1121	795	1388	1002
YELLOW BULLHEAD	39	0.02	2	0.07	560	22	154	6	661	27	731	29
GOLDEN SHINER	25	0.01	0	0.01	456	6	118	2	523	7	598	8
BLACK BULLHEAD	18	0.01	1	0.03	246	10	88	4	271	10	292	11
BROWN TROUT	15	0.01	5	0.19	190	59	61	19	220	67	237	73
TESSELATED DARTER	13	0.01	0	0.01	203	4	56	1	307	7	431	10
CHAIN PICKEREL	11	0.00	0	0.00	199	1	45	0	243	1	300	1
COASTAL SHINER	11	0.01	0	0.00	182	0	56	0	216	0	233	0
BLUEHEAD CHUB	7	0.00	0	0.00	254	0	66	0	322	0	347	0
FLAT BULLHEAD	7	0.00	1	0.06	106	21	42	8	109	22	117	24
AMERICAN EEL	4	0.00	1	0.02	66	9	11	1	75	10	90	12
FLATHEAD CATFISH	4	0.00	0	0.00	100	1	32	0	115	1	124	1
LONGNOSE GAR	4	0.00	6	0.26	64	108	20	29	67	113	76	132
RAINBOW TROUT	3	0.00	2	0.07	71	49	18	13	90	62	97	67
SPOTTED BASS	3	0.00	0	0.00	37	0	10	0	72	0	92	0
CARP	2	0.00	3	0.12	36	53	8	13	38	56	45	67
COOSA BASS	2	0.00	1	0.05	35	22	8	5	37	24	44	28
GREEN SUNFISH	2	0.00	0	0.00	46	0	6	0	49	0	62	0
MADTOM	2	0.00	0	0.00	32	0	3	0	34	0	48	0
SILVER REDHORSE	2	0.00	2	0.09	26	27	5	6	49	52	79	83
TADPOLE MADTOM	2	0.00	0	0.00	42	0	13	0	48	1	51	1
WHITEFIN SHINER	2	0.00	0	0.00	29	0	6	0	57	0	91	0
RIVER CARPSUCKER	1	0.00	2	0.07	14	25	1	2	15	27	21	38
WHITE BASS	1	0.00	0	0.01	11	2	3	1	21	4	27	6
	227854	99.98	2442	99.96	3622036	34193	1032327	9123	4205781	41956	4786599	47557

Table 1-13. Summaries of numbers and biomasses for fish greater than or equal to 1.5-inches long based on all Phase II months, estimated Phase II totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during all months of Phase II sampling. Data not adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE II MONTHS TOTAL NUMBER	PHASE II MONTHS TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
THREADFIN SHAD	228076	74.59	724	26.11	2700434	10566	899720	3257	5036933	14956	7107883	19130
BLUEBACK HERRING	56898	18.61	1464	52.80	650144	16482	168784	4323	874114	22739	990155	26023
YELLOW PERCH	9993	3.27	139	5.03	117146	1738	37418	514	238975	3220	351890	4616
BLUEGILL	2802	0.92	24	0.87	47819	385	12803	104	66250	562	81313	697
SPOTTAIL SHINER	1720	0.56	13	0.47	20570	152	3788	28	38126	291	59416	456
BLACK CRAPPIE	1619	0.53	26	0.92	24865	418	5299	95	33137	541	41551	647
GIZZARD SHAD	1420	0.46	135	4.86	10736	1101	4631	381	31101	2803	51131	4758
WHITE PERCH	1119	0.37	54	1.94	18699	895	4509	216	24909	1225	30251	1496
WHITE CATFISH	918	0.30	39	1.39	14506	611	3532	157	20128	851	25209	1051
CHANNEL CATFISH	336	0.11	16	0.59	4982	172	1307	48	7733	438	9672	621
STRIPED BASS	144	0.05	29	1.04	1758	364	313	71	2932	576	4302	816
WHITE CRAPPIE	134	0.04	2	0.09	1198	27	194	4	2394	45	4197	73
BROWN BULLHEAD	132	0.04	12	0.42	2346	194	698	57	3137	246	3682	273
WARMOUTH	117	0.04	3	0.12	1916	57	480	15	2585	78	3212	95
HYBRID BASS	80	0.03	62	2.23	846	582	227	160	1790	1300	2700	2088
LARGEMOUTH BASS	56	0.02	2	0.07	1066	30	313	4	1337	33	1491	45
YELLOW BULLHEAD	39	0.01	2	0.06	560	22	154	6	661	27	731	29
GOLDEN SHINER	25	0.01	0	0.01	456	6	118	2	523	7	598	8
BLACK BULLHEAD	18	0.01	1	0.02	246	10	88	4	271	10	292	11
TESSELATED DARTER	16	0.01	0	0.01	203	4	56	1	372	9	560	13
BROWN TROUT	15	0.00	5	0.17	190	59	61	19	220	67	237	73
CHAIN PICKEREL	11	0.00	0	0.00	199	1	45	0	243	1	300	1
COASTAL SHINER	11	0.00	0	0.00	182	0	56	0	216	0	233	0
BLUEHEAD CHUB	9	0.00	0	0.00	254	0	66	0	387	0	459	0
WHITEFIN SHINER	9	0.00	0	0.00	29	0	22	0	203	1	384	2
GREEN SUNFISH	8	0.00	0	0.00	46	0	6	0	194	0	330	1
FLAT BULLHEAD	7	0.00	1	0.05	106	21	42	8	109	22	117	24
SPOTTED BASS	7	0.00	1	0.04	37	0	10	0	146	17	244	41
FLATHEAD CATFISH	6	0.00	1	0.05	100	1	32	0	188	38	250	65
AMERICAN EEL	4	0.00	1	0.02	66	9	11	1	75	10	90	12
LONGNOSE GAR	4	0.00	6	0.23	64	108	20	29	67	113	76	132
WHITE BASS	4	0.00	1	0.03	11	2	9	1	108	18	193	31
RAINBOW TROUT	3	0.00	2	0.06	71	49	18	13	90	62	97	67
CARP	2	0.00	3	0.11	36	53	8	13	38	56	45	67
COOSA BASS	2	0.00	1	0.04	35	22	8	5	37	24	44	28
MADTOM	2	0.00	0	0.00	32	0	3	0	34	0	48	0
SILVER REDHORSE	2	0.00	2	0.08	26	27	5	6	49	52	79	83
TADPOLE MADTOM	2	0.00	0	0.00	42	0	13	0	48	1	51	1
NORTHERN HOGSUCKR	1	0.00	0	0.00	0	0	3	0	28	0	55	0
RIVER CARPSUCKER	1	0.00	2	0.06	14	25	1	2	15	27	21	38
	305772	99.98	2773	99.99	3622036	34193	1144871	9544	6389903	50466	8773589	63612

Table 1-14. Summary of Phase II data collection over 12 month period from August 1993 to August 1994. Ratios represent the proportion of the catch made in the months of April, May, June, July, August, September, and October compared to the catch for the full annual cycle. Values not corrected for passage survival. Missing values indicate that a species was recovered in only one of the two Phases of sampling.

OBS	COMMON NAME	NET CATCH APR-OCT	NET CATCH ANNUAL	RATIO APR-OCT TO ANNUAL CATCH NUMBERS	RATIO APR-OCT TO ANNUAL CATCH KG	RATIO WET YR APR-OCT TO ANNUAL CATCH NUM	RATIO WET YR APR-OCT TO ANNUAL CATCH KG	RATIO AVE. YR APR-OCT TO ANNUAL CATCH NU	RATIO AVE. YR APR-OCT TO ANNUAL CATCH KG	RATIO DRY YR APR-OCT TO ANNUAL CATCH NUM	RATIO DRY YR APR-OCT TO ANNUAL CATCH KG
1	THREADFIN SHAD	157172	228076	0.68912	0.85773	0.88658	0.95640	0.60236	0.80316	0.48715	0.72096
2	BLUEBACK HERRING	55304	56898	0.97198	0.96107	0.98254	0.97571	0.94110	0.91745	0.91284	0.88014
3	YELLOW PERCH	6148	9993	0.61523	0.69065	0.85504	0.87743	0.62109	0.68696	0.48743	0.56001
4	BLUEGILL	2582	2802	0.92148	0.87500	0.98946	0.97115	0.90688	0.85409	0.86481	0.79340
5	BLACK CRAPPIE	1611	1619	0.99506	1.00000	0.99868	1.00000	0.99490	0.99815	0.99175	0.99691
6	SPOTTAIL SHINER	1503	1720	0.87384	0.84615	0.95803	0.96429	0.84058	0.82474	0.81389	0.79605
7	WHITE PERCH	1102	1119	0.98481	0.98148	0.99956	0.99537	0.98366	0.97796	0.97435	0.96524
8	WHITE CATFISH	799	918	0.87037	0.87179	0.98216	0.98726	0.81846	0.82374	0.75215	0.75642
9	GIZZARD SHAD	636	1420	0.44789	0.45185	0.64997	0.79528	0.42729	0.49768	0.29536	0.34657
10	CHANNEL CATFISH	282	336	0.83929	0.56250	0.95715	0.79167	0.78314	0.46119	0.70461	0.37681
11	BROWN BULLHEAD	120	132	0.90909	0.91667	0.98138	0.98246	0.89576	0.95122	0.83677	0.93040
12	STRIPED BASS	118	144	0.81944	0.79310	0.97444	0.98592	0.79263	0.78993	0.72641	0.69975
13	WARMOUTH	110	117	0.94017	1.00000	0.98958	1.00000	0.95164	0.92308	0.91127	0.88421
14	WHITE CRAPPIE	81	134	0.60448	1.00000	1.00000	1.00000	0.66082	0.75556	0.52561	0.64384
15	LARGEMOUTH BASS	55	56	0.98214	1.00000	0.98722	1.00000	0.97607	1.00000	0.95641	0.97778
16	HYBRID BASS	51	80	0.63750	0.58065	0.88987	0.91250	0.62626	0.61154	0.51407	0.47989
17	YELLOW BULLHEAD	39	39	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
18	GOLDEN SHINER	25	25	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
19	BLACK BULLHEAD	18	18	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
20	BROWN TROUT	15	15	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
21	TESSELATED DARTER	13	16	0.81250	.	1.00000	1.00000	0.82527	0.77778	0.76964	0.76923
22	CHAIN PICKEREL	11	11	1.00000	.	1.00000	.	1.00000	1.00000	1.00000	1.00000
23	COASTAL SHINER	11	11	1.00000	.	1.00000	.	1.00000	.	1.00000	.
24	BLUEHEAD CHUB	7	9	0.77778	.	1.00000	.	0.83204	.	0.75599	.
25	FLAT BULLHEAD	7	7	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
26	AMERICAN EEL	4	4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
27	FLATHEAD CATFISH	4	6	0.66667	0.00000	1.00000	.	0.61170	0.02632	0.49600	0.01538
28	LONGNOSE GAR	4	4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
29	RAINBOW TROUT	3	3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
30	SPOTTED BASS	3	7	0.42857	0.00000	1.00000	.	0.49315	0.00000	0.37705	0.00000
31	CARP	2	2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
32	COOSA BASS	2	2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
33	GREEN SUNFISH	2	8	0.25000	.	1.00000	.	0.25258	.	0.18788	0.00000
34	MADTOM	2	2	1.00000	.	1.00000	.	1.00000	.	1.00000	.
35	SILVER REDHORSE	2	2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
36	TADPOLE MADTOM	2	2	1.00000	.	1.00000	.	1.00000	1.00000	1.00000	1.00000
37	WHITEFIN SHINER	2	9	0.22222	.	0.27273	.	0.28079	0.00000	0.23698	0.00000
38	RIVER CARPSUCKER	1	1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
39	WHITE BASS	1	4	0.25000	0.00000	0.33333	1.00000	0.19444	0.22222	0.13990	0.19355
40	NORTHERN HOGSUCKR	.	1	.	.	.	.	.	.	.	.

Table 1-15. Annual projected entrainment obtained by expanding Phase III entrainment using an expansion factor defined as (Phase II annual entrainment) divided by (Phase II April October entrainment). These data are for all fish greater than or equal to 1.5-inches long and the data are not adjusted for passage survival. Missing values indicate that a species was not recovered during Phase II November-March and a 1.0 indicates that a species was not recovered during the April-October time period. The expansion factor was also applied to the mean hourly entrainment rate, by month, for projected entrainment for wet, average, and dry water years. Projections for entrainment of 2 and 3 standard errors of the mean area also provided.

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
THREADFIN SHAD	1131503.90	1539238.91	1743106.41	0.88658	1732.54	2338.98	2642.20	0.95640
BLUEBACK HERRING	41390.69	79264.98	98202.64	0.98254	939.83	1812.01	2248.62	0.97571
WHITE PERCH	8693.86	12604.59	14559.46	0.99956	540.50	793.67	920.26	0.99537
BLACK CRAPPIE	6259.27	10472.83	12580.62	0.99868	218.00	353.00	420.00	1.00000
CHANNEL CATFISH	2829.22	3932.49	4485.17	0.95715	140.21	203.37	234.95	0.79167
YELLOW PERCH	2459.53	4105.06	4928.41	0.85504	44.45	71.80	85.48	0.87743
BLUEGILL	2886.44	4251.83	4935.04	0.98946	40.16	58.69	67.96	0.97115
SPOTTAIL SHINER	1171.16	1933.14	2314.14	0.95803	10.37	17.63	20.74	0.96429
GIZZARD SHAD	1820.09	3544.79	4406.37	0.64997	71.67	127.00	153.41	0.79528
WHITE CATFISH	910.24	1458.01	1732.91	0.98216	27.35	54.70	68.88	0.98726
STRIPED BASS	186.77	322.24	389.97	0.97444	22.31	35.50	42.60	0.98592
LARGEMOUTH BASS	347.44	682.72	849.86	0.98722	1.00	3.00	3.00	1.00000

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
6729098.13	9168680.56	10388470.95	0.60236	9638.23	11532.01	13048.52	0.80316	9316803.21
318434.79	640925.48	802170.29	0.94110	9922.02	15408.94	19352.46	0.91745	433431.15
74099.75	108432.73	125600.24	0.98366	7204.80	7102.55	8239.61	0.97796	109456.79
50689.52	88880.29	107975.68	0.99490	2166.00	2754.09	3325.15	0.99815	69465.43
21956.56	30977.97	35488.03	0.78314	2131.46	2307.09	2677.87	0.46119	32617.99
23302.74	38377.94	45916.35	0.62109	542.97	624.49	740.95	0.68696	40807.61
17341.82	26186.40	30609.24	0.90688	279.83	337.20	391.06	0.85409	22618.94
10491.55	17073.90	20364.48	0.84058	140.65	161.26	194.00	0.82474	15547.58
10456.71	20288.55	25205.64	0.42729	751.49	1060.92	1294.00	0.49768	17030.12
5002.07	7951.50	9426.22	0.81846	172.39	292.57	366.62	0.82374	6530.59
1762.48	2848.73	3392.49	0.79263	365.85	360.79	420.29	0.78993	2789.07
1500.92	3033.61	3799.95	0.97607	7.00	15.00	19.00	1.00000	1731.48

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
12737789.34	14448280.35	0.48715	10737.05	14649.87	16606.98	0.72096
879952.16	1103213.75	0.91284	10342.62	21410.12	26943.30	0.88014
159260.35	184163.16	0.97435	7299.73	10657.45	12336.82	0.96524
122252.18	148646.06	0.99175	2168.70	3729.53	4509.94	0.99691
46092.08	52829.13	0.70461	2608.73	3840.12	4455.81	0.37681
66546.50	79415.95	0.48743	666.06	1049.98	1241.05	0.56001
34293.23	40130.37	0.86481	301.24	444.92	516.76	0.79340
25228.27	30069.23	0.81389	145.72	241.19	288.93	0.79605
32905.72	40845.21	0.29536	1079.13	1918.78	2337.16	0.34657
10374.23	12296.72	0.75215	187.73	379.42	474.60	0.75642
4441.04	5268.40	0.72641	413.00	607.36	704.53	0.69975
3521.52	4416.54	0.95641	7.16	18.41	24.55	0.97778

Table 1-15 (Continued)

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
HYBRID BASS	85.41	142.72	170.81	0.88987	21.92	40.55	49.32	0.91250
LONGNOSE GAR	116.00	315.00	415.00	1.00000	3.00	10.00	13.00	1.00000
CHAIN PICKEREL	73.00	150.00	188.00	1.00000	.	.	.	.
WHITE CRAPPIE	61.00	128.00	161.00	1.00000	6.00	12.00	16.00	1.00000
WARMOUTH	63.66	134.40	169.77	0.98958	2.00	4.00	5.00	1.00000
GOLDEN SHINER	57.00	168.00	224.00	1.00000	0.00	1.00	1.00	1.00000
BROWN BULLHEAD	60.12	141.64	182.40	0.98138	1.02	4.07	5.09	0.98246
TESSELATED DARTER	60.00	190.00	255.00	1.00000	1.00	2.00	2.00	1.00000
BLACK BULLHEAD	45.00	121.00	159.00	1.00000	2.00	4.00	6.00	1.00000
WHITEFIN SHINER	73.33	363.00	509.67	0.27273	.	.	.	.
SPOTTED BASS	52.00	133.00	174.00	1.00000	.	.	.	.
GREEN SUNFISH	11.00	39.00	53.00	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
1148.09	1938.50	2334.50	0.62626	459.50	536.35	654.09	0.61154	2133.93
786.00	2152.00	2835.00	1.00000	14.00	34.00	46.00	1.00000	993.00
507.00	1027.00	1288.00	1.00000	0.00	1.00	1.00	1.00000	643.00
620.44	1266.61	1590.45	0.66082	58.24	90.00	113.82	0.75556	1063.52
461.31	913.16	1139.08	0.95164	20.58	31.42	40.08	0.92308	632.08
390.00	1135.00	1507.00	1.00000	2.00	4.00	5.00	1.00000	527.00
293.61	692.15	891.98	0.89576	12.62	29.44	38.90	0.95122	377.64
310.20	1016.64	1370.46	0.82527	3.86	10.29	14.14	0.77778	371.60
150.00	410.00	540.00	1.00000	11.00	25.00	33.00	1.00000	174.00
523.53	2528.60	3532.91	0.28079	.	.	.	0.00000	776.44
294.03	784.75	1030.11	0.49315	.	.	.	0.00000	416.39
403.84	1496.57	2042.94	0.25258	.	.	.	.	771.77

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
3548.13	4256.20	0.51407	585.56	1029.41	1250.30	0.47989
2723.00	3588.00	1.00000	14.00	40.00	53.00	1.00000
1300.00	1628.00	1.00000	0.00	1.00	1.00	1.00000
2159.38	2709.21	0.52561	68.34	141.34	177.06	0.64384
1240.03	1544.00	0.91127	21.49	45.24	57.68	0.88421
1516.00	2010.00	1.00000	2.00	5.00	7.00	1.00000
896.30	1156.82	0.83677	12.90	39.77	52.67	0.93040
1223.94	1651.42	0.76964	3.90	11.70	15.60	0.76923
477.00	629.00	1.00000	11.00	33.00	44.00	1.00000
3738.73	5219.87	0.23698	.	.	.	0.00000
1116.57	1466.65	0.37705	.	.	.	0.00000
2868.87	3922.74	0.18788	.	.	.	0.00000

Table 1-15. (Continued)

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
REDBREAST	.	.	.	.	.	.	.	.
REDEAR	.	.	.	.	.	.	.	.
SILVER REDHORSE	11.00	56.00	78.00	1.00000	1.00	3.00	5.00	1.00000
FLATHEAD CATFISH	20.00	59.00	79.00	1.00000	.	.	.	.
WHITE BASS	30.00	111.00	153.00	0.33333	1.00	5.00	7.00	1.00000
YELLOW BULLHEAD	6.00	32.00	45.00	1.00000	0.00	1.00	1.00	1.00000
BLACKBANDED DARTER	.	.	.	.	.	.	.	.
CREEK CHUB	.	.	.	.	.	.	.	.
NORTHERN HOGSUCKR	.	.	.	.	.	.	.	.
RIVER CHUB	.	.	.	.	.	.	.	.
STRIPED KILLIFISH	.	.	.	.	.	.	.	.
FLIER	.	.	.	.	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
93.00	466.00	653.00	1.00000	11.00	38.00	53.00	1.00000	119.00
99.72	307.34	410.33	0.61170	456.00	1558.00	2128.00	0.02632	133.06
257.14	925.71	1254.86	0.19444	49.50	130.50	175.50	0.22222	428.89
35.00	185.00	260.00	1.00000	2.00	7.00	10.00	1.00000	41.00
.	.	.	.	.	.	.	.	.
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.	.	.	.	.	.	.	.	.

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	.	.	.	.	.
.	.	.	.	.	.	.
597.00	836.00	1.00000	11.00	53.00	74.00	1.00000
407.26	544.35	0.49600	780.00	2860.00	3900.00	0.01538
1536.85	2087.26	0.13990	56.83	206.67	284.17	0.19355
216.00	304.00	1.00000	2.00	10.00	13.00	1.00000
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
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Table 1-15. (Concluded)

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
AMERICAN EEL	.	.	.	1.00000	.	.	.	1.00000
BLUEHEAD CHUB	.	.	.	1.00000	.	.	.	.
BROWN TROUT	.	.	.	1.00000	.	.	.	1.00000
CARP	.	.	.	1.00000	.	.	.	1.00000
COASTAL SHINER	.	.	.	1.00000	.	.	.	.
COOSA BASS	.	.	.	1.00000	.	.	.	1.00000
FLAT BULLHEAD	.	.	.	1.00000	.	.	.	1.00000
MADTOM	.	.	.	1.00000	.	.	.	.
RAINBOW TROUT	.	.	.	1.00000	.	.	.	1.00000
RIVER CARPSUCKER	.	.	.	1.00000	.	.	.	1.00000
TADPOLE MADTOM	.	.	.	1.00000	.	.	.	.
	1201283.12	1664095.35	1895507.63		3827.32	5955.97	7018.48	

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	0.83204	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
7270509.94	10170902.70	11621100.20		34422.97	44451.90	53382.06		10078432.31

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	1.00000	.	.	.	1.00000
.	.	0.75599	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
14148221.68	16183128.40		37525.89	63423.27	76369.91	

Table 1-16. Summaries of numbers and biomasses for fish greater than or equal to 1.5-inches long based on all Phase II months, estimated Phase II totals, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered during all months of Phase II sampling. Data adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE II MONTHS TOTAL NUMBER	PHASE II MONTHS TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
THREADFIN SHAD	198085	75.59	656	27.66	2620563	10111	850646	3135	4242333	13347	5713121	16495
BLUEBACK HERRING	55385	21.13	1420	59.86	636725	16151	165854	4239	839172	21662	936963	24362
YELLOW PERCH	3059	1.17	42	1.77	43140	599	13264	176	74127	988	99449	1305
BLUEGILL	1854	0.71	18	0.75	34765	300	9820	84	45235	419	52657	504
GIZZARD SHAD	1126	0.43	104	4.37	10428	1033	4004	340	24424	2200	37859	3506
BLACK CRAPPIE	839	0.32	16	0.67	13864	277	3402	69	18265	353	21688	405
WHITE PERCH	697	0.27	36	1.52	11826	616	2904	151	15618	824	18585	976
SPOTTAIL SHINER	387	0.15	3	0.12	4539	33	911	7	8609	65	12984	99
WHITE CATFISH	171	0.07	8	0.33	2869	132	814	38	3454	160	3895	179
STRIPED BASS	82	0.03	18	0.75	1060	241	195	50	1677	360	2380	485
WARMOUTH	76	0.03	2	0.10	1339	45	363	12	1761	60	2083	71
CHANNEL CATFISH	67	0.03	2	0.08	1149	33	313	8	1441	44	1594	52
HYBRID BASS	50	0.02	36	1.52	607	401	158	108	1091	759	1539	1133
WHITE CRAPPIE	48	0.02	1	0.04	498	11	95	2	895	18	1444	26
LARGEMOUTH BASS	40	0.02	1	0.04	731	16	211	2	916	18	1012	24
BROWN BULLHEAD	31	0.01	3	0.13	616	52	184	15	733	63	791	68
YELLOW BULLHEAD	10	0.00	0	0.02	139	6	41	2	165	7	179	8
GOLDEN SHINER	7	0.00	0	0.00	135	2	37	1	155	2	174	3
BLACK BULLHEAD	5	0.00	0	0.01	69	3	25	1	76	3	82	3
BROWN TROUT	4	0.00	1	0.05	53	17	17	5	62	19	67	20
CHAIN PICKEREL	4	0.00	0	0.00	70	0	18	0	94	0	114	0
GREEN SUNFISH	4	0.00	0	0.00	39	0	5	0	103	0	164	0
TESSELATED DARTER	4	0.00	0	0.00	54	1	16	0	86	2	121	3
BLUEHEAD CHUB	3	0.00	0	0.00	72	0	19	0	137	0	179	0
COASTAL SHINER	3	0.00	0	0.00	51	0	16	0	61	0	66	0
SPOTTED BASS	3	0.00	0	0.02	20	0	5	0	75	8	123	19
CARP	2	0.00	2	0.10	29	43	7	10	31	46	37	54
COOSA BASS	2	0.00	1	0.04	29	18	7	4	30	19	36	23
FLAT BULLHEAD	2	0.00	0	0.02	30	6	12	2	31	6	33	7
MADTOM	2	0.00	0	0.00	32	0	3	0	34	0	48	0
WHITE BASS	2	0.00	0	0.01	6	1	4	1	52	9	93	15
WHITEFIN SHINER	2	0.00	0	0.00	5	0	4	0	36	0	68	0
AMERICAN EEL	1	0.00	0	0.00	9	1	2	0	11	1	13	2
FLATHEAD CATFISH	1	0.00	0	0.00	27	0	9	0	35	2	40	3
LONGNOSE GAR	1	0.00	1	0.05	14	20	5	7	14	21	16	23
RAINBOW TROUT	1	0.00	0	0.02	20	14	5	4	25	18	27	19
SILVER REDHORSE	1	0.00	1	0.04	12	12	2	3	22	23	36	38
NORTHERN HOGSUCKR	0	0.00	0	0.00	0	0	1	0	5	0	10	0
RIVER CARPSUCKER	0	0.00	1	0.04	7	13	1	1	8	14	11	19
TADPOLE MADTOM	0	0.00	0	0.00	11	0	4	0	13	0	14	0
	262061	100.00	2373	100.13	3385652	30208	1053403	8477	5281112	41540	6909795	49949

Table 1-17. Summaries of numbers and biomass for fish greater than or equal to 1.5-inches long based on April through October of Phase II netting, projected to monthly Phase III sampling, projected wet water year (25% exceedance), projected average water year (50% exceedance), and projected dry water year (75% exceedance) for all species recovered. Data adjusted for passage survival.

NAME	EXPANDED NUMBER NETTED	PERCENT BY NUMBER	EXPANDED MASS(KG) NETTED	PERCENT BY MASS	PHASE III MONTHS TOTAL NUMBER	PHASE III MONTHS TOTAL MASS(KG)	PROJECTED WET YEAR NUMBER	PROJECTED WET YEAR MASS(KG)	PROJECTED AVERAGE YEAR NUMBER	PROJECTED AVERAGE YEAR MASS(KG)	PROJECTED DRY YEAR NUMBER	PROJECTED DRY YEAR MASS(KG)
THREADFIN SHAD	151542	71.13	588	26.81	2620563	10111	784313	3042	2926995	11409	3320245	12982
BLUEBACK HERRING	54336	25.50	1383	63.04	636725	16151	163938	4171	805332	20432	880221	22319
YELLOW PERCH	2371	1.11	34	1.55	43140	599	12300	165	57907	807	67173	941
BLUEGILL	1762	0.83	16	0.73	34765	300	9764	81	42612	368	48027	415
BLACK CRAPPIE	837	0.39	16	0.73	13864	277	3400	69	18215	353	21587	404
WHITE PERCH	688	0.32	35	1.62	11826	616	2903	150	15402	810	18176	950
GIZZARD SHAD	613	0.29	56	2.53	10428	1033	2950	290	12770	1285	14308	1484
SPOTTAIL SHINER	340	0.16	3	0.11	4539	33	882	7	7272	54	10571	79
WHITE CATFISH	166	0.08	8	0.34	2869	132	814	38	3327	154	3674	168
WARMOUTH	72	0.03	2	0.11	1339	45	358	12	1697	56	1945	65
STRIPED BASS	70	0.03	15	0.69	1060	241	191	49	1375	301	1801	366
CHANNEL CATFISH	66	0.03	2	0.08	1149	33	313	8	1402	40	1526	44
LARGEMOUTH BASS	39	0.02	1	0.05	731	16	210	2	899	18	979	24
HYBRID BASS	36	0.02	24	1.11	607	401	147	102	781	528	931	637
WHITE CRAPPIE	33	0.02	1	0.03	498	11	95	2	656	15	857	19
BROWN BULLHEAD	31	0.01	3	0.14	616	52	184	15	733	63	791	68
YELLOW BULLHEAD	10	0.00	0	0.02	139	6	41	2	165	7	179	8
GOLDEN SHINER	7	0.00	0	0.00	135	2	37	1	155	2	174	3
BLACK BULLHEAD	5	0.00	0	0.01	69	3	25	1	76	3	82	3
BROWN TROUT	4	0.00	1	0.06	53	17	17	5	62	19	67	20
CHAIN PICKEREL	4	0.00	0	0.00	70	0	18	0	94	0	114	0
COASTAL SHINER	3	0.00	0	0.00	51	0	16	0	61	0	66	0
TESSELATED DARTER	3	0.00	0	0.00	54	1	16	0	75	1	98	2
BLUEHEAD CHUB	2	0.00	0	0.00	72	0	19	0	91	0	98	0
CARP	2	0.00	2	0.11	29	43	7	10	31	46	37	54
COOSA BASS	2	0.00	1	0.05	29	18	7	4	30	19	36	23
FLAT BULLHEAD	2	0.00	0	0.02	30	6	12	2	31	6	33	7
GREEN SUNFISH	2	0.00	0	0.00	39	0	5	0	41	0	52	0
MADTOM	2	0.00	0	0.00	32	0	3	0	34	0	48	0
SPOTTED BASS	2	0.00	0	0.00	20	0	5	0	39	0	50	0
AMERICAN EEL	1	0.00	0	0.00	9	1	2	0	11	1	13	2
FLATHEAD CATFISH	1	0.00	0	0.00	27	0	9	0	31	0	34	0
LONGNOSE GAR	1	0.00	1	0.06	14	20	5	7	14	21	16	23
RAINBOW TROUT	1	0.00	0	0.02	20	14	5	4	25	18	27	19
SILVER REDHORSE	1	0.00	1	0.04	12	12	2	3	22	23	36	38
WHITE BASS	1	0.00	0	0.01	6	1	2	0	11	2	15	3
RIVER CARPSUCKER	0	0.00	1	0.04	7	13	1	1	8	14	11	19
TADPOLE MADTOM	0	0.00	0	0.00	11	0	4	0	13	0	14	0
WHITEFIN SHINER	0	0.00	0	0.00	5	0	1	0	10	0	16	0
	213058	99.97	2194	100.11	3385652	30208	983021	8243	3898505	36875	4394128	41189

Table 1-18. Summary of Phase II data collection over 12 month period from August 1993 to August 1994. Ratios represent the proportion of the catch made in the months of April, May, June, July, August, September, and October compared to the catch for the full annual cycle. Data corrected for passage survival. Missing values indicate that a species was recovered in only one of the two Phases of sampling.

OBS	COMMON NAME	NET CATCH APR-OCT	NET CATCH ANNUAL	RATIO APR-OCT TO ANNUAL CATCH NUMBERS	RATIO APR-OCT TO ANNUAL CATCH KG	RATIO WET YR APR-OCT TO ANNUAL CATCH NUM	RATIO WET YR APR-OCT TO ANNUAL CATCH KG	RATIO AVE. YR APR-OCT TO ANNUAL CATCH NU	RATIO AVE. YR APR-OCT TO ANNUAL CATCH KG	RATIO DRY YR APR-OCT TO ANNUAL CATCH NUM	RATIO DRY YR APR-OCT TO ANNUAL CATCH KG
1	THREADFIN SHAD	151542	198085	0.76504	0.89634	0.92202	0.97033	0.68995	0.85480	0.58116	0.78703
2	BLUEBACK HERRING	54336	55385	0.98106	0.97394	0.98845	0.98396	0.95967	0.94322	0.93944	0.91614
3	YELLOW PERCH	2371	3059	0.77509	0.80952	0.92732	0.93750	0.78119	0.81680	0.67545	0.72107
4	BLUEGILL	1762	1854	0.95038	0.88889	0.99430	0.96429	0.94201	0.87828	0.91207	0.82341
5	BLACK CRAPPIE	837	839	0.99762	1.00000	0.99941	1.00000	0.99726	1.00000	0.99534	0.99753
6	WHITE PERCH	688	697	0.98709	0.97222	0.99966	0.99338	0.98617	0.98301	0.97799	0.97336
7	GIZZARD SHAD	613	1126	0.54440	0.53846	0.73676	0.85294	0.52285	0.58409	0.37793	0.42327
8	SPOTTAIL SHINER	340	387	0.87855	1.00000	0.96817	1.00000	0.84470	0.83077	0.81416	0.79798
9	WHITE CATFISH	166	171	0.97076	1.00000	1.00000	1.00000	0.96323	0.96250	0.94326	0.93855
10	WARMOUTH	72	76	0.94737	1.00000	0.98623	1.00000	0.96366	0.93333	0.93375	0.91549
11	STRIPED BASS	70	82	0.85366	0.83333	0.97949	0.98000	0.81992	0.83611	0.75672	0.75464
12	CHANNEL CATFISH	66	67	0.98507	1.00000	1.00000	1.00000	0.97294	0.90909	0.95734	0.84615
13	LARGEMOUTH BASS	39	40	0.97500	1.00000	0.99526	1.00000	0.98144	1.00000	0.96739	1.00000
14	HYBRID BASS	36	50	0.72000	0.66667	0.93038	0.94444	0.71586	0.69565	0.60494	0.56222
15	WHITE CRAPPIE	33	48	0.68750	1.00000	1.00000	1.00000	0.73296	0.83333	0.59349	0.73077
16	BROWN BULLHEAD	31	31	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
17	YELLOW BULLHEAD	10	10	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
18	GOLDEN SHINER	7	7	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
19	BLACK BULLHEAD	5	5	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
20	BROWN TROUT	4	4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
21	CHAIN PICKEREL	4	4	1.00000	.	1.00000	.	1.00000	.	1.00000	.
22	COASTAL SHINER	3	3	1.00000	.	1.00000	.	1.00000	.	1.00000	.
23	TESSELATED DARTER	3	4	0.75000	.	1.00000	.	0.87209	0.50000	0.80992	0.66667
24	BLUEHEAD CHUB	2	3	0.66667	.	1.00000	.	0.66423	.	0.54749	.
25	CARP	2	2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
26	COOSA BASS	2	2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
27	FLAT BULLHEAD	2	2	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
28	GREEN SUNFISH	2	4	0.50000	.	1.00000	.	0.39806	.	0.31707	.
29	MADTOM	2	2	1.00000	.	1.00000	.	1.00000	.	1.00000	.
30	SPOTTED BASS	2	3	0.66667	.	1.00000	.	0.52000	0.00000	0.40650	0.00000
31	AMERICAN EEL	1	1	1.00000	.	1.00000	.	1.00000	1.00000	1.00000	1.00000
32	FLATHEAD CATFISH	1	1	1.00000	.	1.00000	.	0.88571	0.00000	0.85000	0.00000
33	LONGNOSE GAR	1	1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
34	RAINBOW TROUT	1	1	1.00000	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
35	SILVER REDHORSE	1	1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
36	WHITE BASS	1	2	0.50000	.	0.50000	0.00000	0.21154	0.22222	0.16129	0.20000
37	RIVER CARPSUCKER	0	0	.	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
38	TADPOLE MADTOM	0	0	.	.	1.00000	.	1.00000	.	1.00000	.
39	WHITEFIN SHINER	0	2	0.00000	.	0.25000	.	0.27778	.	0.23529	.
40	NORTHERN HOGSUCKR	.	0	.	.	.	.	.	.	.	.
		213058	262061								

Table 1-19. Annual projected entrainment obtained by expanding Phase III entrainment using an expansion obtained from Phase II data. The expansion factor was also applied to the mean hourly entrainment rate, by month, for projected entrainment for wet, average, and dry water years. Projections for entrainment of 2 and 3 standard errors of the mean also provided. Data adjusted for passage survival.

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
THREADFIN SHAD	1077009.75	1462977.33	1655961.12	0.92202	1680.86	2262.11	2552.73	0.97033
BLUEBACK HERRING	34121.18	64065.10	79036.05	0.98845	769.34	1447.22	1786.66	0.98396
WHITE PERCH	4730.63	6837.35	7889.72	0.99966	277.84	409.71	475.15	0.99338
BLACK CRAPPIE	3507.06	5664.33	6742.96	0.99941	142.00	223.00	263.00	1.00000
BLUEGILL	1927.99	2777.84	3203.27	0.99430	29.04	41.48	48.74	0.96429
YELLOW PERCH	762.41	1221.80	1450.41	0.92732	13.87	21.33	25.60	0.93750
GIZZARD SHAD	1578.53	3074.26	3822.12	0.73676	62.14	107.86	130.14	0.85294
SPOTTAIL SHINER	415.22	692.03	829.40	0.96817	3.00	6.00	7.00	1.00000
CHANNEL CATFISH	435.00	600.00	682.00	1.00000	18.00	26.00	30.00	1.00000
LARGEMOUTH BASS	262.24	511.42	636.01	0.99526	1.00	2.00	2.00	1.00000
STRIPED BASS	107.20	191.94	233.80	0.97949	12.24	20.41	24.49	0.98000
WHITE CATFISH	196.00	316.00	376.00	1.00000	6.00	12.00	15.00	1.00000

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
5763695.35	7830468.73	8863854.69	0.68995	8682.74	10428.18	11775.87	0.85480	7616835.07
237333.59	469273.68	585244.25	0.95967	7178.61	11164.96	13966.01	0.94322	313069.32
38582.60	56454.78	65391.38	0.98617	3554.39	3551.34	4126.10	0.98301	56175.25
24982.39	42529.42	51303.44	0.99726	1233.00	1559.00	1870.00	1.00000	33309.12
9662.28	14291.72	16606.97	0.94201	165.10	206.08	237.96	0.87828	11904.76
5821.91	9214.19	10910.33	0.78119	134.67	157.93	184.87	0.81680	8813.36
8283.50	16077.38	19973.36	0.52285	544.44	782.41	953.62	0.58409	12804.00
3450.94	5682.51	6798.88	0.84470	42.13	52.96	65.00	0.83077	4841.82
1868.57	2593.18	2954.98	0.97294	97.90	123.20	143.00	0.90909	2217.60
1120.80	2250.77	2816.27	0.98144	5.00	9.00	12.00	1.00000	1278.70
912.29	1511.13	1811.16	0.81992	172.23	179.40	210.50	0.83611	1394.17
705.96	1134.72	1348.59	0.96323	24.94	44.68	56.10	0.96250	807.84

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
10375614.63	11755004.41	0.58116	9430.43	12777.21	14450.60	0.78703
625501.02	781716.34	0.93944	7390.79	15019.54	18833.37	0.91614
81782.79	94585.54	0.97799	3589.63	5263.21	6099.49	0.97336
57054.70	68926.99	0.99534	1236.05	2069.11	2485.14	0.99753
17716.79	20622.26	0.91207	176.10	259.89	301.19	0.82341
13860.35	16383.11	0.67545	152.55	232.99	273.20	0.72107
24758.64	30735.96	0.37793	751.29	1327.74	1618.34	0.42327
7948.11	9501.87	0.81416	43.86	75.19	91.48	0.79798
3085.63	3520.17	0.95734	105.18	154.82	179.64	0.84615
2585.30	3239.64	0.96739	5.00	11.00	14.00	1.00000
2270.32	2707.73	0.75672	190.82	288.88	337.91	0.75464
1296.57	1541.46	0.94326	25.57	51.14	63.93	0.93855

Table 1-19. (Continued).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
HYBRID BASS	39.77	68.79	82.76	0.93038	10.59	19.06	23.29	0.94444
CHAIN PICKEREL	51.00	103.00	129.00	1.00000	.	.	.	.
WHITE CRAPPIE	42.00	88.00	111.00	1.00000	4.00	9.00	12.00	1.00000
WARMOUTH	39.54	89.23	113.56	0.98623	1.00	3.00	4.00	1.00000
GOLDEN SHINER	27.00	79.00	106.00	1.00000	0.00	0.00	0.00	1.00000
SPOTTED BASS	42.00	108.00	142.00	1.00000	.	.	.	.
TESSELATED DARTER	24.00	77.00	104.00	1.00000	.	.	.	.
REDEAR	.	.	.	.	.	.	.	.
SILVER REDHORSE	9.00	45.00	63.00	1.00000	0.00	2.00	2.00	1.00000
WHITEFIN SHINER	40.00	184.00	260.00	0.25000	.	.	.	.
REDBREAST	.	.	.	.	.	.	.	.
GREEN SUNFISH	5.00	18.00	24.00	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
494.51	852.13	1030.93	0.71586	194.06	234.31	286.06	0.69565	884.39
359.00	722.00	903.00	1.00000	.	.	.	.	457.00
327.44	679.44	855.43	0.73296	34.80	56.40	72.00	0.83333	540.87
259.43	551.03	696.31	0.96366	13.93	23.57	30.00	0.93333	344.85
180.00	535.00	712.00	1.00000	1.00	1.00	2.00	1.00000	233.00
225.00	598.08	784.62	0.52000	.	.	.	0.00000	309.96
126.13	417.39	563.01	0.87209	2.00	8.00	10.00	0.50000	155.57
.	.	.	.	.	.	.	.	.
74.00	372.00	521.00	1.00000	5.00	19.00	27.00	1.00000	95.00
255.60	1198.80	1670.40	0.27778	.	.	.	.	378.25
.	.	.	.	.	.	.	.	.
110.54	417.02	567.76	0.39806	.	.	.	.	205.00

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
1499.33	1806.80	0.60494	240.12	430.43	526.48	0.56222
917.00	1147.00	1.00000	.	.	.	.
1112.07	1398.51	0.59349	39.68	83.47	105.37	0.73077
725.03	915.66	0.93375	14.20	31.68	41.51	0.91549
688.00	916.00	1.00000	1.00	2.00	2.00	1.00000
829.02	1089.78	0.40650	.	.	.	0.00000
518.57	700.07	0.80992	1.50	6.00	9.00	0.66667
.	.	.	.	.	.	.
476.00	666.00	1.00000	5.00	27.00	38.00	1.00000
1780.75	2482.00	0.23529	.	.	.	.
.	.	.	.	.	.	.
766.38	1047.08	0.31707	.	.	.	.

Table 1-19. (Continued).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
BROWN BULLHEAD	14.00	32.00	42.00	1.00000	0.00	0.00	1.00	1.00000
LONGNOSE GAR	9.00	23.00	31.00	1.00000	1.00	2.00	3.00	1.00000
BLACK BULLHEAD	12.00	32.00	42.00	1.00000	0.00	1.00	1.00	1.00000
WHITE BASS	16.00	54.00	74.00	0.50000	.	.	.	0.00000
BLACKBANDED DARTER	.	.	.	.	.	.	.	.
CREEK CHUB	.	.	.	.	.	.	.	.
RIVER CHUB	.	.	.	.	.	.	.	.
STRIPED KILLIFISH	.	.	.	.	.	.	.	.
FLATHEAD CATFISH	6.00	17.00	22.00	1.00000	.	.	.	.
FLIER	.	.	.	.	.	.	.	.
NORTHERN HOGSUCKR	.	.	.	.	.	.	.	.
YELLOW BULLHEAD	1.00	8.00	11.00	1.00000	0.00	0.00	0.00	1.00000
TADPOLE MADTOM	.	.	.	1.00000	.	.	.	.

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
52.00	120.00	153.00	1.00000	1.00	2.00	3.00	1.00000	57.00
50.00	133.00	175.00	1.00000	3.00	7.00	9.00	1.00000	61.00
36.00	96.00	127.00	1.00000	1.00	3.00	4.00	1.00000	39.00
165.45	581.45	794.18	0.21154	27.00	72.00	99.00	0.22222	248.00
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
19.19	59.84	79.03	0.88571	.	.	.	0.00000	21.18
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
7.00	39.00	55.00	1.00000	0.00	1.00	1.00	1.00000	8.00
.	.	.	1.00000	.	.	.	.	.

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
132.00	169.00	1.00000	1.00	3.00	4.00	1.00000
164.00	215.00	1.00000	3.00	8.00	10.00	1.00000
106.00	140.00	1.00000	1.00	4.00	5.00	1.00000
892.80	1215.20	0.16129	30.00	110.00	145.00	0.20000
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
67.06	89.41	0.85000	.	.	.	0.00000
.	.	.	.	.	.	.
.	.	.	.	.	.	.
43.00	60.00	1.00000	0.00	1.00	1.00	1.00000
.	.	1.00000	.	.	.	.

Table 1-19. (Concluded).

NAME	ANN. PROJ. WET YR ENTRAINMENT (#)	ANN. PROJ. WET YR + 2 SE (#)	ANN. PROJ. WET YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION WET YR (#)	ANN. PROJ. WET YR ENTRAINMENT (KG)	ANN. PROJ. WET YR + 2 SE (KG)	ANN. PROJ. WET YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION WET YR (KG)
AMERICAN EEL	.	.	.	1.00000	.	.	.	.
BLUEHEAD CHUB	.	.	.	1.00000	.	.	.	.
BROWN TROUT	.	.	.	1.00000	.	.	.	1.00000
CARP	.	.	.	1.00000	.	.	.	1.00000
COASTAL SHINER	.	.	.	1.00000	.	.	.	.
COOSA BASS	.	.	.	1.00000	.	.	.	1.00000
FLAT BULLHEAD	.	.	.	1.00000	.	.	.	1.00000
MADTOM	.	.	.	1.00000	.	.	.	.
RAINBOW TROUT	.	.	.	1.00000	.	.	.	1.00000
RIVER CARPSUCKER	.	.	.	1.00000	.	.	.	1.00000
	1125430.52	1549955.42	1762220.19		3031.92	4615.18	5406.80	

ANN. PROJ. AVE. YR ENTRAINMENT (#)	ANN. PROJ. AVE. YR + 2 SE (#)	ANN. PROJ. AVE. YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (#)	ANN. PROJ. AVE. YR ENTRAINMENT (KG)	ANN. PROJ. AVE. YR + 2 SE (KG)	ANN. PROJ. AVE. YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION AVE. YR (KG	ANN. PROJ. DRY YR ENTRAINMENT (#)
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	0.66423	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	.	.
.	.	.	1.00000	.	.	.	1.00000	.
.	.	.	1.00000	.	.	.	1.00000	.
6099161.48	8458854.38	9638701.96		22117.93	28686.44	34144.10		8067489.06

ANN. PROJ. DRY YR + 2 SE (#)	ANN. PROJ. DRY YR + 3 SE (#)	PARTIAL/ANNUAL PII EXPANSION DRY YR (#)	ANN. PROJ. DRY YR ENTRAINMENT (KG)	ANN. PROJ. DRY YR + 2 SE (KG)	ANN. PROJ. DRY YR + 3 SE (KG)	PARTIAL/ANNUAL PII EXPANSION DRY YR (KG)
.	.	1.00000	.	.	.	1.00000
.	.	0.54749	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	.
.	.	1.00000	.	.	.	1.00000
.	.	1.00000	.	.	.	1.00000
11224191.88	12802543.00		23433.77	38237.30	45635.62	

Table 1-20 (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=SEPTEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
SEPTEMBER	THREADFIN SHAD	1588.76	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEBACK HERRING	24.41	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE CATFISH	4.05	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GIZZARD SHAD	2.98	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEGILL	2.81	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	YELLOW PERCH	0.87	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CHANNEL CATFISH	0.74	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACK BULLHEAD	0.27	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN BULLHEAD	0.24	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	FLAT BULLHEAD	0.16	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	YELLOW BULLHEAD	0.15	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SPOTTAIL SHINER	0.15	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE PERCH	0.15	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN TROUT	0.13	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GOLDEN SHINER	0.10	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	COASTAL SHINER	0.10	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	LARGEMOUTH BASS	0.08	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	LONGNOSE GAR	0.07	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WARMOUTH	0.05	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	HYBRID BASS	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	TESSELATED DARTR	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	COOSA BASS	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CARP	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	STRIPED BASS	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	AMERICAN EEL	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACK CRAPPIE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACKBANDED DARTR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEHEAD CHUB	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CHAIN PICKEREL	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	FLATHEAD CATFISH	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GREEN SUNFISH	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	MARGINED MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	NORTHERN HOGSUCKR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	RAINBOW TROUT	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	REDBREAST	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	REDEAR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	RIVER CARPSUCKER	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SILVER REDHORSE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SPOTTED BASS	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	TADPOLE MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE BASS	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE CRAPPIE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITEFIN SHINER	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1626.42			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	THREADFIN SHAD	916.40	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEBACK HERRING	14.35	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CATFISH	9.92	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEGILL	3.35	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHANNEL CATFISH	1.60	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GIZZARD SHAD	0.92	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTAIL SHINER	0.53	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE PERCH	0.41	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	STRIPED BASS	0.38	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW PERCH	0.20	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	HYBRID BASS	0.18	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GOLDEN SHINER	0.09	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW BULLHEAD	0.09	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN BULLHEAD	0.09	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GREEN SUNFISH	0.08	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WARMOUTH	0.08	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	AMERICAN EEL	0.08	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK CRAPPIE	0.08	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CARP	0.04	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	COOSA BASS	0.04	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	LONGNOSE GAR	0.04	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK BULLHEAD	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACKBANDED DARTR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEHEAD CHUB	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN TROUT	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	COASTAL SHINER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLAT BULLHEAD	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLATHEAD CATFISH	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	LARGEMOUTH BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	MARGINED MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	NORTHERN HOGSUCKR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	RAINBOW TROUT	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDBREAST	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDEAR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	RIVER CARPSUCKER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SILVER REDHORSE	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTED BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	TADPOLE MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	TESSELATED DARTR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CRAPPIE	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITEFIN SHINER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		948.94			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=NOVEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
NOVEMBER	THREADFIN SHAD	279.95	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEGILL	9.01	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEBACK HERRING	7.75	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE CATFISH	6.43	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CHANNEL CATFISH	1.99	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GIZZARD SHAD	1.58	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SPOTTAIL SHINER	1.20	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE PERCH	0.75	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	STRIPED BASS	0.75	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	YELLOW PERCH	0.60	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GREEN SUNFISH	0.31	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	HYBRID BASS	0.22	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	FLATHEAD CATFISH	0.18	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEHEAD CHUB	0.16	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	AMERICAN EEL	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACK BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACK CRAPPIE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACKBANDED DARTR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BROWN BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BROWN TROUT	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CARP	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CHAIN PICKEREL	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	COASTAL SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	COOSA BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	FLAT BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GOLDEN SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	LARGEMOUTH BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	LONGNOSE GAR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	MARGINED MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	NORTHERN HOGSUCKR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	RAINBOW TROUT	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	REDBREAST	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	REDEAR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	RIVER CARPSUCKER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SILVER REDHORSE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SPOTTED BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	TADPOLE MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	TESSELATED DARTR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WARMOUTH	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE CRAPPIE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITEFIN SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	YELLOW BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		310.90			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	717.33	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	66.57	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	3.18	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	2.96	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	2.05	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CATFISH	1.78	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	1.24	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GIZZARD SHAD	0.94	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	HYBRID BASS	0.49	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.21	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.19	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.16	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	AMERICAN EEL	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COASTAL SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COOSA BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLAT BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLATHEAD CATFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GOLDEN SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GREEN SUNFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LONGNOSE GAR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MARGINED MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	NORTHERN HOGSUCKR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RAINBOW TROUT	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDBREAST	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDEAR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RIVER CARPSUCKER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SILVER REDHORSE	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTED BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TADPOLE MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TESSELATED DARTR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WARMOUTH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CRAPPIE	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE PERCH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITEFIN SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		797.08			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=JANUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JANUARY	THREADFIN SHAD	2167.20	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	YELLOW PERCH	66.78	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEBACK HERRING	33.72	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SPOTTAIL SHINER	7.96	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEGILL	0.94	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE CATFISH	0.75	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CHANNEL CATFISH	0.60	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BROWN BULLHEAD	0.37	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	HYBRID BASS	0.16	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	STRIPED BASS	0.11	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SPOTTED BASS	0.11	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	TESSELATED DARTR	0.11	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE BASS	0.08	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	AMERICAN EEL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACK BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACK CRAPPIE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACKBANDED DARTR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEHEAD CHUB	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BROWN TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CARP	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CHAIN PICKEREL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	COASTAL SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	COOSA BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	FLAT BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	FLATHEAD CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GIZZARD SHAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GOLDEN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GREEN SUNFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	LARGEMOUTH BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	LONGNOSE GAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	MARGINED MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	NORTHERN HOGSUCKR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	RAINBOW TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	REDBREAST	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	REDEAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	RIVER CARPSUCKER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SILVER REDHORSE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	TADPOLE MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WARMOUTH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE CRAPPIE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE PERCH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITEFIN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	YELLOW BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		2278.89			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	THREADFIN SHAD	2315.90	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW PERCH	161.68	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GIZZARD SHAD	47.99	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEBACK HERRING	17.84	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTAIL SHINER	1.63	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEGILL	0.67	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITEFIN SHINER	0.47	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHANNEL CATFISH	0.36	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	HYBRID BASS	0.22	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE BASS	0.18	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN BULLHEAD	0.17	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WARMOUTH	0.15	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LARGEMOUTH BASS	0.10	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	NORTHERN HOGSUCKR	0.09	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	STRIPED BASS	0.07	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE PERCH	0.07	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	AMERICAN EEL	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK CRAPPIE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACKBANDED DARTR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEHEAD CHUB	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN TROUT	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CARP	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHAIN PICKEREL	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COASTAL SHINER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COOSA BASS	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLAT BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLATHEAD CATFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GOLDEN SHINER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GREEN SUNFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LONGNOSE GAR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MARGINED MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RAINBOW TROUT	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDBREAST	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDEAR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RIVER CARPSUCKER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SILVER REDHORSE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTED BASS	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TADPOLE MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TESSELATED DARTR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CATFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CRAPPIE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		2547.60			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	YELLOW PERCH	63.96	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	8.52	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	THREADFIN SHAD	4.81	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CRAPPIE	4.16	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTAIL SHINER	3.48	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	3.22	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	HYBRID BASS	1.20	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEBACK HERRING	0.96	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	STRIPED BASS	0.90	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	0.45	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE PERCH	0.45	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WARMOUTH	0.39	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.21	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CATFISH	0.18	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTED BASS	0.16	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GREEN SUNFISH	0.11	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TESSELATED DARTR	0.11	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHANNEL CATFISH	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COASTAL SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COOSA BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLAT BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GOLDEN SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LONGNOSE GAR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RAINBOW TROUT	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDEAR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RIVER CARPSUCKER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SILVER REDHORSE	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TADPOLE MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		93.29			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	SPOTTAIL SHINER	63.88	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	THREADFIN SHAD	17.75	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW PERCH	11.45	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEGILL	10.31	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEBACK HERRING	6.78	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK CRAPPIE	4.45	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE PERCH	3.83	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GIZZARD SHAD	3.45	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CRAPPIE	1.52	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	STRIPED BASS	1.44	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	HYBRID BASS	0.88	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TESSELATED DARTR	0.61	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WARMOUTH	0.47	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHANNEL CATFISH	0.41	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.21	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITEFIN SHINER	0.18	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SILVER REDHORSE	0.16	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	AMERICAN EEL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACKBANDED DARTR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEHEAD CHUB	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CARP	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COASTAL SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COOSA BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLAT BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLATHEAD CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GOLDEN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GREEN SUNFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LARGEMOUTH BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LONGNOSE GAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MARGINED MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	NORTHERN HOGSUCKR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RAINBOW TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDBREAST	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDEAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RIVER CARPSUCKER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTED BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TADPOLE MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		127.79			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	THREADFIN SHAD	369.07	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEBACK HERRING	79.08	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW PERCH	36.64	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK CRAPPIE	24.02	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTAIL SHINER	21.28	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEGILL	15.48	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE PERCH	10.58	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	STRIPED BASS	2.01	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CRAPPIE	1.80	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WARMOUTH	0.91	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GIZZARD SHAD	0.59	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CATFISH	0.54	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHAIN PICKEREL	0.21	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GOLDEN SHINER	0.18	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHANNEL CATFISH	0.17	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	HYBRID BASS	0.12	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN BULLHEAD	0.09	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MADTOM	0.09	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW BULLHEAD	0.07	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LARGEMOUTH BASS	0.05	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RIVER CARPSUCKER	0.04	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	AMERICAN EEL	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACKBANDED DARTR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEHEAD CHUB	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN TROUT	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CARP	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COASTAL SHINER	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COOSA BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLAT BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MARGINED MADTOM	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	NORTHERN HOGSUCKR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RAINBOW TROUT	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDBREAST	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDEAR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTED BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TADPOLE MADTOM	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TESSELATED DARTR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITEFIN SHINER	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		563.01			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	THREADFIN SHAD	401.14	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW PERCH	50.90	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEBACK HERRING	50.60	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK CRAPPIE	18.74	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEGILL	15.52	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE PERCH	10.53	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTAIL SHINER	5.09	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	STRIPED BASS	0.81	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WARMOUTH	0.75	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GIZZARD SHAD	0.42	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHANNEL CATFISH	0.21	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CRAPPIE	0.19	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CATFISH	0.16	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LARGEMOUTH BASS	0.15	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTED BASS	0.15	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.11	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE BASS	0.04	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	AMERICAN EEL	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACKBANDED DARTR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEHEAD CHUB	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COASTAL SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COOSA BASS	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLAT BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLATHEAD CATFISH	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GOLDEN SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GREEN SUNFISH	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	HYBRID BASS	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LONGNOSE GAR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MARGINED MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	NORTHERN HOGSUCKR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RAINBOW TROUT	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDBREAST	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDEAR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RIVER CARPSUCKER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SILVER REDHORSE	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TADPOLE MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TESSELATED DARTR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITEFIN SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		555.50			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	THREADFIN SHAD	1128.16	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	96.22	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	31.56	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	7.84	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	6.73	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEBACK HERRING	5.64	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	2.24	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	2.10	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	1.76	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.90	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.75	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.64	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.48	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.21	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.17	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.16	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.14	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.12	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.11	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.07	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.06	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1286.05			0.00			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	THREADFIN SHAD	94.35	14.570	3	0.00	0.00	0	0.00	0.00	0	187.54	16.18	4
AUGUST	YELLOW PERCH	66.55	14.570	3	0.00	0.00	0	0.00	0.00	0	42.34	16.18	4
AUGUST	BLUEGILL	36.82	14.570	3	0.00	0.00	0	0.00	0.00	0	10.72	16.18	4
AUGUST	BLUEBACK HERRING	22.07	14.570	3	0.00	0.00	0	0.00	0.00	0	21.43	16.18	4
AUGUST	BLACK CRAPPIE	0.85	14.570	3	0.00	0.00	0	0.00	0.00	0	22.95	16.18	4
AUGUST	WHITE PERCH	17.40	14.570	3	0.00	0.00	0	0.00	0.00	0	6.18	16.18	4
AUGUST	GIZZARD SHAD	2.21	14.570	3	0.00	0.00	0	0.00	0.00	0	19.96	16.18	4
AUGUST	WHITE CATFISH	8.35	14.570	3	0.00	0.00	0	0.00	0.00	0	6.42	16.18	4
AUGUST	CHANNEL CATFISH	6.60	14.570	3	0.00	0.00	0	0.00	0.00	0	4.16	16.18	4
AUGUST	BROWN BULLHEAD	1.84	14.570	3	0.00	0.00	0	0.00	0.00	0	1.21	16.18	4
AUGUST	WARMOUTH	1.89	14.570	3	0.00	0.00	0	0.00	0.00	0	0.53	16.18	4
AUGUST	LARGEMOUTH BASS	0.88	14.570	3	0.00	0.00	0	0.00	0.00	0	0.85	16.18	4
AUGUST	HYBRID BASS	0.06	14.570	3	0.00	0.00	0	0.00	0.00	0	1.55	16.18	4
AUGUST	SPOTTAIL SHINER	0.10	14.570	3	0.00	0.00	0	0.00	0.00	0	1.30	16.18	4
AUGUST	STRIPED BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	1.03	16.18	4
AUGUST	WHITE CRAPPIE	0.23	14.570	3	0.00	0.00	0	0.00	0.00	0	0.69	16.18	4
AUGUST	GOLDEN SHINER	0.10	14.570	3	0.00	0.00	0	0.00	0.00	0	0.43	16.18	4
AUGUST	BLUEHEAD CHUB	0.47	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COASTAL SHINER	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.44	16.18	4
AUGUST	YELLOW BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.26	16.18	4
AUGUST	RAINBOW TROUT	0.11	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	AMERICAN EEL	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	BLACKBANDED DARTR	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUE CATFISH	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	BROWN TROUT	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CARP	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	COOSA BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	FLAT BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLATHEAD CATFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	FLIER	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	GREEN SUNFISH	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LONGNOSE GAR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MARGINED MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	NORTHERN HOGSUCKR	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	PUMPKINSEED	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	REDBREAST	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	REDBREAST SUNFISH	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDEAR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RIVER CARPSUCKER	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	SILVER REDHORSE	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	SPOTTED BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	STRIPED KILLIFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	TADPOLE MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
SUM		260.86			0.00			0.00			330.00		

Table 1-20 (Continued).

QUARTER=JAN 1995 TO MAR 1995 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	THREADFIN SHAD	4175.94	12.100	2	0.00	0.00	0	2382.55	2.00	1	359.87	4.00	2
MARCH	BLUEBACK HERRING	6448.64	12.100	2	0.00	0.00	0	7.50	2.00	1	11.06	4.00	2
MARCH	YELLOW PERCH	504.44	12.100	2	0.00	0.00	0	96.04	2.00	1	186.01	4.00	2
MARCH	SPOTTAIL SHINER	34.17	12.100	2	0.00	0.00	0	60.58	2.00	1	27.41	4.00	2
MARCH	WHITE PERCH	64.08	12.100	2	0.00	0.00	0	1.14	2.00	1	15.96	4.00	2
MARCH	HYBRID BASS	6.99	12.100	2	0.00	0.00	0	22.81	2.00	1	6.84	4.00	2
MARCH	GOLDEN SHINER	0.27	12.100	2	0.00	0.00	0	8.70	2.00	1	0.00	4.00	2
MARCH	BLUEGILL	2.81	12.100	2	0.00	0.00	0	4.58	2.00	1	0.81	4.00	2
MARCH	BLACK CRAPPIE	7.62	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	GIZZARD SHAD	3.19	12.100	2	0.00	0.00	0	3.00	2.00	1	0.50	4.00	2
MARCH	CHANNEL CATFISH	1.43	12.100	2	0.00	0.00	0	0.00	2.00	1	4.79	4.00	2
MARCH	WHITE CATFISH	0.34	12.100	2	0.00	0.00	0	0.00	2.00	1	4.79	4.00	2
MARCH	STRIPED BASS	2.83	12.100	2	0.00	0.00	0	1.14	2.00	1	1.14	4.00	2
MARCH	BROWN BULLHEAD	0.77	12.100	2	0.00	0.00	0	0.00	2.00	1	1.06	4.00	2
MARCH	WHITE CRAPPIE	0.75	12.100	2	0.00	0.00	0	0.00	2.00	1	0.81	4.00	2
MARCH	WHITE BASS	1.02	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	BLACK BULLHEAD	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.53	4.00	2
MARCH	WARMOUTH	0.53	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	TESSELATED DARTR	0.21	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	RIVER CARPSUCKER	0.08	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUE CATFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	BLUEHEAD CHUB	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	COASTAL SHINER	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	COOSA BASS	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	FLAT BULLHEAD	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	FLIER	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	GREEN SUNFISH	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	LONGNOSE GAR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	MADTOM	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	PUMPKINSEED	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	RAINBOW TROUT	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	REDBREAST SUNFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	REDEAR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	SILVER REDHORSE	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	SPOTTED BASS	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	STRIPED KILLIFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
SUM		11256.12			0.00			2588.03			621.59		

Table 1-20 (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	BLUEBACK HERRING	2804.11	17.50	3	0.00	0.00	0	62.76	18.00	10	20439.49	1.50	1
APRIL	THREADFIN SHAD	141.61	17.50	3	0.00	0.00	0	162.15	18.00	10	2.08	1.50	1
APRIL	WHITE PERCH	19.87	17.50	3	0.00	0.00	0	26.28	18.00	10	1.64	1.50	1
APRIL	YELLOW PERCH	31.54	17.50	3	0.00	0.00	0	11.76	18.00	10	2.02	1.50	1
APRIL	WHITE CRAPPIE	1.57	17.50	3	0.00	0.00	0	13.14	18.00	10	14.88	1.50	1
APRIL	GIZZARD SHAD	2.51	17.50	3	0.00	0.00	0	1.77	18.00	10	8.33	1.50	1
APRIL	BLUEGILL	4.42	17.50	3	0.00	0.00	0	4.30	18.00	10	3.65	1.50	1
APRIL	BLACK CRAPPIE	2.67	17.50	3	0.00	0.00	0	2.09	18.00	10	1.67	1.50	1
APRIL	SPOTTAIL SHINER	1.22	17.50	3	0.00	0.00	0	1.93	18.00	10	0.00	1.50	1
APRIL	HYBRID BASS	1.74	17.50	3	0.00	0.00	0	0.72	18.00	10	0.00	1.50	1
APRIL	WHITE BASS	0.19	17.50	3	0.00	0.00	0	0.18	18.00	10	1.56	1.50	1
APRIL	STRIPED BASS	0.29	17.50	3	0.00	0.00	0	0.21	18.00	10	0.00	1.50	1
APRIL	GOLDEN SHINER	0.12	17.50	3	0.00	0.00	0	0.35	18.00	10	0.00	1.50	1
APRIL	WARMOUTH	0.00	17.50	3	0.00	0.00	0	0.28	18.00	10	0.00	1.50	1
APRIL	GREEN SUNFISH	0.00	17.50	3	0.00	0.00	0	0.21	18.00	10	0.00	0.00	0
APRIL	SILVER REDHORSE	0.07	17.50	3	0.00	0.00	0	0.05	18.00	10	0.00	0.00	0
APRIL	CARP	0.02	17.50	3	0.00	0.00	0	0.05	18.00	10	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	BLACKBANDED DARTER	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	BLUEHEAD CHUB	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	BROWN TROUT	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	CHANNEL CATFISH	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	COASTAL SHINER	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	COOSA BASS	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	FLAT BULLHEAD	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLATHEAD CATFISH	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	LARGEMOUTH BASS	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	LONGNOSE GAR	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	MADTOM	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MARGINED MADTOM	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	NORTHERN HOGSUCKER	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	0.00	0
APRIL	PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	RAINBOW TROUT	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDBREAST	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	REDEAR	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	0.00	0
SUM		3011.96			0.00			288.21			20475.33		

Table 1-20 (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	103.73	23.00	13	0.00	0.00	0
MAY	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	32.39	23.00	13	0.00	0.00	0
MAY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	24.84	23.00	13	0.00	0.00	0
MAY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	17.74	23.00	13	0.00	0.00	0
MAY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	10.85	23.00	13	0.00	0.00	0
MAY	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.00	0	7.37	23.00	13	0.00	0.00	0
MAY	WHITE CRAPPIE	0.00	0.00	0	0.00	0.00	0	2.80	23.00	13	0.00	0.00	0
MAY	STRIPED BASS	0.00	0.00	0	0.00	0.00	0	0.53	23.00	13	0.00	0.00	0
MAY	WARMOUTH	0.00	0.00	0	0.00	0.00	0	0.32	23.00	13	0.00	0.00	0
MAY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	0.11	23.00	13	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	0.00	0	0.00	0.00	0	0.11	23.00	13	0.00	0.00	0
MAY	WHITE CATFISH	0.00	0.00	0	0.00	0.00	0	0.08	23.00	13	0.00	0.00	0
MAY	HYBRID BASS	0.00	0.00	0	0.00	0.00	0	0.04	23.00	13	0.00	0.00	0
MAY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.01	23.00	13	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CARP	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GOLDEN SHINER	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	LARGEMOUTH BASS	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	NORTHERN HOGSUCKR	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	REDBREAST	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	REDEAR	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	SPOTTED BASS	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	TESSELATED DARTR	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	WHITE BASS	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
SUM		0.00			0.00			200.93			0.00		

Table 1-20 (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	BLACK CRAPPIE	12.71	5.53	2	0.00	0.00	0	32.96	9.38	5	257.76	3.50	5
JUNE	BLUEBACK HERRING	171.12	5.53	2	0.00	0.00	0	16.58	9.38	5	106.80	3.50	5
JUNE	YELLOW PERCH	32.94	5.53	2	0.00	0.00	0	36.25	9.38	5	85.72	3.50	5
JUNE	THREADFIN SHAD	43.01	5.53	2	0.00	0.00	0	0.78	9.38	5	0.70	3.50	5
JUNE	WHITE CRAPPIE	1.01	5.53	2	0.00	0.00	0	1.47	9.38	5	12.43	3.50	5
JUNE	BLUEGILL	14.39	5.53	2	0.00	0.00	0	0.47	9.38	5	0.00	3.50	5
JUNE	SPOTTAIL SHINER	8.17	5.53	2	0.00	0.00	0	0.54	9.38	5	0.63	3.50	5
JUNE	WHITE PERCH	4.50	5.53	2	0.00	0.00	0	1.64	9.38	5	0.00	3.50	5
JUNE	COOSA BASS	0.18	5.53	2	0.00	0.00	0	0.00	0.00	0	0.54	3.50	5
JUNE	WARMOUTH	0.37	5.53	2	0.00	0.00	0	0.00	9.38	5	0.21	3.50	5
JUNE	STRIPED BASS	0.08	5.53	2	0.00	0.00	0	0.00	9.38	5	0.49	3.50	5
JUNE	TESSELATED DARTR	0.36	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	WHITE CATFISH	0.09	5.53	2	0.00	0.00	0	0.10	9.38	5	0.11	3.50	5
JUNE	GIZZARD SHAD	0.29	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	WHITE BASS	0.17	5.53	2	0.00	0.00	0	0.12	9.38	5	0.00	3.50	5
JUNE	NORTHERN HOGSUCKR	0.22	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	CHANNEL CATFISH	0.02	5.53	2	0.00	0.00	0	0.01	9.38	5	0.09	3.50	5
JUNE	BROWN BULLHEAD	0.05	5.53	2	0.00	0.00	0	0.01	9.38	5	0.00	3.50	5
JUNE	BLACK BULLHEAD	0.00	5.53	2	0.00	0.00	0	0.01	9.38	5	0.00	3.50	5
JUNE	BLACKBANDED DARTR	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	BLUEHEAD CHUB	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	COASTAL SHINER	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	FLAT BULLHEAD	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLATHEAD CATFISH	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	GOLDEN SHINER	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	GREEN SUNFISH	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	HYBRID BASS	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	LARGEMOUTH BASS	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	LONGNOSE GAR	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	MADTOM	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MARGINED MADTOM	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	RAINBOW TROUT	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDBREAST	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	REDEAR	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	RIVER CARPSUCKER	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		289.67			0.00			90.96			465.47		

Table 1-20 (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	BLUEBACK HERRING	875.23	8.39	4	0.00	0.00	0	0.00	0.00	0	1135.12	19.50	11
JULY	THREADFIN SHAD	675.12	8.39	4	0.00	0.00	0	0.00	0.00	0	29.22	19.50	11
JULY	BLACK CRAPPIE	6.25	8.39	4	0.00	0.00	0	0.00	0.00	0	121.17	19.50	11
JULY	YELLOW PERCH	12.53	8.39	4	0.00	0.00	0	0.00	0.00	0	20.31	19.50	11
JULY	BLUEGILL	22.77	8.39	4	0.00	0.00	0	0.00	0.00	0	7.93	19.50	11
JULY	WHITE CRAPPIE	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	3.92	19.50	11
JULY	SPOTTAIL SHINER	3.15	8.39	4	0.00	0.00	0	0.00	0.00	0	0.16	19.50	11
JULY	WHITE PERCH	1.02	8.39	4	0.00	0.00	0	0.00	0.00	0	1.26	19.50	11
JULY	CHANNEL CATFISH	0.66	8.39	4	0.00	0.00	0	0.00	0.00	0	0.24	19.50	11
JULY	SPOTTED BASS	0.64	8.39	4	0.00	0.00	0	0.00	0.00	0	0.20	19.50	11
JULY	GIZZARD SHAD	0.13	8.39	4	0.00	0.00	0	0.00	0.00	0	0.69	19.50	11
JULY	GREEN SUNFISH	0.66	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.27	8.39	4	0.00	0.00	0	0.00	0.00	0	0.34	19.50	11
JULY	WARMOUTH	0.32	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	TESSELATED DARTR	0.10	8.39	4	0.00	0.00	0	0.00	0.00	0	0.10	19.50	11
JULY	CARP	0.18	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.06	8.39	4	0.00	0.00	0	0.00	0.00	0	0.05	19.50	11
JULY	BROWN BULLHEAD	0.05	8.39	4	0.00	0.00	0	0.00	0.00	0	0.05	19.50	11
JULY	FLATHEAD CATFISH	0.08	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	STRIPED BASS	0.06	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.02	19.50	11
JULY	BLACK BULLHEAD	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	BLACKBANDED DARTR	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1599.28			0.00			0.00			1320.78		

Table 1-20 (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	BLUEBACK HERRING	1187.10	10.00	3	0.00	0.00	0	4144.96	1.95	2	6355.48	18.75	11
AUGUST	THREADFIN SHAD	373.22	10.00	3	0.00	0.00	0	68.23	1.95	2	176.57	18.75	11
AUGUST	BLACK CRAPPIE	2.48	10.00	3	0.00	0.00	0	1.16	1.95	2	12.37	18.75	11
AUGUST	WHITE PERCH	12.09	10.00	3	0.00	0.00	0	0.00	1.95	2	1.55	18.75	11
AUGUST	BLUEGILL	8.69	10.00	3	0.00	0.00	0	0.00	1.95	2	1.38	18.75	11
AUGUST	YELLOW PERCH	2.54	10.00	3	0.00	0.00	0	0.40	1.95	2	2.36	18.75	11
AUGUST	GIZZARD SHAD	0.48	10.00	3	0.00	0.00	0	0.00	1.95	2	0.73	18.75	11
AUGUST	CHANNEL CATFISH	0.44	10.00	3	0.00	0.00	0	0.31	1.95	2	0.23	18.75	11
AUGUST	WHITE CRAPPIE	0.71	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
AUGUST	YELLOW BULLHEAD	0.34	10.00	3	0.00	0.00	0	0.00	0.00	0	0.37	18.75	11
AUGUST	WHITE CATFISH	0.53	10.00	3	0.00	0.00	0	0.00	1.95	2	0.16	18.75	11
AUGUST	BROWN BULLHEAD	0.46	10.00	3	0.00	0.00	0	0.00	1.95	2	0.20	18.75	11
AUGUST	SPOTTED BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.21	18.75	11
AUGUST	MARGINED MADTOM	0.21	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WARMOUTH	0.13	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
AUGUST	PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.11	18.75	11
AUGUST	HYBRID BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.08	18.75	11
AUGUST	STRIPED BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.08	18.75	11
AUGUST	WHITEFIN SHINER	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.06	18.75	11
AUGUST	CARP	0.05	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	0.00	0
AUGUST	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.05	18.75	11
AUGUST	BLACK BULLHEAD	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.03	18.75	11
AUGUST	BLACKBANDED DARTR	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEHEAD CHUB	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN TROUT	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
SUM		1589.48			0.00			4215.05			6552.03		

Table 1-20 (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=SEPTEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
SEPTEMBER	BLUEBACK HERRING	50.16	3.00	1	0.00	0.00	0	985.35	8.00	3	8.54	17.92	9
SEPTEMBER	THREADFIN SHAD	195.51	3.00	1	0.00	0.00	0	12.33	8.00	3	33.73	17.92	9
SEPTEMBER	BLUEGILL	17.41	3.00	1	0.00	0.00	0	0.23	8.00	3	0.77	17.92	9
SEPTEMBER	WHITE PERCH	11.23	3.00	1	0.00	0.00	0	1.24	8.00	3	1.98	17.92	9
SEPTEMBER	BLACK CRAPPIE	5.05	3.00	1	0.00	0.00	0	0.41	8.00	3	8.52	17.92	9
SEPTEMBER	YELLOW PERCH	5.87	3.00	1	0.00	0.00	0	0.17	8.00	3	1.11	17.92	9
SEPTEMBER	WHITE CATFISH	2.60	3.00	1	0.00	0.00	0	0.40	8.00	3	1.96	17.92	9
SEPTEMBER	GIZZARD SHAD	0.67	3.00	1	0.00	0.00	0	0.33	8.00	3	0.33	17.92	9
SEPTEMBER	CHANNEL CATFISH	0.67	3.00	1	0.00	0.00	0	0.05	8.00	3	0.30	17.92	9
SEPTEMBER	WHITE CRAPPIE	0.00	3.00	1	0.00	0.00	0	0.23	8.00	3	0.43	17.92	9
SEPTEMBER	LARGEMOUTH BASS	0.61	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	WARMOUTH	0.60	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	SPOTTAIL SHINER	0.45	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	BROWN BULLHEAD	0.36	3.00	1	0.00	0.00	0	0.00	8.00	3	0.03	17.92	9
SEPTEMBER	WHITE BASS	0.27	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	BLACK BULLHEAD	0.00	3.00	1	0.00	0.00	0	0.15	8.00	3	0.07	17.92	9
SEPTEMBER	TESSELATED DARTR	0.21	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	GOLDEN SHINER	0.17	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.12	17.92	9
SEPTEMBER	FLATHEAD CATFISH	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.03	17.92	9
SEPTEMBER	BLACKBANDED DARTR	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SEPTEMBER	BLUEHEAD CHUB	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN TROUT	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CARP	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	0.00	0
SEPTEMBER	CHAIN PICKEREL	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	COASTAL SHINER	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SEPTEMBER	COOSA BASS	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SEPTEMBER	FLAT BULLHEAD	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SUM		291.83			0.00			1000.90			57.94		

Table 1-20 (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	885.84	15.16	8	677.64	11.17	5
OCTOBER	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	10.59	15.16	8	4.61	11.17	5
OCTOBER	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	1.02	15.16	8	7.22	11.17	5
OCTOBER	BLUEGILL	0.00	0.00	0	0.00	0.00	0	1.96	15.16	8	3.83	11.17	5
OCTOBER	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	1.57	15.16	8	1.00	11.17	5
OCTOBER	WHITE CATFISH	0.00	0.00	0	0.00	0.00	0	1.04	15.16	8	1.08	11.17	5
OCTOBER	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.58	15.16	8	0.16	11.17	5
OCTOBER	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.26	15.16	8	0.26	11.17	5
OCTOBER	WHITE CRAPPIE	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.47	11.17	5
OCTOBER	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	0.09	15.16	8	0.34	11.17	5
OCTOBER	WARMOUTH	0.00	0.00	0	0.00	0.00	0	0.41	15.16	8	0.00	11.17	5
OCTOBER	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.04	15.16	8	0.03	11.17	5
OCTOBER	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.05	11.17	5
OCTOBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	11.17	5
OCTOBER	CARP	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	11.17	5
OCTOBER	COASTAL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	COOSA BASS	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
SUM		0.00			0.00			903.39			696.67		

Table 1-20 (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=NOVEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
NOVEMBER	THREADFIN SHAD	0.00	0.00	0	154.48	3.50	2	1354.44	7.00	4	597.33	9.00	4
NOVEMBER	BLUEBACK HERRING	0.00	0.00	0	2.07	3.50	2	2.75	7.00	4	1.09	9.00	4
NOVEMBER	WHITE CATFISH	0.00	0.00	0	0.25	3.50	2	4.40	7.00	4	0.39	9.00	4
NOVEMBER	BLACK CRAPPIE	0.00	0.00	0	0.00	3.50	2	0.96	7.00	4	2.33	9.00	4
NOVEMBER	CHANNEL CATFISH	0.00	0.00	0	0.15	3.50	2	2.31	7.00	4	0.16	9.00	4
NOVEMBER	BLUEGILL	0.00	0.00	0	0.00	3.50	2	0.88	7.00	4	1.74	9.00	4
NOVEMBER	WHITE PERCH	0.00	0.00	0	0.36	3.50	2	0.90	7.00	4	0.35	9.00	4
NOVEMBER	GIZZARD SHAD	0.00	0.00	0	0.00	3.50	2	1.50	7.00	4	0.00	9.00	4
NOVEMBER	YELLOW PERCH	0.00	0.00	0	0.00	3.50	2	0.57	7.00	4	0.19	9.00	4
NOVEMBER	STRIPED BASS	0.00	0.00	0	0.65	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	SPOTTAIL SHINER	0.00	0.00	0	0.39	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	HYBRID BASS	0.00	0.00	0	0.27	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BROWN BULLHEAD	0.00	0.00	0	0.03	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BLACK BULLHEAD	0.00	0.00	0	0.00	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	CARP	0.00	0.00	0	0.00	0.00	0	0.00	7.00	4	0.00	0.00	0
NOVEMBER	CHAIN PICKEREL	0.00	0.00	0	0.00	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	COASTAL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	COOSA BASS	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	CREEK CHUB	0.00	0.00	0	0.00	3.50	2	0.00	0.00	0	0.00	0.00	0
NOVEMBER	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	7.00	4	0.00	9.00	4
SUM		0.00			158.66			1368.71			603.59		

Table 1-20 (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	248.12	8.25	3	1679.43	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	5.16	8.25	3	2.26	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	0.31	8.25	3	0.60	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	0.62	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.15	8.25	3	0.45	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.08	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.06	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE BASS	0.06	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE PERCH	0.06	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	0.04	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	COASTAL SHINER	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COOSA BASS	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CREEK CHUB	0.00	0.00	0	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLAT BULLHEAD	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLATHEAD CATFISH	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		254.66			1682.74			0.00			0.00		

Table 1-20 (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=JANUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JANUARY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	652.11	2.50	1	403.85	4.00	2
JANUARY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	27.54	2.50	1	14.21	4.00	2
JANUARY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	3.90	2.50	1	0.57	4.00	2
JANUARY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	1.77	2.50	1	1.12	4.00	2
JANUARY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	2.38	2.50	1	0.00	4.00	2
JANUARY	STRIPED BASS	0.00	0.00	0	0.00	0.00	0	0.48	2.50	1	0.00	4.00	2
JANUARY	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.42	4.00	2
JANUARY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
JANUARY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	CARP	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	0.00	0
JANUARY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
SUM		0.00			0.00			688.18			420.16		

QUARTER=JAN 1996 TO MAR 1996 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	11575.36	2.75	1
FEBRUARY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	25.33	2.75	1
FEBRUARY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	15.02	2.75	1
FEBRUARY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	7.13	2.75	1
FEBRUARY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	6.04	2.75	1
FEBRUARY	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.40	2.75	1
FEBRUARY	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.17	2.75	1
FEBRUARY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
SUM		0.00			0.00			0.00			11629.44		

Table 1-20 (Concluded).

QUARTER=JAN 1996 TO MAR 1996 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	THREADFIN SHAD	1138.58	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE PERCH	20.67	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW PERCH	8.51	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEBACK HERRING	8.24	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	1.70	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	1.07	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	0.58	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTAIL SHINER	0.21	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.14	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1179.70			0.00			0.00			0.00		

Table 1-21. (Continued). Summaries of netting data collected during Phase II (August 1993 to August 1994), PrePhase III (September 1994 to March 1996). Comparison of mean monthly species entrainment rates (num/hour) for pumpback units. Rates for units 6,7,& 8 are doubled to expand for unsampled bay. Sampling rate of 0.0 indicates no members of that species were collected for that unit. Data adjusted for survival.

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	BLUEBACK HERRING	1043.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	THREADFIN SHAD	304.65	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEGILL	1.33	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE CATFISH	0.41	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW PERCH	0.21	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GIZZARD SHAD	0.20	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW BULLHEAD	0.12	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHANNEL CATFISH	0.11	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN BULLHEAD	0.09	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE PERCH	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	STRIPED BASS	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTAIL SHINER	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WARMOUTH	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LARGEMOUTH BASS	0.06	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN TROUT	0.05	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK BULLHEAD	0.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	HYBRID BASS	0.03	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	AMERICAN EEL	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	TESSELATED DARTR	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RAINBOW TROUT	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK CRAPPIE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACKBANDED DARTR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEHEAD CHUB	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CARP	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COASTAL SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COOSA BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLAT BULLHEAD	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLATHEAD CATFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GOLDEN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GREEN SUNFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LONGNOSE GAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MARGINED MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	NORTHERN HOGSUCKR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDBREAST	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDEAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RIVER CARPSUCKER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SILVER REDHORSE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITEFIN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1350.64			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=SEPTEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
SEPTEMBER	THREADFIN SHAD	1588.76	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEBACK HERRING	24.41	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GIZZARD SHAD	2.98	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEGILL	2.37	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE CATFISH	1.15	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	YELLOW PERCH	0.25	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CHANNEL CATFISH	0.21	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE PERCH	0.12	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACK BULLHEAD	0.08	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN BULLHEAD	0.07	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	LARGEMOUTH BASS	0.06	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	FLAT BULLHEAD	0.05	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	YELLOW BULLHEAD	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SPOTTAIL SHINER	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WARMOUTH	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN TROUT	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	HYBRID BASS	0.04	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GOLDEN SHINER	0.03	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	COASTAL SHINER	0.03	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	LONGNOSE GAR	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	COOSA BASS	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CARP	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	STRIPED BASS	0.02	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	TESSELATED DARTR	0.01	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	AMERICAN EEL	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACK CRAPPIE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLACKBANDED DARTR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUEHEAD CHUB	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CHAIN PICKEREL	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	FLATHEAD CATFISH	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	GREEN SUNFISH	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	MARGINED MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	NORTHERN HOGSUCKR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	RAINBOW TROUT	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	REDBREAST	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	REDEAR	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	RIVER CARPSUCKER	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SILVER REDHORSE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	SPOTTED BASS	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	TADPOLE MADTOM	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE BASS	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITE CRAPPIE	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	WHITEFIN SHINER	0.00	44.290	7	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1620.84			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	THREADFIN SHAD	909.53	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEBACK HERRING	14.24	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEGILL	2.82	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GIZZARD SHAD	0.91	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CATFISH	0.76	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE PERCH	0.34	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	STRIPED BASS	0.31	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTAIL SHINER	0.15	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	HYBRID BASS	0.15	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHANNEL CATFISH	0.12	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GREEN SUNFISH	0.07	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WARMOUTH	0.07	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK CRAPPIE	0.07	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW PERCH	0.06	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CARP	0.03	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	COOSA BASS	0.03	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	GOLDEN SHINER	0.03	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW BULLHEAD	0.01	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN BULLHEAD	0.01	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	AMERICAN EEL	0.01	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	LONGNOSE GAR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK BULLHEAD	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACKBANDED DARTR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEHEAD CHUB	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN TROUT	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	COASTAL SHINER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLAT BULLHEAD	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLATHEAD CATFISH	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	LARGEMOUTH BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	MARGINED MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	NORTHERN HOGSUCKR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	RAINBOW TROUT	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDBREAST	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDEAR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	RIVER CARPSUCKER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SILVER REDHORSE	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTED BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	TADPOLE MADTOM	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	TESSELATED DARTR	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE BASS	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CRAPPIE	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITEFIN SHINER	0.00	25.700	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		929.70			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=NOVEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT. 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
NOVEMBER	THREADFIN SHAD	216.15	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEBACK HERRING	5.99	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEGILL	4.16	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GIZZARD SHAD	1.22	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SPOTTAIL SHINER	0.87	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	YELLOW PERCH	0.44	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE PERCH	0.41	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	STRIPED BASS	0.41	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE CATFISH	0.32	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GREEN SUNFISH	0.14	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	HYBRID BASS	0.12	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLUEHEAD CHUB	0.12	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CHANNEL CATFISH	0.10	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	FLATHEAD CATFISH	0.01	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	AMERICAN EEL	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACK BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACK CRAPPIE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BLACKBANDED DARTR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BROWN BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	BROWN TROUT	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CARP	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	CHAIN PICKEREL	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	COASTAL SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	COOSA BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	FLAT BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	GOLDEN SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	LARGEMOUTH BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	LONGNOSE GAR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	MARGINED MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	NORTHERN HOGSUCKR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	RAINBOW TROUT	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	REDBREAST	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	REDEAR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	RIVER CARPSUCKER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SILVER REDHORSE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	SPOTTED BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	TADPOLE MADTOM	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	TESSELATED DARTR	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WARMOUTH	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE BASS	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITE CRAPPIE	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	WHITEFIN SHINER	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
NOVEMBER	YELLOW BULLHEAD	0.00	13.330	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		230.44			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	466.26	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	43.27	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	1.31	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GIZZARD SHAD	0.61	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	0.53	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	0.36	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	HYBRID BASS	0.22	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.07	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.05	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	AMERICAN EEL	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COASTAL SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COOSA BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLAT BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLATHEAD CATFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GOLDEN SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GREEN SUNFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LONGNOSE GAR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MARGINED MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	NORTHERN HOGSUCKR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RAINBOW TROUT	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDBREAST	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDEAR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RIVER CARPSUCKER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SILVER REDHORSE	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTED BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TADPOLE MADTOM	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TESSELATED DARTR	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WARMOUTH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE BASS	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CATFISH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CRAPPIE	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE PERCH	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITEFIN SHINER	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW BULLHEAD	0.00	12.250	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		512.69			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=JANUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JANUARY	THREADFIN SHAD	1408.68	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEBACK HERRING	21.92	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	YELLOW PERCH	11.87	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SPOTTAIL SHINER	1.41	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEGILL	0.28	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	HYBRID BASS	0.07	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SPOTTED BASS	0.06	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	STRIPED BASS	0.05	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE BASS	0.04	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	TESSELATED DARTR	0.02	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	AMERICAN EEL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACK BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACK CRAPPIE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLACKBANDED DARTR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BLUEHEAD CHUB	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BROWN BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	BROWN TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CARP	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CHAIN PICKEREL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	CHANNEL CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	COASTAL SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	COOSA BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	FLAT BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	FLATHEAD CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GIZZARD SHAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GOLDEN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	GREEN SUNFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	LARGEMOUTH BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	LONGNOSE GAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	MARGINED MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	NORTHERN HOGSUCKR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	RAINBOW TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	REDBREAST	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	REDEAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	RIVER CARPSUCKER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	SILVER REDHORSE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	TADPOLE MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WARMOUTH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE CRAPPIE	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITE PERCH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	WHITEFIN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JANUARY	YELLOW BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1444.39			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	THREADFIN SHAD	1505.34	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GIZZARD SHAD	31.19	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW PERCH	28.73	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEBACK HERRING	11.60	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTAIL SHINER	0.29	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEGILL	0.29	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WARMOUTH	0.13	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	HYBRID BASS	0.10	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE BASS	0.09	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITEFIN SHINER	0.08	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LARGEMOUTH BASS	0.05	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	STRIPED BASS	0.03	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE PERCH	0.03	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	NORTHERN HOGSUCKR	0.02	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	AMERICAN EEL	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK CRAPPIE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACKBANDED DARTR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEHEAD CHUB	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN TROUT	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CARP	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHAIN PICKEREL	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHANNEL CATFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COASTAL SHINER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COOSA BASS	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLAT BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLATHEAD CATFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GOLDEN SHINER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GREEN SUNFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LONGNOSE GAR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MARGINED MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RAINBOW TROUT	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDBREAST	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDEAR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RIVER CARPSUCKER	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SILVER REDHORSE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTED BASS	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TADPOLE MADTOM	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TESSELATED DARTR	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CATFISH	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CRAPPIE	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW BULLHEAD	0.00	13.440	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1577.97			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	YELLOW PERCH	11.37	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	5.54	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	THREADFIN SHAD	3.13	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CRAPPIE	1.23	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	1.04	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEBACK HERRING	0.62	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTAIL SHINER	0.62	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	HYBRID BASS	0.54	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	STRIPED BASS	0.41	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE PERCH	0.23	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	0.13	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WARMOUTH	0.12	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTED BASS	0.07	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GREEN SUNFISH	0.03	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TESSELATED DARTR	0.02	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHANNEL CATFISH	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COASTAL SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COOSA BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLAT BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GOLDEN SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LONGNOSE GAR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RAINBOW TROUT	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDEAR	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RIVER CARPSUCKER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SILVER REDHORSE	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TADPOLE MADTOM	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE BASS	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CATFISH	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW BULLHEAD	0.00	12.530	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		25.10			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	THREADFIN SHAD	11.54	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTAIL SHINER	11.35	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEBACK HERRING	4.41	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEGILL	3.13	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GIZZARD SHAD	2.24	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW PERCH	2.04	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE PERCH	1.78	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK CRAPPIE	1.31	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	STRIPED BASS	0.66	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CRAPPIE	0.45	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	HYBRID BASS	0.40	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WARMOUTH	0.23	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TESSELATED DARTR	0.11	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SILVER REDHORSE	0.07	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITEFIN SHINER	0.03	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	AMERICAN EEL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACKBANDED DARTR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEHEAD CHUB	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CARP	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHANNEL CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COASTAL SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COOSA BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLAT BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLATHEAD CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GOLDEN SHINER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GREEN SUNFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LARGEMOUTH BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LONGNOSE GAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MARGINED MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	NORTHERN HOGSUCKR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RAINBOW TROUT	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDBREAST	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDEAR	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RIVER CARPSUCKER	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTED BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TADPOLE MADTOM	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE BASS	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CATFISH	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW BULLHEAD	0.00	12.550	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		39.75			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	THREADFIN SHAD	244.07	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEBACK HERRING	52.29	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK CRAPPIE	7.08	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW PERCH	6.51	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE PERCH	5.36	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEGILL	4.63	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTAIL SHINER	3.78	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	STRIPED BASS	1.02	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CRAPPIE	0.53	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GIZZARD SHAD	0.39	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WARMOUTH	0.27	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MADTOM	0.09	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	HYBRID BASS	0.06	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHAIN PICKEREL	0.04	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GOLDEN SHINER	0.03	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CATFISH	0.03	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LARGEMOUTH BASS	0.03	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RIVER CARPSUCKER	0.02	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHANNEL CATFISH	0.01	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	AMERICAN EEL	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACKBANDED DARTR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEHEAD CHUB	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN TROUT	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CARP	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COASTAL SHINER	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COOSA BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLAT BULLHEAD	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MARGINED MADTOM	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	NORTHERN HOGSUCKR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RAINBOW TROUT	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDBREAST	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDEAR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTED BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TADPOLE MADTOM	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TESSELATED DARTR	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE BASS	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITEFIN SHINER	0.00	24.120	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		326.24			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	THREADFIN SHAD	309.72	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEBACK HERRING	39.07	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW PERCH	36.68	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK CRAPPIE	8.40	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEGILL	7.09	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE PERCH	5.71	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTAIL SHINER	3.67	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	STRIPED BASS	0.44	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WARMOUTH	0.37	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GIZZARD SHAD	0.33	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CRAPPIE	0.08	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LARGEMOUTH BASS	0.08	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTED BASS	0.08	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.08	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE BASS	0.02	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHANNEL CATFISH	0.01	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CATFISH	0.01	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	AMERICAN EEL	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACKBANDED DARTR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEHEAD CHUB	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COASTAL SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COOSA BASS	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLAT BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLATHEAD CATFISH	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GOLDEN SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GREEN SUNFISH	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	HYBRID BASS	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LONGNOSE GAR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MARGINED MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	NORTHERN HOGSUCKR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RAINBOW TROUT	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDBREAST	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDEAR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RIVER CARPSUCKER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SILVER REDHORSE	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TADPOLE MADTOM	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TESSELATED DARTR	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITEFIN SHINER	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW BULLHEAD	0.00	23.250	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		411.83			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	THREADFIN SHAD	1118.23	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	37.01	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	26.55	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	5.66	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEBACK HERRING	5.59	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	4.25	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	2.08	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.75	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.61	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	0.48	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.40	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.25	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.13	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.08	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.07	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.06	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.05	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.04	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.04	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.03	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.02	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	22.890	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1202.39			0.00			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	THREADFIN SHAD	94.31	14.570	3	0.00	0.00	0	0.00	0.00	0	187.47	16.18	4
AUGUST	BLUEBACK HERRING	22.07	14.570	3	0.00	0.00	0	0.00	0.00	0	21.43	16.18	4
AUGUST	BLUEGILL	31.00	14.570	3	0.00	0.00	0	0.00	0.00	0	9.03	16.18	4
AUGUST	YELLOW PERCH	18.75	14.570	3	0.00	0.00	0	0.00	0.00	0	11.93	16.18	4
AUGUST	GIZZARD SHAD	2.21	14.570	3	0.00	0.00	0	0.00	0.00	0	19.96	16.18	4
AUGUST	BLACK CRAPPIE	0.71	14.570	3	0.00	0.00	0	0.00	0.00	0	19.33	16.18	4
AUGUST	WHITE PERCH	14.23	14.570	3	0.00	0.00	0	0.00	0.00	0	5.05	16.18	4
AUGUST	WHITE CATFISH	2.28	14.570	3	0.00	0.00	0	0.00	0.00	0	1.75	16.18	4
AUGUST	CHANNEL CATFISH	1.80	14.570	3	0.00	0.00	0	0.00	0.00	0	1.14	16.18	4
AUGUST	WARMOUTH	1.59	14.570	3	0.00	0.00	0	0.00	0.00	0	0.44	16.18	4
AUGUST	LARGEMOUTH BASS	0.72	14.570	3	0.00	0.00	0	0.00	0.00	0	0.70	16.18	4
AUGUST	HYBRID BASS	0.05	14.570	3	0.00	0.00	0	0.00	0.00	0	1.27	16.18	4
AUGUST	STRIPED BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.84	16.18	4
AUGUST	BROWN BULLHEAD	0.50	14.570	3	0.00	0.00	0	0.00	0.00	0	0.33	16.18	4
AUGUST	WHITE CRAPPIE	0.19	14.570	3	0.00	0.00	0	0.00	0.00	0	0.59	16.18	4
AUGUST	SPOTTAIL SHINER	0.03	14.570	3	0.00	0.00	0	0.00	0.00	0	0.37	16.18	4
AUGUST	GOLDEN SHINER	0.03	14.570	3	0.00	0.00	0	0.00	0.00	0	0.12	16.18	4
AUGUST	BLUEHEAD CHUB	0.13	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COASTAL SHINER	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.12	16.18	4
AUGUST	YELLOW BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.07	16.18	4
AUGUST	RAINBOW TROUT	0.03	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	AMERICAN EEL	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	BLACKBANDED DARTR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUE CATFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	BROWN TROUT	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CARP	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	COOSA BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	FLAT BULLHEAD	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLATHEAD CATFISH	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	FLIER	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	GREEN SUNFISH	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LONGNOSE GAR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MARGINED MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	NORTHERN HOGSUCKR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	PUMPKINSEED	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	REDBREAST	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	REDBREAST SUNFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	REDEAR	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RIVER CARPSUCKER	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SILVER REDHORSE	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTED BASS	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	STRIPED KILLIFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	16.18	4
AUGUST	TADPOLE MADTOM	0.00	14.570	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		190.63			0.00			0.00			281.92		

Table 1-21. (Continued).

QUARTER=JAN 1995 TO MAR 1995 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	THREADFIN SHAD	2714.36	12.100	2	0.00	0.00	0	1548.66	2.00	1	233.92	4.00	2
MARCH	BLUEBACK HERRING	4191.62	12.100	2	0.00	0.00	0	4.88	2.00	1	7.19	4.00	2
MARCH	YELLOW PERCH	89.64	12.100	2	0.00	0.00	0	17.07	2.00	1	33.05	4.00	2
MARCH	WHITE PERCH	30.12	12.100	2	0.00	0.00	0	0.52	2.00	1	7.29	4.00	2
MARCH	SPOTTAIL SHINER	6.07	12.100	2	0.00	0.00	0	10.77	2.00	1	4.87	4.00	2
MARCH	HYBRID BASS	3.17	12.100	2	0.00	0.00	0	10.33	2.00	1	3.10	4.00	2
MARCH	BLACK CRAPPIE	5.64	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	GIZZARD SHAD	2.07	12.100	2	0.00	0.00	0	1.95	2.00	1	0.33	4.00	2
MARCH	BLUEGILL	0.83	12.100	2	0.00	0.00	0	2.09	2.00	1	0.24	4.00	2
MARCH	STRIPED BASS	1.28	12.100	2	0.00	0.00	0	0.52	2.00	1	0.52	4.00	2
MARCH	GOLDEN SHINER	0.05	12.100	2	0.00	0.00	0	1.55	2.00	1	0.00	4.00	2
MARCH	WHITE CRAPPIE	0.33	12.100	2	0.00	0.00	0	0.00	2.00	1	0.24	4.00	2
MARCH	WHITE BASS	0.46	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	WARMOUTH	0.16	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	TESSELATED DARTR	0.04	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	RIVER CARPSUCKER	0.03	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	BLACKBANDED DARTR	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUE CATFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	BLUEHEAD CHUB	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	BROWN TROUT	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	CHANNEL CATFISH	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	COASTAL SHINER	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	COOSA BASS	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	FLAT BULLHEAD	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	FLIER	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	GREEN SUNFISH	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	LONGNOSE GAR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	MADTOM	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	PUMPKINSEED	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	RAINBOW TROUT	0.00	12.100	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	REDBREAST SUNFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
MARCH	REDEAR	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	SILVER REDHORSE	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	0.00	0
MARCH	SPOTTED BASS	0.00	12.100	2	0.00	0.00	0	0.00	2.00	1	0.00	4.00	2
MARCH	STRIPED KILLIFISH	0.00	0.000	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
SUM		7045.86			0.00			1598.31			290.74		

Table 1-21. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	BLUEBACK HERRING	2804.11	17.50	3	0.00	0.00	0	62.76	18.00	10	20439.49	1.50	1
APRIL	THREADFIN SHAD	141.61	17.50	3	0.00	0.00	0	162.15	18.00	10	2.08	1.50	1
APRIL	WHITE PERCH	19.87	17.50	3	0.00	0.00	0	26.28	18.00	10	1.64	1.50	1
APRIL	YELLOW PERCH	31.54	17.50	3	0.00	0.00	0	11.76	18.00	10	2.02	1.50	1
APRIL	WHITE CRAPPIE	1.57	17.50	3	0.00	0.00	0	13.14	18.00	10	14.88	1.50	1
APRIL	GIZZARD SHAD	2.51	17.50	3	0.00	0.00	0	1.77	18.00	10	8.33	1.50	1
APRIL	BLUEGILL	4.42	17.50	3	0.00	0.00	0	4.30	18.00	10	3.65	1.50	1
APRIL	BLACK CRAPPIE	2.67	17.50	3	0.00	0.00	0	2.09	18.00	10	1.67	1.50	1
APRIL	SPOTTAIL SHINER	1.22	17.50	3	0.00	0.00	0	1.93	18.00	10	0.00	1.50	1
APRIL	HYBRID BASS	1.74	17.50	3	0.00	0.00	0	0.72	18.00	10	0.00	1.50	1
APRIL	WHITE BASS	0.19	17.50	3	0.00	0.00	0	0.18	18.00	10	1.56	1.50	1
APRIL	STRIPED BASS	0.29	17.50	3	0.00	0.00	0	0.21	18.00	10	0.00	1.50	1
APRIL	GOLDEN SHINER	0.12	17.50	3	0.00	0.00	0	0.35	18.00	10	0.00	1.50	1
APRIL	WARMOUTH	0.00	17.50	3	0.00	0.00	0	0.28	18.00	10	0.00	1.50	1
APRIL	GREEN SUNFISH	0.00	17.50	3	0.00	0.00	0	0.21	18.00	10	0.00	0.00	0
APRIL	SILVER REDHORSE	0.07	17.50	3	0.00	0.00	0	0.05	18.00	10	0.00	0.00	0
APRIL	CARP	0.02	17.50	3	0.00	0.00	0	0.05	18.00	10	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	BLACKBANDED DARTR	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	1.50	1
APRIL	BLUEHEAD CHUB	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
APRIL	BROWN TROUT	0.00	17.50	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	17.50	3	0.00	0.00	0	0.00	18.00	10	0.00	1.50	1
SUM		3011.96			0.00			288.21			20475.33		

Table 1-21. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	103.73	23.00	13	0.00	0.00	0
MAY	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	32.39	23.00	13	0.00	0.00	0
MAY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	24.84	23.00	13	0.00	0.00	0
MAY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	17.74	23.00	13	0.00	0.00	0
MAY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	10.85	23.00	13	0.00	0.00	0
MAY	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.00	0	7.37	23.00	13	0.00	0.00	0
MAY	WHITE CRAPPIE	0.00	0.00	0	0.00	0.00	0	2.80	23.00	13	0.00	0.00	0
MAY	STRIPED BASS	0.00	0.00	0	0.00	0.00	0	0.53	23.00	13	0.00	0.00	0
MAY	WARMOUTH	0.00	0.00	0	0.00	0.00	0	0.32	23.00	13	0.00	0.00	0
MAY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	0.11	23.00	13	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	0.00	0	0.00	0.00	0	0.11	23.00	13	0.00	0.00	0
MAY	WHITE CATFISH	0.00	0.00	0	0.00	0.00	0	0.08	23.00	13	0.00	0.00	0
MAY	HYBRID BASS	0.00	0.00	0	0.00	0.00	0	0.04	23.00	13	0.00	0.00	0
MAY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.01	23.00	13	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CARP	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GOLDEN SHINER	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	23.00	13	0.00	0.00	0
SUM		0.00			0.00			200.93			0.00		

Table 1-21. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	BLACK CRAPPIE	12.71	5.53	2	0.00	0.00	0	32.96	9.38	5	257.76	3.50	5
JUNE	BLUEBACK HERRING	171.12	5.53	2	0.00	0.00	0	16.58	9.38	5	106.80	3.50	5
JUNE	YELLOW PERCH	32.94	5.53	2	0.00	0.00	0	36.25	9.38	5	85.72	3.50	5
JUNE	THREADFIN SHAD	43.01	5.53	2	0.00	0.00	0	0.78	9.38	5	0.70	3.50	5
JUNE	WHITE CRAPPIE	1.01	5.53	2	0.00	0.00	0	1.47	9.38	5	12.43	3.50	5
JUNE	BLUEGILL	14.39	5.53	2	0.00	0.00	0	0.47	9.38	5	0.00	3.50	5
JUNE	SPOTTAIL SHINER	8.17	5.53	2	0.00	0.00	0	0.54	9.38	5	0.63	3.50	5
JUNE	WHITE PERCH	4.50	5.53	2	0.00	0.00	0	1.64	9.38	5	0.00	3.50	5
JUNE	COOSA BASS	0.18	5.53	2	0.00	0.00	0	0.00	0.00	0	0.54	3.50	5
JUNE	WARMOUTH	0.37	5.53	2	0.00	0.00	0	0.00	9.38	5	0.21	3.50	5
JUNE	STRIPED BASS	0.08	5.53	2	0.00	0.00	0	0.00	9.38	5	0.49	3.50	5
JUNE	TESSELATED DARTR	0.36	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	WHITE CATFISH	0.09	5.53	2	0.00	0.00	0	0.10	9.38	5	0.11	3.50	5
JUNE	GIZZARD SHAD	0.29	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	WHITE BASS	0.17	5.53	2	0.00	0.00	0	0.12	9.38	5	0.00	3.50	5
JUNE	NORTHERN HOGSUCKR	0.22	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	CHANNEL CATFISH	0.02	5.53	2	0.00	0.00	0	0.01	9.38	5	0.09	3.50	5
JUNE	BROWN BULLHEAD	0.05	5.53	2	0.00	0.00	0	0.01	9.38	5	0.00	3.50	5
JUNE	BLACK BULLHEAD	0.00	5.53	2	0.00	0.00	0	0.01	9.38	5	0.00	3.50	5
JUNE	BLACKBANDED DARTR	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	BLUEHEAD CHUB	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.00	5.53	2	0.00	0.00	0	0.00	9.38	5	0.00	3.50	5
JUNE	COASTAL SHINER	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	3.50	5
JUNE	FLAT BULLHEAD	0.00	5.53	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		289.67			0.00			90.96			465.47		

Table 1-21. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	BLUEBACK HERRING	875.23	8.39	4	0.00	0.00	0	0.00	0.00	0	1135.12	19.50	11
JULY	THREADFIN SHAD	675.12	8.39	4	0.00	0.00	0	0.00	0.00	0	29.22	19.50	11
JULY	BLACK CRAPPIE	6.25	8.39	4	0.00	0.00	0	0.00	0.00	0	121.17	19.50	11
JULY	YELLOW PERCH	12.53	8.39	4	0.00	0.00	0	0.00	0.00	0	20.31	19.50	11
JULY	BLUEGILL	22.77	8.39	4	0.00	0.00	0	0.00	0.00	0	7.93	19.50	11
JULY	WHITE CRAPPIE	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	3.92	19.50	11
JULY	SPOTTAIL SHINER	3.15	8.39	4	0.00	0.00	0	0.00	0.00	0	0.16	19.50	11
JULY	WHITE PERCH	1.02	8.39	4	0.00	0.00	0	0.00	0.00	0	1.26	19.50	11
JULY	CHANNEL CATFISH	0.66	8.39	4	0.00	0.00	0	0.00	0.00	0	0.24	19.50	11
JULY	SPOTTED BASS	0.64	8.39	4	0.00	0.00	0	0.00	0.00	0	0.20	19.50	11
JULY	GIZZARD SHAD	0.13	8.39	4	0.00	0.00	0	0.00	0.00	0	0.69	19.50	11
JULY	GREEN SUNFISH	0.66	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.27	8.39	4	0.00	0.00	0	0.00	0.00	0	0.34	19.50	11
JULY	WARMOUTH	0.32	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	TESSELATED DARTR	0.10	8.39	4	0.00	0.00	0	0.00	0.00	0	0.10	19.50	11
JULY	CARP	0.18	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.06	8.39	4	0.00	0.00	0	0.00	0.00	0	0.05	19.50	11
JULY	BROWN BULLHEAD	0.05	8.39	4	0.00	0.00	0	0.00	0.00	0	0.05	19.50	11
JULY	FLATHEAD CATFISH	0.08	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	STRIPED BASS	0.06	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.02	19.50	11
JULY	BLACK BULLHEAD	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	BLACKBANDED DARTR	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	COASTAL SHINER	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
JULY	COOSA BASS	0.00	8.39	4	0.00	0.00	0	0.00	0.00	0	0.00	19.50	11
SUM		1599.28			0.00			0.00			1320.78		

Table 1-21. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	BLUEBACK HERRING	1187.10	10.00	3	0.00	0.00	0	4144.96	1.95	2	6355.48	18.75	11
AUGUST	THREADFIN SHAD	373.22	10.00	3	0.00	0.00	0	68.23	1.95	2	176.57	18.75	11
AUGUST	BLACK CRAPPIE	2.48	10.00	3	0.00	0.00	0	1.16	1.95	2	12.37	18.75	11
AUGUST	WHITE PERCH	12.09	10.00	3	0.00	0.00	0	0.00	1.95	2	1.55	18.75	11
AUGUST	BLUEGILL	8.69	10.00	3	0.00	0.00	0	0.00	1.95	2	1.38	18.75	11
AUGUST	YELLOW PERCH	2.54	10.00	3	0.00	0.00	0	0.40	1.95	2	2.36	18.75	11
AUGUST	GIZZARD SHAD	0.48	10.00	3	0.00	0.00	0	0.00	1.95	2	0.73	18.75	11
AUGUST	CHANNEL CATFISH	0.44	10.00	3	0.00	0.00	0	0.31	1.95	2	0.23	18.75	11
AUGUST	WHITE CRAPPIE	0.71	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
AUGUST	YELLOW BULLHEAD	0.34	10.00	3	0.00	0.00	0	0.00	0.00	0	0.37	18.75	11
AUGUST	WHITE CATFISH	0.53	10.00	3	0.00	0.00	0	0.00	1.95	2	0.16	18.75	11
AUGUST	BROWN BULLHEAD	0.46	10.00	3	0.00	0.00	0	0.00	1.95	2	0.20	18.75	11
AUGUST	SPOTTED BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.21	18.75	11
AUGUST	MARGINED MADTOM	0.21	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WARMOUTH	0.13	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
AUGUST	PUMPKINSEED	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.11	18.75	11
AUGUST	HYBRID BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.08	18.75	11
AUGUST	STRIPED BASS	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.08	18.75	11
AUGUST	WHITEFIN SHINER	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.06	18.75	11
AUGUST	CARP	0.05	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	0.00	0
AUGUST	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.05	18.75	11
AUGUST	BLACK BULLHEAD	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.03	18.75	11
AUGUST	BLACKBANDED DARTR	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEHEAD CHUB	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN TROUT	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	10.00	3	0.00	0.00	0	0.00	1.95	2	0.00	18.75	11
AUGUST	COASTAL SHINER	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	18.75	11
AUGUST	COOSA BASS	0.00	10.00	3	0.00	0.00	0	0.00	0.00	0	0.00	18.75	11
SUM		1589.48			0.00			4215.05			6552.03		

Table 1-21. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=SEPTEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
SEPTEMBER	BLUEBACK HERRING	50.16	3.00	1	0.00	0.00	0	985.35	8.00	3	8.54	17.92	9
SEPTEMBER	THREADFIN SHAD	195.51	3.00	1	0.00	0.00	0	12.33	8.00	3	33.73	17.92	9
SEPTEMBER	BLUEGILL	17.41	3.00	1	0.00	0.00	0	0.23	8.00	3	0.77	17.92	9
SEPTEMBER	WHITE PERCH	11.23	3.00	1	0.00	0.00	0	1.24	8.00	3	1.98	17.92	9
SEPTEMBER	BLACK CRAPPIE	5.05	3.00	1	0.00	0.00	0	0.41	8.00	3	8.52	17.92	9
SEPTEMBER	YELLOW PERCH	5.87	3.00	1	0.00	0.00	0	0.17	8.00	3	1.11	17.92	9
SEPTEMBER	WHITE CATFISH	2.60	3.00	1	0.00	0.00	0	0.40	8.00	3	1.96	17.92	9
SEPTEMBER	GIZZARD SHAD	0.67	3.00	1	0.00	0.00	0	0.33	8.00	3	0.33	17.92	9
SEPTEMBER	CHANNEL CATFISH	0.67	3.00	1	0.00	0.00	0	0.05	8.00	3	0.30	17.92	9
SEPTEMBER	WHITE CRAPPIE	0.00	3.00	1	0.00	0.00	0	0.23	8.00	3	0.43	17.92	9
SEPTEMBER	LARGEMOUTH BASS	0.61	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	WARMOUTH	0.60	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	SPOTTAIL SHINER	0.45	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	BROWN BULLHEAD	0.36	3.00	1	0.00	0.00	0	0.00	8.00	3	0.03	17.92	9
SEPTEMBER	WHITE BASS	0.27	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	BLACK BULLHEAD	0.00	3.00	1	0.00	0.00	0	0.15	8.00	3	0.07	17.92	9
SEPTEMBER	TESSELATED DARTR	0.21	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	GOLDEN SHINER	0.17	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	REDBREAST SUNFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.12	17.92	9
SEPTEMBER	FLATHEAD CATFISH	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.03	17.92	9
SEPTEMBER	BLACKBANDED DARTR	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SEPTEMBER	BLUEHEAD CHUB	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	BROWN TROUT	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SEPTEMBER	CARP	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	0.00	0
SEPTEMBER	CHAIN PICKEREL	0.00	3.00	1	0.00	0.00	0	0.00	8.00	3	0.00	17.92	9
SEPTEMBER	COASTAL SHINER	0.00	3.00	1	0.00	0.00	0	0.00	0.00	0	0.00	17.92	9
SUM		291.83			0.00			1000.90			57.94		

Table 1-21. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	885.84	15.16	8	677.64	11.17	5
OCTOBER	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	10.59	15.16	8	4.61	11.17	5
OCTOBER	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	1.02	15.16	8	7.22	11.17	5
OCTOBER	BLUEGILL	0.00	0.00	0	0.00	0.00	0	1.96	15.16	8	3.83	11.17	5
OCTOBER	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	1.57	15.16	8	1.00	11.17	5
OCTOBER	WHITE CATFISH	0.00	0.00	0	0.00	0.00	0	1.04	15.16	8	1.08	11.17	5
OCTOBER	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.58	15.16	8	0.16	11.17	5
OCTOBER	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.26	15.16	8	0.26	11.17	5
OCTOBER	WHITE CRAPPIE	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.47	11.17	5
OCTOBER	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	0.09	15.16	8	0.34	11.17	5
OCTOBER	WARMOUTH	0.00	0.00	0	0.00	0.00	0	0.41	15.16	8	0.00	11.17	5
OCTOBER	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.04	15.16	8	0.03	11.17	5
OCTOBER	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.05	11.17	5
OCTOBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	11.17	5
OCTOBER	CARP	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	11.17	5
OCTOBER	COASTAL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	COOSA BASS	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	FLIER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	11.17	5
OCTOBER	GOLDEN SHINER	0.00	0.00	0	0.00	0.00	0	0.00	15.16	8	0.00	11.17	5
SUM		0.00			0.00			903.39			696.67		

Table 1-21. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=NOVEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
NOVEMBER	THREADFIN SHAD	0.00	0.00	0	154.48	3.50	2	1354.44	7.00	4	597.33	9.00	4
NOVEMBER	BLUEBACK HERRING	0.00	0.00	0	2.07	3.50	2	2.75	7.00	4	1.09	9.00	4
NOVEMBER	WHITE CATFISH	0.00	0.00	0	0.25	3.50	2	4.40	7.00	4	0.39	9.00	4
NOVEMBER	BLACK CRAPPIE	0.00	0.00	0	0.00	3.50	2	0.96	7.00	4	2.33	9.00	4
NOVEMBER	CHANNEL CATFISH	0.00	0.00	0	0.15	3.50	2	2.31	7.00	4	0.16	9.00	4
NOVEMBER	BLUEGILL	0.00	0.00	0	0.00	3.50	2	0.88	7.00	4	1.74	9.00	4
NOVEMBER	WHITE PERCH	0.00	0.00	0	0.36	3.50	2	0.90	7.00	4	0.35	9.00	4
NOVEMBER	GIZZARD SHAD	0.00	0.00	0	0.00	3.50	2	1.50	7.00	4	0.00	9.00	4
NOVEMBER	YELLOW PERCH	0.00	0.00	0	0.00	3.50	2	0.57	7.00	4	0.19	9.00	4
NOVEMBER	STRIPED BASS	0.00	0.00	0	0.65	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	SPOTTAIL SHINER	0.00	0.00	0	0.39	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	HYBRID BASS	0.00	0.00	0	0.27	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BROWN BULLHEAD	0.00	0.00	0	0.03	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BLACK BULLHEAD	0.00	0.00	0	0.00	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	CARP	0.00	0.00	0	0.00	0.00	0	0.00	7.00	4	0.00	0.00	0
NOVEMBER	CHAIN PICKEREL	0.00	0.00	0	0.00	3.50	2	0.00	7.00	4	0.00	9.00	4
NOVEMBER	COASTAL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	COOSA BASS	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	9.00	4
NOVEMBER	CREEK CHUB	0.00	0.00	0	0.00	3.50	2	0.00	0.00	0	0.00	0.00	0
SUM		0.00			158.66			1368.71			603.59		

Table 1-21. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	248.12	8.25	3	1679.43	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	5.16	8.25	3	2.26	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	0.31	8.25	3	0.60	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	0.62	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.15	8.25	3	0.45	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.08	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.06	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE BASS	0.06	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE PERCH	0.06	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	0.04	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	8.25	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	0.00	8.25	3	0.00	2.00	2	0.00	0.00	0	0.00	0.00	0
SUM		254.66			1682.74			0.00			0.00		

Table 1-21. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=JANUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JANUARY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	652.11	2.50	1	403.85	4.00	2
JANUARY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	27.54	2.50	1	14.21	4.00	2
JANUARY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	3.90	2.50	1	0.57	4.00	2
JANUARY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	1.77	2.50	1	1.12	4.00	2
JANUARY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	2.38	2.50	1	0.00	4.00	2
JANUARY	STRIPED BASS	0.00	0.00	0	0.00	0.00	0	0.48	2.50	1	0.00	4.00	2
JANUARY	GIZZARD SHAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.42	4.00	2
JANUARY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	4.00	2
JANUARY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	CARP	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	0.00	0
JANUARY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
JANUARY	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	2.50	1	0.00	4.00	2
SUM		0.00			0.00			688.18			420.16		

QUARTER=JAN 1996 TO MAR 1996 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	THREADFIN SHAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	11575.36	2.75	1
FEBRUARY	BLACK CRAPPIE	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	25.33	2.75	1
FEBRUARY	BLUEBACK HERRING	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	15.02	2.75	1
FEBRUARY	YELLOW PERCH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	7.13	2.75	1
FEBRUARY	BLUEGILL	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	6.04	2.75	1
FEBRUARY	WHITE PERCH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.40	2.75	1
FEBRUARY	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.17	2.75	1
FEBRUARY	BLACK BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	BLUE CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	BROWN BULLHEAD	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	CHAIN PICKEREL	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	CHANNEL CATFISH	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	COASTAL SHINER	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
FEBRUARY	COOSA BASS	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	2.75	1
SUM		0.00			0.00			0.00			11629.44		

Table 1-21. (Concluded).

QUARTER=JAN 1996 TO MAR 1996 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	THREADFIN SHAD	1138.58	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE PERCH	20.67	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW PERCH	8.51	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEBACK HERRING	8.24	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	1.70	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	1.07	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	0.58	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTAIL SHINER	0.21	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.14	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.00	4.48	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1179.70			0.00			0.00			0.00		

Table 1-22. (Continued). Summaries of netting data collected during Phase I monitoring (December 1992 to July 1993). Comparison of mean monthly species entrainment rates (num/hour) for pumpback units. Rates for units 6,7,& 8 are doubled to expand for unsampled bay sampling rate of 0.0 indicates no members of that species were collected for that unit. All of August 1993 data are included in this summary. Phase II summary includes only 30-31 August 1993. Data not adjusted for survival. 1 May, 1993 was the final daytime test.

QUARTER=JUL 1992 TO SEP 1992 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	BLUEBACK HERRING	0.00	0.00	0	8664.99	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	THREADFIN SHAD	0.00	0.00	0	57.28	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	0.00	0.00	0	6.80	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	0.00	0.00	0	6.46	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	0.00	0.00	0	4.25	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	0.00	0	3.06	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.00	0.00	0	3.06	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.00	0.00	0	1.36	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	0.00	0.00	0	0.85	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	0.00	0	0.50	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	0.00	0	0.34	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.00	0.00	0	0.34	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
		0.00			8749.29			0.00			0.00		

Table 1-22. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	BLUEGILL	0.00	0.00	0	77.14	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	THREADFIN SHAD	0.00	0.00	0	42.86	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CATFISH	0.00	0.00	0	34.29	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEBACK HERRING	0.00	0.00	0	8.57	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	AMERICAN EEL	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK CRAPPIE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACKBANDED DARTR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEHEAD CHUB	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN TROUT	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CARP	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHANNEL CATFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	COASTAL SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	COOSA BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLAT BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GIZZARD SHAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GOLDEN SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GREEN SUNFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	HYBRID BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	LARGEMOUTH BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	LONGNOSE GAR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	MARGINED MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	NORTHERN HOGSUCKR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	RAINBOW TROUT	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDBREAST	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDEAR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	RIVER CARPSUCKER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SILVER REDHORSE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTED BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	STRIPED BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	TADPOLE MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	TESSELATED DARTR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WARMOUTH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CRAPPIE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE PERCH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITEFIN SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW PERCH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
		0.00			162.86			0.00			0.00		

Table 1-22. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	25.54	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	17.12	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CATFISH	1.34	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	1.13	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	0.88	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.71	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.58	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLATHEAD CATFISH	0.45	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	0.30	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	AMERICAN EEL	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COASTAL SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COOSA BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLAT BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GIZZARD SHAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GOLDEN SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GREEN SUNFISH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	HYBRID BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LONGNOSE GAR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MARGINED MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	NORTHERN HOGSUCKR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RAINBOW TROUT	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDBREAST	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDEAR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RIVER CARPSUCKER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SILVER REDHORSE	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTED BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TADPOLE MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TESSELATED DARTR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WARMOUTH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		48.05			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	BLUEBACK HERRING	8831.18	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	THREADFIN SHAD	114.32	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW PERCH	27.94	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	AMERICAN EEL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK CRAPPIE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACKBANDED DARTR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEGILL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEHEAD CHUB	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN TROUT	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CARP	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHAIN PICKEREL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHANNEL CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COASTAL SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COOSA BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLAT BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLATHEAD CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GIZZARD SHAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GOLDEN SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GREEN SUNFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	HYBRID BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LARGEMOUTH BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LONGNOSE GAR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MARGINED MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	NORTHERN HOGSUCKR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RAINBOW TROUT	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDBREAST	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDEAR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RIVER CARPSUCKER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SILVER REDHORSE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTAIL SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTED BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	STRIPED BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TADPOLE MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TESSELATED DARTR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WARMOUTH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CRAPPIE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE PERCH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITEFIN SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		8973.44			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	BLUEBACK HERRING	5768.87	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	61.01	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW PERCH	48.16	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	STRIPED BASS	3.17	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	HYBRID BASS	2.38	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CATFISH	0.40	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	0.35	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.20	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHANNEL CATFISH	0.20	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.17	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COASTAL SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COOSA BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLAT BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GOLDEN SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GREEN SUNFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LONGNOSE GAR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RAINBOW TROUT	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDEAR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RIVER CARPSUCKER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTAIL SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTED BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TADPOLE MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TESSELATED DARTR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	THREADFIN SHAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WARMOUTH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CRAPPIE	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE PERCH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		5884.91			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	BLUEBACK HERRING	59.75	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	THREADFIN SHAD	9.05	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE PERCH	7.96	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	HYBRID BASS	7.73	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	STRIPED BASS	6.79	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTAIL SHINER	4.23	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GIZZARD SHAD	3.72	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW PERCH	3.09	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHANNEL CATFISH	2.60	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEGILL	2.28	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CATFISH	1.77	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.89	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GOLDEN SHINER	0.29	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RAINBOW TROUT	0.06	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	AMERICAN EEL	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK CRAPPIE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACKBANDED DARTR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEHEAD CHUB	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN TROUT	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CARP	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COASTAL SHINER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COOSA BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLAT BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLATHEAD CATFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GREEN SUNFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LARGEMOUTH BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LONGNOSE GAR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MARGINED MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	NORTHERN HOGSUCKR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDBREAST	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDEAR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RIVER CARPSUCKER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SILVER REDHORSE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTED BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TADPOLE MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TESSELATED DARTR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CRAPPIE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITEFIN SHINER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		110.48			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	BLUEBACK HERRING	4147.94	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW PERCH	60.59	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE PERCH	28.22	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	THREADFIN SHAD	23.25	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	STRIPED BASS	11.86	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	HYBRID BASS	10.42	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEGILL	7.28	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTAIL SHINER	6.09	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CATFISH	3.24	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHANNEL CATFISH	1.65	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITEFIN SHINER	1.14	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN BULLHEAD	0.91	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GIZZARD SHAD	0.62	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CARP	0.57	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WARMOUTH	0.43	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GOLDEN SHINER	0.24	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RIVER CARPSUCKER	0.09	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TADPOLE MADTOM	0.07	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	AMERICAN EEL	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK CRAPPIE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACKBANDED DARTR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEHEAD CHUB	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN TROUT	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHAIN PICKEREL	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COASTAL SHINER	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COOSA BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLAT BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LARGEMOUTH BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MADTOM	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MARGINED MADTOM	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	NORTHERN HOGSUCKR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RAINBOW TROUT	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDBREAST	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDEAR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTED BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TESSELATED DARTR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CRAPPIE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		4304.62			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	THREADFIN SHAD	238.94	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEBACK HERRING	61.16	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEGILL	5.15	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW PERCH	4.58	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LARGEMOUTH BASS	1.14	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHANNEL CATFISH	1.03	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CATFISH	0.62	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WARMOUTH	0.36	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RAINBOW TROUT	0.25	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GIZZARD SHAD	0.25	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE PERCH	0.22	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	HYBRID BASS	0.22	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN BULLHEAD	0.19	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	STRIPED BASS	0.08	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	AMERICAN EEL	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK CRAPPIE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACKBANDED DARTR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEHEAD CHUB	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COASTAL SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COOSA BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLAT BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLATHEAD CATFISH	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GOLDEN SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GREEN SUNFISH	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LONGNOSE GAR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MARGINED MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	NORTHERN HOGSUCKR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDBREAST	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDEAR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RIVER CARPSUCKER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SILVER REDHORSE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTAIL SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTED BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TADPOLE MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TESSELATED DARTR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CRAPPIE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITEFIN SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		314.19			0.00			0.00			0.00		

Table 1-22. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	THREADFIN SHAD	534.31	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEBACK HERRING	8.81	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	2.20	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	2.17	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.26	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.25	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.23	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	0.21	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.16	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.13	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.13	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	0.12	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.08	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	0.08	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.07	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	0.06	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.06	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.05	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.03	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		549.40			0.00			0.00			0.00		

Table 1-22. (Concluded).

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	BLUEBACK HERRING	1043.46	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	THREADFIN SHAD	304.77	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEGILL	1.58	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE CATFISH	1.49	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW PERCH	0.75	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW BULLHEAD	0.43	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHANNEL CATFISH	0.40	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN BULLHEAD	0.33	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTAIL SHINER	0.25	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GIZZARD SHAD	0.20	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN TROUT	0.19	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK BULLHEAD	0.13	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE PERCH	0.09	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	STRIPED BASS	0.09	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WARMOUTH	0.08	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LARGEMOUTH BASS	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	HYBRID BASS	0.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	AMERICAN EEL	0.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	TESSELATED DARTR	0.03	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RAINBOW TROUT	0.02	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK CRAPPIE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACKBANDED DARTR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEHEAD CHUB	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CARP	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COASTAL SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COOSA BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLAT BULLHEAD	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLATHEAD CATFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GOLDEN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GREEN SUNFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LONGNOSE GAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MARGINED MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	NORTHERN HOGSUCKR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDBREAST	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDEAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RIVER CARPSUCKER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SILVER REDHORSE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTED BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	TADPOLE MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE CRAPPIE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITEFIN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1354.44			0.00			0.00			0.00		

Table 1-23 (Continued). Summaries of netting data collected during Phase I monitoring (December 1992 to July 1993). Comparison of mean monthly species entrainment rates (num/hour) for pumpback units. Rates for units 6,7,& 8 are doubled to expand for unsampled bay sampling rate of 0.0 indicates no members of that species were collected for that unit. All of August 1993 data are included in this summary. Phase II summary includes only 30-31 August 1993. Data adjusted for survival. 1 May, 1993 was the final daytime sample.

QUARTER=JUL 1992 TO SEP 1992 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	BLUEBACK HERRING	0.00	0.00	0	8588.74	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	THREADFIN SHAD	0.00	0.00	0	56.78	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	0.00	0.00	0	1.85	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	0.00	0.00	0	5.43	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	0.00	0.00	0	1.63	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	0.00	0	1.66	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.00	0.00	0	1.66	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.00	0.00	0	0.37	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	0.00	0.00	0	0.84	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	0.00	0	0.25	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	0.00	0	0.09	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.00	0.00	0	0.18	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.00	0.00	0	0.00	5.88	3	0.00	0.00	0	0.00	0.00	0
		0.00			8659.48			0.00			0.00		

Table 1-23. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=OCTOBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
OCTOBER	BLUEGILL	0.00	0.00	0	76.56	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	THREADFIN SHAD	0.00	0.00	0	42.54	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CATFISH	0.00	0.00	0	6.86	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEBACK HERRING	0.00	0.00	0	8.51	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	AMERICAN EEL	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACK CRAPPIE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLACKBANDED DARTR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BLUEHEAD CHUB	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	BROWN TROUT	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CARP	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHAIN PICKEREL	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	CHANNEL CATFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	COASTAL SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	COOSA BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLAT BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	FLATHEAD CATFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GIZZARD SHAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GOLDEN SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	GREEN SUNFISH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	HYBRID BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	LARGEMOUTH BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	LONGNOSE GAR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	MARGINED MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	NORTHERN HOGSUCKR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	RAINBOW TROUT	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDBREAST	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	REDEAR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	RIVER CARPSUCKER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SILVER REDHORSE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTAIL SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	SPOTTED BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	STRIPED BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	TADPOLE MADTOM	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	TESSELATED DARTR	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WARMOUTH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE BASS	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE CRAPPIE	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITE PERCH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	WHITEFIN SHINER	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW BULLHEAD	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
OCTOBER	YELLOW PERCH	0.00	0.00	0	0.00	0.23	1	0.00	0.00	0	0.00	0.00	0
		0.00			134.47			0.00			0.00		

Table 1-23. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=DECEMBER

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
DECEMBER	THREADFIN SHAD	16.60	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEBACK HERRING	11.13	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK CRAPPIE	0.61	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEGILL	0.33	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	STRIPED BASS	0.29	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	YELLOW PERCH	0.05	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	AMERICAN EEL	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACK BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLACKBANDED DARTR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BLUEHEAD CHUB	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	BROWN TROUT	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CARP	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHAIN PICKEREL	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	CHANNEL CATFISH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COASTAL SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	COOSA BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLAT BULLHEAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	FLATHEAD CATFISH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GIZZARD SHAD	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GOLDEN SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	GREEN SUNFISH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	HYBRID BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LARGEMOUTH BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	LONGNOSE GAR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	MARGINED MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	NORTHERN HOGSUCKR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RAINBOW TROUT	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDBREAST	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	REDEAR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	RIVER CARPSUCKER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SILVER REDHORSE	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTAIL SHINER	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	SPOTTED BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TADPOLE MADTOM	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	TESSELATED DARTR	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WARMOUTH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE BASS	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
DECEMBER	WHITE CATFISH	0.00	4.340	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		29.01			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=FEBRUARY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
FEBRUARY	BLUEBACK HERRING	5740.27	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	THREADFIN SHAD	74.31	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW PERCH	4.97	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	AMERICAN EEL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACK CRAPPIE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLACKBANDED DARTR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEGILL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BLUEHEAD CHUB	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	BROWN TROUT	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CARP	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHAIN PICKEREL	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	CHANNEL CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COASTAL SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	COOSA BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLAT BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	FLATHEAD CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GIZZARD SHAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GOLDEN SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	GREEN SUNFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	HYBRID BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LARGEMOUTH BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	LONGNOSE GAR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	MARGINED MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	NORTHERN HOGSUCKR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RAINBOW TROUT	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDBREAST	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	REDEAR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	RIVER CARPSUCKER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SILVER REDHORSE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTAIL SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	SPOTTED BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	STRIPED BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TADPOLE MADTOM	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	TESSELATED DARTR	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WARMOUTH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE BASS	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CATFISH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE CRAPPIE	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITE PERCH	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	WHITEFIN SHINER	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
FEBRUARY	YELLOW BULLHEAD	0.00	0.433	1	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		5819.54			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=MARCH

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MARCH	BLUEBACK HERRING	3749.77	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GIZZARD SHAD	39.66	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW PERCH	8.56	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	STRIPED BASS	1.44	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	HYBRID BASS	1.08	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEGILL	0.10	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CARP	0.08	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	AMERICAN EEL	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACK CRAPPIE	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLACKBANDED DARTR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BLUEHEAD CHUB	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	BROWN TROUT	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHAIN PICKEREL	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	CHANNEL CATFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COASTAL SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	COOSA BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLAT BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	FLATHEAD CATFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GOLDEN SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	GREEN SUNFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LARGEMOUTH BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	LONGNOSE GAR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	MARGINED MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	NORTHERN HOGSUCKR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RAINBOW TROUT	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDBREAST	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	REDEAR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	RIVER CARPSUCKER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SILVER REDHORSE	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	SPOTTED BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TADPOLE MADTOM	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	TESSELATED DARTR	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	THREADFIN SHAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WARMOUTH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE BASS	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CATFISH	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITE CRAPPIE	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	WHITEFIN SHINER	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MARCH	YELLOW BULLHEAD	0.00	8.850	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		3800.67			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=APRIL

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
APRIL	BLUEBACK HERRING	38.84	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	THREADFIN SHAD	5.88	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE PERCH	3.61	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	HYBRID BASS	3.51	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	STRIPED BASS	3.08	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GIZZARD SHAD	2.42	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTAIL SHINER	0.75	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEGILL	0.74	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW PERCH	0.55	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WARMOUTH	0.08	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GOLDEN SHINER	0.05	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RAINBOW TROUT	0.01	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	AMERICAN EEL	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACK CRAPPIE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLACKBANDED DARTR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BLUEHEAD CHUB	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	BROWN TROUT	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CARP	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHAIN PICKEREL	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	CHANNEL CATFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COASTAL SHINER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	COOSA BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLAT BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	FLATHEAD CATFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	GREEN SUNFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LARGEMOUTH BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	LONGNOSE GAR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	MARGINED MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	NORTHERN HOGSUCKR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDBREAST	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	REDEAR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	RIVER CARPSUCKER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SILVER REDHORSE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	SPOTTED BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TADPOLE MADTOM	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	TESSELATED DARTR	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE BASS	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CATFISH	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITE CRAPPIE	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	WHITEFIN SHINER	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
APRIL	YELLOW BULLHEAD	0.00	15.150	3	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		59.54			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=MAY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
MAY	BLUEBACK HERRING	2743.03	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	THREADFIN SHAD	15.38	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE PERCH	14.30	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW PERCH	10.77	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	STRIPED BASS	6.01	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	HYBRID BASS	5.28	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEGILL	2.19	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTAIL SHINER	1.08	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GIZZARD SHAD	0.41	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CARP	0.29	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITEFIN SHINER	0.20	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CATFISH	0.16	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WARMOUTH	0.13	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHANNEL CATFISH	0.08	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RIVER CARPSUCKER	0.05	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN BULLHEAD	0.05	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GOLDEN SHINER	0.04	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TADPOLE MADTOM	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	AMERICAN EEL	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACK CRAPPIE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLACKBANDED DARTR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BLUEHEAD CHUB	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	BROWN TROUT	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	CHAIN PICKEREL	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COASTAL SHINER	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	COOSA BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLAT BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	FLATHEAD CATFISH	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	GREEN SUNFISH	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LARGEMOUTH BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	LONGNOSE GAR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MADTOM	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	MARGINED MADTOM	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	NORTHERN HOGSUCKR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	RAINBOW TROUT	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDBREAST	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	REDEAR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SILVER REDHORSE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	SPOTTED BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	TESSELATED DARTR	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE BASS	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	WHITE CRAPPIE	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
MAY	YELLOW BULLHEAD	0.00	25.430	5	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		2799.44			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=JUNE

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JUNE	THREADFIN SHAD	184.49	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEBACK HERRING	47.22	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW PERCH	3.30	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEGILL	2.31	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LARGEMOUTH BASS	0.62	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GIZZARD SHAD	0.19	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RAINBOW TROUT	0.18	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WARMOUTH	0.16	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE PERCH	0.12	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	HYBRID BASS	0.12	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHANNEL CATFISH	0.05	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	STRIPED BASS	0.04	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CATFISH	0.03	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN BULLHEAD	0.01	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	AMERICAN EEL	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACK CRAPPIE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLACKBANDED DARTR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BLUEHEAD CHUB	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	BROWN TROUT	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CARP	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	CHAIN PICKEREL	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COASTAL SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	COOSA BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLAT BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	FLATHEAD CATFISH	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GOLDEN SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	GREEN SUNFISH	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	LONGNOSE GAR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	MARGINED MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	NORTHERN HOGSUCKR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDBREAST	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	REDEAR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	RIVER CARPSUCKER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SILVER REDHORSE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTAIL SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	SPOTTED BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TADPOLE MADTOM	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	TESSELATED DARTR	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE BASS	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITE CRAPPIE	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	WHITEFIN SHINER	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JUNE	YELLOW BULLHEAD	0.00	12.130	2	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		238.84			0.00			0.00			0.00		

Table 1-23. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=JULY

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
JULY	THREADFIN SHAD	529.61	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEBACK HERRING	8.74	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEGILL	1.85	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW PERCH	0.83	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WARMOUTH	0.20	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	STRIPED BASS	0.09	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GIZZARD SHAD	0.08	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHANNEL CATFISH	0.07	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CATFISH	0.07	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SILVER REDHORSE	0.07	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE PERCH	0.07	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN BULLHEAD	0.06	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK CRAPPIE	0.05	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTAIL SHINER	0.05	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	HYBRID BASS	0.04	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LARGEMOUTH BASS	0.03	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GOLDEN SHINER	0.02	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	YELLOW BULLHEAD	0.02	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RAINBOW TROUT	0.01	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	AMERICAN EEL	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACK BULLHEAD	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLACKBANDED DARTR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BLUEHEAD CHUB	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	BROWN TROUT	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CARP	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	CHAIN PICKEREL	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COASTAL SHINER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	COOSA BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLAT BULLHEAD	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	FLATHEAD CATFISH	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	GREEN SUNFISH	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	LONGNOSE GAR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	MARGINED MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	NORTHERN HOGSUCKR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDBREAST	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	REDEAR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	RIVER CARPSUCKER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	SPOTTED BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TADPOLE MADTOM	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	TESSELATED DARTR	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE BASS	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITE CRAPPIE	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
JULY	WHITEFIN SHINER	0.00	37.110	6	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		541.94			0.00			0.00			0.00		

Table 1-23. (Concluded).

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

MONTH	COMMON NAME	UNIT 5 ENTRAIN RATE (#/HR)	UNIT 5 SAMPLING DURATION SUM (HRS)	UNIT 5 NUMBER EVENTS SAMPLED	UNIT 6 ENTRAIN RATE (#/HR)	UNIT 6 SAMPLING DURATION SUM (HRS)	UNIT 6 NUMBER EVENTS SAMPLED	UNIT 7 ENTRAIN RATE (#/HR)	UNIT 7 SAMPLING DURATION SUM (HRS)	UNIT 7 NUMBER EVENTS SAMPLED	UNIT 8 ENTRAIN RATE (#/HR)	UNIT 8 SAMPLING DURATION SUM (HRS)	UNIT 8 NUMBER EVENTS SAMPLED
AUGUST	BLUEBACK HERRING	1043.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	THREADFIN SHAD	304.65	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEGILL	1.33	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE CATFISH	0.41	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW PERCH	0.21	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GIZZARD SHAD	0.20	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	YELLOW BULLHEAD	0.12	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHANNEL CATFISH	0.11	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN BULLHEAD	0.09	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE PERCH	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	STRIPED BASS	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTAIL SHINER	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WARMOUTH	0.07	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LARGEMOUTH BASS	0.06	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BROWN TROUT	0.05	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK BULLHEAD	0.04	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	HYBRID BASS	0.03	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	AMERICAN EEL	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	TESSELATED DARTR	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RAINBOW TROUT	0.01	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACK CRAPPIE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLACKBANDED DARTR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	BLUEHEAD CHUB	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CARP	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	CHAIN PICKEREL	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COASTAL SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	COOSA BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLAT BULLHEAD	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	FLATHEAD CATFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GOLDEN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	GREEN SUNFISH	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	LONGNOSE GAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	MARGINED MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	NORTHERN HOGSUCKR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDBREAST	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	REDEAR	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	RIVER CARPSUCKER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SILVER REDHORSE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	SPOTTED BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	TADPOLE MADTOM	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE BASS	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITE CRAPPIE	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
AUGUST	WHITEFIN SHINER	0.00	47.810	8	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
SUM		1350.64			0.00			0.00			0.00		

Table 1-24 (Continued). Two and three standard errors of monthly mean entrainment rate (#/hr and kg/hr) by species for all pump units. Rates for units 6,7,& 8 are doubled to expand for unsampled bay. Mean entrainment rate calculated as entrainment total for all fish ge 1.5 inches long divided by the duration of the sample. Mean and standard error calculations based on 16 to 18 samples per month. Note that the mean +/- 2 and 3 +/- standard deviations has at least a 75% and a 89% chance, respectively, of including the population mean. Standard error ranges less than 0.0 have been truncated to 0.0. Data have not been adjusted for passage survival

QUARTER=OCT 1992 TO DEC 1992 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
THREADFIN SHAD	25.54	0.05	4.340	110.82	0.24	2.02	0.007	21.50	0.0410	29.57	0.07	19.49	0.0344	31.58	0.07	2
BLUEBACK HERRING	17.12	0.48	4.340	74.31	2.06	6.08	0.364	4.97	0.0000	29.27	1.20	0.00	0.0000	35.35	1.57	2
WHITE CATFISH	1.34	0.15	4.340	5.80	0.65	0.43	0.094	0.47	0.0000	2.20	0.34	0.04	0.0000	2.63	0.43	2
BLUEGILL	1.13	0.00	4.340	4.91	0.02	0.37	0.001	0.40	0.0015	1.86	0.01	0.04	0.0005	2.23	0.01	2
CHANNEL CATFISH	0.88	0.94	4.340	3.84	4.09	0.88	0.943	0.00	0.0000	2.65	2.83	0.00	0.0000	3.54	3.77	2
BLACK CRAPPIE	0.71	0.27	4.340	3.10	1.17	0.71	0.270	0.00	0.0000	2.14	0.81	0.00	0.0000	2.86	1.08	2
STRIPED BASS	0.58	0.01	4.340	2.51	0.06	0.58	0.013	0.00	0.0000	1.73	0.04	0.00	0.0000	2.31	0.05	2
FLATHEAD CATFISH	0.45	0.35	4.340	1.97	1.53	0.45	0.354	0.00	0.0000	1.36	1.06	0.00	0.0000	1.81	1.41	2
YELLOW PERCH	0.30	0.00	4.340	1.29	0.01	0.30	0.003	0.00	0.0000	0.89	0.01	0.00	0.0000	1.18	0.01	2
AMERICAN EEL	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLACK BULLHEAD	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLACKBANDED DARTR	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLUEHEAD CHUB	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BROWN BULLHEAD	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BROWN TROUT	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CARP	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CHAIN PICKEREL	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COASTAL SHINER	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COOSA BASS	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
FLAT BULLHEAD	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GIZZARD SHAD	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GOLDEN SHINER	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GREEN SUNFISH	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
HYBRID BASS	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LARGEMOUTH BASS	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LONGNOSE GAR	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MADTOM	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MARGINED MADTOM	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
NORTHERN HOGSUCKR	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RAINBOW TROUT	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDBREAST	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDEAR	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RIVER CARPSUCKER	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
SILVER REDHORSE	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
SPOTTAIL SHINER	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
SPOTTED BASS	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
TADPOLE MADTOM	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
TESSELATED DARTR	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1992 TO DEC 1992 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WARMOUTH	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
WHITE PERCH	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	4.340	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	48.05	2.27		208.54	9.84	11.81	2.049	27.35

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0425	71.68	6.36	19.57	0.0348	83.49	8.41	

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	8831.18	274.51	0.433	3823.90	118.86	.	.	0.00
THREADFIN SHAD	114.32	0.15	0.433	49.50	0.06	.	.	0.00
YELLOW PERCH	27.94	0.33	0.433	12.10	0.14	.	.	0.00
AMERICAN EEL	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BLACK BULLHEAD	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BLACK CRAPPIE	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BLACKBANDED DARTR	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BLUEGILL	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BLUEHEAD CHUB	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BROWN BULLHEAD	0.00	0.00	0.433	0.00	0.00	.	.	0.00
BROWN TROUT	0.00	0.00	0.433	0.00	0.00	.	.	0.00
CARP	0.00	0.00	0.433	0.00	0.00	.	.	0.00
CHAIN PICKEREL	0.00	0.00	0.433	0.00	0.00	.	.	0.00
CHANNEL CATFISH	0.00	0.00	0.433	0.00	0.00	.	.	0.00
COASTAL SHINER	0.00	0.00	0.433	0.00	0.00	.	.	0.00
COOSA BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
FLAT BULLHEAD	0.00	0.00	0.433	0.00	0.00	.	.	0.00
FLATHEAD CATFISH	0.00	0.00	0.433	0.00	0.00	.	.	0.00
GIZZARD SHAD	0.00	0.00	0.433	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
GOLDEN SHINER	0.00	0.00	0.433	0.00	0.00	.	.	0.00
GREEN SUNFISH	0.00	0.00	0.433	0.00	0.00	.	.	0.00
HYBRID BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
LARGEMOUTH BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
LONGNOSE GAR	0.00	0.00	0.433	0.00	0.00	.	.	0.00
MADTOM	0.00	0.00	0.433	0.00	0.00	.	.	0.00
MARGINED MADTOM	0.00	0.00	0.433	0.00	0.00	.	.	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.433	0.00	0.00	.	.	0.00
RAINBOW TROUT	0.00	0.00	0.433	0.00	0.00	.	.	0.00
REDBREAST	0.00	0.00	0.433	0.00	0.00	.	.	0.00
REDEAR	0.00	0.00	0.433	0.00	0.00	.	.	0.00
RIVER CARPSUCKER	0.00	0.00	0.433	0.00	0.00	.	.	0.00
SILVER REDHORSE	0.00	0.00	0.433	0.00	0.00	.	.	0.00
SPOTTAIL SHINER	0.00	0.00	0.433	0.00	0.00	.	.	0.00
SPOTTED BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
STRIPED BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
TADPOLE MADTOM	0.00	0.00	0.433	0.00	0.00	.	.	0.00
TESSELATED DARTR	0.00	0.00	0.433	0.00	0.00	.	.	0.00
WARMOUTH	0.00	0.00	0.433	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WHITE BASS	0.00	0.00	0.433	0.00	0.00	.	.	0.00
WHITE CATFISH	0.00	0.00	0.433	0.00	0.00	.	.	0.00
WHITE CRAPPIE	0.00	0.00	0.433	0.00	0.00	.	.	0.00
WHITE PERCH	0.00	0.00	0.433	0.00	0.00	.	.	0.00
WHITEFIN SHINER	0.00	0.00	0.433	0.00	0.00	.	.	0.00
YELLOW BULLHEAD	0.00	0.00	0.433	0.00	0.00	.	.	0.00
MONTHLY SUM	8973.44	274.98		3885.50	119.07	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLUEBACK HERRING	5768.87	215.08	8.850	51054.50	1903.43	3803.65	135.415	0.00	0.0000	13376.17	485.91	0.00	0.0000	17179.83	621.32	3
GIZZARD SHAD	61.01	24.98	8.850	539.96	221.03	34.06	13.763	0.00	0.0000	129.13	52.50	0.00	0.0000	163.19	66.27	3
YELLOW PERCH	48.16	1.61	8.850	426.17	14.23	28.41	1.001	0.00	0.0000	104.98	3.61	0.00	0.0000	133.40	4.61	3
STRIPED BASS	3.17	0.54	8.850	28.10	4.74	2.33	0.405	0.00	0.0000	7.84	1.35	0.00	0.0000	10.17	1.75	3
HYBRID BASS	2.38	2.34	8.850	21.05	20.73	1.35	1.591	0.00	0.0000	5.08	5.53	0.00	0.0000	6.43	7.12	3
WHITE CATFISH	0.40	0.14	8.850	3.53	1.24	0.40	0.140	0.00	0.0000	1.20	0.42	0.00	0.0000	1.59	0.56	3
BLUEGILL	0.35	0.00	8.850	3.11	0.02	0.18	0.001	0.00	0.0000	0.70	0.00	0.00	0.0000	0.88	0.01	3
BROWN BULLHEAD	0.20	0.07	8.850	1.76	0.63	0.20	0.071	0.00	0.0000	0.60	0.21	0.00	0.0000	0.80	0.29	3
CHANNEL CATFISH	0.20	0.05	8.850	1.76	0.45	0.20	0.051	0.00	0.0000	0.60	0.15	0.00	0.0000	0.80	0.20	3
CARP	0.17	0.74	8.850	1.48	6.58	0.17	0.743	0.00	0.0000	0.50	2.23	0.00	0.0000	0.67	2.97	3
AMERICAN EEL	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BLACK BULLHEAD	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BLACK CRAPPIE	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BLACKBANDED DARTR	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BLUEHEAD CHUB	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BROWN TROUT	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
CHAIN PICKEREL	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
COASTAL SHINER	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
COOSA BASS	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=MARCH
(continued)

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
FLAT BULLHEAD	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
SPOTTAIL SHINER	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
THREADFIN SHAD	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=JAN 1993 TO MAR 1993 MONTH=MARCH
(continued)

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WARMOUTH	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
WHITE PERCH	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	8.850	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	5884.91	245.55		52081.42	2173.09	3870.95	153.183	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	13626.80	551.91	0.00	0.0000	17497.75	705.10	

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	59.75	2.32	15.150	905.26	35.13	38.41	1.746	0.00
THREADFIN SHAD	9.05	0.05	15.150	137.05	0.83	2.16	0.014	4.72
WHITE PERCH	7.96	1.10	15.150	120.57	16.63	3.29	0.369	1.38
HYBRID BASS	7.73	6.97	15.150	117.16	105.52	2.84	3.242	2.04
STRIPED BASS	6.79	1.31	15.150	102.81	19.90	2.21	0.426	2.37
SPOTTAIL SHINER	4.23	0.04	15.150	64.12	0.63	3.01	0.025	0.00
GIZZARD SHAD	3.72	1.54	15.150	56.41	23.32	2.36	0.937	0.00
YELLOW PERCH	3.09	0.09	15.150	46.80	1.30	0.77	0.037	1.55
CHANNEL CATFISH	2.60	0.45	15.150	39.34	6.84	1.03	0.193	0.55
BLUEGILL	2.28	0.02	15.150	34.51	0.32	2.07	0.018	0.00
WHITE CATFISH	1.77	0.08	15.150	26.80	1.20	0.70	0.032	0.36
BROWN BULLHEAD	0.89	0.20	15.150	13.51	3.04	0.52	0.195	0.00
GOLDEN SHINER	0.29	0.00	15.150	4.33	0.02	0.29	0.001	0.00
WARMOUTH	0.27	0.00	15.150	4.12	0.05	0.14	0.002	0.00
RAINBOW TROUT	0.06	0.03	15.150	0.96	0.44	0.06	0.029	0.00
AMERICAN EEL	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	136.58	5.81	0.00	0.0000	174.99	7.56	3
0.0273	13.37	0.08	2.56	0.0135	15.54	0.10	3
0.3601	14.54	1.84	0.00	0.0000	17.83	2.20	3
0.4805	13.42	13.45	0.00	0.0000	16.27	16.69	3
0.4610	11.20	2.17	0.17	0.0347	13.41	2.59	3
0.0000	10.25	0.09	0.00	0.0000	13.26	0.12	3
0.0000	8.45	3.41	0.00	0.0000	10.81	4.35	3
0.0124	4.63	0.16	0.78	0.0000	5.40	0.20	3
0.0649	4.65	0.84	0.00	0.0000	5.67	1.03	3
0.0000	6.42	0.06	0.00	0.0000	8.49	0.07	3
0.0147	3.17	0.14	0.00	0.0000	3.88	0.18	3
0.0000	1.93	0.59	0.00	0.0000	2.44	0.78	3
0.0000	0.86	0.00	0.00	0.0000	1.14	0.00	3
0.0000	0.54	0.01	0.00	0.0000	0.68	0.01	3
0.0000	0.19	0.09	0.00	0.0000	0.25	0.12	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLUEHEAD CHUB	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
BROWN TROUT	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
CARP	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
CHAIN PICKEREL	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
COASTAL SHINER	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
COOSA BASS	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
FLAT BULLHEAD	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
FLATHEAD CATFISH	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
GREEN SUNFISH	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
LARGEMOUTH BASS	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
LONGNOSE GAR	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
MADTOM	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
MARGINED MADTOM	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
NORTHERN HOGSUCKR	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
REDBREAST	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
REDEAR	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
RIVER CARPSUCKER	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
SILVER REDHORSE	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
SPOTTED BASS	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
TADPOLE MADTOM	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	15.150	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	110.48	14.20		1673.75	215.17	59.86	7.266	12.97

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
1.4208	230.20	28.73	3.50	0.0482	290.06	36.00	

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	4147.94	86.78	25.430	105482.12	2206.85	3954.25	79.251	0.00
YELLOW PERCH	60.59	2.11	25.430	1540.83	53.55	56.79	2.001	0.00
WHITE PERCH	28.22	3.40	25.430	717.75	86.47	10.90	1.292	6.41
THREADFIN SHAD	23.25	0.14	25.430	591.35	3.48	11.67	0.082	0.00
STRIPED BASS	11.86	1.78	25.430	301.53	45.16	3.35	0.389	5.16
HYBRID BASS	10.42	1.83	25.430	265.02	46.59	2.74	0.673	4.93
BLUEGILL	7.28	0.06	25.430	185.01	1.46	4.34	0.025	0.00
SPOTTAIL SHINER	6.09	0.06	25.430	154.78	1.42	4.26	0.041	0.00
WHITE CATFISH	3.24	0.14	25.430	82.47	3.56	0.54	0.051	2.17
CHANNEL CATFISH	1.65	0.12	25.430	42.04	2.98	0.48	0.042	0.70
WHITEFIN SHINER	1.14	0.01	25.430	28.90	0.28	0.58	0.005	0.00
BROWN BULLHEAD	0.91	0.21	25.430	23.19	5.39	0.34	0.137	0.23
GIZZARD SHAD	0.62	0.22	25.430	15.79	5.58	0.43	0.135	0.00
CARP	0.57	2.15	25.430	14.58	54.70	0.32	1.146	0.00
WARMOUTH	0.43	0.01	25.430	10.83	0.33	0.21	0.006	0.01
GOLDEN SHINER	0.24	0.01	25.430	6.02	0.14	0.24	0.006	0.00
RIVER CARPSUCKER	0.09	0.13	25.430	2.40	3.35	0.09	0.132	0.00
TADPOLE MADTOM	0.07	0.00	25.430	1.84	0.02	0.07	0.001	0.00
AMERICAN EEL	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	12056.45	245.28	0.00	0.0000	16010.70	324.53	5
0.0000	174.17	6.11	0.00	0.0000	230.96	8.11	5
0.8163	50.03	5.98	0.00	0.0000	60.94	7.28	5
0.0000	46.60	0.30	0.00	0.0000	58.27	0.38	5
0.9983	18.55	2.55	1.81	0.6095	21.90	2.94	5
0.4852	15.91	3.18	2.19	0.0000	18.66	3.85	5
0.0081	15.96	0.11	0.00	0.0000	20.30	0.13	5
0.0000	14.60	0.14	0.00	0.0000	18.86	0.18	5
0.0372	4.31	0.24	1.64	0.0000	4.85	0.29	5
0.0332	2.60	0.20	0.23	0.0000	3.08	0.24	5
0.0005	2.30	0.02	0.00	0.0000	2.88	0.03	5
0.0000	1.59	0.48	0.00	0.0000	1.94	0.62	5
0.0000	1.47	0.49	0.00	0.0000	1.90	0.63	5
0.0000	1.22	4.44	0.00	0.0000	1.54	5.59	5
0.0005	0.85	0.03	0.00	0.0000	1.06	0.03	5
0.0000	0.71	0.02	0.00	0.0000	0.95	0.02	5
0.0000	0.28	0.40	0.00	0.0000	0.38	0.53	5
0.0000	0.22	0.00	0.00	0.0000	0.29	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACK BULLHEAD	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLACK CRAPPIE	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLACKBANDED DARTR	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLUEHEAD CHUB	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BROWN TROUT	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
CHAIN PICKEREL	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COASTAL SHINER	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COOSA BASS	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLAT BULLHEAD	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLATHEAD CATFISH	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
GREEN SUNFISH	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
LARGEMOUTH BASS	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
LONGNOSE GAR	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MADTOM	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MARGINED MADTOM	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
NORTHERN HOGSUCKR	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
RAINBOW TROUT	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
REDBREAST	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
REDEAR	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SILVER REDHORSE	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	25.430	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	4304.62	99.15		109466.43	2521.30	4051.61	85.415	19.62

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
2.3794	12407.84	269.98	5.86	0.6095	16459.45	355.39	

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	238.94	1.03	12.130	2898.39	12.45	140.37	0.608	0.00
BLUEBACK HERRING	61.16	1.99	12.130	741.84	24.18	44.74	1.412	0.00
BLUEGILL	5.15	0.02	12.130	62.49	0.25	2.95	0.009	0.00
YELLOW PERCH	4.58	0.10	12.130	55.51	1.24	0.30	0.001	3.98
LARGEMOUTH BASS	1.14	0.00	12.130	13.82	0.05	0.58	0.002	0.00
CHANNEL CATFISH	1.03	0.01	12.130	12.49	0.17	0.22	0.004	0.59
WHITE CATFISH	0.62	0.03	12.130	7.48	0.35	0.62	0.029	0.00
WARMOUTH	0.36	0.01	12.130	4.39	0.08	0.36	0.007	0.00
RAINBOW TROUT	0.25	0.15	12.130	3.01	1.77	0.25	0.146	0.00
GIZZARD SHAD	0.25	0.08	12.130	3.00	0.95	0.08	0.005	0.08
WHITE PERCH	0.22	0.04	12.130	2.70	0.48	0.06	0.008	0.11
HYBRID BASS	0.22	0.08	12.130	2.69	1.00	0.22	0.083	0.00
BROWN BULLHEAD	0.19	0.00	12.130	2.31	0.01	0.19	0.001	0.00
STRIPED BASS	0.08	0.02	12.130	1.00	0.24	0.08	0.020	0.00
AMERICAN EEL	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	519.67	2.24	0.00	0.0000	660.04	2.85	2
0.0000	150.64	4.82	0.00	0.0000	195.39	6.23	2
0.0036	11.05	0.04	0.00	0.0000	13.99	0.05	2
0.0990	5.18	0.10	3.68	0.0975	5.48	0.11	2
0.0000	2.30	0.01	0.00	0.0000	2.88	0.01	2
0.0067	1.47	0.02	0.37	0.0030	1.69	0.03	2
0.0000	1.85	0.09	0.00	0.0000	2.47	0.12	2
0.0000	1.09	0.02	0.00	0.0000	1.45	0.03	2
0.0000	0.74	0.44	0.00	0.0000	0.99	0.58	2
0.0682	0.41	0.09	0.00	0.0631	0.49	0.09	2
0.0228	0.34	0.06	0.05	0.0144	0.39	0.06	2
0.0000	0.67	0.25	0.00	0.0000	0.89	0.33	2
0.0000	0.57	0.00	0.00	0.0000	0.76	0.00	2
0.0000	0.25	0.06	0.00	0.0000	0.33	0.08	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BROWN TROUT	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
SPOTTAIL SHINER	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=APR 1993 TO JUN 1993 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
TADPOLE MADTOM	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	12.130	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	314.19	3.56		3811.11	43.21	191.02	2.334	4.76

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.2003	696.22	8.23	4.10	0.1781	887.24	10.56	

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	534.31	2.35	37.110	19828.39	87.26	403.65	1.812	0.00
BLUEBACK HERRING	8.81	0.27	37.110	327.04	10.08	2.93	0.105	2.95
BLUEGILL	2.20	0.02	37.110	81.83	0.69	0.49	0.005	1.23
YELLOW PERCH	2.17	0.05	37.110	80.56	1.80	1.11	0.023	0.00
CHANNEL CATFISH	0.26	0.00	37.110	9.61	0.14	0.19	0.002	0.00
WHITE CATFISH	0.25	0.01	37.110	9.41	0.21	0.16	0.004	0.00
WARMOUTH	0.23	0.01	37.110	8.64	0.24	0.07	0.003	0.08
BROWN BULLHEAD	0.21	0.07	37.110	7.62	2.65	0.09	0.044	0.02
STRIPED BASS	0.16	0.04	37.110	5.85	1.36	0.08	0.017	0.00
SPOTTAIL SHINER	0.13	0.00	37.110	4.69	0.04	0.08	0.001	0.00
SILVER REDHORSE	0.13	0.00	37.110	4.64	0.02	0.13	0.001	0.00
WHITE PERCH	0.12	0.02	37.110	4.48	0.77	0.08	0.015	0.00
HYBRID BASS	0.08	0.06	37.110	2.95	2.09	0.04	0.032	0.01
GIZZARD SHAD	0.08	0.02	37.110	2.93	0.74	0.04	0.009	0.01
YELLOW BULLHEAD	0.07	0.01	37.110	2.67	0.39	0.07	0.010	0.00
BLACK CRAPPIE	0.06	0.03	37.110	2.16	1.05	0.06	0.028	0.00
GOLDEN SHINER	0.06	0.00	37.110	2.05	0.02	0.06	0.001	0.00
LARGEMOUTH BASS	0.05	0.00	37.110	1.74	0.01	0.05	0.000	0.00
RAINBOW TROUT	0.03	0.01	37.110	1.03	0.47	0.03	0.013	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	1341.62	5.97	0.00	0.0000	1745.28	7.79	6
0.0622	14.68	0.48	0.02	0.0000	17.61	0.59	6
0.0092	3.18	0.03	0.74	0.0044	3.67	0.03	6
0.0020	4.40	0.10	0.00	0.0000	5.51	0.12	6
0.0000	0.65	0.01	0.00	0.0000	0.84	0.01	6
0.0000	0.58	0.01	0.00	0.0000	0.74	0.02	6
0.0000	0.38	0.01	0.01	0.0000	0.45	0.02	6
0.0000	0.39	0.16	0.00	0.0000	0.48	0.20	6
0.0033	0.32	0.07	0.00	0.0000	0.40	0.09	6
0.0000	0.29	0.00	0.00	0.0000	0.37	0.00	6
0.0000	0.38	0.00	0.00	0.0000	0.50	0.00	6
0.0000	0.28	0.05	0.00	0.0000	0.36	0.07	6
0.0000	0.15	0.12	0.00	0.0000	0.19	0.15	6
0.0019	0.15	0.04	0.00	0.0000	0.19	0.05	6
0.0000	0.22	0.03	0.00	0.0000	0.29	0.04	6
0.0000	0.18	0.08	0.00	0.0000	0.23	0.11	6
0.0000	0.17	0.00	0.00	0.0000	0.22	0.00	6
0.0000	0.14	0.00	0.00	0.0000	0.19	0.00	6
0.0000	0.08	0.04	0.00	0.0000	0.11	0.05	6

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
AMERICAN EEL	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
BLACK BULLHEAD	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
BLACKBANDED DARTR	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
BLUEHEAD CHUB	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
BROWN TROUT	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
CARP	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
CHAIN PICKEREL	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
COASTAL SHINER	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
COOSA BASS	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
FLAT BULLHEAD	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
FLATHEAD CATFISH	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
GREEN SUNFISH	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
LONGNOSE GAR	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
MADTOM	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
MARGINED MADTOM	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
NORTHERN HOGSUCKR	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
REDBREAST	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
REDEAR	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
RIVER CARPSUCKER	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SPOTTED BASS	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	37.110	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	549.40	2.96		20388.30	110.02	409.40	2.123	4.30

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	6
0.0785	1368.21	7.21	0.77	0.0044	1777.62	9.33	

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLUEBACK HERRING	1043.46	26.71	47.810	49887.61	1277.13	362.20	9.184	319.05	8.3449	1767.86	45.08	0.00	0.0000	2130.07	54.26	8
THREADFIN SHAD	304.77	1.04	47.810	14570.96	49.55	145.40	0.537	13.97	0.0000	595.56	2.11	0.00	0.0000	740.96	2.65	8
BLUEGILL	1.58	0.01	47.810	75.63	0.49	0.37	0.003	0.84	0.0044	2.32	0.02	0.47	0.0016	2.69	0.02	8
WHITE CATFISH	1.49	0.06	47.810	71.22	2.66	0.54	0.019	0.42	0.0176	2.56	0.09	0.00	0.0000	3.10	0.11	8
YELLOW PERCH	0.75	0.03	47.810	35.92	1.25	0.23	0.009	0.29	0.0088	1.21	0.04	0.07	0.0002	1.44	0.05	8
YELLOW BULLHEAD	0.43	0.02	47.810	20.53	1.19	0.20	0.013	0.03	0.0000	0.83	0.05	0.00	0.0000	1.03	0.06	8
CHANNEL CATFISH	0.40	0.02	47.810	19.23	0.94	0.17	0.016	0.06	0.0000	0.75	0.05	0.00	0.0000	0.92	0.07	8
BROWN BULLHEAD	0.33	0.07	47.810	15.80	3.45	0.19	0.065	0.00	0.0000	0.70	0.20	0.00	0.0000	0.89	0.27	8
SPOTTAIL SHINER	0.25	0.00	47.810	11.84	0.09	0.11	0.001	0.02	0.0003	0.47	0.00	0.00	0.0000	0.59	0.00	8
GIZZARD SHAD	0.20	0.06	47.810	9.72	3.08	0.08	0.026	0.05	0.0132	0.36	0.12	0.00	0.0000	0.43	0.14	8
BROWN TROUT	0.19	0.05	47.810	9.14	2.53	0.10	0.027	0.00	0.0000	0.40	0.11	0.00	0.0000	0.50	0.13	8
BLACK BULLHEAD	0.13	0.00	47.810	6.40	0.10	0.07	0.001	0.00	0.0000	0.26	0.00	0.00	0.0000	0.33	0.01	8
WHITE PERCH	0.09	0.00	47.810	4.32	0.12	0.06	0.002	0.00	0.0000	0.21	0.01	0.00	0.0000	0.28	0.01	8
STRIPED BASS	0.09	0.02	47.810	4.16	0.89	0.06	0.013	0.00	0.0000	0.20	0.04	0.00	0.0000	0.26	0.06	8
WARMOUTH	0.08	0.00	47.810	3.80	0.05	0.05	0.001	0.00	0.0000	0.18	0.00	0.00	0.0000	0.24	0.00	8
LARGEMOUTH BASS	0.07	0.00	47.810	3.22	0.01	0.04	0.000	0.00	0.0000	0.16	0.00	0.00	0.0000	0.20	0.00	8
HYBRID BASS	0.04	0.03	47.810	2.01	1.39	0.03	0.021	0.00	0.0000	0.10	0.07	0.00	0.0000	0.13	0.09	8
AMERICAN EEL	0.04	0.01	47.810	1.96	0.25	0.04	0.005	0.00	0.0000	0.12	0.02	0.00	0.0000	0.16	0.02	8
TESSELATED DARTR	0.03	0.00	47.810	1.38	0.05	0.03	0.001	0.00	0.0000	0.09	0.00	0.00	0.0000	0.12	0.00	8

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RAINBOW TROUT	0.02	0.01	47.810	0.94	0.65	0.02	0.014	0.00	0.0000	0.06	0.04	0.00	0.0000	0.08	0.05	8
BLACK CRAPPIE	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
BLACKBANDED DARTR	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
BLUEHEAD CHUB	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
CARP	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
CHAIN PICKEREL	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
COASTAL SHINER	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
COOSA BASS	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
FLAT BULLHEAD	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
FLATHEAD CATFISH	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
GOLDEN SHINER	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
GREEN SUNFISH	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
LONGNOSE GAR	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
MADTOM	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
MARGINED MADTOM	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
NORTHERN HOGSUCKR	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
REDBREAST	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
REDEAR	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
RIVER CARPSUCKER	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SILVER REDHORSE	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	47.810	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1354.44	28.15		64755.79	1345.88	509.99	9.958	334.74

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	8
8.3892	2374.42	48.07	0.54	0.0017	2884.40	58.02	

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1588.76	6.01	44.290	70366.03	266.31	523.53	2.046	541.70
BLUEBACK HERRING	24.41	0.67	44.290	1081.11	29.53	3.92	0.112	16.56
WHITE CATFISH	4.05	0.18	44.290	179.44	7.83	1.08	0.069	1.89
GIZZARD SHAD	2.98	0.12	44.290	132.08	5.32	1.11	0.039	0.77
BLUEGILL	2.81	0.05	44.290	124.44	2.03	1.05	0.022	0.71
YELLOW PERCH	0.87	0.03	44.290	38.58	1.27	0.37	0.014	0.14
CHANNEL CATFISH	0.74	0.02	44.290	32.89	0.75	0.37	0.010	0.00
BLACK BULLHEAD	0.27	0.01	44.290	11.81	0.57	0.13	0.007	0.00
BROWN BULLHEAD	0.24	0.03	44.290	10.71	1.40	0.09	0.020	0.07
FLAT BULLHEAD	0.16	0.03	44.290	7.22	1.45	0.08	0.025	0.01
YELLOW BULLHEAD	0.15	0.00	44.290	6.77	0.16	0.11	0.003	0.00
SPOTTAIL SHINER	0.15	0.00	44.290	6.68	0.07	0.10	0.001	0.00
WHITE PERCH	0.15	0.00	44.290	6.57	0.05	0.11	0.001	0.00
BROWN TROUT	0.13	0.05	44.290	5.84	2.05	0.05	0.017	0.03
GOLDEN SHINER	0.10	0.00	44.290	4.50	0.02	0.10	0.000	0.00
COASTAL SHINER	0.10	0.00	44.290	4.31	0.01	0.10	0.000	0.00
LARGEMOUTH BASS	0.08	0.00	44.290	3.34	0.11	0.05	0.002	0.00
LONGNOSE GAR	0.07	0.09	44.290	2.96	3.94	0.05	0.066	0.00
WARMOUTH	0.05	0.00	44.290	2.11	0.04	0.05	0.001	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.9213	2635.82	10.10	18.17	0.0000	3159.34	12.15	7
0.4419	32.26	0.89	12.64	0.3295	36.18	1.00	7
0.0385	6.21	0.31	0.82	0.0000	7.29	0.38	7
0.0421	5.20	0.20	0.00	0.0031	6.30	0.24	7
0.0024	4.91	0.09	0.00	0.0000	5.96	0.11	7
0.0012	1.60	0.06	0.00	0.0000	1.97	0.07	7
0.0000	1.49	0.04	0.00	0.0000	1.86	0.05	7
0.0000	0.53	0.03	0.00	0.0000	0.66	0.03	7
0.0000	0.42	0.07	0.00	0.0000	0.50	0.09	7
0.0000	0.32	0.08	0.00	0.0000	0.40	0.11	7
0.0000	0.37	0.01	0.00	0.0000	0.48	0.01	7
0.0000	0.36	0.00	0.00	0.0000	0.46	0.01	7
0.0000	0.37	0.00	0.00	0.0000	0.48	0.00	7
0.0115	0.24	0.08	0.00	0.0000	0.29	0.10	7
0.0000	0.30	0.00	0.00	0.0000	0.41	0.00	7
0.0000	0.29	0.00	0.00	0.0000	0.39	0.00	7
0.0000	0.17	0.01	0.00	0.0000	0.22	0.01	7
0.0000	0.16	0.22	0.00	0.0000	0.21	0.29	7
0.0000	0.14	0.00	0.00	0.0000	0.19	0.00	7

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
HYBRID BASS	0.04	0.05	44.290	1.98	2.01	0.04	0.045	0.00
TESSELATED DARTR	0.04	0.00	44.290	1.63	0.02	0.04	0.000	0.00
COOSA BASS	0.02	0.01	44.290	0.99	0.63	0.02	0.014	0.00
CARP	0.02	0.03	44.290	0.98	1.45	0.02	0.033	0.00
STRIPED BASS	0.02	0.01	44.290	0.98	0.23	0.02	0.005	0.00
AMERICAN EEL	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.13	0.14	0.00	0.0000	0.18	0.18	7
0.0000	0.11	0.00	0.00	0.0000	0.15	0.00	7
0.0000	0.07	0.04	0.00	0.0000	0.09	0.06	7
0.0000	0.07	0.10	0.00	0.0000	0.09	0.13	7
0.0000	0.07	0.02	0.00	0.0000	0.09	0.02	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7

Table 1-24. (Continued).

QUARTER=JUL 1993 TO SEP 1993 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SILVER REDHORSE	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	44.290	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1626.42	7.39		72033.95	327.25	532.59	2.555	561.88

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
2.4589	2691.59	12.50	31.63	0.3326	3224.18	15.05	

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	916.40	2.82	25.700	23551.46	72.42	268.36	0.461	379.68
BLUEBACK HERRING	14.35	0.31	25.700	368.79	7.92	4.07	0.095	6.21
WHITE CATFISH	9.92	0.32	25.700	254.85	8.24	4.58	0.149	0.76
BLUEGILL	3.35	0.05	25.700	86.00	1.28	0.98	0.024	1.39
CHANNEL CATFISH	1.60	0.13	25.700	41.12	3.24	0.54	0.061	0.51
GIZZARD SHAD	0.92	0.07	25.700	23.58	1.85	0.37	0.036	0.18
SPOTTAIL SHINER	0.53	0.00	25.700	13.68	0.09	0.42	0.002	0.00
WHITE PERCH	0.41	0.06	25.700	10.55	1.65	0.12	0.023	0.16
STRIPED BASS	0.38	0.05	25.700	9.82	1.33	0.14	0.013	0.10
YELLOW PERCH	0.20	0.00	25.700	5.07	0.11	0.13	0.002	0.00
HYBRID BASS	0.18	0.05	25.700	4.70	1.19	0.09	0.019	0.01
GOLDEN SHINER	0.09	0.00	25.700	2.31	0.02	0.09	0.001	0.00
YELLOW BULLHEAD	0.09	0.00	25.700	2.31	0.04	0.09	0.002	0.00
BROWN BULLHEAD	0.09	0.00	25.700	2.25	0.01	0.09	0.000	0.00
GREEN SUNFISH	0.08	0.00	25.700	2.15	0.00	0.08	0.000	0.00
WARMOUTH	0.08	0.01	25.700	2.11	0.22	0.08	0.009	0.00
AMERICAN EEL	0.08	0.01	25.700	2.05	0.27	0.08	0.010	0.00
BLACK CRAPPIE	0.08	0.04	25.700	2.05	0.99	0.08	0.039	0.00
CARP	0.04	0.06	25.700	1.00	1.49	0.04	0.058	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.8949	1453.12	3.74	111.32	1.4334	1721.47	4.20	4
0.1184	22.49	0.50	2.14	0.0236	26.56	0.59	4
0.0227	19.07	0.62	0.00	0.0000	23.65	0.77	4
0.0018	5.30	0.10	0.41	0.0000	6.28	0.12	4
0.0040	2.69	0.25	0.00	0.0000	3.23	0.31	4
0.0000	1.66	0.14	0.00	0.0000	2.03	0.18	4
0.0000	1.37	0.01	0.00	0.0000	1.79	0.01	4
0.0183	0.66	0.11	0.04	0.0000	0.78	0.13	4
0.0250	0.67	0.08	0.00	0.0117	0.81	0.09	4
0.0000	0.45	0.01	0.00	0.0000	0.58	0.01	4
0.0088	0.36	0.08	0.00	0.0000	0.45	0.10	4
0.0000	0.27	0.00	0.00	0.0000	0.36	0.00	4
0.0000	0.27	0.00	0.00	0.0000	0.36	0.01	4
0.0000	0.26	0.00	0.00	0.0000	0.35	0.00	4
0.0000	0.25	0.00	0.00	0.0000	0.33	0.00	4
0.0000	0.25	0.03	0.00	0.0000	0.33	0.03	4
0.0000	0.24	0.03	0.00	0.0000	0.32	0.04	4
0.0000	0.24	0.12	0.00	0.0000	0.32	0.15	4
0.0000	0.12	0.17	0.00	0.0000	0.16	0.23	4

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
COOSA BASS	0.04	0.02	25.700	0.98	0.62	0.04	0.024	0.00
LONGNOSE GAR	0.04	0.09	25.700	0.98	2.34	0.04	0.091	0.00
BLACK BULLHEAD	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.11	0.07	0.00	0.0000	0.15	0.10	4
0.0000	0.11	0.27	0.00	0.0000	0.15	0.36	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SPOTTED BASS	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	25.700	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	948.94	4.10		24387.80	105.31	280.50	1.119	389.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
2.0939	1509.95	6.34	113.91	1.4687	1790.45	7.46	

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	279.95	0.51	13.330	3731.73	6.83	70.24	0.100	139.48
BLUEGILL	9.01	0.09	13.330	120.11	1.16	1.63	0.036	5.75
BLUEBACK HERRING	7.75	0.19	13.330	103.35	2.48	4.18	0.116	0.00
WHITE CATFISH	6.43	0.30	13.330	85.71	4.03	4.78	0.214	0.00
CHANNEL CATFISH	1.99	0.23	13.330	26.52	3.08	0.80	0.028	0.39
GIZZARD SHAD	1.58	0.01	13.330	21.08	0.15	0.93	0.000	0.00
SPOTTAIL SHINER	1.20	0.01	13.330	16.02	0.15	0.11	0.002	0.99
WHITE PERCH	0.75	0.05	13.330	10.04	0.63	0.21	0.001	0.33
STRIPED BASS	0.75	0.12	13.330	9.97	1.64	0.59	0.094	0.00
YELLOW PERCH	0.60	0.01	13.330	8.06	0.13	0.60	0.010	0.00
GREEN SUNFISH	0.31	0.00	13.330	4.17	0.01	0.31	0.001	0.00
HYBRID BASS	0.22	0.06	13.330	2.95	0.80	0.06	0.005	0.10
FLATHEAD CATFISH	0.18	0.09	13.330	2.47	1.24	0.18	0.093	0.00
BLUEHEAD CHUB	0.16	0.00	13.330	2.18	0.00	0.16	0.000	0.00
AMERICAN EEL	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
BROWN BULLHEAD	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.3125	420.42	0.71	69.24	0.2123	490.66	0.81	2
0.0152	12.27	0.16	4.12	0.0000	13.90	0.19	2
0.0000	16.12	0.42	0.00	0.0000	20.30	0.53	2
0.0000	15.99	0.73	0.00	0.0000	20.77	0.94	2
0.1759	3.59	0.29	0.00	0.1483	4.39	0.31	2
0.0107	3.43	0.01	0.00	0.0104	4.36	0.01	2
0.0068	1.42	0.02	0.88	0.0046	1.52	0.02	2
0.0456	1.18	0.05	0.11	0.0446	1.39	0.05	2
0.0000	1.93	0.31	0.00	0.0000	2.52	0.41	2
0.0000	1.81	0.03	0.00	0.0000	2.42	0.04	2
0.0000	0.94	0.00	0.00	0.0000	1.25	0.00	2
0.0493	0.35	0.07	0.03	0.0441	0.41	0.08	2
0.0000	0.55	0.28	0.00	0.0000	0.74	0.37	2
0.0000	0.49	0.00	0.00	0.0000	0.65	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BROWN TROUT	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
TESSELATED DARTR	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	13.330	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	310.90	1.68		4144.36	22.33	84.79	0.700	147.03

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.6160	480.49	3.07	74.39	0.4644	565.28	3.77	

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	717.33	1.07	12.250	8787.28	13.11	313.28	0.471	90.77
BLUEBACK HERRING	66.57	2.55	12.250	815.49	31.20	29.52	1.130	7.53
BLUEGILL	3.18	0.07	12.250	38.92	0.86	0.97	0.034	1.24
SPOTTAIL SHINER	2.96	0.03	12.250	36.25	0.32	0.65	0.007	1.66
YELLOW PERCH	2.05	0.03	12.250	25.11	0.41	1.76	0.031	0.00
WHITE CATFISH	1.78	0.06	12.250	21.83	0.78	0.96	0.043	0.00
CHANNEL CATFISH	1.24	0.29	12.250	15.16	3.59	0.36	0.085	0.52
GIZZARD SHAD	0.94	0.02	12.250	11.48	0.24	0.21	0.013	0.52
HYBRID BASS	0.49	0.21	12.250	5.94	2.61	0.15	0.111	0.19
BROWN BULLHEAD	0.21	0.02	12.250	2.52	0.25	0.21	0.020	0.00
BLACK CRAPPIE	0.19	0.00	12.250	2.27	0.01	0.19	0.001	0.00
STRIPED BASS	0.16	0.03	12.250	1.94	0.35	0.16	0.029	0.00
AMERICAN EEL	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.1289	1343.89	2.01	0.00	0.0000	1657.16	2.48	2
0.2862	125.61	4.81	0.00	0.0000	155.13	5.94	2
0.0024	5.11	0.14	0.27	0.0000	6.08	0.17	2
0.0122	4.26	0.04	1.01	0.0054	4.90	0.05	2
0.0000	5.58	0.09	0.00	0.0000	7.34	0.12	2
0.0000	3.69	0.15	0.00	0.0000	4.65	0.19	2
0.1220	1.96	0.46	0.16	0.0366	2.32	0.55	2
0.0000	1.36	0.05	0.31	0.0000	1.57	0.06	2
0.0000	0.78	0.43	0.04	0.0000	0.93	0.55	2
0.0000	0.62	0.06	0.00	0.0000	0.82	0.08	2
0.0000	0.56	0.00	0.00	0.0000	0.74	0.00	2
0.0000	0.47	0.09	0.00	0.0000	0.63	0.11	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
COASTAL SHINER	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=OCT 1993 TO DEC 1993 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WARMOUTH	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
WHITE PERCH	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	12.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	797.08	4.38		9764.19	53.71	348.40	1.974	102.43

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.5517	1493.88	8.33	1.79	0.0419	1842.28	10.31	

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=JANUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	2769.87	4.46	18.970	52544.53	84.59	603.08	1.190	1563.72
BLUEBACK HERRING	315.60	13.06	18.970	5986.86	247.67	282.48	11.708	0.00
YELLOW PERCH	51.80	0.47	18.970	982.68	8.84	32.16	0.273	0.00
SPOTTAIL SHINER	7.48	0.06	18.970	141.98	1.20	1.91	0.016	3.67
BLUEGILL	1.03	0.01	18.970	19.53	0.19	0.55	0.005	0.00
CHANNEL CATFISH	0.53	0.02	18.970	10.09	0.45	0.35	0.020	0.00
WHITE CATFISH	0.50	0.00	18.970	9.54	0.08	0.50	0.004	0.00
BROWN BULLHEAD	0.36	0.00	18.970	6.88	0.04	0.21	0.001	0.00
STRIPED BASS	0.13	0.03	18.970	2.40	0.49	0.07	0.014	0.00
HYBRID BASS	0.11	0.07	18.970	2.02	1.29	0.05	0.049	0.00
SPOTTED BASS	0.07	0.00	18.970	1.41	0.01	0.07	0.000	0.00
TESSELATED DARTR	0.07	0.00	18.970	1.41	0.05	0.07	0.003	0.00
WHITE BASS	0.05	0.01	18.970	1.00	0.21	0.05	0.011	0.00
AMERICAN EEL	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
2.0792	3976.03	6.84	960.65	0.8893	4579.10	8.03	3
0.0000	880.55	36.47	0.00	0.0000	1163.03	48.18	3
0.0000	116.13	1.01	0.00	0.0000	148.29	1.29	3
0.0317	11.30	0.10	1.76	0.0158	13.21	0.11	3
0.0000	2.13	0.02	0.00	0.0000	2.68	0.03	3
0.0000	1.23	0.06	0.00	0.0000	1.58	0.08	3
0.0000	1.51	0.01	0.00	0.0000	2.01	0.02	3
0.0000	0.78	0.00	0.00	0.0000	1.00	0.01	3
0.0000	0.26	0.05	0.00	0.0000	0.33	0.07	3
0.0000	0.21	0.17	0.00	0.0000	0.27	0.21	3
0.0000	0.22	0.00	0.00	0.0000	0.30	0.00	3
0.0000	0.22	0.01	0.00	0.0000	0.30	0.01	3
0.0000	0.16	0.03	0.00	0.0000	0.21	0.04	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=JANUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
CARP	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
GIZZARD SHAD	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=JANUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
TADPOLE MADTOM	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
WHITE PERCH	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	18.970	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	3147.62	18.19		59710.31	345.12	921.56	13.295	1567.39

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
2.1109	4990.74	44.78	962.40	0.9051	5912.30	58.08	

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	2315.90	3.14	13.440	31125.75	42.18	1595.23	2.083	0.00
YELLOW PERCH	161.68	1.87	13.440	2172.93	25.15	106.36	1.327	0.00
GIZZARD SHAD	47.99	2.34	13.440	645.00	31.40	43.02	1.158	0.00
BLUEBACK HERRING	17.84	0.44	13.440	239.77	5.85	8.67	0.275	0.50
SPOTTAIL SHINER	1.63	0.01	13.440	21.92	0.17	0.89	0.006	0.00
BLUEGILL	0.67	0.01	13.440	9.07	0.18	0.15	0.005	0.38
WHITEFIN SHINER	0.47	0.00	13.440	6.26	0.04	0.29	0.001	0.00
CHANNEL CATFISH	0.36	0.01	13.440	4.83	0.08	0.36	0.006	0.00
HYBRID BASS	0.22	0.18	13.440	3.02	2.42	0.08	0.130	0.07
WHITE BASS	0.18	0.02	13.440	2.36	0.31	0.18	0.023	0.00
BROWN BULLHEAD	0.17	0.00	13.440	2.27	0.01	0.17	0.001	0.00
WARMOUTH	0.15	0.01	13.440	2.07	0.13	0.15	0.010	0.00
LARGEMOUTH BASS	0.10	0.00	13.440	1.38	0.01	0.10	0.000	0.00
NORTHERN HOGSUCKR	0.09	0.00	13.440	1.18	0.00	0.09	0.000	0.00
STRIPED BASS	0.07	0.01	13.440	0.99	0.18	0.07	0.013	0.00
WHITE PERCH	0.07	0.02	13.440	0.99	0.29	0.07	0.021	0.00
AMERICAN EEL	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
BLACK CRAPPIE	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	5506.36	7.31	0.00	0.0000	7101.59	9.39	2
0.0000	374.39	4.52	0.00	0.0000	480.75	5.85	2
0.0211	134.03	4.65	0.00	0.0000	177.05	5.81	2
0.0000	35.18	0.99	0.00	0.0000	43.85	1.26	2
0.0000	3.41	0.03	0.00	0.0000	4.30	0.03	2
0.0040	0.97	0.02	0.24	0.0000	1.11	0.03	2
0.0000	1.04	0.01	0.00	0.0000	1.33	0.01	2
0.0000	1.08	0.02	0.00	0.0000	1.44	0.02	2
0.0000	0.38	0.44	0.00	0.0000	0.46	0.57	2
0.0000	0.53	0.07	0.00	0.0000	0.70	0.09	2
0.0000	0.51	0.00	0.00	0.0000	0.67	0.00	2
0.0000	0.46	0.03	0.00	0.0000	0.62	0.04	2
0.0000	0.31	0.00	0.00	0.0000	0.41	0.00	2
0.0000	0.26	0.00	0.00	0.0000	0.35	0.00	2
0.0000	0.22	0.04	0.00	0.0000	0.29	0.05	2
0.0000	0.22	0.06	0.00	0.0000	0.29	0.08	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACKBANDED DARTR	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLUEHEAD CHUB	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BROWN TROUT	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CARP	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CHAIN PICKEREL	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COASTAL SHINER	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COOSA BASS	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLAT BULLHEAD	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLATHEAD CATFISH	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GOLDEN SHINER	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GREEN SUNFISH	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LONGNOSE GAR	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MADTOM	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MARGINED MADTOM	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RAINBOW TROUT	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDBREAST	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDEAR	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RIVER CARPSUCKER	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
SILVER REDHORSE	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SPOTTED BASS	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
WHITE CATFISH	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	13.440	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	2547.60	8.07		34239.76	108.40	1755.88	5.060	0.95

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0251	6059.36	18.19	0.24	0.0000	7815.24	23.25	

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
YELLOW PERCH	63.96	0.86	12.530	801.48	10.79	34.79	0.513	0.00
GIZZARD SHAD	8.52	3.38	12.530	106.81	42.35	1.43	0.711	5.67
THREADFIN SHAD	4.81	0.02	12.530	60.30	0.27	0.77	0.000	3.28
WHITE CRAPPIE	4.16	0.05	12.530	52.16	0.69	4.16	0.055	0.00
SPOTTAIL SHINER	3.48	0.03	12.530	43.66	0.34	1.10	0.009	1.29
BLUEGILL	3.22	0.05	12.530	40.39	0.59	1.64	0.005	0.00
HYBRID BASS	1.20	1.49	12.530	15.03	18.69	0.25	0.389	0.70
BLUEBACK HERRING	0.96	0.02	12.530	12.03	0.25	0.57	0.013	0.00
STRIPED BASS	0.90	0.26	12.530	11.30	3.20	0.74	0.176	0.00
BLACK CRAPPIE	0.45	0.00	12.530	5.63	0.03	0.23	0.002	0.00
WHITE PERCH	0.45	0.01	12.530	5.60	0.15	0.00	0.000	0.44
WARMOUTH	0.39	0.01	12.530	4.92	0.13	0.17	0.006	0.05
BROWN BULLHEAD	0.21	0.01	12.530	2.63	0.10	0.21	0.008	0.00
WHITE CATFISH	0.18	0.00	12.530	2.28	0.01	0.18	0.001	0.00
SPOTTED BASS	0.16	0.09	12.530	1.98	1.07	0.16	0.085	0.00
GREEN SUNFISH	0.11	0.00	12.530	1.39	0.00	0.11	0.000	0.00
TESSELATED DARTR	0.11	0.00	12.530	1.39	0.01	0.11	0.001	0.00
AMERICAN EEL	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	133.54	1.89	0.00	0.0000	168.33	2.40	2
1.9585	11.38	4.80	4.24	1.2478	12.81	5.51	2
0.0206	6.35	0.02	2.51	0.0203	7.12	0.02	2
0.0000	12.49	0.16	0.00	0.0000	16.65	0.22	2
0.0091	5.68	0.05	0.19	0.0001	6.78	0.05	2
0.0382	6.51	0.06	0.00	0.0337	8.15	0.06	2
0.7143	1.70	2.27	0.44	0.3257	1.96	2.66	2
0.0000	2.11	0.05	0.00	0.0000	2.68	0.06	2
0.0000	2.38	0.61	0.00	0.0000	3.12	0.78	2
0.0000	0.91	0.01	0.00	0.0000	1.13	0.01	2
0.0119	0.46	0.01	0.43	0.0118	0.46	0.01	2
0.0000	0.74	0.02	0.00	0.0000	0.91	0.03	2
0.0000	0.63	0.02	0.00	0.0000	0.84	0.03	2
0.0000	0.55	0.00	0.00	0.0000	0.73	0.00	2
0.0000	0.47	0.26	0.00	0.0000	0.63	0.34	2
0.0000	0.33	0.00	0.00	0.0000	0.44	0.00	2
0.0000	0.33	0.00	0.00	0.0000	0.44	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACKBANDED DARTR	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLUEHEAD CHUB	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BROWN TROUT	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CARP	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CHAIN PICKEREL	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CHANNEL CATFISH	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COASTAL SHINER	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COOSA BASS	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLAT BULLHEAD	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLATHEAD CATFISH	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GOLDEN SHINER	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LARGEMOUTH BASS	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LONGNOSE GAR	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MADTOM	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MARGINED MADTOM	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
NORTHERN HOGSUCKR	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RAINBOW TROUT	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDBREAST	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDEAR	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=JAN 1994 TO MAR 1994 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RIVER CARPSUCKER	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	12.530	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	93.29	6.28		1168.96	78.69	46.63	1.974	11.42

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
2.7526	186.55	10.23	7.82	1.6392	233.17	12.20	

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SPOTTAIL SHINER	63.88	0.50	12.550	801.73	6.26	23.34	0.197	17.20
THREADFIN SHAD	17.75	0.14	12.550	222.73	1.77	12.52	0.099	0.00
YELLOW PERCH	11.45	0.26	12.550	143.74	3.32	3.54	0.094	4.38
BLUEGILL	10.31	0.06	12.550	129.37	0.70	6.63	0.044	0.00
BLUEBACK HERRING	6.78	0.15	12.550	85.13	1.85	3.25	0.069	0.29
BLACK CRAPPIE	4.45	0.03	12.550	55.80	0.35	0.16	0.003	4.13
WHITE PERCH	3.83	0.46	12.550	48.12	5.81	1.70	0.223	0.43
GIZZARD SHAD	3.45	0.61	12.550	43.32	7.70	2.13	0.214	0.00
WHITE CRAPPIE	1.52	0.03	12.550	19.11	0.33	1.22	0.017	0.00
STRIPED BASS	1.44	0.12	12.550	18.11	1.46	1.44	0.116	0.00
HYBRID BASS	0.88	0.79	12.550	11.00	9.95	0.40	0.269	0.08
TESSELATED DARTR	0.61	0.02	12.550	7.61	0.21	0.61	0.017	0.00
WARMOUTH	0.47	0.01	12.550	5.90	0.18	0.17	0.012	0.14
CHANNEL CATFISH	0.41	0.01	12.550	5.20	0.09	0.00	0.000	0.41
BROWN BULLHEAD	0.21	0.00	12.550	2.60	0.06	0.21	0.005	0.00
WHITEFIN SHINER	0.18	0.00	12.550	2.30	0.01	0.18	0.001	0.00
SILVER REDHORSE	0.16	0.17	12.550	2.00	2.11	0.16	0.168	0.00
AMERICAN EEL	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.1041	110.57	0.89	0.00	0.0000	133.91	1.09	2
0.0000	42.80	0.34	0.00	0.0000	55.32	0.44	2
0.0764	18.53	0.45	0.84	0.0000	22.07	0.55	2
0.0000	23.57	0.14	0.00	0.0000	30.20	0.19	2
0.0084	13.28	0.29	0.00	0.0000	16.53	0.36	2
0.0217	4.76	0.03	3.98	0.0186	4.91	0.04	2
0.0181	7.23	0.91	0.00	0.0000	8.93	1.13	2
0.1865	7.71	1.04	0.00	0.0000	9.84	1.25	2
0.0000	3.96	0.06	0.00	0.0000	5.18	0.08	2
0.0000	4.33	0.35	0.00	0.0000	5.77	0.46	2
0.2558	1.68	1.33	0.00	0.0000	2.07	1.60	2
0.0000	1.82	0.05	0.00	0.0000	2.42	0.07	2
0.0000	0.80	0.04	0.00	0.0000	0.97	0.05	2
0.0070	0.42	0.01	0.41	0.0070	0.42	0.01	2
0.0000	0.62	0.01	0.00	0.0000	0.83	0.02	2
0.0000	0.55	0.00	0.00	0.0000	0.73	0.00	2
0.0000	0.48	0.50	0.00	0.0000	0.64	0.67	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACKBANDED DARTR	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BLUEHEAD CHUB	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
BROWN TROUT	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CARP	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
CHAIN PICKEREL	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COASTAL SHINER	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
COOSA BASS	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLAT BULLHEAD	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
FLATHEAD CATFISH	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GOLDEN SHINER	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
GREEN SUNFISH	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LARGEMOUTH BASS	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
LONGNOSE GAR	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MADTOM	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MARGINED MADTOM	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
NORTHERN HOGSUCKR	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
RAINBOW TROUT	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDBREAST	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
REDEAR	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RIVER CARPSUCKER	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
SPOTTED BASS	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
TADPOLE MADTOM	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
WHITE BASS	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
WHITE CATFISH	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
YELLOW BULLHEAD	0.00	0.00	12.550	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	2
MONTHLY SUM	127.79	3.36		1603.77	42.15	57.66	1.547	27.06	0.6780	243.10	6.45	5.23	0.0255	300.76	8.00	

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
THREADFIN SHAD	369.07	2.32	24.120	8902.07	56.05	54.08	0.451	260.91	1.4211	477.24	3.23	206.83	0.9698	531.32	3.68	4
BLUEBACK HERRING	79.08	1.92	24.120	1907.34	46.35	58.93	1.363	0.00	0.0000	196.94	4.65	0.00	0.0000	255.87	6.01	4
YELLOW PERCH	36.64	0.71	24.120	883.85	17.19	10.73	0.175	15.18	0.3633	58.11	1.06	4.45	0.1886	68.84	1.24	4
BLACK CRAPPIE	24.02	0.25	24.120	579.29	6.13	6.81	0.067	10.40	0.1194	37.63	0.39	3.59	0.0520	44.44	0.46	4
SPOTTAIL SHINER	21.28	0.15	24.120	513.31	3.59	7.32	0.055	6.64	0.0384	35.92	0.26	0.00	0.0000	43.24	0.31	4
BLUEGILL	15.48	0.09	24.120	373.39	2.09	10.42	0.069	0.00	0.0000	36.31	0.22	0.00	0.0000	46.73	0.29	4
WHITE PERCH	10.58	0.29	24.120	255.07	7.07	3.62	0.102	3.34	0.0887	17.81	0.50	0.00	0.0000	21.43	0.60	4
STRIPED BASS	2.01	0.36	24.120	48.55	8.74	0.78	0.141	0.45	0.0808	3.57	0.64	0.00	0.0000	4.35	0.79	4
WHITE CRAPPIE	1.80	0.04	24.120	43.38	1.06	1.48	0.032	0.00	0.0000	4.76	0.11	0.00	0.0000	6.24	0.14	4
WARMOUTH	0.91	0.01	24.120	21.86	0.29	0.13	0.004	0.65	0.0042	1.17	0.02	0.52	0.0003	1.30	0.02	4
GIZZARD SHAD	0.59	0.17	24.120	14.23	4.22	0.24	0.075	0.11	0.0258	1.07	0.32	0.00	0.0000	1.30	0.40	4
WHITE CATFISH	0.54	0.02	24.120	13.04	0.59	0.10	0.015	0.34	0.0000	0.74	0.05	0.24	0.0000	0.84	0.07	4
CHAIN PICKEREL	0.21	0.00	24.120	5.09	0.00	0.21	0.000	0.00	0.0000	0.63	0.00	0.00	0.0000	0.84	0.00	4
GOLDEN SHINER	0.18	0.00	24.120	4.43	0.02	0.18	0.001	0.00	0.0000	0.55	0.00	0.00	0.0000	0.73	0.00	4
CHANNEL CATFISH	0.17	0.00	24.120	4.18	0.04	0.17	0.002	0.00	0.0000	0.52	0.01	0.00	0.0000	0.69	0.01	4
HYBRID BASS	0.12	0.08	24.120	2.83	1.86	0.12	0.077	0.00	0.0000	0.35	0.23	0.00	0.0000	0.47	0.31	4
BROWN BULLHEAD	0.09	0.01	24.120	2.09	0.13	0.09	0.006	0.00	0.0000	0.26	0.02	0.00	0.0000	0.35	0.02	4
MADTOM	0.09	0.00	24.120	2.09	0.00	0.09	0.000	0.00	0.0000	0.26	0.00	0.00	0.0000	0.35	0.00	4
YELLOW BULLHEAD	0.07	0.00	24.120	1.60	0.03	0.07	0.001	0.00	0.0000	0.20	0.00	0.00	0.0000	0.27	0.00	4

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
LARGEMOUTH BASS	0.05	0.07	24.120	1.23	1.70	0.05	0.071	0.00
RIVER CARPSUCKER	0.04	0.07	24.120	0.94	1.66	0.04	0.069	0.00
AMERICAN EEL	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.15	0.21	0.00	0.0000	0.20	0.28	4
0.0000	0.12	0.21	0.00	0.0000	0.16	0.27	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SILVER REDHORSE	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	24.120	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	563.01	6.58		13579.85	158.81	155.65	2.774	298.02

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
2.1416	874.31	12.13	215.62	1.2107	1029.97	14.91	

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	401.14	2.12	23.250	9326.58	49.30	153.59	0.826	93.97
YELLOW PERCH	50.90	0.67	23.250	1183.32	15.63	19.70	0.251	11.49
BLUEBACK HERRING	50.60	1.32	23.250	1176.53	30.75	16.19	0.413	18.22
BLACK CRAPPIE	18.74	0.22	23.250	435.74	5.08	2.92	0.029	12.91
BLUEGILL	15.52	0.10	23.250	360.87	2.26	8.27	0.038	0.00
WHITE PERCH	10.53	0.33	23.250	244.81	7.73	3.24	0.107	4.05
SPOTTAIL SHINER	5.09	0.04	23.250	118.41	0.86	0.52	0.004	4.05
STRIPED BASS	0.81	0.09	23.250	18.75	2.13	0.33	0.040	0.16
WARMOUTH	0.75	0.01	23.250	17.54	0.31	0.29	0.005	0.18
GIZZARD SHAD	0.42	0.14	23.250	9.86	3.32	0.16	0.050	0.11
CHANNEL CATFISH	0.21	0.01	23.250	4.79	0.12	0.07	0.002	0.07
WHITE CRAPPIE	0.19	0.00	23.250	4.32	0.05	0.11	0.001	0.00
WHITE CATFISH	0.16	0.00	23.250	3.68	0.05	0.09	0.002	0.00
LARGEMOUTH BASS	0.15	0.00	23.250	3.38	0.00	0.15	0.000	0.00
SPOTTED BASS	0.15	0.00	23.250	3.38	0.00	0.15	0.000	0.00
CHAIN PICKEREL	0.11	0.00	23.250	2.47	0.00	0.11	0.000	0.00
WHITE BASS	0.04	0.01	23.250	0.99	0.20	0.04	0.009	0.00
AMERICAN EEL	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.4684	708.32	3.77	0.00	0.0000	861.91	4.60	4
0.1709	90.30	1.17	0.00	0.0000	110.00	1.42	4
0.4957	82.98	2.15	2.04	0.0823	99.17	2.56	4
0.1609	24.57	0.28	9.99	0.1320	27.49	0.31	4
0.0202	32.06	0.17	0.00	0.0000	40.33	0.21	4
0.1186	17.01	0.55	0.80	0.0115	20.25	0.65	4
0.0297	6.14	0.04	3.53	0.0260	6.66	0.05	4
0.0115	1.46	0.17	0.00	0.0000	1.78	0.21	4
0.0030	1.32	0.02	0.00	0.0000	1.61	0.03	4
0.0426	0.74	0.24	0.00	0.0000	0.90	0.29	4
0.0013	0.34	0.01	0.00	0.0000	0.41	0.01	4
0.0000	0.41	0.00	0.00	0.0000	0.52	0.01	4
0.0000	0.35	0.01	0.00	0.0000	0.44	0.01	4
0.0000	0.44	0.00	0.00	0.0000	0.58	0.00	4
0.0000	0.44	0.00	0.00	0.0000	0.58	0.00	4
0.0000	0.32	0.00	0.00	0.0000	0.43	0.00	4
0.0000	0.13	0.03	0.00	0.0000	0.17	0.04	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACKBANDED DARTR	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BLUEHEAD CHUB	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BROWN BULLHEAD	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BROWN TROUT	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
CARP	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
COASTAL SHINER	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
COOSA BASS	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
FLAT BULLHEAD	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
FLATHEAD CATFISH	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
GOLDEN SHINER	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
GREEN SUNFISH	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
HYBRID BASS	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
LONGNOSE GAR	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
MADTOM	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
MARGINED MADTOM	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
NORTHERN HOGSUCKR	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
RAINBOW TROUT	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
REDBREAST	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
REDEAR	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4

Table 1-24. (Continued).

QUARTER=APR 1994 TO JUN 1994 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RIVER CARPSUCKER	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	23.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	555.50	5.07		12915.40	117.80	205.91	1.778	145.20

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
1.5227	967.32	8.62	16.36	0.2519	1173.23	10.40	

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1128.16	4.62	22.890	25823.62	105.85	526.29	2.426	75.58
YELLOW PERCH	96.22	1.04	22.890	2202.44	23.87	51.85	0.599	0.00
BLUEGILL	31.56	0.16	22.890	722.36	3.74	14.80	0.080	1.96
WHITE PERCH	7.84	0.19	22.890	179.52	4.45	0.99	0.043	5.86
BLACK CRAPPIE	6.73	0.11	22.890	154.09	2.50	0.92	0.017	4.89
BLUEBACK HERRING	5.64	0.17	22.890	129.15	3.80	1.51	0.047	2.62
WHITE CATFISH	2.24	0.12	22.890	51.32	2.86	0.71	0.040	0.82
GIZZARD SHAD	2.10	0.68	22.890	48.12	15.48	0.74	0.224	0.61
BROWN BULLHEAD	1.76	0.09	22.890	40.30	2.01	0.81	0.041	0.14
WARMOUTH	0.90	0.03	22.890	20.51	0.64	0.52	0.017	0.00
LARGEMOUTH BASS	0.75	0.00	22.890	17.08	0.05	0.61	0.002	0.00
SPOTTAIL SHINER	0.64	0.01	22.890	14.64	0.12	0.13	0.001	0.38
CHANNEL CATFISH	0.48	0.01	22.890	10.94	0.30	0.28	0.008	0.00
GOLDEN SHINER	0.21	0.01	22.890	4.91	0.14	0.14	0.006	0.00
FLATHEAD CATFISH	0.17	0.00	22.890	3.80	0.03	0.10	0.001	0.00
CHAIN PICKEREL	0.16	0.00	22.890	3.58	0.02	0.16	0.001	0.00
YELLOW BULLHEAD	0.14	0.00	22.890	3.15	0.10	0.14	0.004	0.00
HYBRID BASS	0.12	0.12	22.890	2.78	2.83	0.12	0.124	0.00
TESSELATED DARTR	0.11	0.00	22.890	2.50	0.02	0.11	0.001	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	2180.74	9.48	0.00	0.0000	2707.03	11.90	4
0.0000	199.93	2.24	0.00	0.0000	251.78	2.84	4
0.0034	61.15	0.32	0.00	0.0000	75.95	0.40	4
0.1086	9.82	0.28	4.87	0.0658	10.81	0.32	4
0.0741	8.58	0.14	3.96	0.0567	9.50	0.16	4
0.0711	8.66	0.26	1.11	0.0237	10.17	0.31	4
0.0455	3.66	0.20	0.11	0.0058	4.37	0.24	4
0.2280	3.59	1.12	0.00	0.0038	4.33	1.35	4
0.0056	3.38	0.17	0.00	0.0000	4.19	0.21	4
0.0000	1.93	0.06	0.00	0.0000	2.45	0.08	4
0.0000	1.96	0.01	0.00	0.0000	2.57	0.01	4
0.0029	0.90	0.01	0.25	0.0018	1.03	0.01	4
0.0000	1.04	0.03	0.00	0.0000	1.32	0.04	4
0.0000	0.49	0.02	0.00	0.0000	0.62	0.02	4
0.0000	0.36	0.00	0.00	0.0000	0.46	0.00	4
0.0000	0.47	0.00	0.00	0.0000	0.63	0.00	4
0.0000	0.41	0.01	0.00	0.0000	0.55	0.02	4
0.0000	0.36	0.37	0.00	0.0000	0.49	0.49	4
0.0000	0.33	0.00	0.00	0.0000	0.44	0.00	4

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
TADPOLE MADTOM	0.07	0.00	22.890	1.58	0.02	0.07	0.001	0.00	0.0000	0.21	0.00	0.00	0.0000	0.28	0.00	4
STRIPED BASS	0.06	0.01	22.890	1.32	0.24	0.06	0.010	0.00	0.0000	0.17	0.03	0.00	0.0000	0.23	0.04	4
AMERICAN EEL	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BLACK BULLHEAD	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BLACKBANDED DARTR	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BLUEHEAD CHUB	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
BROWN TROUT	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
CARP	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
COASTAL SHINER	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
COOSA BASS	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
FLAT BULLHEAD	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
GREEN SUNFISH	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
LONGNOSE GAR	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
MADTOM	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
MARGINED MADTOM	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
NORTHERN HOGSUCKR	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
RAINBOW TROUT	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
REDBREAST	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
REDEAR	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RIVER CARPSUCKER	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	22.890	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1286.05	7.39		29437.72	169.05	601.05	3.693	92.88

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	4
0.5393	2488.16	14.77	10.31	0.1576	3089.21	18.46	

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	147.60	0.64	30.750	4538.72	19.61	52.76	0.209	42.09
YELLOW PERCH	52.71	1.02	30.750	1620.96	31.40	12.11	0.349	28.48
BLUEGILL	21.90	0.26	30.750	673.51	8.10	11.89	0.154	0.00
BLUEBACK HERRING	21.71	0.32	30.750	667.56	9.97	8.62	0.094	4.46
BLACK CRAPPIE	13.48	0.37	30.750	414.50	11.36	8.16	0.240	0.00
GIZZARD SHAD	12.35	0.66	30.750	379.91	20.26	6.87	0.176	0.00
WHITE PERCH	10.98	0.79	30.750	337.79	24.36	5.39	0.485	0.21
WHITE CATFISH	7.24	0.36	30.750	222.77	11.16	1.97	0.107	3.30
CHANNEL CATFISH	5.21	0.12	30.750	160.13	3.66	1.86	0.058	1.48
BROWN BULLHEAD	1.48	0.14	30.750	45.54	4.20	0.37	0.054	0.74
WARMOUTH	1.11	0.04	30.750	34.07	1.27	0.71	0.028	0.00
HYBRID BASS	0.91	0.59	30.750	27.97	18.05	0.57	0.369	0.00
LARGEMOUTH BASS	0.87	0.00	30.750	26.65	0.07	0.52	0.001	0.00
SPOTTAIL SHINER	0.79	0.00	30.750	24.17	0.07	0.51	0.002	0.00
STRIPED BASS	0.59	0.30	30.750	18.08	9.10	0.44	0.211	0.00
WHITE CRAPPIE	0.50	0.01	30.750	15.23	0.32	0.39	0.008	0.00
BLUEHEAD CHUB	0.47	0.00	30.750	14.35	0.00	0.47	0.000	0.00
GOLDEN SHINER	0.29	0.00	30.750	8.89	0.09	0.24	0.002	0.00
COASTAL SHINER	0.25	0.00	30.750	7.69	0.01	0.25	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.2196	253.11	1.06	0.00	0.0107	305.87	1.26	7
0.3227	76.94	1.72	16.37	0.0000	89.06	2.07	7
0.0000	45.68	0.57	0.00	0.0000	57.58	0.73	7
0.1365	38.96	0.51	0.00	0.0426	47.58	0.61	7
0.0000	29.79	0.85	0.00	0.0000	37.95	1.09	7
0.3072	26.10	1.01	0.00	0.1314	32.97	1.19	7
0.0000	21.76	1.76	0.00	0.0000	27.14	2.25	7
0.1484	11.19	0.58	1.33	0.0411	13.16	0.68	7
0.0039	8.93	0.23	0.00	0.0000	10.80	0.29	7
0.0281	2.22	0.24	0.37	0.0000	2.59	0.30	7
0.0000	2.53	0.10	0.00	0.0000	3.24	0.12	7
0.0000	2.04	1.32	0.00	0.0000	2.61	1.69	7
0.0000	1.91	0.01	0.00	0.0000	2.43	0.01	7
0.0000	1.80	0.01	0.00	0.0000	2.31	0.01	7
0.0000	1.47	0.72	0.00	0.0000	1.91	0.93	7
0.0000	1.28	0.03	0.00	0.0000	1.67	0.03	7
0.0000	1.40	0.00	0.00	0.0000	1.87	0.00	7
0.0000	0.78	0.01	0.00	0.0000	1.02	0.01	7
0.0000	0.75	0.00	0.00	0.0000	1.00	0.00	7

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
YELLOW BULLHEAD	0.15	0.00	30.750	4.50	0.13	0.15	0.004	0.00	0.0000	0.44	0.01	0.00	0.0000	0.59	0.02	7
RAINBOW TROUT	0.11	0.08	30.750	3.40	2.35	0.06	0.038	0.00	0.0000	0.22	0.15	0.00	0.0000	0.28	0.19	7
AMERICAN EEL	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
BLACK BULLHEAD	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
BLACKBANDED DARTR	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
BLUE CATFISH	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
BROWN TROUT	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
CARP	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
CHAIN PICKEREL	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
COOSA BASS	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
FLAT BULLHEAD	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
FLATHEAD CATFISH	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
FLIER	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
GREEN SUNFISH	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
LONGNOSE GAR	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
MADTOM	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
MARGINED MADTOM	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
NORTHERN HOGSUCKR	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
PUMPKINSEED	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7

Table 1-24. (Continued).

QUARTER=JUL 1994 TO SEP 1994 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
REDBREAST	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	30.750	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	300.70	5.71		9246.39	175.55	114.30	2.589	80.78

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	7
1.1664	529.30	10.89	18.07	0.2258	643.60	13.48	

Table 1-24. (Continued).

QUARTER=JAN 1995 TO MAR 1995 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	2585.38	20.47	18.100	46795.38	370.50	2496.52	19.324	0.00
THREADFIN SHAD	2290.84	9.12	18.100	41464.16	165.04	1383.76	7.399	0.00
YELLOW PERCH	295.39	5.00	18.100	5346.51	90.58	102.58	2.642	90.23
SPOTTAIL SHINER	36.75	0.36	18.100	665.16	6.54	8.18	0.066	20.38
WHITE PERCH	32.24	2.56	18.100	583.61	46.42	13.51	1.024	5.22
HYBRID BASS	10.09	7.10	18.100	182.71	128.48	3.41	2.669	3.27
BLACK CRAPPIE	3.05	0.16	18.100	55.17	2.93	3.05	0.162	0.00
CHANNEL CATFISH	2.49	0.44	18.100	45.02	8.04	1.33	0.222	0.00
BLUEGILL	2.36	0.04	18.100	42.79	0.79	0.90	0.019	0.56
GIZZARD SHAD	2.08	0.62	18.100	37.56	11.15	0.72	0.204	0.64
WHITE CATFISH	2.05	0.06	18.100	37.14	1.04	1.40	0.035	0.00
GOLDEN SHINER	1.85	0.00	18.100	33.45	0.05	1.72	0.002	0.00
STRIPED BASS	1.82	0.30	18.100	32.87	5.38	0.79	0.119	0.23
BROWN BULLHEAD	0.73	0.06	18.100	13.30	1.01	0.42	0.032	0.00
WHITE CRAPPIE	0.63	0.04	18.100	11.34	0.67	0.38	0.023	0.00
WHITE BASS	0.41	0.05	18.100	7.40	0.98	0.28	0.054	0.00
BLACK BULLHEAD	0.21	0.00	18.100	3.85	0.02	0.21	0.001	0.00
WARMOUTH	0.21	0.01	18.100	3.81	0.09	0.15	0.004	0.00
TESSELATED DARTR	0.08	0.00	18.100	1.52	0.01	0.08	0.001	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	7578.41	59.12	0.00	0.0000	10074.93	78.44	5
0.0000	5058.35	23.92	0.00	0.0000	6442.11	31.32	5
0.0000	500.55	10.29	0.00	0.0000	603.13	12.93	5
0.2296	53.12	0.49	12.20	0.1639	61.30	0.56	5
0.5168	59.27	4.61	0.00	0.0000	72.78	5.64	5
1.7603	16.92	12.44	0.00	0.0000	20.34	15.11	5
0.0000	9.15	0.49	0.00	0.0000	12.19	0.65	5
0.0000	5.15	0.89	0.00	0.0000	6.48	1.11	5
0.0060	4.17	0.08	0.00	0.0000	5.07	0.10	5
0.2085	3.51	1.02	0.00	0.0046	4.23	1.23	5
0.0000	4.86	0.13	0.00	0.0000	6.26	0.16	5
0.0000	5.28	0.01	0.00	0.0000	6.99	0.01	5
0.0589	3.40	0.54	0.00	0.0000	4.19	0.66	5
0.0000	1.57	0.12	0.00	0.0000	1.99	0.15	5
0.0000	1.39	0.08	0.00	0.0000	1.78	0.11	5
0.0000	0.97	0.16	0.00	0.0000	1.25	0.22	5
0.0000	0.64	0.00	0.00	0.0000	0.85	0.00	5
0.0000	0.50	0.01	0.00	0.0000	0.65	0.02	5
0.0000	0.25	0.00	0.00	0.0000	0.34	0.00	5

Table 1-24. (Continued).

QUARTER=JAN 1995 TO MAR 1995 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RIVER CARPSUCKER	0.08	0.10	18.100	1.39	1.73	0.08	0.096	0.00	0.0000	0.23	0.29	0.00	0.0000	0.31	0.38	5
AMERICAN EEL	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLACKBANDED DARTR	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLUE CATFISH	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BLUEHEAD CHUB	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
BROWN TROUT	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
CARP	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
CHAIN PICKEREL	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COASTAL SHINER	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COOSA BASS	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLAT BULLHEAD	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLATHEAD CATFISH	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLIER	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
GREEN SUNFISH	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
LARGEMOUTH BASS	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
LONGNOSE GAR	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MADTOM	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MARGINED MADTOM	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
NORTHERN HOGSUCKR	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5

Table 1-24. (Continued).

QUARTER=JAN 1995 TO MAR 1995 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
PUMPKINSEED	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	18.100	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	5268.74	46.49		95364.14	841.46	4019.48	34.096	120.52

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
2.7800	13307.69	114.68	12.20	0.1684	17327.17	148.78	

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	3239.50	26.17	37.000	119861.39	968.45	2292.55	19.102	0.00
THREADFIN SHAD	225.10	0.70	37.000	8328.67	25.81	95.23	0.230	34.64
YELLOW PERCH	86.11	1.23	37.000	3185.89	45.49	26.99	0.421	32.12
WHITE PERCH	47.84	2.80	37.000	1770.12	103.74	16.10	0.758	15.65
WHITE CRAPPIE	25.43	1.40	37.000	940.91	51.92	11.89	0.636	1.64
BLUEGILL	14.17	0.11	37.000	524.20	4.03	3.36	0.027	7.44
SPOTTAIL SHINER	9.24	0.10	37.000	342.01	3.86	3.26	0.038	2.71
BLACK CRAPPIE	5.34	0.13	37.000	197.46	4.85	2.69	0.063	0.00
GIZZARD SHAD	3.68	0.85	37.000	136.33	31.40	1.37	0.328	0.94
WHITE CATFISH	2.91	0.16	37.000	107.63	6.05	0.94	0.073	1.03
CHANNEL CATFISH	2.23	0.16	37.000	82.43	5.81	0.40	0.046	1.42
HYBRID BASS	1.97	2.20	37.000	72.71	81.58	0.68	0.798	0.61
GOLDEN SHINER	1.55	0.00	37.000	57.32	0.16	0.88	0.003	0.00
WHITE BASS	0.58	0.07	37.000	21.55	2.63	0.28	0.034	0.03
GREEN SUNFISH	0.54	0.01	37.000	20.16	0.25	0.30	0.004	0.00
WARMOUTH	0.50	0.02	37.000	18.48	0.71	0.24	0.011	0.02
STRIPED BASS	0.45	0.22	37.000	16.78	8.23	0.18	0.157	0.09
BROWN BULLHEAD	0.14	0.04	37.000	5.04	1.30	0.09	0.035	0.00
SILVER REDHORSE	0.11	0.19	37.000	4.19	7.06	0.08	0.148	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	7824.60	64.38	0.00	0.0000	10117.15	83.48	14
0.2365	415.56	1.16	0.00	0.0060	510.79	1.39	14
0.3864	140.09	2.07	5.13	0.0000	167.08	2.49	14
1.2875	80.04	4.32	0.00	0.5293	96.13	5.08	14
0.1309	49.22	2.68	0.00	0.0000	61.11	3.31	14
0.0552	20.89	0.16	4.08	0.0283	24.25	0.19	14
0.0284	15.77	0.18	0.00	0.0000	19.04	0.22	14
0.0055	10.71	0.26	0.00	0.0000	13.39	0.32	14
0.1922	6.43	1.51	0.00	0.0000	7.80	1.83	14
0.0184	4.79	0.31	0.09	0.0000	5.72	0.38	14
0.0651	3.03	0.25	1.02	0.0192	3.43	0.29	14
0.6082	3.32	3.80	0.00	0.0000	4.00	4.60	14
0.0000	3.31	0.01	0.00	0.0000	4.19	0.01	14
0.0030	1.14	0.14	0.00	0.0000	1.41	0.17	14
0.0000	1.15	0.01	0.00	0.0000	1.45	0.02	14
0.0000	0.98	0.04	0.00	0.0000	1.21	0.05	14
0.0000	0.82	0.54	0.00	0.0000	1.00	0.69	14
0.0000	0.32	0.11	0.00	0.0000	0.42	0.14	14
0.0000	0.27	0.49	0.00	0.0000	0.35	0.63	14

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
CARP	0.10	0.59	37.000	3.70	21.89	0.09	0.541	0.00
LONGNOSE GAR	0.01	0.02	37.000	0.42	0.62	0.01	0.017	0.00
AMERICAN EEL	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	37.000	0.00	0.00	.	.	0.00
BLUEHEAD CHUB	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	37.000	0.00	0.00	.	.	0.00
LARGEMOUTH BASS	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	37.000	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.28	1.67	0.00	0.0000	0.36	2.21	14
0.0000	0.03	0.05	0.00	0.0000	0.05	0.07	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	.	.	0.00	0.0000	.	.	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	.	.	0.00	0.0000	.	.	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	.	.	0.00	0.0000	.	.	14

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RAINBOW TROUT	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	37.000	0.00	0.00	.	.	0.00
REDEAR	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	37.000	0.00	0.00	.	.	0.00
TADPOLE MADTOM	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	37.000	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	3667.50	37.19		135697.39	1375.85	2457.62	23.470	98.35

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	.	.	0.00	0.0000	.	.	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	.	.	0.00	0.0000	.	.	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	14
3.0174	8582.74	84.13	10.33	0.5828	11040.36	107.60	

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	156.86	1.45	23.000	3607.67	33.32	26.70	0.254	103.46
WHITE PERCH	63.95	3.92	23.000	1470.96	90.20	15.49	1.096	32.98
YELLOW PERCH	61.06	0.89	23.000	1404.39	20.42	6.87	0.087	47.32
BLACK CRAPPIE	52.84	0.88	23.000	1215.41	20.33	11.47	0.204	29.91
SPOTTAIL SHINER	41.50	0.45	23.000	954.52	10.25	17.80	0.185	5.89
THREADFIN SHAD	37.56	0.23	23.000	863.85	5.37	17.60	0.107	2.36
WHITE CRAPPIE	8.71	0.34	23.000	200.36	7.74	3.13	0.094	2.46
WHITE CATFISH	1.64	0.03	23.000	37.64	0.79	0.33	0.015	0.97
STRIPED BASS	1.05	0.05	23.000	24.21	1.06	0.47	0.020	0.11
WARMOUTH	0.69	0.02	23.000	15.93	0.56	0.33	0.013	0.04
BLUEGILL	0.37	0.01	23.000	8.42	0.13	0.26	0.004	0.00
BROWN BULLHEAD	0.25	0.01	23.000	5.65	0.31	0.18	0.011	0.00
SILVER REDHORSE	0.21	0.00	23.000	4.79	0.05	0.21	0.002	0.00
HYBRID BASS	0.09	0.09	23.000	2.02	2.05	0.09	0.089	0.00
LONGNOSE GAR	0.09	0.14	23.000	2.02	3.27	0.09	0.142	0.00
BLACK BULLHEAD	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
CHANNEL CATFISH	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.9401	210.25	1.96	76.76	0.6859	236.95	2.21	13
1.7300	94.93	6.11	17.49	0.6342	110.42	7.21	13
0.7138	74.80	1.06	40.44	0.6267	81.68	1.15	13
0.4753	75.78	1.29	18.44	0.2710	87.25	1.50	13
0.0758	77.11	0.82	0.00	0.0000	94.91	1.00	13
0.0190	72.76	0.45	0.00	0.0000	90.36	0.56	13
0.1483	14.96	0.52	0.00	0.0542	18.09	0.62	13
0.0043	2.30	0.06	0.64	0.0000	2.63	0.08	13
0.0059	2.00	0.09	0.00	0.0000	2.47	0.11	13
0.0000	1.35	0.05	0.00	0.0000	1.67	0.06	13
0.0000	0.89	0.01	0.00	0.0000	1.16	0.02	13
0.0000	0.60	0.03	0.00	0.0000	0.78	0.05	13
0.0000	0.63	0.01	0.00	0.0000	0.83	0.01	13
0.0000	0.26	0.27	0.00	0.0000	0.35	0.36	13
0.0000	0.26	0.43	0.00	0.0000	0.35	0.57	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
FLATHEAD CATFISH	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
GIZZARD SHAD	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	23.000	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	426.86	8.52		9817.85	195.85	101.02	2.323	225.48

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
4.1127	628.90	13.16	153.76	2.2720	729.92	15.49	

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLACK CRAPPIE	272.13	3.84	18.410	5009.82	70.67	184.90	2.675	0.00
BLUEBACK HERRING	103.52	1.02	18.410	1905.88	18.74	34.07	0.342	35.38
YELLOW PERCH	78.14	0.86	18.410	1438.59	15.77	24.76	0.263	28.63
WHITE CRAPPIE	13.21	0.39	18.410	243.18	7.19	10.57	0.301	0.00
THREADFIN SHAD	10.08	0.07	18.410	185.66	1.25	6.41	0.044	0.00
BLUEGILL	5.74	0.05	18.410	105.74	0.98	3.58	0.031	0.00
WHITE PERCH	2.65	0.12	18.410	48.71	2.28	1.11	0.052	0.43
SPOTTAIL SHINER	2.57	0.03	18.410	47.25	0.59	1.75	0.021	0.00
WHITE CATFISH	2.03	0.02	18.410	37.31	0.32	0.46	0.006	1.11
CHANNEL CATFISH	0.87	0.05	18.410	16.00	0.94	0.70	0.044	0.00
COOSA BASS	0.80	0.01	18.410	14.78	0.15	0.70	0.008	0.00
STRIPED BASS	0.41	0.13	18.410	7.47	2.36	0.38	0.118	0.00
WARMOUTH	0.34	0.01	18.410	6.21	0.13	0.21	0.004	0.00
BROWN BULLHEAD	0.26	0.03	18.410	4.81	0.57	0.14	0.026	0.00
WHITE BASS	0.15	0.08	18.410	2.68	1.55	0.10	0.059	0.00
BLACK BULLHEAD	0.12	0.01	18.410	2.18	0.10	0.12	0.006	0.00
NORTHERN HOGSUCKR	0.09	0.00	18.410	1.60	0.00	0.09	0.000	0.00
TESSELATED DARTR	0.08	0.00	18.410	1.52	0.01	0.08	0.001	0.00
GIZZARD SHAD	0.06	0.02	18.410	1.15	0.40	0.04	0.015	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	641.92	9.19	0.00	0.0000	826.81	11.86	12
0.3332	171.67	1.70	1.30	0.0000	205.75	2.05	12
0.3295	127.65	1.38	3.88	0.0661	152.41	1.65	12
0.0000	34.34	0.99	0.00	0.0000	44.91	1.29	12
0.0000	22.90	0.16	0.00	0.0000	29.31	0.20	12
0.0000	12.90	0.12	0.00	0.0000	16.49	0.15	12
0.0209	4.86	0.23	0.00	0.0000	5.97	0.28	12
0.0000	6.06	0.07	0.00	0.0000	7.80	0.09	12
0.0048	2.94	0.03	0.66	0.0000	3.40	0.04	12
0.0000	2.27	0.14	0.00	0.0000	2.98	0.18	12
0.0000	2.19	0.02	0.00	0.0000	2.89	0.03	12
0.0000	1.16	0.36	0.00	0.0000	1.54	0.48	12
0.0000	0.75	0.02	0.00	0.0000	0.96	0.02	12
0.0000	0.54	0.08	0.00	0.0000	0.68	0.11	12
0.0000	0.35	0.20	0.00	0.0000	0.46	0.26	12
0.0000	0.35	0.02	0.00	0.0000	0.47	0.02	12
0.0000	0.26	0.00	0.00	0.0000	0.35	0.00	12
0.0000	0.25	0.00	0.00	0.0000	0.33	0.00	12
0.0000	0.15	0.05	0.00	0.0000	0.19	0.07	12

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
AMERICAN EEL	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
HYBRID BASS	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12

Table 1-24. (Continued).

QUARTER=APR 1995 TO JUN 1995 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RAINBOW TROUT	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
REDBREAST	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
REDBREAST SUNFISH	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
REDEAR	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
RIVER CARPSUCKER	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
SILVER REDHORSE	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
SPOTTED BASS	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
STRIPED KILLIFISH	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
TADPOLE MADTOM	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
WHITEFIN SHINER	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
YELLOW BULLHEAD	0.00	0.00	18.410	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	12
MONTHLY SUM	493.24	6.74		9080.54	124.02	270.15	4.016	65.55	0.6883	1033.54	14.77	5.84	0.0661	1303.69	18.78	

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	1075.28	9.51	27.890	29989.47	265.19	449.75	3.935	175.77
THREADFIN SHAD	203.25	0.65	27.890	5668.71	18.04	141.70	0.485	0.00
BLACK CRAPPIE	107.62	1.29	27.890	3001.41	35.94	65.01	0.708	0.00
YELLOW PERCH	47.42	0.57	27.890	1322.60	15.99	17.84	0.206	11.74
BLUEGILL	14.13	0.18	27.890	394.05	5.04	4.48	0.069	5.17
WHITE CRAPPIE	3.41	0.14	27.890	95.19	3.84	2.56	0.085	0.00
SPOTTAIL SHINER	2.48	0.03	27.890	69.17	0.90	2.18	0.025	0.00
WHITE PERCH	2.21	0.15	27.890	61.74	4.07	0.73	0.062	0.76
CHANNEL CATFISH	1.28	0.01	27.890	35.61	0.20	0.38	0.004	0.52
WHITE CATFISH	1.18	0.03	27.890	33.05	0.81	0.25	0.016	0.68
GREEN SUNFISH	0.78	0.01	27.890	21.76	0.14	0.78	0.005	0.00
SPOTTED BASS	0.58	0.00	27.890	16.16	0.02	0.33	0.000	0.00
GIZZARD SHAD	0.55	0.01	27.890	15.26	0.39	0.35	0.010	0.00
CARP	0.34	0.50	27.890	9.42	13.95	0.34	0.500	0.00
TESSELATED DARTR	0.25	0.00	27.890	7.00	0.07	0.19	0.002	0.00
BROWN BULLHEAD	0.19	0.01	27.890	5.36	0.17	0.15	0.006	0.00
WARMOUTH	0.10	0.00	27.890	2.86	0.02	0.10	0.001	0.00
HYBRID BASS	0.10	0.06	27.890	2.71	1.76	0.07	0.048	0.00
FLATHEAD CATFISH	0.08	0.01	27.890	2.32	0.16	0.06	0.005	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.6384	1974.78	17.38	0.00	0.0000	2424.53	21.31	15
0.0000	486.65	1.62	0.00	0.0000	628.35	2.10	15
0.0000	237.65	2.70	0.00	0.0000	302.66	3.41	15
0.1619	83.10	0.98	0.00	0.0000	100.95	1.19	15
0.0436	23.09	0.32	0.69	0.0000	27.57	0.39	15
0.0000	8.52	0.31	0.00	0.0000	11.08	0.39	15
0.0000	6.83	0.08	0.00	0.0000	9.01	0.11	15
0.0215	3.67	0.27	0.04	0.0000	4.39	0.33	15
0.0000	2.03	0.01	0.14	0.0000	2.41	0.02	15
0.0000	1.69	0.06	0.42	0.0000	1.95	0.08	15
0.0000	2.34	0.02	0.00	0.0000	3.12	0.02	15
0.0000	1.24	0.00	0.00	0.0000	1.57	0.00	15
0.0000	1.24	0.03	0.00	0.0000	1.59	0.04	15
0.0000	1.01	1.50	0.00	0.0000	1.35	2.00	15
0.0000	0.63	0.01	0.00	0.0000	0.83	0.01	15
0.0000	0.49	0.02	0.00	0.0000	0.63	0.02	15
0.0000	0.31	0.00	0.00	0.0000	0.41	0.00	15
0.0000	0.24	0.16	0.00	0.0000	0.31	0.21	15
0.0000	0.20	0.02	0.00	0.0000	0.26	0.02	15

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLUE CATFISH	0.06	0.00	27.890	1.80	0.00	0.06	0.000	0.00	0.0000	0.19	0.00	0.00	0.0000	0.26	0.00	15
STRIPED BASS	0.03	0.01	27.890	0.83	0.33	0.03	0.012	0.00	0.0000	0.09	0.04	0.00	0.0000	0.12	0.05	15
AMERICAN EEL	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
BLACK BULLHEAD	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
BLACKBANDED DARTR	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
BLUEHEAD CHUB	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
BROWN TROUT	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
CHAIN PICKEREL	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
COASTAL SHINER	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
COOSA BASS	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
FLAT BULLHEAD	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
FLIER	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
GOLDEN SHINER	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
LARGEMOUTH BASS	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
LONGNOSE GAR	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
MADTOM	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
MARGINED MADTOM	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
NORTHERN HOGSUCKR	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
PUMPKINSEED	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RAINBOW TROUT	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	27.890	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1461.33	13.16		40756.47	367.02	687.34	6.183	194.64

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	15
1.8654	2836.01	25.52	1.29	0.0000	3523.34	31.71	

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	5112.31	48.80	30.700	156947.81	1498.07	2554.03	23.787	4.25
THREADFIN SHAD	199.98	0.45	30.700	6139.46	13.94	55.15	0.146	89.68
BLACK CRAPPIE	10.82	0.17	30.700	332.31	5.36	4.16	0.066	2.50
YELLOW PERCH	7.61	0.13	30.700	233.75	3.95	2.41	0.057	2.79
WHITE PERCH	4.08	0.24	30.700	125.21	7.22	1.90	0.103	0.27
BLUEGILL	3.07	0.03	30.700	94.10	0.85	1.56	0.012	0.00
YELLOW BULLHEAD	1.33	0.01	30.700	40.77	0.35	0.93	0.007	0.00
CHANNEL CATFISH	1.02	0.01	30.700	31.17	0.20	0.30	0.004	0.42
BROWN BULLHEAD	0.83	0.08	30.700	25.37	2.39	0.32	0.036	0.19
WHITE CATFISH	0.77	0.02	30.700	23.54	0.67	0.27	0.011	0.23
GIZZARD SHAD	0.59	0.24	30.700	18.14	7.51	0.20	0.080	0.20
MARGINED MADTOM	0.21	0.00	30.700	6.31	0.00	0.21	0.000	0.00
BLUE CATFISH	0.19	0.00	30.700	5.94	0.00	0.19	0.000	0.00
SPOTTED BASS	0.18	0.00	30.700	5.43	0.01	0.18	0.000	0.00
WHITEFIN SHINER	0.17	0.00	30.700	5.14	0.06	0.17	0.002	0.00
WHITE CRAPPIE	0.16	0.00	30.700	4.83	0.11	0.16	0.004	0.00
PUMPKINSEED	0.12	0.00	30.700	3.83	0.00	0.12	0.000	0.00
HYBRID BASS	0.07	0.03	30.700	2.19	0.96	0.07	0.031	0.00
STRIPED BASS	0.07	0.09	30.700	2.19	2.67	0.07	0.087	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.2240	10220.37	96.37	0.00	0.0000	12774.39	120.16	16
0.1627	310.29	0.75	34.53	0.0170	365.44	0.89	16
0.0416	19.15	0.31	0.00	0.0000	23.32	0.37	16
0.0151	12.44	0.24	0.38	0.0000	14.85	0.30	16
0.0292	7.89	0.44	0.00	0.0000	9.79	0.54	16
0.0046	6.18	0.05	0.00	0.0000	7.73	0.06	16
0.0000	3.18	0.03	0.00	0.0000	4.11	0.03	16
0.0000	1.61	0.01	0.12	0.0000	1.91	0.02	16
0.0061	1.46	0.15	0.00	0.0000	1.78	0.19	16
0.0000	1.30	0.04	0.00	0.0000	1.56	0.06	16
0.0846	0.99	0.40	0.00	0.0046	1.18	0.48	16
0.0000	0.62	0.00	0.00	0.0000	0.82	0.00	16
0.0000	0.58	0.00	0.00	0.0000	0.77	0.00	16
0.0000	0.53	0.00	0.00	0.0000	0.71	0.00	16
0.0000	0.50	0.01	0.00	0.0000	0.67	0.01	16
0.0000	0.47	0.01	0.00	0.0000	0.63	0.01	16
0.0000	0.37	0.00	0.00	0.0000	0.50	0.00	16
0.0000	0.21	0.09	0.00	0.0000	0.29	0.13	16
0.0000	0.21	0.26	0.00	0.0000	0.29	0.35	16

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
BLACK BULLHEAD	0.07	0.04	30.700	2.04	1.09	0.07	0.036	0.00	0.0000	0.20	0.11	0.00	0.0000	0.27	0.14	16
CARP	0.04	0.05	30.700	1.23	1.53	0.04	0.050	0.00	0.0000	0.12	0.15	0.00	0.0000	0.16	0.20	16
WARMOUTH	0.03	0.00	30.700	0.89	0.02	0.03	0.001	0.00	0.0000	0.09	0.00	0.00	0.0000	0.12	0.00	16
AMERICAN EEL	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLACKBANDED DARTR	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLUEHEAD CHUB	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BROWN TROUT	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CHAIN PICKEREL	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COASTAL SHINER	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COOSA BASS	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLAT BULLHEAD	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLATHEAD CATFISH	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLIER	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
GOLDEN SHINER	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
GREEN SUNFISH	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
LARGEMOUTH BASS	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
LONGNOSE GAR	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
MADTOM	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
NORTHERN HOGSUCKR	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RAINBOW TROUT	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
SPOTTAIL SHINER	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	30.700	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	5343.70	50.39		164051.64	1546.96	2622.53	24.519	100.52

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
1.5678	10588.76	99.43	35.03	0.0217	13211.28	123.95	

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	237.16	4.26	28.920	6858.63	123.11	225.48	4.101	0.00
THREADFIN SHAD	41.23	0.14	28.920	1192.52	4.02	15.84	0.061	9.56
BLACK CRAPPIE	7.58	0.22	28.920	219.11	6.29	3.68	0.081	0.22
WHITE CATFISH	5.80	0.22	28.920	167.70	6.37	1.42	0.058	2.96
YELLOW PERCH	4.47	0.06	28.920	129.41	1.82	2.63	0.035	0.00
WHITE PERCH	3.08	0.35	28.920	89.09	10.18	1.08	0.088	0.93
BLUEGILL	2.28	0.04	28.920	66.03	1.15	1.56	0.022	0.00
CHANNEL CATFISH	0.96	0.03	28.920	27.78	0.92	0.43	0.013	0.10
WHITE CRAPPIE	0.42	0.05	28.920	12.15	1.54	0.19	0.035	0.04
GIZZARD SHAD	0.36	0.16	28.920	10.38	4.57	0.17	0.075	0.01
BLACK BULLHEAD	0.29	0.02	28.920	8.28	0.51	0.15	0.014	0.00
BROWN BULLHEAD	0.18	0.02	28.920	5.21	0.64	0.12	0.016	0.00
REDBREAST SUNFISH	0.15	0.01	28.920	4.27	0.32	0.15	0.011	0.00
SPOTTAIL SHINER	0.12	0.00	28.920	3.55	0.03	0.12	0.001	0.00
FLATHEAD CATFISH	0.08	0.00	28.920	2.37	0.01	0.08	0.000	0.00
LARGEMOUTH BASS	0.06	0.00	28.920	1.66	0.00	0.06	0.000	0.00
TESSELATED DARTR	0.06	0.00	28.920	1.66	0.02	0.06	0.001	0.00
WARMOUTH	0.05	0.00	28.920	1.58	0.06	0.05	0.002	0.00
GOLDEN SHINER	0.05	0.00	28.920	1.33	0.07	0.05	0.002	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	688.11	12.46	0.00	0.0000	913.59	16.56	13
0.0168	72.91	0.26	0.00	0.0000	88.75	0.32	13
0.0546	14.93	0.38	0.00	0.0000	18.61	0.46	13
0.1036	8.64	0.34	1.54	0.0453	10.05	0.40	13
0.0000	9.73	0.13	0.00	0.0000	12.35	0.17	13
0.1750	5.24	0.53	0.00	0.0865	6.31	0.62	13
0.0000	5.40	0.08	0.00	0.0000	6.96	0.10	13
0.0054	1.82	0.06	0.00	0.0000	2.25	0.07	13
0.0000	0.80	0.12	0.00	0.0000	0.99	0.16	13
0.0083	0.71	0.31	0.00	0.0000	0.88	0.38	13
0.0000	0.60	0.05	0.00	0.0000	0.75	0.06	13
0.0000	0.43	0.05	0.00	0.0000	0.55	0.07	13
0.0000	0.44	0.03	0.00	0.0000	0.59	0.04	13
0.0000	0.37	0.00	0.00	0.0000	0.49	0.00	13
0.0000	0.25	0.00	0.00	0.0000	0.33	0.00	13
0.0000	0.17	0.00	0.00	0.0000	0.23	0.00	13
0.0000	0.17	0.00	0.00	0.0000	0.23	0.00	13
0.0000	0.16	0.01	0.00	0.0000	0.22	0.01	13
0.0000	0.14	0.01	0.00	0.0000	0.18	0.01	13

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WHITE BASS	0.03	0.02	28.920	0.74	0.51	0.03	0.017	0.00
AMERICAN EEL	0.00	0.00	28.920	0.00	0.00	.	.	0.00
BLACKBANDED DARTR	0.00	0.00	28.920	0.00	0.00	.	.	0.00
BLUE CATFISH	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	28.920	0.00	0.00	.	.	0.00
BROWN TROUT	0.00	0.00	28.920	0.00	0.00	.	.	0.00
CARP	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	28.920	0.00	0.00	.	.	0.00
FLIER	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
HYBRID BASS	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	28.920	0.00	0.00	.	.	0.00
MARGINED MADTOM	0.00	0.00	28.920	0.00	0.00	.	.	0.00
NORTHERN HOGSUCKR	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.08	0.05	0.00	0.0000	0.10	0.07	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	.	.	0.00	0.0000	.	.	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13

Table 1-24. (Continued).

QUARTER=JUL 1995 TO SEP 1995 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RAINBOW TROUT	0.00	0.00	28.920	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	13
REDBREAST	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
REDEAR	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
RIVER CARPSUCKER	0.00	0.00	28.920	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	13
SILVER REDHORSE	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
SPOTTED BASS	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
STRIPED BASS	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
STRIPED KILLIFISH	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
TADPOLE MADTOM	0.00	0.00	28.920	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	13
WHITEFIN SHINER	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
YELLOW BULLHEAD	0.00	0.00	28.920	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
MONTHLY SUM	304.41	5.61		8803.44	162.13	253.34	4.635	13.82	0.3636	811.09	14.88	1.54	0.1318	1064.42	19.51	

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
THREADFIN SHAD	811.86	1.18	26.330	21376.16	30.94	143.69	0.206	524.47	0.7623	1099.24	1.59	380.77	0.5559	1242.94	1.79	13
WHITE CATFISH	8.51	0.34	26.330	224.01	9.02	2.80	0.091	2.90	0.1600	14.11	0.53	0.10	0.0686	16.91	0.62	13
BLUEBACK HERRING	8.35	0.13	26.330	219.85	3.44	2.56	0.046	3.22	0.0389	13.48	0.22	0.66	0.0000	16.04	0.27	13
BLACK CRAPPIE	4.04	0.11	26.330	106.32	3.00	2.49	0.079	0.00	0.0000	9.02	0.27	0.00	0.0000	11.51	0.35	13
BLUEGILL	3.18	0.06	26.330	83.70	1.63	1.39	0.030	0.41	0.0020	5.95	0.12	0.00	0.0000	7.33	0.15	13
CHANNEL CATFISH	1.76	0.18	26.330	46.46	4.64	0.67	0.073	0.42	0.0310	3.11	0.32	0.00	0.0000	3.78	0.39	13
WHITE PERCH	1.65	0.27	26.330	43.37	7.03	0.37	0.068	0.91	0.1306	2.39	0.40	0.54	0.0623	2.75	0.47	13
YELLOW PERCH	0.66	0.01	26.330	17.30	0.33	0.36	0.007	0.00	0.0000	1.37	0.03	0.00	0.0000	1.73	0.03	13
GIZZARD SHAD	0.42	0.00	26.330	11.12	0.11	0.28	0.002	0.00	0.0000	0.99	0.01	0.00	0.0000	1.27	0.01	13
WARMOUTH	0.30	0.00	26.330	7.94	0.06	0.30	0.002	0.00	0.0000	0.90	0.01	0.00	0.0000	1.21	0.01	13
BLACK BULLHEAD	0.28	0.06	26.330	7.28	1.52	0.19	0.055	0.00	0.0000	0.65	0.17	0.00	0.0000	0.84	0.22	13
WHITE CRAPPIE	0.21	0.01	26.330	5.62	0.24	0.14	0.006	0.00	0.0000	0.50	0.02	0.00	0.0000	0.65	0.03	13
FLATHEAD CATFISH	0.09	0.01	26.330	2.31	0.19	0.09	0.007	0.00	0.0000	0.26	0.02	0.00	0.0000	0.35	0.03	13
BLUE CATFISH	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
BROWN BULLHEAD	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
CARP	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
CHAIN PICKEREL	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
COASTAL SHINER	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
COOSA BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
FLIER	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
GOLDEN SHINER	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
GREEN SUNFISH	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
HYBRID BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
LARGEMOUTH BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
LONGNOSE GAR	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
NORTHERN HOGSUCKR	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
PUMPKINSEED	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
REDBREAST	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
REDBREAST SUNFISH	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
REDEAR	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
SILVER REDHORSE	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
SPOTTAIL SHINER	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
SPOTTED BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
STRIPED BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
STRIPED KILLIFISH	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
TESSELATED DARTR	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
WHITE BASS	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
WHITEFIN SHINER	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
YELLOW BULLHEAD	0.00	0.00	26.330	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	13
MONTHLY SUM	841.30	2.36		22151.44	62.13	155.34	0.674	532.33	1.1248	1151.98	3.71	382.07	0.6869	1307.31	4.38	

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	891.25	1.36	19.500	17379.37	26.58	207.70	0.331	475.86
WHITE CATFISH	5.89	0.18	19.500	114.85	3.58	1.39	0.041	3.10
CHANNEL CATFISH	2.80	0.22	19.500	54.60	4.24	0.79	0.143	1.22
BLUEBACK HERRING	2.20	0.03	19.500	42.93	0.60	0.74	0.011	0.72
BLUEGILL	1.90	0.02	19.500	37.07	0.39	0.71	0.008	0.49
BLACK CRAPPIE	1.85	0.14	19.500	36.01	2.82	0.76	0.067	0.34
WHITE PERCH	0.75	0.17	19.500	14.69	3.40	0.37	0.074	0.00
GIZZARD SHAD	0.60	0.18	19.500	11.70	3.56	0.60	0.182	0.00
YELLOW PERCH	0.33	0.01	19.500	6.51	0.15	0.24	0.007	0.00
STRIPED BASS	0.24	0.02	19.500	4.68	0.46	0.24	0.023	0.00
BROWN BULLHEAD	0.12	0.00	19.500	2.36	0.03	0.12	0.001	0.00
SPOTTAIL SHINER	0.11	0.00	19.500	2.13	0.03	0.11	0.002	0.00
HYBRID BASS	0.10	0.03	19.500	1.95	0.67	0.10	0.034	0.00
BLACK BULLHEAD	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.7015	1306.64	2.02	268.16	0.3708	1514.34	2.36	10
0.1007	8.68	0.27	1.71	0.0592	10.07	0.31	10
0.0000	4.38	0.50	0.43	0.0000	5.17	0.65	10
0.0079	3.68	0.05	0.00	0.0000	4.42	0.07	10
0.0045	3.31	0.04	0.00	0.0000	4.02	0.04	10
0.0107	3.36	0.28	0.00	0.0000	4.11	0.34	10
0.0256	1.50	0.32	0.00	0.0000	1.88	0.40	10
0.0000	1.80	0.55	0.00	0.0000	2.40	0.73	10
0.0000	0.81	0.02	0.00	0.0000	1.05	0.03	10
0.0000	0.72	0.07	0.00	0.0000	0.96	0.09	10
0.0000	0.36	0.00	0.00	0.0000	0.48	0.01	10
0.0000	0.33	0.01	0.00	0.0000	0.44	0.01	10
0.0000	0.30	0.10	0.00	0.0000	0.40	0.14	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
CREEK CHUB	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=NOVEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
WHITE CRAPPIE	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	19.500	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	908.15	2.38		17708.85	46.50	213.87	0.926	481.73

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	10
0.8509	1335.88	4.24	270.30	0.4300	1549.75	5.16	

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1262.53	1.75	10.250	12940.89	17.89	633.95	0.849	0.00
BLUEBACK HERRING	6.15	0.14	10.250	63.01	1.43	3.05	0.079	0.05
WHITE CATFISH	5.77	0.18	10.250	59.15	1.89	2.05	0.068	1.67
SPOTTAIL SHINER	2.39	0.03	10.250	24.51	0.28	1.32	0.017	0.00
YELLOW PERCH	2.11	0.03	10.250	21.58	0.28	1.46	0.018	0.00
CHANNEL CATFISH	1.67	0.05	10.250	17.16	0.51	0.56	0.030	0.55
STRIPED BASS	0.60	0.13	10.250	6.20	1.37	0.40	0.094	0.00
BLACK BULLHEAD	0.46	0.03	10.250	4.67	0.36	0.46	0.035	0.00
BLACK CRAPPIE	0.16	0.00	10.250	1.66	0.02	0.16	0.002	0.00
WHITE BASS	0.13	0.09	10.250	1.37	0.93	0.13	0.091	0.00
BLUEGILL	0.09	0.00	10.250	0.92	0.01	0.09	0.001	0.00
LARGEMOUTH BASS	0.08	0.03	10.250	0.82	0.28	0.08	0.027	0.00
WHITE PERCH	0.08	0.04	10.250	0.82	0.39	0.08	0.038	0.00
AMERICAN EEL	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
BROWN BULLHEAD	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0482	2530.42	3.44	0.00	0.0000	3164.37	4.29	5
0.0000	12.25	0.30	0.00	0.0000	15.30	0.38	5
0.0493	9.87	0.32	0.00	0.0000	11.93	0.39	5
0.0000	5.03	0.06	0.00	0.0000	6.34	0.08	5
0.0000	5.02	0.06	0.00	0.0000	6.47	0.08	5
0.0000	2.80	0.11	0.00	0.0000	3.36	0.14	5
0.0000	1.41	0.32	0.00	0.0000	1.81	0.42	5
0.0000	1.37	0.10	0.00	0.0000	1.82	0.14	5
0.0000	0.48	0.01	0.00	0.0000	0.65	0.01	5
0.0000	0.40	0.27	0.00	0.0000	0.53	0.36	5
0.0000	0.27	0.00	0.00	0.0000	0.36	0.01	5
0.0000	0.24	0.08	0.00	0.0000	0.32	0.11	5
0.0000	0.24	0.11	0.00	0.0000	0.32	0.15	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
CHAIN PICKEREL	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COASTAL SHINER	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
COOSA BASS	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
CREEK CHUB	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLAT BULLHEAD	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
FLATHEAD CATFISH	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
GIZZARD SHAD	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
GOLDEN SHINER	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
GREEN SUNFISH	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
HYBRID BASS	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
LONGNOSE GAR	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MADTOM	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
MARGINED MADTOM	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
NORTHERN HOGSUCKR	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
RAINBOW TROUT	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
REDBREAST	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
REDEAR	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
RIVER CARPSUCKER	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
RIVER CHUB	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5

Table 1-24. (Continued).

QUARTER=OCT 1995 TO DEC 1995 MONTH=DECEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
SILVER REDHORSE	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	10.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1282.22	2.50		13142.74	25.65	643.79	1.349	2.26

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	5
0.0975	2569.79	5.20	0.00	0.0000	3213.57	6.55	

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=JANUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	748.62	1.13	6.500	4866.03	7.33	176.12	0.228	396.38
BLUEBACK HERRING	28.69	0.43	6.500	186.50	2.80	10.03	0.129	8.63
YELLOW PERCH	7.53	0.14	6.500	48.97	0.93	2.54	0.056	2.45
BLACK CRAPPIE	2.18	0.16	6.500	14.20	1.03	1.57	0.130	0.00
BLUEGILL	2.02	0.03	6.500	13.12	0.21	2.02	0.032	0.00
WHITE CATFISH	0.50	0.00	6.500	3.27	0.01	0.50	0.002	0.00
GIZZARD SHAD	0.43	0.00	6.500	2.82	0.03	0.43	0.004	0.00
STRIPED BASS	0.35	0.06	6.500	2.31	0.42	0.35	0.064	0.00
BLACK BULLHEAD	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
BROWN BULLHEAD	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	6.500	0.00	0.00	.	.	0.00
CHAIN PICKEREL	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
CHANNEL CATFISH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.6714	1100.86	1.58	220.26	0.4435	1276.97	1.81	3
0.1731	48.76	0.69	0.00	0.0442	58.79	0.82	3
0.0307	12.62	0.25	0.00	0.0000	15.16	0.31	3
0.0000	5.32	0.42	0.00	0.0000	6.89	0.55	3
0.0000	6.06	0.09	0.00	0.0000	8.07	0.13	3
0.0000	1.51	0.01	0.00	0.0000	2.01	0.01	3
0.0000	1.30	0.01	0.00	0.0000	1.73	0.02	3
0.0000	1.06	0.19	0.00	0.0000	1.42	0.26	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	.	.	0.00	0.0000	.	.	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=JANUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
GREEN SUNFISH	0.00	0.00	6.500	0.00	0.00	.	.	0.00
HYBRID BASS	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
LARGEMOUTH BASS	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	6.500	0.00	0.00	.	.	0.00
PUMPKINSEED	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	6.500	0.00	0.00	.	.	0.00
SILVER REDHORSE	0.00	0.00	6.500	0.00	0.00	.	.	0.00
SPOTTAIL SHINER	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
WHITE PERCH	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	6.500	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	790.34	1.96		5137.21	12.75	193.57	0.645	407.46

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	.	.	0.00	0.0000	.	.	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	.	.	0.00	0.0000	.	.	3
0.0000	.	.	0.00	0.0000	.	.	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	3
0.8752	1177.48	3.25	220.26	0.4877	1371.05	3.90	

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	17808.24	35.35	2.750	48972.66	97.20	.	.	0.00
BLACK CRAPPIE	40.92	1.86	2.750	112.54	5.12	.	.	0.00
YELLOW PERCH	40.12	0.58	2.750	110.34	1.59	.	.	0.00
BLUEBACK HERRING	23.11	0.35	2.750	63.56	0.96	.	.	0.00
BLUEGILL	15.03	0.40	2.750	41.32	1.09	.	.	0.00
WHITE CATFISH	4.36	0.06	2.750	12.00	0.18	.	.	0.00
SPOTTAIL SHINER	0.95	0.01	2.750	2.60	0.02	.	.	0.00
CHANNEL CATFISH	0.89	0.00	2.750	2.46	0.01	.	.	0.00
WHITE PERCH	0.87	0.19	2.750	2.40	0.52	.	.	0.00
BLACK BULLHEAD	0.00	0.00	2.750	0.00	0.00	.	.	0.00
BLUE CATFISH	0.00	0.00	2.750	0.00	0.00	.	.	0.00
BROWN BULLHEAD	0.00	0.00	2.750	0.00	0.00	.	.	0.00
CHAIN PICKEREL	0.00	0.00	2.750	0.00	0.00	.	.	0.00
COASTAL SHINER	0.00	0.00	2.750	0.00	0.00	.	.	0.00
COOSA BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00
FLATHEAD CATFISH	0.00	0.00	2.750	0.00	0.00	.	.	0.00
FLIER	0.00	0.00	2.750	0.00	0.00	.	.	0.00
GIZZARD SHAD	0.00	0.00	2.750	0.00	0.00	.	.	0.00
GOLDEN SHINER	0.00	0.00	2.750	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=FEBRUARY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
HYBRID BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
LARGEMOUTH BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
LONGNOSE GAR	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
PUMPKINSEED	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
REDBREAST	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
REDBREAST SUNFISH	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
SPOTTED BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
STRIPED BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
STRIPED KILLIFISH	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
TESSELATED DARTR	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
WARMOUTH	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
WHITE BASS	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
WHITE CRAPPIE	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
WHITEFIN SHINER	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
YELLOW BULLHEAD	0.00	0.00	2.750	0.00	0.00	.	.	0.00	0.0000	.	.	0.00	0.0000	.	.	1
MONTHLY SUM	17934.50	38.80		49319.88	106.69	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1751.66	3.45	4.480	7847.42	15.45	.	.	0.00
YELLOW PERCH	47.92	0.68	4.480	214.67	3.04	.	.	0.00
WHITE PERCH	42.41	2.87	4.480	190.00	12.84	.	.	0.00
BLUEBACK HERRING	12.67	0.31	4.480	56.77	1.40	.	.	0.00
BLUEGILL	3.62	0.04	4.480	16.24	0.17	.	.	0.00
CHANNEL CATFISH	2.64	0.27	4.480	11.83	1.21	.	.	0.00
BLACK CRAPPIE	2.00	0.11	4.480	8.96	0.47	.	.	0.00
SPOTTAIL SHINER	1.21	0.01	4.480	5.40	0.06	.	.	0.00
GIZZARD SHAD	0.89	0.38	4.480	4.00	1.68	.	.	0.00
WHITEFIN SHINER	0.80	0.01	4.480	3.57	0.03	.	.	0.00
WHITE CATFISH	0.38	0.00	4.480	1.69	0.02	.	.	0.00
AMERICAN EEL	0.00	0.00	4.480	0.00	0.00	.	.	0.00
BLACK BULLHEAD	0.00	0.00	4.480	0.00	0.00	.	.	0.00
BLACKBANDED DARTR	0.00	0.00	4.480	0.00	0.00	.	.	0.00
BLUEHEAD CHUB	0.00	0.00	4.480	0.00	0.00	.	.	0.00
BROWN BULLHEAD	0.00	0.00	4.480	0.00	0.00	.	.	0.00
BROWN TROUT	0.00	0.00	4.480	0.00	0.00	.	.	0.00
CARP	0.00	0.00	4.480	0.00	0.00	.	.	0.00
CHAIN PICKEREL	0.00	0.00	4.480	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
COASTAL SHINER	0.00	0.00	4.480	0.00	0.00	.	.	0.00
COOSA BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00
FLAT BULLHEAD	0.00	0.00	4.480	0.00	0.00	.	.	0.00
FLATHEAD CATFISH	0.00	0.00	4.480	0.00	0.00	.	.	0.00
GOLDEN SHINER	0.00	0.00	4.480	0.00	0.00	.	.	0.00
GREEN SUNFISH	0.00	0.00	4.480	0.00	0.00	.	.	0.00
HYBRID BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00
LARGEMOUTH BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00
LONGNOSE GAR	0.00	0.00	4.480	0.00	0.00	.	.	0.00
MADTOM	0.00	0.00	4.480	0.00	0.00	.	.	0.00
MARGINED MADTOM	0.00	0.00	4.480	0.00	0.00	.	.	0.00
NORTHERN HOGSUCKR	0.00	0.00	4.480	0.00	0.00	.	.	0.00
RAINBOW TROUT	0.00	0.00	4.480	0.00	0.00	.	.	0.00
REDBREAST	0.00	0.00	4.480	0.00	0.00	.	.	0.00
REDEAR	0.00	0.00	4.480	0.00	0.00	.	.	0.00
RIVER CARPSUCKER	0.00	0.00	4.480	0.00	0.00	.	.	0.00
SILVER REDHORSE	0.00	0.00	4.480	0.00	0.00	.	.	0.00
SPOTTED BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00
STRIPED BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1

Table 1-24. (Continued).

QUARTER=JAN 1996 TO MAR 1996 MONTH=MARCH

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
TADPOLE MADTOM	0.00	0.00	4.480	0.00	0.00	.	.	0.00
TESSELATED DARTR	0.00	0.00	4.480	0.00	0.00	.	.	0.00
WARMOUTH	0.00	0.00	4.480	0.00	0.00	.	.	0.00
WHITE BASS	0.00	0.00	4.480	0.00	0.00	.	.	0.00
WHITE CRAPPIE	0.00	0.00	4.480	0.00	0.00	.	.	0.00
YELLOW BULLHEAD	0.00	0.00	4.480	0.00	0.00	.	.	0.00
MONTHLY SUM	1866.19	8.12		8360.55	36.37	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	.	.	0.00	0.0000	.	.	1
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	400.44	1.00	66.420	26597.47	66.34	105.31	0.243	189.81
WHITE PERCH	112.77	8.42	66.420	7490.51	558.94	19.34	1.461	74.10
BLUEBACK HERRING	45.37	0.99	66.420	3013.76	65.44	14.76	0.346	15.85
BLACK CRAPPIE	19.57	0.63	66.420	1299.69	41.61	3.33	0.098	12.90
YELLOW PERCH	16.33	0.33	66.420	1084.39	21.60	4.66	0.084	7.00
CHANNEL CATFISH	12.33	0.69	66.420	819.02	46.07	2.00	0.105	8.33
SPOTTAIL SHINER	11.99	0.11	66.420	796.22	7.41	4.08	0.038	3.83
STRIPED BASS	2.29	0.40	66.420	152.36	26.65	0.60	0.080	1.10
BLUEGILL	2.21	0.03	66.420	146.78	1.92	0.47	0.007	1.28
HYBRID BASS	1.42	0.42	66.420	94.54	28.13	0.31	0.118	0.81
GIZZARD SHAD	0.48	0.19	66.420	31.91	12.50	0.15	0.058	0.17
GOLDEN SHINER	0.44	0.00	66.420	29.16	0.12	0.33	0.001	0.00
WHITE CATFISH	0.43	0.01	66.420	28.53	0.78	0.15	0.006	0.14
CREEK CHUB	0.22	0.00	66.420	14.48	0.00	0.22	0.000	0.00
WHITE CRAPPIE	0.22	0.02	66.420	14.45	1.29	0.11	0.009	0.00
WARMOUTH	0.15	0.01	66.420	10.08	0.51	0.08	0.004	0.00
BROWN BULLHEAD	0.14	0.01	66.420	9.41	0.54	0.10	0.008	0.00
GREEN SUNFISH	0.10	0.01	66.420	6.31	0.99	0.10	0.015	0.00
BLACK BULLHEAD	0.03	0.00	66.420	2.01	0.15	0.03	0.002	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.5129	611.07	1.48	84.50	0.2699	716.39	1.73	18
5.4932	151.45	11.34	54.77	4.0321	170.78	12.80	18
0.2922	74.90	1.68	1.09	0.0000	89.66	2.02	18
0.4299	26.23	0.82	9.57	0.3317	29.57	0.92	18
0.1568	25.65	0.49	2.34	0.0726	30.31	0.58	18
0.4840	16.33	0.90	6.33	0.3791	18.33	1.01	18
0.0348	20.14	0.19	0.00	0.0000	24.22	0.23	18
0.2409	3.48	0.56	0.51	0.1608	4.08	0.64	18
0.0152	3.14	0.04	0.81	0.0083	3.61	0.05	18
0.1883	2.04	0.66	0.51	0.0707	2.34	0.78	18
0.0723	0.79	0.30	0.02	0.0143	0.94	0.36	18
0.0000	1.10	0.00	0.00	0.0000	1.43	0.01	18
0.0000	0.72	0.02	0.00	0.0000	0.86	0.03	18
0.0000	0.65	0.00	0.00	0.0000	0.87	0.00	18
0.0007	0.44	0.04	0.00	0.0000	0.55	0.05	18
0.0000	0.31	0.02	0.00	0.0000	0.39	0.02	18
0.0000	0.35	0.02	0.00	0.0000	0.45	0.03	18
0.0000	0.29	0.04	0.00	0.0000	0.38	0.06	18
0.0000	0.09	0.01	0.00	0.0000	0.12	0.01	18

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
WHITE BASS	0.02	0.02	66.420	1.28	1.05	0.02	0.016	0.00	0.0000	0.06	0.05	0.00	0.0000	0.08	0.06	18
AMERICAN EEL	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
BLACKBANDED DARTR	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
BLUE CATFISH	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
BLUEHEAD CHUB	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
BROWN TROUT	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
CARP	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
CHAIN PICKEREL	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
COASTAL SHINER	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
COOSA BASS	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
FLAT BULLHEAD	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
FLATHEAD CATFISH	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
FLIER	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
LARGEMOUTH BASS	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
LONGNOSE GAR	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
MADTOM	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
MARGINED MADTOM	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
NORTHERN HOGSUCKR	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
PUMPKINSEED	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=APRIL

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
RAINBOW TROUT	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
REDBREAST	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
REDBREAST SUNFISH	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
REDEAR	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
RIVER CARPSUCKER	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
RIVER CHUB	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
SILVER REDHORSE	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
SPOTTED BASS	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
STRIPED KILLIFISH	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
TADPOLE MADTOM	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
TESSELATED DARTR	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
WHITEFIN SHINER	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
YELLOW BULLHEAD	0.00	0.00	66.420	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	18
MONTHLY SUM	626.95	13.28		41642.34	882.05	156.14	2.700	315.34	7.9212	939.23	18.68	160.44	5.3396	1095.36	21.38	

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	460.44	10.56	66.950	30826.63	706.79	279.22	6.700	0.00
BLACK CRAPPIE	76.35	2.19	66.950	5111.47	146.93	37.09	1.054	2.18
WHITE PERCH	60.61	3.81	66.950	4057.70	255.39	17.09	1.156	26.43
THREADFIN SHAD	49.27	0.30	66.950	3298.85	20.31	22.45	0.134	4.37
CHANNEL CATFISH	11.55	0.50	66.950	773.24	33.33	3.65	0.198	4.26
BLUEGILL	7.47	0.08	66.950	499.80	5.23	1.69	0.015	4.08
YELLOW PERCH	7.04	0.13	66.950	471.36	8.86	2.63	0.043	1.78
SPOTTAIL SHINER	4.31	0.05	66.950	288.88	3.03	1.03	0.011	2.26
STRIPED BASS	1.11	0.12	66.950	74.29	8.05	0.24	0.025	0.62
WHITE CRAPPIE	0.62	0.04	66.950	41.36	2.69	0.31	0.020	0.00
HYBRID BASS	0.60	0.08	66.950	40.45	5.48	0.31	0.040	0.00
WHITE CATFISH	0.49	0.02	66.950	33.14	1.43	0.22	0.013	0.05
WARMOUTH	0.30	0.02	66.950	20.13	1.13	0.11	0.009	0.08
GREEN SUNFISH	0.22	0.00	66.950	14.46	0.08	0.22	0.001	0.00
RIVER CHUB	0.18	0.00	66.950	12.30	0.00	0.18	0.000	0.00
STRIPED KILLIFISH	0.17	0.00	66.950	11.05	0.00	0.17	0.000	0.00
BLACKBANDED DARTR	0.16	0.00	66.950	10.79	0.00	0.16	0.000	0.00
GIZZARD SHAD	0.13	0.01	66.950	8.38	0.98	0.08	0.014	0.00
REDEAR	0.07	0.00	66.950	4.82	0.15	0.07	0.002	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	1018.88	23.96	0.00	0.0000	1298.09	30.66	16
0.0867	150.52	4.30	0.00	0.0000	187.60	5.36	16
1.5035	94.79	6.13	9.34	0.3479	111.88	7.28	16
0.0359	94.18	0.57	0.00	0.0000	116.63	0.70	16
0.1028	18.84	0.89	0.61	0.0000	22.48	1.09	16
0.0482	10.85	0.11	2.38	0.0333	12.55	0.12	16
0.0467	12.30	0.22	0.00	0.0039	14.92	0.26	16
0.0239	6.37	0.07	1.23	0.0132	7.40	0.08	16
0.0707	1.59	0.17	0.38	0.0460	1.84	0.19	16
0.0000	1.23	0.08	0.00	0.0000	1.54	0.10	16
0.0014	1.23	0.16	0.00	0.0000	1.54	0.20	16
0.0000	0.94	0.05	0.00	0.0000	1.17	0.06	16
0.0000	0.52	0.04	0.00	0.0000	0.63	0.04	16
0.0000	0.65	0.00	0.00	0.0000	0.86	0.00	16
0.0000	0.55	0.00	0.00	0.0000	0.74	0.00	16
0.0000	0.50	0.00	0.00	0.0000	0.66	0.00	16
0.0000	0.48	0.00	0.00	0.0000	0.64	0.00	16
0.0000	0.29	0.04	0.00	0.0000	0.37	0.06	16
0.0000	0.22	0.01	0.00	0.0000	0.29	0.01	16

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
REDBREAST	0.07	0.00	66.950	4.68	0.16	0.05	0.002	0.00	0.0000	0.17	0.01	0.00	0.0000	0.21	0.01	16
YELLOW BULLHEAD	0.05	0.01	66.950	3.54	0.40	0.05	0.006	0.00	0.0000	0.16	0.02	0.00	0.0000	0.21	0.02	16
SILVER REDHORSE	0.03	0.04	66.950	2.05	2.54	0.03	0.038	0.00	0.0000	0.09	0.11	0.00	0.0000	0.12	0.15	16
BLACK BULLHEAD	0.03	0.01	66.950	1.77	0.74	0.03	0.011	0.00	0.0000	0.08	0.03	0.00	0.0000	0.11	0.04	16
AMERICAN EEL	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLUE CATFISH	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLUEHEAD CHUB	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BROWN BULLHEAD	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BROWN TROUT	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CARP	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CHAIN PICKEREL	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COASTAL SHINER	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COOSA BASS	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CREEK CHUB	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLAT BULLHEAD	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLATHEAD CATFISH	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLIER	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
GOLDEN SHINER	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
LARGEMOUTH BASS	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=MAY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
LONGNOSE GAR	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	66.950	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	681.27	17.98		45611.11	1203.70	367.07	9.491	46.11

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
1.9198	1415.42	36.96	13.95	0.4443	1782.49	46.45	

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	125.80	0.42	65.500	8240.20	27.28	43.36	0.156	39.09
BLUEBACK HERRING	51.14	1.26	65.500	3349.68	82.78	17.26	0.477	16.62
WHITE PERCH	16.26	0.85	65.500	1065.11	55.42	6.09	0.314	4.08
BLACK CRAPPIE	15.16	0.41	65.500	993.09	26.75	3.48	0.098	8.19
BLUEGILL	11.30	0.11	65.500	740.42	7.26	3.88	0.033	3.54
YELLOW PERCH	5.28	0.09	65.500	346.08	6.22	1.06	0.017	3.17
SPOTTAIL SHINER	4.46	0.04	65.500	292.09	2.53	1.45	0.016	1.57
LONGNOSE GAR	1.49	0.01	65.500	97.44	0.56	1.31	0.008	0.00
CHANNEL CATFISH	1.45	0.06	65.500	94.88	4.19	0.30	0.015	0.86
CHAIN PICKEREL	0.98	0.00	65.500	64.38	0.04	0.49	0.000	0.01
WHITE CATFISH	0.51	0.03	65.500	33.64	2.08	0.14	0.022	0.22
LARGEMOUTH BASS	0.43	0.01	65.500	27.97	0.48	0.24	0.007	0.00
WARMOUTH	0.37	0.01	65.500	24.45	0.48	0.15	0.003	0.08
GOLDEN SHINER	0.37	0.00	65.500	24.07	0.03	0.37	0.000	0.00
GIZZARD SHAD	0.36	0.12	65.500	23.63	8.14	0.21	0.069	0.00
WHITEFIN SHINER	0.27	0.00	65.500	17.72	0.13	0.24	0.002	0.00
TESSELATED DARTR	0.14	0.00	65.500	9.39	0.09	0.14	0.001	0.00
NORTHERN HOGSUCKR	0.09	0.00	65.500	5.57	0.00	0.09	0.000	0.00
REDEAR	0.07	0.01	65.500	4.59	0.59	0.07	0.009	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.1047	212.52	0.73	0.00	0.0000	255.88	0.88	16
0.3097	85.66	2.22	0.00	0.0000	102.92	2.70	16
0.2174	28.44	1.47	0.00	0.0000	34.53	1.79	16
0.2130	22.13	0.60	4.71	0.1153	25.62	0.70	16
0.0445	19.06	0.18	0.00	0.0113	22.94	0.21	16
0.0601	7.40	0.13	2.11	0.0427	8.46	0.15	16
0.0076	7.35	0.07	0.12	0.0000	8.80	0.09	16
0.0000	4.10	0.02	0.00	0.0000	5.40	0.03	16
0.0334	2.04	0.09	0.56	0.0181	2.34	0.11	16
0.0001	1.96	0.00	0.00	0.0000	2.44	0.00	16
0.0000	0.80	0.07	0.08	0.0000	0.95	0.10	16
0.0000	0.91	0.02	0.00	0.0000	1.15	0.03	16
0.0010	0.67	0.01	0.00	0.0000	0.82	0.02	16
0.0000	1.10	0.00	0.00	0.0000	1.47	0.00	16
0.0000	0.78	0.26	0.00	0.0000	0.99	0.33	16
0.0000	0.74	0.01	0.00	0.0000	0.98	0.01	16
0.0000	0.43	0.00	0.00	0.0000	0.57	0.01	16
0.0000	0.26	0.00	0.00	0.0000	0.34	0.00	16
0.0000	0.21	0.03	0.00	0.0000	0.28	0.04	16

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
GREEN SUNFISH	0.05	0.00	65.500	3.22	0.05	0.05	0.001	0.00
REDBREAST	0.05	0.00	65.500	3.11	0.10	0.05	0.002	0.00
WHITE BASS	0.05	0.01	65.500	3.00	0.46	0.05	0.007	0.00
BROWN BULLHEAD	0.03	0.01	65.500	2.23	0.60	0.03	0.009	0.00
HYBRID BASS	0.02	0.03	65.500	1.02	2.01	0.02	0.031	0.00
STRIPED BASS	0.02	0.00	65.500	1.02	0.00	0.02	0.000	0.00
SPOTTED BASS	0.02	0.01	65.500	0.99	0.33	0.02	0.005	0.00
AMERICAN EEL	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
BLACK BULLHEAD	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
CREEK CHUB	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.15	0.00	0.00	0.0000	0.20	0.00	16
0.0000	0.14	0.00	0.00	0.0000	0.19	0.01	16
0.0000	0.14	0.02	0.00	0.0000	0.18	0.03	16
0.0000	0.10	0.03	0.00	0.0000	0.14	0.04	16
0.0000	0.05	0.09	0.00	0.0000	0.06	0.12	16
0.0000	0.05	0.00	0.00	0.0000	0.06	0.00	16
0.0000	0.05	0.02	0.00	0.0000	0.06	0.02	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Continued).

QUARTER=APR 1996 TO JUN 1996 MONTH=JUNE

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
FLIER	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	65.500	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	236.17	3.49		15469.00	228.60	80.53	1.302	77.43

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.9915	397.23	6.09	7.58	0.1875	477.77	7.40	

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1218.44	2.00	73.250	89250.41	146.36	290.03	0.425	638.37
BLUEBACK HERRING	23.69	0.35	73.250	1735.05	25.59	6.18	0.045	11.33
BLUEGILL	4.41	0.06	73.250	322.70	4.08	0.73	0.009	2.94
BLACK CRAPPIE	4.02	0.16	73.250	294.17	11.60	1.02	0.042	1.97
GIZZARD SHAD	3.64	0.13	73.250	266.61	9.56	1.86	0.037	0.00
WHITE PERCH	2.19	0.14	73.250	160.19	9.93	0.30	0.021	1.59
YELLOW PERCH	2.12	0.04	73.250	154.97	3.23	0.44	0.009	1.23
CHANNEL CATFISH	1.10	0.05	73.250	80.59	3.46	0.21	0.010	0.68
SPOTTAIL SHINER	0.70	0.01	73.250	51.63	0.43	0.29	0.003	0.13
TESSELATED DARTR	0.28	0.00	73.250	20.29	0.20	0.19	0.002	0.00
LARGEMOUTH BASS	0.21	0.00	73.250	15.45	0.03	0.13	0.000	0.00
WHITE CATFISH	0.20	0.03	73.250	14.74	1.86	0.07	0.013	0.07
BROWN BULLHEAD	0.07	0.00	73.250	5.24	0.10	0.05	0.001	0.00
STRIPED BASS	0.07	0.00	73.250	4.94	0.09	0.05	0.001	0.00
LONGNOSE GAR	0.06	0.00	73.250	4.26	0.05	0.04	0.001	0.00
REDBREAST	0.06	0.00	73.250	4.16	0.09	0.04	0.001	0.00
GOLDEN SHINER	0.04	0.00	73.250	3.11	0.03	0.04	0.000	0.00
REDEAR	0.04	0.00	73.250	2.96	0.02	0.04	0.000	0.00
BLACK BULLHEAD	0.03	0.00	73.250	2.50	0.12	0.03	0.002	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.1479	1798.50	2.85	348.34	0.7229	2088.54	3.27	16
0.2586	36.04	0.44	5.16	0.2133	42.22	0.49	16
0.0369	5.88	0.07	2.20	0.0275	6.61	0.08	16
0.0748	6.06	0.24	0.95	0.0331	7.08	0.28	16
0.0567	7.36	0.20	0.00	0.0198	9.22	0.24	16
0.0934	2.79	0.18	1.29	0.0723	3.09	0.20	16
0.0252	3.00	0.06	0.79	0.0157	3.44	0.07	16
0.0272	1.52	0.07	0.47	0.0171	1.73	0.08	16
0.0006	1.28	0.01	0.00	0.0000	1.57	0.01	16
0.0000	0.65	0.01	0.00	0.0000	0.84	0.01	16
0.0000	0.46	0.00	0.00	0.0000	0.59	0.00	16
0.0000	0.34	0.05	0.00	0.0000	0.41	0.07	16
0.0000	0.17	0.00	0.00	0.0000	0.22	0.01	16
0.0000	0.16	0.00	0.00	0.0000	0.21	0.00	16
0.0000	0.14	0.00	0.00	0.0000	0.18	0.00	16
0.0000	0.14	0.00	0.00	0.0000	0.18	0.00	16
0.0000	0.13	0.00	0.00	0.0000	0.17	0.00	16
0.0000	0.12	0.00	0.00	0.0000	0.16	0.00	16
0.0000	0.10	0.00	0.00	0.0000	0.14	0.01	16

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
CHAIN PICKEREL	0.03	0.00	73.250	1.94	0.00	0.03	0.000	0.00
AMERICAN EEL	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
CREEK CHUB	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
FLATHEAD CATFISH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
HYBRID BASS	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.08	0.00	0.00	0.0000	0.11	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=JULY

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RAINBOW TROUT	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
WARMOUTH	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	73.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1261.38	2.96		92395.90	216.84	301.77	0.623	658.31

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
1.7214	1864.91	4.21	359.20	1.1217	2166.67	4.83	

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	2350.51	3.73	89.250	209783.19	332.55	330.74	0.466	1689.04
BLUEBACK HERRING	74.00	1.96	89.250	6604.84	175.16	31.04	0.846	11.93
BLACK CRAPPIE	4.22	0.22	89.250	376.50	19.69	1.18	0.049	1.86
WHITE PERCH	3.79	0.11	89.250	338.25	9.55	0.64	0.036	2.51
YELLOW PERCH	2.66	0.04	89.250	237.06	3.69	1.75	0.027	0.00
BLUEGILL	1.76	0.03	89.250	156.86	2.46	0.33	0.004	1.10
CHANNEL CATFISH	1.69	0.10	89.250	150.99	8.54	0.34	0.021	1.02
LARGEMOUTH BASS	0.85	0.00	89.250	75.58	0.14	0.38	0.001	0.08
WHITE CATFISH	0.71	0.02	89.250	63.80	2.05	0.23	0.012	0.26
GIZZARD SHAD	0.54	0.04	89.250	48.09	3.18	0.26	0.015	0.01
SPOTTAIL SHINER	0.48	0.00	89.250	42.94	0.17	0.18	0.001	0.11
STRIPED BASS	0.14	0.00	89.250	12.56	0.22	0.07	0.001	0.00
TESSELATED DARTR	0.13	0.00	89.250	11.67	0.11	0.13	0.001	0.00
FLIER	0.12	0.00	89.250	10.80	0.00	0.12	0.000	0.00
BROWN BULLHEAD	0.10	0.00	89.250	8.60	0.03	0.05	0.000	0.00
REDEAR	0.09	0.00	89.250	8.42	0.02	0.09	0.000	0.00
YELLOW BULLHEAD	0.08	0.00	89.250	7.03	0.06	0.08	0.001	0.00
GOLDEN SHINER	0.07	0.00	89.250	5.81	0.01	0.07	0.000	0.00
WARMOUTH	0.06	0.00	89.250	5.78	0.10	0.04	0.001	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
2.7938	3011.98	4.66	1358.30	2.3277	3342.72	5.12	17
0.2699	136.08	3.66	0.00	0.0000	167.11	4.50	17
0.1229	6.58	0.32	0.68	0.0741	7.75	0.37	17
0.0344	5.07	0.18	1.87	0.0000	5.71	0.22	17
0.0000	6.16	0.10	0.00	0.0000	7.91	0.12	17
0.0196	2.41	0.04	0.78	0.0155	2.74	0.04	17
0.0545	2.37	0.14	0.68	0.0338	2.70	0.16	17
0.0004	1.61	0.00	0.00	0.0000	2.00	0.00	17
0.0000	1.17	0.05	0.03	0.0000	1.40	0.06	17
0.0054	1.07	0.07	0.00	0.0000	1.33	0.08	17
0.0000	0.85	0.00	0.00	0.0000	1.03	0.01	17
0.0000	0.28	0.01	0.00	0.0000	0.36	0.01	17
0.0000	0.39	0.00	0.00	0.0000	0.52	0.01	17
0.0000	0.36	0.00	0.00	0.0000	0.48	0.00	17
0.0000	0.20	0.00	0.00	0.0000	0.25	0.00	17
0.0000	0.28	0.00	0.00	0.0000	0.38	0.00	17
0.0000	0.24	0.00	0.00	0.0000	0.32	0.00	17
0.0000	0.20	0.00	0.00	0.0000	0.26	0.00	17
0.0000	0.15	0.00	0.00	0.0000	0.20	0.00	17

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
WHITEFIN SHINER	0.06	0.00	89.250	5.19	0.04	0.06	0.000	0.00	0.0000	0.17	0.00	0.00	0.0000	0.23	0.00	17
WHITE CRAPPIE	0.05	0.01	89.250	4.62	0.46	0.04	0.004	0.00	0.0000	0.12	0.01	0.00	0.0000	0.16	0.02	17
FLATHEAD CATFISH	0.04	0.00	89.250	3.35	0.00	0.04	0.000	0.00	0.0000	0.11	0.00	0.00	0.0000	0.15	0.00	17
WHITE BASS	0.03	0.00	89.250	2.99	0.02	0.03	0.000	0.00	0.0000	0.10	0.00	0.00	0.0000	0.13	0.00	17
SPOTTED BASS	0.03	0.00	89.250	2.80	0.01	0.03	0.000	0.00	0.0000	0.09	0.00	0.00	0.0000	0.13	0.00	17
REDBREAST	0.03	0.00	89.250	2.54	0.06	0.03	0.001	0.00	0.0000	0.09	0.00	0.00	0.0000	0.11	0.00	17
AMERICAN EEL	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
BLACK BULLHEAD	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
BLACKBANDED DARTR	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
BLUE CATFISH	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
BLUEHEAD CHUB	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
BROWN TROUT	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
CARP	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
CHAIN PICKEREL	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
COASTAL SHINER	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
COOSA BASS	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
CREEK CHUB	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
FLAT BULLHEAD	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
GREEN SUNFISH	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=AUGUST

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
HYBRID BASS	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
LONGNOSE GAR	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
PUMPKINSEED	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	89.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	2442.24	6.26		217970.26	558.34	367.95	1.488	1707.93

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	17
3.3008	3178.14	9.23	1362.35	2.4512	3546.09	10.72	

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1355.13	2.23	77.980	105672.89	174.06	230.04	0.392	895.04
BLUEBACK HERRING	14.25	0.24	77.980	1111.14	18.93	5.31	0.053	3.64
CHANNEL CATFISH	3.22	0.12	77.980	251.24	9.24	0.59	0.025	2.04
BLUEGILL	2.05	0.05	77.980	159.94	3.54	0.44	0.010	1.17
WHITE CATFISH	1.93	0.05	77.980	150.24	3.70	0.59	0.023	0.75
WHITE PERCH	1.83	0.05	77.980	142.40	3.93	0.28	0.012	1.27
BLACK CRAPPIE	1.55	0.09	77.980	121.16	7.39	0.23	0.015	1.10
GIZZARD SHAD	1.17	0.03	77.980	91.62	2.06	0.47	0.013	0.23
LARGEMOUTH BASS	0.51	0.00	77.980	39.43	0.07	0.21	0.000	0.09
YELLOW PERCH	0.27	0.00	77.980	21.37	0.36	0.13	0.002	0.02
SPOTTED BASS	0.25	0.00	77.980	19.44	0.03	0.14	0.000	0.00
BLACK BULLHEAD	0.13	0.00	77.980	10.47	0.20	0.11	0.002	0.00
WHITE CRAPPIE	0.10	0.01	77.980	7.51	0.91	0.05	0.007	0.00
STRIPED BASS	0.09	0.01	77.980	7.35	0.74	0.05	0.006	0.00
BROWN BULLHEAD	0.08	0.00	77.980	6.26	0.03	0.05	0.000	0.00
FLATHEAD CATFISH	0.08	0.02	77.980	6.19	1.74	0.06	0.022	0.00
REDEAR	0.07	0.03	77.980	5.36	2.28	0.07	0.029	0.00
WARMOUTH	0.04	0.00	77.980	2.95	0.05	0.04	0.001	0.00
WHITE BASS	0.02	0.00	77.980	1.49	0.23	0.02	0.003	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
1.4483	1815.22	3.02	665.00	1.0564	2045.26	3.41	16
0.1371	24.86	0.35	0.00	0.0843	30.17	0.40	16
0.0692	4.41	0.17	1.44	0.0446	5.00	0.19	16
0.0254	2.93	0.07	0.73	0.0154	3.38	0.08	16
0.0008	3.11	0.09	0.16	0.0000	3.70	0.12	16
0.0261	2.38	0.07	1.00	0.0140	2.66	0.09	16
0.0644	2.01	0.13	0.87	0.0492	2.24	0.14	16
0.0000	2.12	0.05	0.00	0.0000	2.59	0.07	16
0.0003	0.92	0.00	0.00	0.0000	1.13	0.00	16
0.0000	0.53	0.01	0.00	0.0000	0.66	0.01	16
0.0000	0.52	0.00	0.00	0.0000	0.66	0.00	16
0.0000	0.35	0.01	0.00	0.0000	0.45	0.01	16
0.0000	0.20	0.02	0.00	0.0000	0.25	0.03	16
0.0000	0.20	0.02	0.00	0.0000	0.25	0.03	16
0.0000	0.19	0.00	0.00	0.0000	0.25	0.00	16
0.0000	0.19	0.07	0.00	0.0000	0.25	0.09	16
0.0000	0.21	0.09	0.00	0.0000	0.28	0.12	16
0.0000	0.11	0.00	0.00	0.0000	0.15	0.00	16
0.0000	0.06	0.01	0.00	0.0000	0.08	0.01	16

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
LONGNOSE GAR	0.01	0.01	77.980	0.70	0.81	0.01	0.010	0.00
AMERICAN EEL	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
BLACKBANDED DARTR	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
BLUE CATFISH	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
BLUEHEAD CHUB	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
BROWN TROUT	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
CARP	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
CHAIN PICKEREL	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
COASTAL SHINER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
COOSA BASS	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
CREEK CHUB	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
FLAT BULLHEAD	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
FLIER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
GOLDEN SHINER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
GREEN SUNFISH	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
HYBRID BASS	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
MADTOM	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
MARGINED MADTOM	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
NORTHERN HOGSUCKR	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.03	0.03	0.00	0.0000	0.04	0.04	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Continued).

QUARTER=JUL 1996 TO SEP 1996 MONTH=SEPTEMBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
PUMPKINSEED	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
RAINBOW TROUT	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
SILVER REDHORSE	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
SPOTTAIL SHINER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
WHITEFIN SHINER	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	77.980	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	1382.78	2.95		107829.14	230.29	238.88	0.626	905.34

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
1.7716	1860.54	4.21	669.19	1.2639	2099.42	4.83	

Table 1-24. (Continued).

QUARTER=OCT 1996 TO DEC 1996 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
THREADFIN SHAD	759.43	1.21	82.250	62463.35	99.27	152.68	0.232	454.06
CHANNEL CATFISH	7.07	0.18	82.250	581.80	14.44	0.98	0.029	5.11
BLUEBACK HERRING	3.46	0.07	82.250	284.77	5.71	0.93	0.020	1.60
WHITE CATFISH	2.78	0.05	82.250	228.31	3.98	0.69	0.018	1.40
WHITE PERCH	2.19	0.05	82.250	179.92	3.96	0.68	0.012	0.83
BLUEGILL	1.56	0.02	82.250	128.45	1.83	0.43	0.010	0.71
BLACK CRAPPIE	0.84	0.06	82.250	69.10	4.57	0.19	0.014	0.45
GIZZARD SHAD	0.73	0.06	82.250	60.16	5.19	0.23	0.022	0.28
YELLOW PERCH	0.54	0.01	82.250	44.49	0.53	0.16	0.002	0.22
LARGEMOUTH BASS	0.32	0.00	82.250	25.92	0.05	0.23	0.000	0.00
SILVER REDHORSE	0.30	0.00	82.250	24.55	0.03	0.30	0.000	0.00
WHITEFIN SHINER	0.21	0.00	82.250	17.40	0.14	0.21	0.002	0.00
SPOTTAIL SHINER	0.14	0.00	82.250	11.62	0.05	0.11	0.000	0.00
STRIPED BASS	0.11	0.02	82.250	9.17	1.99	0.05	0.012	0.01
HYBRID BASS	0.06	0.01	82.250	4.81	1.08	0.04	0.009	0.00
BROWN BULLHEAD	0.06	0.00	82.250	4.75	0.15	0.04	0.002	0.00
WARMOUTH	0.03	0.00	82.250	2.51	0.05	0.03	0.001	0.00
BLACK BULLHEAD	0.03	0.00	82.250	2.24	0.11	0.03	0.001	0.00
GOLDEN SHINER	0.02	0.00	82.250	1.87	0.03	0.02	0.000	0.00

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.7427	1064.80	1.67	301.38	0.5106	1217.49	1.90	16
0.1181	9.04	0.23	4.13	0.0894	10.02	0.26	16
0.0295	5.32	0.11	0.67	0.0095	6.25	0.13	16
0.0132	4.16	0.08	0.71	0.0000	4.84	0.10	16
0.0233	3.55	0.07	0.14	0.0109	4.23	0.09	16
0.0025	2.41	0.04	0.28	0.0000	2.84	0.05	16
0.0278	1.23	0.08	0.26	0.0139	1.42	0.10	16
0.0182	1.19	0.11	0.05	0.0000	1.42	0.13	16
0.0025	0.86	0.01	0.06	0.0005	1.02	0.01	16
0.0000	0.78	0.00	0.00	0.0000	1.02	0.00	16
0.0000	0.90	0.00	0.00	0.0000	1.19	0.00	16
0.0000	0.63	0.01	0.00	0.0000	0.85	0.01	16
0.0000	0.36	0.00	0.00	0.0000	0.47	0.00	16
0.0009	0.21	0.05	0.00	0.0000	0.26	0.06	16
0.0000	0.14	0.03	0.00	0.0000	0.18	0.04	16
0.0000	0.14	0.01	0.00	0.0000	0.18	0.01	16
0.0000	0.09	0.00	0.00	0.0000	0.12	0.00	16
0.0000	0.08	0.00	0.00	0.0000	0.11	0.01	16
0.0000	0.07	0.00	0.00	0.0000	0.09	0.00	16

Table 1-24. (Continued).

QUARTER=OCT 1996 TO DEC 1996 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
AMERICAN EEL	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLACKBANDED DARTR	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLUE CATFISH	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BLUEHEAD CHUB	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
BROWN TROUT	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CARP	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CHAIN PICKEREL	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COASTAL SHINER	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
COOSA BASS	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
CREEK CHUB	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLAT BULLHEAD	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLATHEAD CATFISH	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
FLIER	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
GREEN SUNFISH	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
LONGNOSE GAR	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
MADTOM	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
MARGINED MADTOM	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
NORTHERN HOGSUCKR	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
PUMPKINSEED	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00	0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16

Table 1-24. (Concluded).

QUARTER=OCT 1996 TO DEC 1996 MONTH=OCTOBER

COMMON NAME	MEAN ENTRAINMENT RATE (#/HR)	MEAN ENTRAINMENT RATE (KG/HR)	SAMPLING DURATION (HRS)	MONTHLY TOTAL (#)	MONTHLY TOTAL (KG)	1 STANDARD ERROR OF THE MEAN (#/HR)	1 STANDARD ERROR OF THE MEAN (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)
RAINBOW TROUT	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
REDBREAST	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
REDBREAST SUNFISH	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
REDEAR	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
RIVER CARPSUCKER	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
RIVER CHUB	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
SPOTTED BASS	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
STRIPED KILLIFISH	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
TADPOLE MADTOM	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
TESSELATED DARTR	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
WHITE BASS	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
WHITE CRAPPIE	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
YELLOW BULLHEAD	0.00	0.00	82.250	0.00	0.00	0.00	0.000	0.00
MONTHLY SUM	779.88	1.74		64145.19	143.17	158.04	0.387	464.66

MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER EVENTS SAMPLED
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.0000	0.00	0.00	0.00	0.0000	0.00	0.00	16
0.9785	1095.96	2.51	307.68	0.6347	1254.00	2.90	

2 Conventional Generation Netting

Summary

During pumped-storage operation, power is purchased during periods of reduced demand (usually at night or on weekend days) and used to pump water back into the upper reservoir for power generation when demand for power increases. The stored water supplements inflows into the watershed above the dam and therefore can considerably increase the power generating capacity of the dam. The increase in generation capacity resulting from pumping operation can also result in increased entrainment of fish from Richard B. Russell Lake. No samples were collected of fish passage through the pump units during conventional generation as part of Phase III sampling; however, substantial netting was conducted prior to entry into Phase III. These samples were collated by month and used to estimate entrainment for fish lost during conventional generation. Some of these samples were of short duration or collected when only a single unit was in operation, but can be used to estimate species composition and timing of entrainment. Analysis of spring time passage data for 1995 indicated that entrainment rates estimated for tests lasting one hour (n=13) had a significantly (p=0.00043) higher entrainment (413 vs 167 fish/hour) than four hour tests (n=14). Netting during conventional generation when more than one unit was generating proved to be difficult because of unpredictable cross currents that formed during multi-unit generation.

Conventional generation entrainment generally mirror stratification patterns in Richard B. Russell Lake. During non-stratification periods, entrainment can be high, particularly during the time period of threadfin shad winter kill. For example, mean entrainment rates of 7227 fish/hour were observed in February, most of which were threadfin shad (95.6 percent). However, during stratification periods entrainment was generally low (less than 100 fish/hour) because the centerline depth of the intakes tended to be below the thermocline. As a proportion of total hourly rate over the year, Clupeids comprised 94 percent of entrainment, with threadfin shad comprising 87.3 percent of entrainment followed by blueback herring at about 6.7 percent of entrainment by number. No sport fish comprised more than 1.0 percent of entrainment. Projected annual water year totals trends

follow pumped-storage entrainment trends with the highest entrainment for conventional generation, that can be attributed to the addition of pumped storage units, occurring during a dry year (5,918,426 annual entrainment compared to a wet year annual entrainment of 2,015,597).

Conventional Generation Netting

Conventional generation passage was not monitored during Phase III studies. In lieu of conventional generation monitoring during Phase III, the results of netting surveys conducted prior to Phase III were employed to estimate conventional generation entrainment. These historical data are presented here to generally depict entrainment rates that would have been reasonable to expect during Phase III conventional generation monitoring and during months not included in Phase III sampling. Conventional generation full recovery netting was restricted to unit 5. Each draft tube is separated into two bays by a splitter wall. Each bay was fished with a separate net attached to the trashracks. While the entrainment summaries probably represent general trends, the summaries are based on uneven sampling effort across months and years and there are no corresponding population estimates available against which to assess conventional generation entrainment. The conventional generation data should be used with caution because in some cases the netting summaries represent passage when only a single unit was running in conventional generation mode. Before entering into Phase III, the CG agreed that data collected prior to Phase III would be used to characterize entrainment during Phase III.

The baseline condition for monitoring was considered to be the plant capacity prior to installation of the pumped-storage units. That is, impact of conventional generation was defined as the amount of extra power plant capacity that was provided by the pump turbines. The contribution of pumped-storage operation to total plant capacity was obtained by running the hydrologic planning model, HEC-5, used by Savannah District to develop long term operational guidelines for the system under two different scenarios. The model predicts discharge at the dam in terms of average hourly discharge for each month. For scenario 1 the monthly average hourly discharge was calculated without the presence of the pumped storage units. For scenario 2 the monthly average hourly discharge was calculated assuming that the four pump-turbines were available to replenish upstream storage. The monthly discharge output was converted to unit hours of operation per month because the entrainment data is presented as a monthly mean hourly entrainment rate. To convert monthly mean hourly discharge to unit hours of operation the following formula was used:

$$\text{UNIT HOURS}_{\text{month i}} = \text{TOTALQ}_{\text{month i}} \ / \ \text{UNITQ}_{\text{hour}}$$

where

$UNIT\ HOURS_{month\ i}$ = NUMBER OF UNIT HOURS OF OPERATION FOR $MONTH_i$

$TOTALQ_{month\ i}$ = TOTAL MONTHLY DISCHARGE CALCULATED AS MEAN AVERAGE HOURLY DISCHARGE X 3600 SECS $HOUR^{-1}$ X 24 HOURS DAY^{-1} X DAYS $MONTH_i^{-1}$

and

$UNITQ_{hour}$ = FLOW CAPACITY OF ONE UNIT PER HOUR CALCULATED AS MEAN HOURLY UNIT DISCHARGE (7200 $FT^3\ SEC^{-1}$) X 3600 SEC $HOUR^{-1}$

For example if the model predicts an average hourly discharge for May of 7935 then the number of unit hours of operation is calculated as:

$$UNIT\ HOURS_{May} = (7935\ ft^3\ sec^{-1} \times 3600\ sec\ hr^{-1} \times 24\ hours\ day^{-1} \times 31\ days\ month^{-1}_{May})/(7200\ ft^3\ sec^{-1} \times 3600\ sec\ hr^{-1})$$
$$= 2.1253 \times 10^{10} / 2.59 \times 10^7$$
$$= 819.95\ unit\ hours\ month^{-1}$$

The difference between scenario 2 and scenario 1 (as unit hours of operation) was the amount of additional conventional generation capacity that was provided by pumping operation as unit hours of operation. The formulation was tested on Phase III conventional generation durations as a check on computational accuracy (Table 2-1). Note the generally close agreement between predicted and actual conventional generation operational durations as unit hours. Table 2-2 presents the conventional generation operation projections that were used to expand hourly entrainment rates obtained from netting data to predict the effect of pumping operation associated with different water years. The wet and dry year conditions were determined by averaging the 17 wettest and driest years in a 69 year period of record. The average condition was determined by the average of all 69 years. This new formula differs from the one used in previous draft and quarterly reports. The change was made because the previous formula was a poor predictor of actual operation.

Mean monthly (Table 2-3) and annual (Table 2-4) entrainment rates (fish/hour) by species for conventional generation netting are presented to provide an estimate of species composition of entrainment. Entrainment is dominated by threadfin shad (87.3 percent), blueback herring (6.6 percent), and yellow perch (4.2 percent). These three species together comprise 98 percent of entrainment by hourly rate. Conventional generation entrainment results generally mirror stratification patterns in Richard B. Russell Lake. Entrainment of sport fishes during conventional generation is relatively low for both the Phase III months and non-Phase III months. Phase III passage totals are generally low (Table 2-5) and are not of the same magnitude as Phase III pumpback passage. However, passage totals during non-Phase III months of November, December, January, February, and March are

substantially higher than during the Phase III sampling (Table 2-6). Considerable passage of fishes during the winter is common at hydropower dams, particularly for threadfin shad. Mortality of threadfin shad is common as the summer boom of threadfin shad is substantially reduced during winter die off (Table 2-3, see January and February rates). However, during stratification periods entrainment was generally low because the centerline depth of the intakes tended to be below the thermocline. Clupeids comprised 93 percent of entrainment with threadfin shad comprising 87.4 percent of entrainment followed by blueback herring at about 6.6 percent of entrainment by number (Table 2-4). No direct population estimates are available for threadfin shad and blueback herring as were performed for JST Lake. However, cove rotenone data were available to allow a comparison of the abundance ranking of threadfin shad and yellow perch in the two reservoirs. From the cove rotenone data, threadfin shad are the most abundant fish in RBR Lake. Entrainment of sport fishes during conventional generation is relatively low for both the Phase III months and non-Phase III months compared to pumpback entrainment. For example, only 72 striped bass, 304 hybrid bass and 14,075 black crappie are projected to be entrained by worst case conventional generation over an annual cycle compared to 2,789 striped bass, 2,134 hybrid bass, and 69,465 black crappie during worst case pumpback operation. These comparisons are not adjusted for survival although it is probable that survival during conventional generation is at least as great as during pumping operation. The runner blades are less likely to physically damage fishes by direct contact during conventional generation passage. During conventional generation the fish and runner blades are both moving at the same speed, unlike during pumpback when the fish are more likely to contact the runner blades. Sport catch in RBR Lake was summarized so that entrainment losses could be contrasted to commercial harvest (Table 2-7).

Projections of entrainment for the different water years show that entrainment combined for Phase III and non-Phase III months is approximately the same rate and species composition as entrainment during pumping operation. Projected water year entrainment totals for conventional generation follow the trends identified for pumped-storage operation with the lowest entrainment that can be attributed to the increase in plant capacity from pumped-storage operation occurring during a wet year (2,015,597 annual entrainment) compared to a dry year (5,918,426 annual entrainment).

Table 2-1. Generation hours for Phase III and predicted generation hours for Phase III based on the formula used to project future generation operations.

Month	Actual Gen. Hrs. Phase III Units 1-8 From Plant Log	Actual Gen. Hrs. Phase III Units 5-8 From Plant Log	Average Daily Discharge (cfs) Phase III Operation	Predicted Gen. Hrs. Phase III Using Formula
Jan				
Feb				
Mar				
Apr	889.6	181.4	8835	883.5
May	809.8	285.3	7935	820
Jun	709.7	381.3	7208	720.8
Jul	879.2	443.7	8519	880.3
Aug	847.8	438.9	8234	850.8
Sep	942.1	418.1	9225	922.5
Oct	864.4	462.6	7890	815.3
Nov				
Dec				
Total Phase III	5942.6	2611.3		5893.2

Table 2-2. Generation hours projected for wet, average, and dry years based on with and without pumped storage operation.

	WET YEAR			AVERAGE YEAR			DRY YEAR		
Month	Projected Gen. Hrs. Wet Year With Pump Storage Operation	Projected Gen. Hrs. Wet Year Present Condition (4-Units)	Gen. Hrs. Wet Year Attributed to Pumped Storage Addition	Projected Gen. Hrs. Average Year With Pump Storage	Projected Gen. Hrs. Avg. Year Present Condition (4-Units)	Avg. Year Gen. Hrs. Attributed to Pumped Storage Addition	Projected Gen.Hrs. Dry Year With Pump Storage Operation	Projected Gen. Hrs. Dry Year Present Condition (4-Units)	Dry Year Gen. Hrs. Attributed to Pumped Storage Addition
Jan	1166	980	186	1021	570	451	963	313	650
Feb	1010	833	177	880	509	371	819	284	535
Mar	1296	1160	136	935	645	290	789	320	469
Apr	1057	1164	0	849	652	197	771	332	439
May	944	951	0	853	573	280	820	328	492
Jun	930	730	200	897	449	448	911	317	594
Jul	1201	720	481	1141	488	653	1076	358	718
Aug	1255	739	516	1151	495	656	1080	361	719
Sep	1146	566	580	1071	408	663	1046	311	735
Oct	1057	610	447	1001	391	610	973	276	697
Nov	989	788	201	911	428	483	879	259	620
Dec	1155	952	203	1014	536	478	958	287	671
Total For Year	13206	10193	3127	11724	6144	5580	11085	3746	7339

Table 2-3. Arithmetic mean entrainment rate for conventional generation (num/hr & kg/hr) by month for each species.

MONTH=JANUARY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	1265.70	86.82	0.14	17.19	548.32	0.08363	169.06	-379.26
BLUEBACK HERRING	146.75	10.07	0.47	59.02	58.75	0.17973	29.24	-29.51
YELLOW PERCH	40.51	2.78	0.12	15.32	2.58	0.04391	35.35	32.77
WHITE CATFISH	1.61	0.11	0.01	0.76	0.53	0.00388	0.55	0.02
BLUEGILL	1.08	0.07	0.00	0.49	0.55	0.00282	-0.01	-0.56
SPOTTAIL SHINER	0.83	0.06	0.00	0.46	0.40	0.00185	0.04	-0.35
YELLOW BULLHEAD	0.36	0.02	0.00	0.48	0.28	0.00379	-0.21	-0.49
BLACK CRAPPIE	0.36	0.02	0.00	0.06	0.21	0.00049	-0.07	-0.29
CHANNEL CATFISH	0.20	0.01	0.01	1.52	0.20	0.01204	-0.20	-0.40
WARMOUTH	0.12	0.01	0.00	0.02	0.08	0.00014	-0.04	-0.12
GIZZARD SHAD	0.11	0.01	0.01	1.35	0.09	0.00830	-0.06	-0.14
GOLDEN SHINER	0.05	0.00	0.00	0.02	0.05	0.00019	-0.05	-0.10
HYBRID BASS	0.05	0.00	0.00	0.00	0.05	0.00000	-0.05	-0.10
LARGEMOUTH BASS	0.03	0.00	0.01	1.34	0.03	0.01060	-0.03	-0.07
LONGNOSE GAR	0.03	0.00	0.02	1.97	0.03	0.01560	-0.03	-0.07
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BROWN BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
2362.34	2910.66	-0.03	-0.11	0.30	0.39	7
264.25	323.01	0.11	-0.07	0.83	1.01	7
45.67	48.25	0.03	-0.01	0.21	0.25	7
2.66	3.19	0.00	-0.01	0.01	0.02	7
2.17	2.71	0.00	0.00	0.01	0.01	7
1.63	2.02	0.00	0.00	0.01	0.01	7
0.92	1.20	0.00	-0.01	0.01	0.02	7
0.78	1.00	0.00	0.00	0.00	0.00	7
0.60	0.80	-0.01	-0.02	0.04	0.05	7
0.27	0.35	0.00	0.00	0.00	0.00	7
0.29	0.37	-0.01	-0.01	0.03	0.04	7
0.15	0.20	0.00	0.00	0.00	0.00	7
0.14	0.19	0.00	0.00	0.00	0.00	7
0.10	0.13	-0.01	-0.02	0.03	0.04	7
0.10	0.13	-0.02	-0.03	0.05	0.06	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7

Table 2-3. (Continued).

MONTH=JANUARY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	1457.79	99.98	0.79	100.00			233.49	-378.67

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
2682.07	3294.21	0.06	-0.29	1.53	1.90	

Table 2-3. (Continued).

MONTH=FEBRUARY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	6911.76	95.64	0.15	22.92	3170.35	0.07951	571.05	-2599.30
BLUEBACK HERRING	255.34	3.53	0.40	62.81	114.07	0.23947	27.20	-86.88
YELLOW PERCH	56.69	0.78	0.07	11.13	11.12	0.03577	34.46	23.34
WHITE CATFISH	1.78	0.02	0.01	1.90	0.71	0.00677	0.36	-0.36
BLUEGILL	0.41	0.01	0.00	0.23	0.20	0.00138	0.00	-0.20
SPOTTAIL SHINER	0.38	0.01	0.00	0.12	0.15	0.00050	0.08	-0.07
WHITE PERCH	0.33	0.00	0.00	0.44	0.21	0.00196	-0.10	-0.31
BLACK CRAPPIE	0.08	0.00	0.00	0.45	0.06	0.00261	-0.03	-0.08
BLACKBANDED DARTR	0.08	0.00	0.00	0.00	0.08	0.00000	-0.08	-0.17
CHANNEL CATFISH	0.05	0.00	0.00	0.00	0.05	0.00002	-0.05	-0.11
GIZZARD SHAD	0.04	0.00	0.00	0.00	0.04	0.00000	-0.04	-0.08
WALLEYE	0.04	0.00	0.00	0.00	0.04	0.00000	-0.04	-0.08
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BROWN BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
13252.46	16422.81	-0.01	-0.09	0.31	0.38	8
483.49	597.56	-0.08	-0.32	0.88	1.12	8
78.92	90.04	0.00	-0.04	0.14	0.18	8
3.21	3.92	0.00	-0.01	0.03	0.03	8
0.81	1.01	0.00	0.00	0.00	0.01	8
0.68	0.83	0.00	0.00	0.00	0.00	8
0.75	0.97	0.00	0.00	0.01	0.01	8
0.19	0.25	0.00	0.00	0.01	0.01	8
0.25	0.33	0.00	0.00	0.00	0.00	8
0.16	0.21	0.00	0.00	0.00	0.00	8
0.13	0.17	0.00	0.00	0.00	0.00	8
0.13	0.17	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8

Table 2-3. (Continued).

MONTH=FEBRUARY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WARMOUTH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	7226.98	99.99	0.63	100.00			632.81	-2664.30

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
0.00	0.00	0.00	0.00	0.00	0.00	8
13821.18	17118.27	-0.09	-0.46	1.38	1.74	

Table 2-3. (Continued).

MONTH=MARCH

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
YELLOW PERCH	132.90	59.09	0.81	63.76	38.77	0.22126	55.36	16.60
BLUEBACK HERRING	47.73	21.22	0.25	19.81	14.85	0.05719	18.03	3.17
THREADFIN SHAD	38.34	17.05	0.05	3.60	21.35	0.02148	-4.36	-25.71
WHITE PERCH	1.87	0.83	0.04	2.85	1.13	0.01982	-0.38	-1.51
SPOTTAIL SHINER	1.30	0.58	0.01	0.42	0.42	0.00193	0.46	0.04
BLUEGILL	1.08	0.48	0.00	0.32	0.34	0.00165	0.41	0.07
WHITE CATFISH	0.90	0.40	0.00	0.38	0.35	0.00207	0.20	-0.15
HYBRID BASS	0.24	0.11	0.06	5.07	0.19	0.05089	-0.14	-0.33
BLACK CRAPPIE	0.24	0.11	0.01	0.43	0.14	0.00317	-0.04	-0.17
GIZZARD SHAD	0.13	0.06	0.02	1.39	0.10	0.01641	-0.06	-0.16
STRIPED BASS	0.07	0.03	0.02	1.28	0.07	0.01638	-0.07	-0.14
BLACK BULLHEAD	0.04	0.02	0.00	0.09	0.04	0.00110	-0.04	-0.07
BROWN BULLHEAD	0.04	0.02	0.00	0.15	0.04	0.00191	-0.04	-0.07
WHITE BASS	0.03	0.02	0.01	0.46	0.02	0.00400	-0.01	-0.04
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CHANNEL CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
210.43	249.20	0.37	0.15	1.26	1.48	17
77.43	92.28	0.14	0.08	0.37	0.42	17
81.05	102.40	0.00	-0.02	0.09	0.11	17
4.12	5.24	0.00	-0.02	0.08	0.10	17
2.15	2.57	0.00	0.00	0.01	0.01	17
1.75	2.09	0.00	0.00	0.01	0.01	17
1.61	1.96	0.00	0.00	0.01	0.01	17
0.62	0.81	-0.04	-0.09	0.17	0.22	17
0.51	0.65	0.00	0.00	0.01	0.01	17
0.32	0.42	-0.02	-0.03	0.05	0.07	17
0.20	0.27	-0.02	-0.03	0.05	0.07	17
0.11	0.14	0.00	0.00	0.00	0.00	17
0.11	0.14	0.00	0.00	0.01	0.01	17
0.08	0.10	0.00	-0.01	0.01	0.02	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17

Table 2-3. (Continued).

MONTH=MARCH

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WARMOUTH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	224.91	100.02	1.28	100.01			69.32	-8.47

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
380.49	458.27	0.43	0.03	2.13	2.54	

Table 2-3. (Continued).

MONTH=APRIL

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
YELLOW PERCH	104.38	41.55	0.37	31.95	25.36	0.07844	53.66	28.29
BLUEBACK HERRING	74.29	29.57	0.24	21.29	16.13	0.04850	42.03	25.91
THREADFIN SHAD	42.54	16.93	0.09	8.12	24.80	0.05902	-7.06	-31.86
WHITE PERCH	11.84	4.71	0.23	19.95	3.88	0.06524	4.08	0.20
BLUEGILL	10.96	4.36	0.03	2.49	2.27	0.00589	6.43	4.16
WHITE CRAPPIE	2.90	1.16	0.04	3.70	1.26	0.01875	0.38	-0.88
SPOTTAIL SHINER	1.01	0.40	0.00	0.37	0.29	0.00154	0.43	0.14
BLACK CRAPPIE	0.94	0.37	0.00	0.29	0.64	0.00186	-0.34	-0.98
WHITE CATFISH	0.57	0.23	0.00	0.12	0.19	0.00052	0.19	0.01
CHANNEL CATFISH	0.52	0.21	0.03	2.52	0.26	0.02742	0.01	-0.25
WARMOUTH	0.31	0.12	0.00	0.30	0.20	0.00195	-0.08	-0.28
BLACK BULLHEAD	0.24	0.10	0.00	0.19	0.21	0.00148	-0.18	-0.39
HYBRID BASS	0.20	0.08	0.07	5.87	0.18	0.06089	-0.15	-0.33
GOLDEN SHINER	0.11	0.04	0.00	0.03	0.09	0.00035	-0.07	-0.16
GIZZARD SHAD	0.11	0.04	0.01	1.05	0.07	0.00823	-0.04	-0.11
REDBREAST SUNFISH	0.06	0.02	0.00	0.12	0.06	0.00135	-0.06	-0.12
STRIPED BASS	0.06	0.02	0.01	0.51	0.04	0.00547	-0.02	-0.06
SMALLMOUTH BASS	0.05	0.02	0.00	0.00	0.05	0.00000	-0.05	-0.11
GREEN SUNFISH	0.04	0.01	0.00	0.01	0.03	0.00013	-0.01	-0.04

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
155.11	180.47	0.21	0.13	0.52	0.60	17
106.55	122.68	0.15	0.10	0.34	0.39	17
92.14	116.94	-0.03	-0.08	0.21	0.27	17
19.59	23.47	0.10	0.03	0.36	0.42	17
15.50	17.77	0.02	0.01	0.04	0.05	17
5.43	6.69	0.00	-0.01	0.08	0.10	17
1.59	1.88	0.00	0.00	0.01	0.01	17
2.22	2.85	0.00	0.00	0.01	0.01	17
0.94	1.13	0.00	0.00	0.00	0.00	17
1.03	1.29	-0.03	-0.05	0.08	0.11	17
0.71	0.91	0.00	0.00	0.01	0.01	17
0.67	0.88	0.00	0.00	0.01	0.01	17
0.56	0.73	-0.05	-0.12	0.19	0.25	17
0.29	0.38	0.00	0.00	0.00	0.00	17
0.25	0.32	0.00	-0.01	0.03	0.04	17
0.17	0.23	0.00	0.00	0.00	0.01	17
0.14	0.18	-0.01	-0.01	0.02	0.02	17
0.16	0.22	0.00	0.00	0.00	0.00	17
0.09	0.11	0.00	0.00	0.00	0.00	17

Table 2-3. (Continued).

MONTH=APRIL

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
FLATHEAD CATFISH	0.03	0.01	0.00	0.06	0.03	0.00064	-0.03	-0.06
WHITEFIN SHINER	0.02	0.01	0.00	0.01	0.02	0.00007	-0.02	-0.04
CARP	0.01	0.01	0.00	0.40	0.01	0.00455	-0.01	-0.03
WHITE BASS	0.01	0.01	0.00	0.25	0.01	0.00283	-0.01	-0.03
SILVER REDHORSE	0.01	0.00	0.00	0.40	0.01	0.00457	-0.01	-0.02
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BROWN BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	251.21	99.98	1.12	100.00			99.07	22.96

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.09	0.12	0.00	0.00	0.00	0.00	17
0.06	0.08	0.00	0.00	0.00	0.00	17
0.04	0.06	0.00	-0.01	0.01	0.02	17
0.04	0.06	0.00	-0.01	0.01	0.01	17
0.04	0.05	0.00	-0.01	0.01	0.02	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
0.00	0.00	0.00	0.00	0.00	0.00	17
403.41	479.50	0.36	-0.04	1.94	2.35	

Table 2-3. (Continued).

MONTH=MAY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	44.66	41.21	0.14	20.95	25.79	0.06789	-6.92	-32.72
YELLOW PERCH	41.98	38.73	0.20	30.95	6.20	0.02793	29.58	23.38
WHITE PERCH	9.91	9.15	0.16	24.48	2.22	0.03869	5.46	3.24
BLACK CRAPPIE	5.74	5.29	0.03	4.72	2.20	0.00927	1.34	-0.86
BLUEGILL	1.87	1.73	0.01	1.27	0.53	0.00240	0.82	0.30
THREADFIN SHAD	1.84	1.70	0.01	0.82	0.50	0.00145	0.83	0.33
WHITE CATFISH	0.74	0.69	0.00	0.50	0.25	0.00156	0.24	-0.01
CHANNEL CATFISH	0.57	0.53	0.01	0.92	0.15	0.00239	0.28	0.13
SPOTTAIL SHINER	0.31	0.28	0.00	0.19	0.16	0.00066	-0.01	-0.17
HYBRID BASS	0.14	0.13	0.04	6.59	0.08	0.02327	-0.01	-0.09
WARMOUTH	0.13	0.12	0.00	0.13	0.09	0.00057	-0.04	-0.13
TESSELATED DARTER	0.11	0.11	0.00	0.19	0.06	0.00075	-0.01	-0.07
BROWN BULLHEAD	0.11	0.10	0.01	1.21	0.06	0.00430	-0.01	-0.06
SILVER REDHORSE	0.08	0.07	0.03	4.55	0.05	0.02009	-0.03	-0.08
WHITE CRAPPIE	0.08	0.07	0.00	0.14	0.05	0.00065	-0.03	-0.08
CARP	0.03	0.03	0.01	1.89	0.03	0.01235	-0.03	-0.07
STRIPED BASS	0.03	0.03	0.00	0.08	0.03	0.00049	-0.03	-0.06
GREEN SUNFISH	0.02	0.02	0.00	0.01	0.02	0.00006	-0.02	-0.05
COOSA BASS	0.02	0.01	0.00	0.42	0.02	0.00274	-0.02	-0.03

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
96.25	122.05	0.00	-0.07	0.27	0.34	12
54.38	60.58	0.15	0.12	0.26	0.29	12
14.36	16.59	0.08	0.04	0.24	0.28	12
10.14	12.34	0.01	0.00	0.05	0.06	12
2.92	3.45	0.00	0.00	0.01	0.02	12
2.85	3.35	0.00	0.00	0.01	0.01	12
1.25	1.50	0.00	0.00	0.01	0.01	12
0.86	1.01	0.00	0.00	0.01	0.01	12
0.62	0.78	0.00	0.00	0.00	0.00	12
0.30	0.38	0.00	-0.03	0.09	0.11	12
0.30	0.38	0.00	0.00	0.00	0.00	12
0.23	0.29	0.00	0.00	0.00	0.00	12
0.23	0.29	0.00	-0.01	0.02	0.02	12
0.19	0.24	-0.01	-0.03	0.07	0.09	12
0.18	0.23	0.00	0.00	0.00	0.00	12
0.10	0.13	-0.01	-0.02	0.04	0.05	12
0.09	0.12	0.00	0.00	0.00	0.00	12
0.07	0.09	0.00	0.00	0.00	0.00	12
0.05	0.06	0.00	-0.01	0.01	0.01	12

Table 2-3. (Continued).

MONTH=MAY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GIZZARD SHAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	108.37	100.00	0.65	100.01			31.39	-7.10

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
0.00	0.00	0.00	0.00	0.00	0.00	12
185.37	223.86	0.22	-0.01	1.09	1.30	

Table 2-3. (Continued).

MONTH=JUNE

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
BLUEBACK HERRING	22.09	30.94	0.18	41.79	10.76	0.09134	0.57	-10.19
YELLOW PERCH	20.60	28.86	0.09	21.98	4.48	0.01318	11.64	7.15
BLACK CRAPPIE	12.53	17.55	0.06	14.64	8.46	0.04203	-4.39	-12.85
THREADFIN SHAD	10.84	15.19	0.03	6.08	7.09	0.01622	-3.33	-10.42
BLUEGILL	2.13	2.98	0.01	3.25	0.90	0.00590	0.32	-0.58
WHITE CRAPPIE	1.15	1.62	0.01	2.73	0.86	0.00949	-0.57	-1.43
WHITE PERCH	0.67	0.95	0.01	2.82	0.31	0.00597	0.06	-0.24
WHITE CATFISH	0.67	0.94	0.00	0.58	0.30	0.00131	0.08	-0.21
BLACK BULLHEAD	0.15	0.21	0.00	0.39	0.15	0.00167	-0.15	-0.30
SPOTTAIL SHINER	0.13	0.19	0.00	0.15	0.09	0.00043	-0.04	-0.13
GREEN SUNFISH	0.08	0.11	0.00	0.15	0.08	0.00066	-0.08	-0.15
BROWN BULLHEAD	0.06	0.08	0.01	1.84	0.06	0.00782	-0.06	-0.12
CHANNEL CATFISH	0.06	0.08	0.00	0.55	0.06	0.00236	-0.06	-0.12
NORTHERN HOGSUCKR	0.05	0.07	0.00	0.00	0.05	0.00000	-0.05	-0.10
SNAIL BULLHEAD	0.05	0.07	0.00	0.02	0.05	0.00009	-0.05	-0.10
SPOTTED BASS	0.05	0.07	0.00	0.02	0.05	0.00010	-0.05	-0.10
GIZZARD SHAD	0.05	0.07	0.01	1.32	0.03	0.00366	-0.01	-0.04
CARP	0.03	0.04	0.01	1.67	0.03	0.00710	-0.03	-0.05
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
43.61	54.37	-0.01	-0.10	0.36	0.45	7
29.57	34.05	0.07	0.05	0.12	0.13	7
29.45	37.91	-0.02	-0.06	0.15	0.19	7
25.02	32.11	-0.01	-0.02	0.06	0.07	7
3.93	4.83	0.00	0.00	0.03	0.03	7
2.88	3.74	-0.01	-0.02	0.03	0.04	7
1.29	1.59	0.00	-0.01	0.02	0.03	7
1.26	1.56	0.00	0.00	0.01	0.01	7
0.44	0.59	0.00	0.00	0.01	0.01	7
0.31	0.40	0.00	0.00	0.00	0.00	7
0.23	0.30	0.00	0.00	0.00	0.00	7
0.17	0.23	-0.01	-0.02	0.02	0.03	7
0.17	0.23	0.00	0.00	0.01	0.01	7
0.16	0.21	0.00	0.00	0.00	0.00	7
0.15	0.20	0.00	0.00	0.00	0.00	7
0.15	0.20	0.00	0.00	0.00	0.00	7
0.11	0.14	0.00	-0.01	0.01	0.02	7
0.08	0.11	-0.01	-0.01	0.02	0.03	7
0.00	0.00	0.00	0.00	0.00	0.00	7

Table 2-3. (Continued).

MONTH=JUNE

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WARMOUTH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	71.39	100.02	0.42	99.98			3.80	-29.98

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
138.98	172.77	0.00	-0.20	0.85	1.05	

Table 2-3. (Continued).

MONTH=JULY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	65.19	64.46	0.09	11.63	49.41	0.05929	-33.62	-83.02
YELLOW PERCH	15.87	15.69	0.09	11.91	2.59	0.01090	10.68	8.09
BLUEBACK HERRING	8.61	8.51	0.10	13.47	3.75	0.04127	1.12	-2.63
BLUEGILL	3.46	3.42	0.01	1.66	1.21	0.00373	1.04	-0.16
BROWN BULLHEAD	2.40	2.38	0.07	10.05	0.58	0.02730	1.25	0.67
BLACK CRAPPIE	1.89	1.87	0.01	1.16	1.51	0.00637	-1.12	-2.63
WHITE CATFISH	1.12	1.11	0.01	1.22	0.77	0.00764	-0.42	-1.19
CARP	0.95	0.94	0.25	33.28	0.37	0.09056	0.22	-0.15
YELLOW BULLHEAD	0.65	0.64	0.04	5.13	0.65	0.03812	-0.65	-1.30
GIZZARD SHAD	0.50	0.50	0.06	8.18	0.13	0.01587	0.23	0.10
WARMOUTH	0.17	0.17	0.00	0.18	0.11	0.00083	-0.05	-0.16
CHANNEL CATFISH	0.08	0.08	0.00	0.02	0.08	0.00011	-0.08	-0.15
RAINBOW TROUT	0.07	0.07	0.01	1.88	0.04	0.00829	-0.01	-0.05
WHITEFIN SHINER	0.06	0.06	0.00	0.03	0.06	0.00022	-0.06	-0.12
GREEN SUNFISH	0.06	0.06	0.00	0.02	0.06	0.00016	-0.06	-0.11
WHITE CRAPPIE	0.06	0.06	0.00	0.18	0.06	0.00136	-0.06	-0.11
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
164.01	213.41	-0.03	-0.09	0.20	0.26	4
21.06	23.65	0.07	0.06	0.11	0.12	4
16.10	19.85	0.02	-0.02	0.18	0.22	4
5.87	7.08	0.00	0.00	0.02	0.02	4
3.56	4.14	0.02	-0.01	0.13	0.16	4
4.91	6.41	0.00	-0.01	0.02	0.03	4
2.66	3.43	-0.01	-0.01	0.02	0.03	4
1.69	2.06	0.07	-0.02	0.43	0.52	4
1.95	2.60	-0.04	-0.08	0.11	0.15	4
0.77	0.91	0.03	0.01	0.09	0.11	4
0.39	0.50	0.00	0.00	0.00	0.00	4
0.23	0.30	0.00	0.00	0.00	0.00	4
0.15	0.20	0.00	-0.01	0.03	0.04	4
0.18	0.25	0.00	0.00	0.00	0.00	4
0.17	0.23	0.00	0.00	0.00	0.00	4
0.17	0.23	0.00	0.00	0.00	0.01	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4

Table 2-3. (Continued).

MONTH=JULY

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTAIL SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	101.14	100.02	0.74	100.00			-21.59	-82.92

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
223.87	285.25	0.13	-0.18	1.34	1.67	

Table 2-3. (Continued).

MONTH=AUGUST

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	179.15	66.60	0.23	34.27	40.80	0.04597	97.55	56.75
BLUEBACK HERRING	65.22	24.24	0.21	31.86	24.81	0.05743	15.59	-9.22
YELLOW PERCH	8.52	3.17	0.06	9.33	2.06	0.01417	4.41	2.35
BLUEGILL	7.88	2.93	0.02	3.49	1.55	0.00567	4.77	3.22
WHITE CATFISH	4.04	1.50	0.05	7.37	0.78	0.00892	2.48	1.70
BLACK CRAPPIE	1.91	0.71	0.01	1.74	1.91	0.01147	-1.91	-3.83
BROWN BULLHEAD	0.71	0.26	0.05	7.20	0.22	0.01614	0.26	0.03
CHANNEL CATFISH	0.62	0.23	0.00	0.32	0.62	0.00211	-0.62	-1.24
WHITE CRAPPIE	0.35	0.13	0.01	0.96	0.35	0.00628	-0.35	-0.70
SPOTTED BASS	0.22	0.08	0.00	0.02	0.22	0.00012	-0.22	-0.43
GIZZARD SHAD	0.19	0.07	0.02	3.18	0.06	0.00744	0.07	0.02
WARMOUTH	0.11	0.04	0.00	0.13	0.07	0.00050	-0.02	-0.09
REDBREAST SUNFISH	0.09	0.03	0.00	0.13	0.09	0.00083	-0.09	-0.17
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
260.75	301.55	0.13	0.09	0.32	0.36	5
114.84	139.65	0.09	0.04	0.32	0.38	5
12.63	14.69	0.03	0.02	0.09	0.10	5
10.99	12.54	0.01	0.01	0.03	0.04	5
5.60	6.38	0.03	0.02	0.07	0.08	5
5.74	7.65	-0.01	-0.02	0.03	0.05	5
1.15	1.38	0.02	0.00	0.08	0.10	5
1.86	2.47	0.00	0.00	0.01	0.01	5
1.04	1.39	-0.01	-0.01	0.02	0.03	5
0.65	0.86	0.00	0.00	0.00	0.00	5
0.30	0.36	0.01	0.00	0.04	0.04	5
0.24	0.30	0.00	0.00	0.00	0.00	5
0.26	0.35	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5

Table 2-3. (Continued).

MONTH=AUGUST

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTAIL SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	269.01	99.99	0.66	100.00			121.92	48.39

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
416.05	489.57	0.30	0.15	1.01	1.19	

Table 2-3. (Continued).

MONTH=SEPTEMBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	99.82	78.33	0.12	20.60	52.90	0.05467	-5.98	-58.89
BROWN BULLHEAD	7.41	5.81	0.10	17.95	4.24	0.06477	-1.08	-5.33
BLUEBACK HERRING	6.65	5.22	0.07	13.00	3.47	0.03643	-0.29	-3.76
WHITE CATFISH	6.40	5.02	0.13	22.46	1.79	0.02936	2.83	1.04
YELLOW PERCH	3.42	2.68	0.03	5.57	0.61	0.00397	2.19	1.57
BLUEGILL	3.00	2.36	0.01	1.81	0.59	0.00207	1.83	1.25
CHANNEL CATFISH	0.26	0.21	0.00	0.35	0.16	0.00182	-0.05	-0.21
GIZZARD SHAD	0.21	0.16	0.02	2.73	0.11	0.00584	0.00	-0.11
CARP	0.11	0.09	0.07	12.52	0.06	0.04101	0.00	-0.06
WARMOUTH	0.08	0.06	0.00	0.04	0.05	0.00016	-0.02	-0.07
WHITE PERCH	0.06	0.04	0.01	1.22	0.04	0.00444	-0.02	-0.05
LARGEMOUTH BASS	0.03	0.02	0.01	1.75	0.03	0.00986	-0.03	-0.05
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACK CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
205.63	258.53	0.01	-0.05	0.23	0.28	7
15.90	20.14	-0.03	-0.09	0.23	0.30	7
13.59	17.06	0.00	-0.04	0.15	0.18	7
9.97	11.75	0.07	0.04	0.18	0.21	7
4.65	5.26	0.02	0.02	0.04	0.04	7
4.18	4.76	0.01	0.00	0.01	0.02	7
0.58	0.73	0.00	0.00	0.01	0.01	7
0.42	0.53	0.00	0.00	0.03	0.03	7
0.22	0.28	-0.01	-0.05	0.15	0.19	7
0.18	0.23	0.00	0.00	0.00	0.00	7
0.13	0.17	0.00	-0.01	0.02	0.02	7
0.08	0.11	-0.01	-0.02	0.03	0.04	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7

Table 2-3. (Continued).

MONTH=SEPTEMBER
(continued)

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTAIL SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	127.45	100.00	0.57	100.00			-0.62	-64.67

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
0.00	0.00	0.00	0.00	0.00	0.00	7
255.53	319.55	0.06	-0.20	1.08	1.32	

Table 2-3. (Continued).

MONTH=OCTOBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
WHITE CATFISH	34.36	39.58	0.46	54.73	7.94	0.11204	18.48	10.55
THREADFIN SHAD	25.23	29.06	0.04	4.39	3.53	0.00441	18.16	14.63
BLUEBACK HERRING	22.13	25.49	0.30	35.89	5.70	0.07308	10.73	5.02
YELLOW PERCH	2.87	3.30	0.02	2.35	0.72	0.00345	1.43	0.72
BLUEGILL	1.46	1.68	0.00	0.55	0.65	0.00283	0.16	-0.49
BROWN BULLHEAD	0.76	0.88	0.02	2.09	0.41	0.00950	-0.05	-0.46
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACK CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CHANNEL CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
FLATHEAD CATFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GIZZARD SHAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
50.24	58.17	0.24	0.13	0.69	0.80	5
32.30	35.83	0.03	0.02	0.05	0.05	5
33.53	39.24	0.16	0.08	0.45	0.52	5
4.30	5.02	0.01	0.01	0.03	0.03	5
2.76	3.41	0.00	0.00	0.01	0.01	5
1.57	1.98	0.00	-0.01	0.04	0.05	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5

Table 2-3. (Continued).

MONTH=OCTOBER (continued)

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTAIL SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WARMOUTH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	86.81	99.99	0.84	100.00			48.91	29.97

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
0.00	0.00	0.00	0.00	0.00	0.00	5
124.70	143.65	0.44	0.23	1.27	1.46	

Table 2-3. (Continued).

MONTH=NOVEMBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	528.65	94.99	0.29	42.50	221.66	0.07575	85.33	-136.32
WHITE CATFISH	14.73	2.65	0.17	24.80	1.70	0.01953	11.33	9.63
CHANNEL CATFISH	4.66	0.84	0.06	9.05	3.48	0.02925	-2.31	-5.79
BLUEBACK HERRING	4.41	0.79	0.07	9.85	1.08	0.01536	2.25	1.16
YELLOW PERCH	1.91	0.34	0.03	4.31	0.42	0.00565	1.07	0.65
BLUEGILL	0.68	0.12	0.01	0.84	0.08	0.00235	0.52	0.45
FLATHEAD CATFISH	0.60	0.11	0.01	2.04	0.36	0.00793	-0.11	-0.47
BLACK CRAPPIE	0.35	0.06	0.02	2.59	0.17	0.00639	0.01	-0.16
WHITE PERCH	0.22	0.04	0.01	1.15	0.13	0.00467	-0.03	-0.16
BROWN BULLHEAD	0.18	0.03	0.00	0.08	0.18	0.00057	-0.18	-0.35
GIZZARD SHAD	0.13	0.02	0.01	2.09	0.08	0.00934	-0.03	-0.11
SPOTTED BASS	0.05	0.01	0.00	0.69	0.05	0.00468	-0.05	-0.10
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
CARP	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
971.96	1193.62	0.14	0.06	0.44	0.52	4
18.12	19.82	0.13	0.11	0.21	0.23	4
11.63	15.11	0.00	-0.03	0.12	0.15	4
6.58	7.66	0.04	0.02	0.10	0.11	4
2.75	3.17	0.02	0.01	0.04	0.05	4
0.83	0.91	0.00	0.00	0.01	0.01	4
1.31	1.67	0.00	-0.01	0.03	0.04	4
0.70	0.87	0.00	0.00	0.03	0.04	4
0.47	0.59	0.00	-0.01	0.02	0.02	4
0.53	0.71	0.00	0.00	0.00	0.00	4
0.28	0.36	0.00	-0.01	0.03	0.04	4
0.14	0.19	0.00	-0.01	0.01	0.02	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4

Table 2-3. (Continued).

MONTH=NOVEMBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SILVER REDHORSE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SNAIL BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTAIL SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WARMOUTH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	556.57	100.00	0.68	99.99			97.80	-131.57

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
1015.30	1244.68	0.33	0.13	1.04	1.23	

Table 2-3. (Continued).

MONTH=DECEMBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
THREADFIN SHAD	13.28	40.62	0.02	7.56	5.03	0.00932	3.21	-1.82
YELLOW PERCH	7.69	23.51	0.03	11.56	2.33	0.00691	3.02	0.69
WHITE CATFISH	5.64	17.25	0.10	36.39	1.15	0.04336	3.34	2.18
BROWN BULLHEAD	2.44	7.46	0.03	9.90	1.29	0.01571	-0.14	-1.43
BLUEBACK HERRING	2.11	6.45	0.02	7.37	0.98	0.00807	0.14	-0.84
BLUEGILL	0.41	1.25	0.00	1.38	0.20	0.00293	0.01	-0.19
SPOTTAIL SHINER	0.27	0.81	0.00	0.14	0.27	0.00039	-0.27	-0.53
CHANNEL CATFISH	0.24	0.75	0.01	3.64	0.14	0.00636	-0.04	-0.18
FLATHEAD CATFISH	0.12	0.37	0.00	0.63	0.12	0.00175	-0.12	-0.24
SNAIL BULLHEAD	0.12	0.37	0.00	0.71	0.12	0.00197	-0.12	-0.24
GIZZARD SHAD	0.10	0.31	0.01	4.24	0.06	0.00689	-0.02	-0.07
BLACK CRAPPIE	0.09	0.27	0.00	0.59	0.09	0.00164	-0.09	-0.18
WARMOUTH	0.08	0.24	0.00	0.09	0.08	0.00025	-0.08	-0.16
CARP	0.06	0.18	0.03	10.21	0.06	0.02846	-0.06	-0.12
SILVER REDHORSE	0.05	0.15	0.02	5.60	0.05	0.01561	-0.05	-0.10
BLACK BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
BLACKBANDED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
COOSA BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
GOLDEN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
23.35	28.38	0.00	-0.01	0.04	0.05	4
12.35	14.69	0.02	0.01	0.05	0.05	4
7.95	9.10	0.01	-0.03	0.19	0.23	4
5.02	6.31	0.00	-0.02	0.06	0.07	4
4.08	5.06	0.00	0.00	0.04	0.04	4
0.81	1.01	0.00	0.00	0.01	0.01	4
0.80	1.06	0.00	0.00	0.00	0.00	4
0.53	0.67	0.00	-0.01	0.02	0.03	4
0.37	0.49	0.00	0.00	0.01	0.01	4
0.37	0.49	0.00	0.00	0.01	0.01	4
0.22	0.27	0.00	-0.01	0.03	0.03	4
0.26	0.35	0.00	0.00	0.00	0.01	4
0.24	0.32	0.00	0.00	0.00	0.00	4
0.17	0.23	-0.03	-0.06	0.09	0.11	4
0.15	0.20	-0.02	-0.03	0.05	0.06	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4

Table 2-3. (Continued).

MONTH=DECEMBER

NAME	ENTRAINMENT RATE (#/HR)	PERCENT BY NUMBER	ENTRAINMENT RATE (KG/HR)	PERCENT BY MASS	STANDARD ERROR (#/HR)	STANDARD ERROR (KG/HR)	MEAN MINUS 2 STANDARD ERRORS (#/HR)	MEAN MINUS 3 STANDARD ERRORS (#/HR)
GREEN SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
HYBRID BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LARGEMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
LONGNOSE GAR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
NORTHERN HOGSUCKR	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
RAINBOW TROUT	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
REDBREAST SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SMALLMOUTH BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
SPOTTED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
TESSELATED DARTER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WALLEYE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE BASS	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE CRAPPIE	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
WHITEFIN SHINER	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
YELLOW BULLHEAD	0.00	0.00	0.00	0.00	0.00	0.00000	0.00	0.00
MON	32.70	99.99	0.27	100.01			8.73	-3.23

MEAN PLUS 2 STANDARD ERRORS (#/HR)	MEAN PLUS 3 STANDARD ERRORS (#/HR)	MEAN MINUS 2 STANDARD ERRORS (KG/HR)	MEAN MINUS 3 STANDARD ERRORS (KG/HR)	MEAN PLUS 2 STANDARD ERRORS (KG/HR)	MEAN PLUS 3 STANDARD ERRORS (KG/HR)	NUMBER OF SAMPLES
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
0.00	0.00	0.00	0.00	0.00	0.00	4
56.67	68.63	-0.02	-0.16	0.60	0.71	

Table 2-4. Mean annual entrainment rate calculated as mean of each mean monthly entrainment rate.

NAME	MEAN ANNUAL ENTRAINMENT (#/HR)	PERCENT OF TOTAL (#/HR)	MEAN ANNUAL ENTRAINMENT (KG/HR)	PERCENT OF TOTAL (KG/HR)
THREADFIN SHAD	765.425	87.286	0.10249	14.089
BLUEBACK HERRING	58.361	6.655	0.20456	28.119
YELLOW PERCH	36.596	4.173	0.16146	22.194
WHITE CATFISH	6.301	0.718	0.08053	11.070
BLUEGILL	2.894	0.330	0.01003	1.379
WHITE PERCH	2.074	0.237	0.03780	5.196
BLACK CRAPPIE	2.010	0.229	0.01205	1.656
BROWN BULLHEAD	1.185	0.135	0.02400	3.299
CHANNEL CATFISH	0.605	0.069	0.01043	1.434
WHITE CRAPPIE	0.378	0.043	0.00521	0.716
SPOTTAIL SHINER	0.375	0.043	0.00138	0.190
GIZZARD SHAD	0.130	0.015	0.01410	1.938
CARP	0.100	0.011	0.03084	4.239
YELLOW BULLHEAD	0.084	0.010	0.00349	0.480
WARMOUTH	0.083	0.009	0.00059	0.081
FLATHEAD CATFISH	0.062	0.007	0.00136	0.187
HYBRID BASS	0.053	0.006	0.01456	2.001
BLACK BULLHEAD	0.036	0.004	0.00041	0.056
SPOTTED BASS	0.026	0.003	0.00041	0.056
GREEN SUNFISH	0.016	0.002	0.00009	0.012
SNAIL BULLHEAD	0.014	0.002	0.00017	0.024
GOLDEN SHINER	0.013	0.002	0.00005	0.007
STRIPED BASS	0.013	0.001	0.00189	0.260
REDBREAST SUNFISH	0.012	0.001	0.00018	0.025
SILVER REDHORSE	0.012	0.001	0.00415	0.571
TESSELATED DARTER	0.010	0.001	0.00011	0.015
BLACKBANDED DARTER	0.007	0.001	0.00000	0.000
WHITEFIN SHINER	0.007	0.001	0.00002	0.003
RAINBOW TROUT	0.006	0.001	0.00116	0.160
LARGEMOUTH BASS	0.005	0.001	0.00170	0.234
SMALLMOUTH BASS	0.005	0.001	0.00000	0.000
NORTHERN HOGSUCKER	0.004	0.000	0.00000	0.000
WHITE BASS	0.004	0.000	0.00072	0.099
WALLEYE	0.003	0.000	0.00000	0.000
LONGNOSE GAR	0.003	0.000	0.00130	0.179
COOSA BASS	0.001	0.000	0.00023	0.031
	876.914	100.000	0.72747	100.000

Table 2-5. Summaries of numbers of fish greater than or equal to 1.5-inches long estimated to have passed during conventional generation during Phase III and projected to pass during the Phase III months (April - October) of a wet water year (25 percent exceedance), average water year (50 percent exceedance), and dry water year (75 percent exceedance) based on PrePhase III netting. Data are not adjusted for passage survival.

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
THREADFIN SHAD	172960	48.3080	314923	385904	230	408	496	195145
BLUEBACK HERRING	79477	22.1981	141217	172087	451	759	913	55960
YELLOW PERCH	52053	14.5385	73367	84023	247	330	371	19414
WHITE CATFISH	20695	5.7803	31010	36167	284	424	494	21828
BLUEGILL	10214	2.8529	15519	18171	35	55	65	8550
BLACK CRAPPIE	8252	2.3049	19195	24667	42	96	122	4403
BROWN BULLHEAD	4876	1.3618	9582	11935	109	219	274	6168
WHITE PERCH	5229	1.4605	8152	9613	94	148	174	168
WHITE CRAPPIE	1160	0.3239	2654	3402	16	37	47	438
CHANNEL CATFISH	693	0.1937	1655	2136	10	26	34	520

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
352143	430642	247	425	514	255423	51.939	464346	568807
98598	119917	369	612	734	103350	21.016	182795	222518
27179	31061	120	158	177	61515	12.509	86771	99399
32661	38077	309	461	536	29205	5.939	43766	51047
12935	15128	28	45	54	13946	2.836	21126	24715
11210	14614	23	57	75	9894	2.012	23435	30206
12266	15315	128	258	323	7464	1.518	14724	18353
332	414	6	14	18	5447	1.108	8543	10091
1196	1576	6	18	24	1376	0.280	3206	4121
1436	1894	3	8	11	918	0.187	2271	2948

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
335	589	716	292599	535605	657108	394	704	859
602	1007	1210	141095	247530	300747	767	1282	1539
301	402	452	100747	143026	164165	460	618	698
405	605	704	33375	50056	58397	459	686	799
47	74	88	18371	27684	32340	61	96	113
50	117	151	13409	31100	39945	68	154	197
163	327	409	8297	16383	20427	183	367	459
100	158	187	10515	16526	19531	191	300	354
19	45	58	2289	5055	6438	31	71	90
11	31	41	1236	2903	3736	20	55	73

Table 2-5. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
CARP	495	0.1382	916	1126	147	276	341	528
GIZZARD SHAD	431	0.1205	740	895	47	78	94	469
YELLOW BULLHEAD	290	0.0811	871	1161	17	51	68	313
SPOTTAIL SHINER	320	0.0893	581	712	1	3	3	27
WARMOUTH	248	0.0693	565	723	2	4	5	182
SPOTTED BASS	114	0.0317	341	454	0	0	0	121
BLACK BULLHEAD	100	0.0279	288	383	1	3	4	30
GREEN SUNFISH	68	0.0189	199	264	0	1	1	43
HYBRID BASS	78	0.0217	185	239	24	59	77	0
REDBREAST SUNFISH	49	0.0136	146	194	1	2	2	45

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
959	1174	161	299	367	720	0.146	1324	1626
793	955	50	81	97	632	0.128	1080	1304
938	1250	18	55	73	424	0.086	1273	1698
62	80	0	0	0	345	0.070	627	768
413	529	1	3	3	330	0.067	751	962
364	485	0	0	0	164	0.033	492	655
89	118	0	1	1	114	0.023	330	438
128	171	0	1	1	85	0.017	251	334
0	0	0	0	0	80	0.016	194	250
135	179	0	1	2	69	0.014	206	274

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
216	403	497	805	1494	1838	242	456	564
68	113	136	724	1256	1523	79	132	159
25	75	100	467	1400	1867	27	82	109
1	3	4	674	1189	1447	3	5	7
2	6	7	456	1039	1331	4	8	10
0	0	1	185	554	739	0	0	1
1	3	4	194	556	737	2	5	7
0	1	2	114	331	440	1	2	2
25	62	81	160	392	508	51	127	165
1	2	3	88	264	352	1	4	5

Table 2-5. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
RAINBOW TROUT	32	0.0089	69	87	6	14	17	34
WHITEFIN SHINER	31	0.0087	93	124	0	0	0	30
TESSELATED DARTER	33	0.0091	67	84	0	1	1	0
SILVER REDHORSE	25	0.0070	60	78	9	22	29	0
NORTHERN HOGSUCKR	20	0.0055	59	79	0	0	0	10
SNAIL BULLHEAD	19	0.0054	58	77	0	0	0	10
GOLDEN SHINER	20	0.0055	52	68	0	0	0	0
STRIPED BASS	19	0.0052	50	65	1	3	5	0
LARGEMOUTH BASS	11	0.0032	34	46	4	12	17	16
SMALLMOUTH BASS	10	0.0027	29	39	0	0	0	0

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
74	94	7	15	19	47	0.009	101	127
89	118	0	0	0	44	0.009	132	176
0	0	0	0	0	32	0.007	66	83
0	0	0	0	0	25	0.005	60	77
31	42	0	0	0	23	0.005	70	93
30	41	0	0	0	23	0.005	68	91
0	0	0	0	0	22	0.004	57	74
0	0	0	0	0	20	0.004	52	68
48	64	6	17	23	18	0.004	55	73
0	0	0	0	0	11	0.002	32	43

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
9	20	25	51	111	140	10	22	28
0	0	1	53	159	212	0	1	1
0	1	1	56	116	145	1	1	2
9	22	29	45	108	140	17	40	52
0	0	0	31	93	124	0	0	0
0	0	0	30	90	120	0	0	0
0	0	0	48	126	166	0	0	1
1	4	5	40	104	135	3	8	11
7	20	26	20	60	81	7	22	29
0	0	0	24	72	95	0	0	0

Table 2-5. (Concluded).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
FLATHEAD CATFISH	5	0.0014	15	21	0	0	0	0
COOSA BASS	5	0.0013	14	18	1	2	3	0
WHITE BASS	3	0.0007	8	11	1	2	2	0
	358035	99.9993	622714	755053	1780	3035	3659	314452

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
0	0	0	0	0	6	0.001	17	23
0	0	0	0	0	4	0.001	13	18
0	0	0	0	0	3	0.001	9	12
554109	673938	1482	2529	3052	491779	100.000	858243	1041472

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
0	0	1	13	38	51	0	1	1
1	2	3	8	24	31	1	4	5
1	2	2	6	19	26	1	4	5
2400	4094	4944	626225	1085463	1315082	3084	5257	6345

Table 2-6. Summaries of numbers of fish greater than or equal to 1.5-inches long estimated to have passed during conventional generation during Phase III and projected to pass during an annual cycle for a wet water year (25% average water year (50% exceedance), and dry water year (75% exceedance) based on PrePhase III net sampling. Data are not adjusted for passage survival.

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
THREADFIN SHAD	172960	48.3080	314923	385904	230	408	496	1768672
BLUEBACK HERRING	79477	22.1981	141217	172087	451	759	913	136327
YELLOW PERCH	52053	14.5385	73367	84023	247	330	371	57371
WHITE CATFISH	20695	5.7803	31010	36167	284	424	494	27289
BLUEGILL	10214	2.8529	15519	18171	35	55	65	9253
BLACK CRAPPIE	8252	2.3049	19195	24667	42	96	122	4605
BROWN BULLHEAD	4876	1.3618	9582	11935	109	219	274	6728
WHITE PERCH	5229	1.4605	8152	9613	94	148	174	523
CHANNEL CATFISH	693	0.1937	1655	2136	10	26	34	1553
SPOTTAIL SHINER	320	0.0893	581	712	1	3	3	534

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
3349035	4139217	367	645	783	3664632	87.5827	6952158	8595921
246027	300876	580	1000	1209	281410	6.7255	508974	622756
81265	93212	280	410	475	144824	3.4612	204773	234748
40288	46788	372	550	639	42118	1.0066	61741	71553
14205	16681	32	53	63	15572	0.3722	24062	28307
11654	15178	28	68	88	10367	0.2478	24472	31525
13409	16749	135	271	339	8785	0.2100	17417	21732
1119	1418	13	29	37	6214	0.1485	10242	12256
4020	5253	19	44	56	3396	0.0812	8469	11006
1101	1384	2	4	5	1494	0.0357	2998	3750

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
615	1098	1339	5169590	9819750	12144830	777	1407	1722
1078	1879	2280	399854	721153	881803	1461	2549	3094
652	954	1105	227301	323434	371501	1004	1474	1710
554	816	947	50756	74428	86264	659	972	1128
55	92	111	20704	31914	37519	73	121	145
62	141	181	14075	32563	41807	84	187	239
178	358	448	10143	20140	25138	203	411	514
115	191	229	11699	19150	22875	214	350	417
51	116	148	4448	10941	14188	73	168	216
5	11	13	2388	4687	5837	9	17	21

Table 2-6. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
WHITE CRAPPIE	1160	0.3239	2654	3402	16	37	47	438
GIZZARD SHAD	431	0.1205	740	895	47	78	94	561
CARP	495	0.1382	916	1126	147	276	341	540
YELLOW BULLHEAD	290	0.0811	871	1161	17	51	68	379
WARMOUTH	248	0.0693	565	723	2	4	5	220
FLATHEAD CATFISH	5	0.0014	15	21	0	0	0	145
SPOTTED BASS	114	0.0317	341	454	0	0	0	131
HYBRID BASS	78	0.0217	185	239	24	59	77	42
BLACK BULLHEAD	100	0.0279	288	383	1	3	4	34
GREEN SUNFISH	68	0.0189	199	264	0	1	1	43

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
1196	1576	6	18	24	1376	0.0329	3206	4121
1013	1239	60	105	128	845	0.0202	1589	1961
994	1221	167	316	391	748	0.0179	1407	1736
1109	1474	19	57	76	585	0.0140	1688	2240
513	659	1	3	4	421	0.0101	989	1273
338	434	3	7	9	353	0.0084	825	1061
393	524	1	3	4	187	0.0045	561	748
111	145	9	23	30	172	0.0041	437	570
103	138	0	1	2	124	0.0030	361	480
128	171	0	1	1	85	0.0020	251	334

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
19	45	58	2289	5055	6438	31	71	90
91	168	207	1027	1981	2459	111	211	262
229	444	552	843	1610	1993	261	514	640
27	80	106	698	1998	2649	30	89	119
3	6	8	586	1378	1773	4	9	11
8	17	22	465	1096	1411	10	23	29
2	7	10	214	643	858	3	9	12
44	111	144	304	774	1009	81	205	267
1	4	6	211	607	805	2	7	9
0	1	2	114	331	440	1	2	2

Table 2-6. (Continued).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
SNAIL BULLHEAD	19	0.0054	58	77	0	0	0	35
REDBREAST SUNFISH	49	0.0136	146	194	1	2	2	45
SILVER REDHORSE	25	0.0070	60	78	9	22	29	10
RAINBOW TROUT	32	0.0089	69	87	6	14	17	34
GOLDEN SHINER	20	0.0055	52	68	0	0	0	9
WHITEFIN SHINER	31	0.0087	93	124	0	0	0	30
STRIPED BASS	19	0.0052	50	65	1	3	5	9
LARGEMOUTH BASS	11	0.0032	34	46	4	12	17	22
TESSELATED DARTR	33	0.0091	67	84	0	1	1	0
NORTHERN HOGSUCKR	20	0.0055	59	79	0	0	0	10

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
105	140	0	1	2	81	0.0019	243	325
135	179	0	1	2	69	0.0016	206	274
30	41	3	10	13	49	0.0012	131	173
74	94	7	15	19	47	0.0011	101	127
27	37	0	0	0	44	0.0010	123	163
89	118	0	0	0	44	0.0011	132	176
28	37	2	7	9	39	0.0009	111	146
66	88	8	23	31	33	0.0008	99	132
0	0	0	0	0	32	0.0008	66	83
31	42	0	0	0	23	0.0006	70	93

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
1	3	4	112	336	448	1	4	6
1	2	3	88	264	352	1	4	5
17	45	59	78	209	274	27	72	94
9	20	25	51	111	140	10	22	28
0	0	1	80	222	293	0	1	1
0	0	1	53	159	212	0	1	1
6	18	24	72	199	263	10	31	41
11	34	45	42	125	166	14	42	57
0	1	1	56	116	145	1	1	2
0	0	0	31	93	124	0	0	0

Table 2-6. (Concluded).

NAME	PHASE III TOTAL NUMBER	PHASE III PERCENT BY NUMBER	PHASE III PLUS 2 STAND. ERROR NUMBER	PHASE III PLUS 3 STAND. ERROR NUMBER	PHASE III TOTAL BIOMASS KG	PHASE III PLUS 2 STAND. ERROR KG	PHASE III PLUS 3 STAND. ERROR KG	PROJECTED WET YEAR NUMBER
WHITE BASS	3	0.0007	8	11	1	2	2	5
SMALLMOUTH BASS	10	0.0027	29	39	0	0	0	0
COOSA BASS	5	0.0013	14	18	1	2	3	0
	358035	99.9993	622714	755053	1780	3035	3659	2015597

WET YEAR PLUS 2 STAND. ERROR NUMBER	WET YEAR PLUS 3 STAND. ERROR NUMBER	WET YEAR TOTAL BIOMASS KG	WET YEAR PLUS 2 STAND. ERROR KG	WET YEAR PLUS 3 STAND. ERROR KG	PROJECTED AVERAGE YEAR NUMBER	PERCENT AVERAGE YEAR NUMBER	AVE YEAR PLUS 2 STAND. ERROR NUMBER	AVE YEAR PLUS 3 STAND. ERROR NUMBER
11	14	1	2	2	13	0.0003	32	42
0	0	0	0	0	11	0.0003	32	43
0	0	0	0	0	4	0.0001	13	18
3768617	4645127	2115	3667	4441	4184197	100.000	7827979	9649873

AVE YEAR TOTAL BIOMASS KG	AVE YEAR PLUS 2 STAND. ERROR KG	AVE YEAR PLUS 3 STAND. ERROR KG	PROJECTED DRY YEAR NUMBER	DRY YEAR PLUS 2 STAND. ERROR NUMBER	DRY YEAR PLUS 3 STAND. ERROR NUMBER	DRY YEAR TOTAL BIOMASS KG	DRY YEAR PLUS 2 STAND. ERROR KG	DRY YEAR PLUS 3 STAND. ERROR KG
2	6	7	22	57	74	4	10	13
0	0	0	24	72	95	0	0	0
1	2	3	8	24	31	1	4	5
3837	6670	8089	5918426	11075620	13654214	5160	8988	10900

Table 2-7. RBR creel survey harvest estimates total number by species.

YEAR	Striped Bass	Hybrid Bass	Crappie	Largemouth Bass	Yellow Perch	White Perch
1984	490	490	6,728	74,664	-	-
1985	-	2,338*	51,395	111,460	25,633	-
1986	-	534	162,704	91,202	7,929	-
1987	-	-	285,709	85,228	3,608	-
1988	-	25	159,233	86,170	1,118	-
1989	54	314	119,933	118,689	2,129	-
1990	403	810	175,488	157,765	5,950	-
1991	1,103	476	92,421	166,470	3,988	454
1992	1,492	3,316	175,974	89,670	5,060	292
1993	341	345	123,251	63,478	7,785	1,883
1994	252	-	115,744	144,581	4,473	1,570
1995	2,842	2,616	109,759	102,651	10,003	3,697
1996	1,881	1,350	51,658	50,505	1,151	3,512
Total	**8,368**	**12,614**	**1,629,997**	**1,342,533**	**78,827**	**11,399**
AVG.	**1,046**	**970**	**125,384**	**103,272**	**6,569**	**1,900**

* Includes hybrid and striped bass combined.

3 Pumpback Ichthyoplankton and Larval Fish

Sampling

Summary

Many fish release their eggs into the water where they either drift with the current or adhere to rocks or other substrates. These eggs hatch into weak-swimming larvae (young fish having a discernible yolk sac). These younger life stages of fish, because they cannot efficiently propel themselves, are particularly susceptible to entrainment. Entrainment of ichthyoplankton by RBR Dam was identified as a concern by the CG.

Ichthyoplankton entrainment was estimated during Phase III by collecting water directly from the draft tubes of the dam by gravity feed from piping previously installed to house pressure sensors. During pumpback operation water from these pipes was sieved through a fine mesh net to separate entrained ichthyoplankton and other coarse particulate matter from water passing through the pump units. Ichthyoplankton were keyed to the lowest possible taxonomic level. Due to damage during collection, some fish could only be keyed as low as the family level. Mobile trawl samples also were collected in the RBR tailwater to estimate ichthyoplankton temporal and spatial trends. Samples were collected at four sites weekly using a fine mesh net towed from a boat. Mobile trawl sampling indicated that the ichthyoplankton distribution was patchy, and densities were in the RBR tailwater (about 1/100m^3). Ichthyoplankton densities were substantially higher (about 50/m^3) in Russell Creek, a small tributary of JST that discharges into a bay near the dam.

Arithmetic mean ichthyoplankton entrainment for Phase III of 124,564,935 larval fish was dominated by clupeids (111,401,435) including blueback herring, threadfin shad, and gizzard shad. Threadfin shad were the most abundant clupeid with an estimated total of 54,806,786. Projected maximum ichthyoplankton entrainment for dry year pumping was estimated at 266,858,067. A lake wide population estimate was not possible due to limitations in the data collected. However, a point estimate of the number of larval fish in the lake at any one time during a month was calculated. This estimate was compared to a daily estimate of the number of larval fish entrained by the dam in a month. Estimated percent of

larval fish, by group, during phase 3 varied from 0.002% for crappie to 1.778% for yellow perch. Estimated maximum ichthyoplankton entrainment during a dry year was projected between 0.005% and 3.367%, depending on the species.

Introduction

Ichthyoplankton (fish eggs and larvae having a discernable yolk sac) are particularly susceptible to entrainment because they cannot efficiently propel themselves. Entrainment of ichthyoplankton by RBR Dam was identified as a concern by the CG. Ichthyoplankton entrainment was estimated from net samples collected during pumpback operation at Richard B. Russell Dam from April-September 1996. The significance of ichthyoplankton entrainment was assessed by comparing entrainment to a point estimate of lake wide ichthyoplankton abundance available from 1987, 1988, and 1989.

Methods

See Chapter VIII of the "Phase III Testing and Monitoring Data Collection and Handling Standard Operating Procedures" provided as Appendix A to this report for the details of sampling. The following text generally summarizes sampling procedures.

Tailwater trawl

Tailwater trawls were collected weekly from April-August 1996. Thirty minute collections were made at each of four stations using a .5 m-500 μ mesh net. Sampling station locations were identical to locations used during 1987-1989 surveys. Station 1 paralleled the buoy line below the dam. Station 2 was about one mile downstream of the dam with station 3 located about 2.5 miles downstream of the dam. Station 4 was in Russell Creek, a small tributary of JST Lake within about 1.0 miles of the dam.

Analysis

Entrained larval fish

Hourly estimated entrainment of ichthyoplankton was calculated using the arithmetic mean of the number of fish collected per hour in the samples. The sample estimate was then expanded for the entire amount of water passing through the dam per hour. Monthly estimates were then calculated from the number of hours pumped during the month. Projections of entrainment for minimum, average, and maximum pump years were obtained by multiplying the monthly Phase III hourly

entrainment rate by the number of hours of pumping estimated for each water year. A point estimate for each month was calculated by multiplying the hourly entrainment estimate by the number of pump hours in the month and dividing that by the number of days in the month. This estimated the mean daily entrainment of ichthyoplankton for a month.

Lake wide larval fish tows

Due to the dynamics of larval fish and limitations in the larval fish tow data collected, a realistic lake wide larval fish population estimate is not possible for comparison with entrainment estimates at RBR dam. A point estimate of mean monthly larval fish abundance in JST was estimated for each month data was collected. Fish, in most cases, were grouped by family. Groups not sampled at the dam during phase III were not included in the comparison. Sampling in 1987-89 ended in mid-July therefore, no August comparison was made.

A monthly mean point estimate was calculated by summing the number of larval fish collected, by group, and dividing by the total volume of water sampled. This number was then multiplied by the volume of the lake, 3,023,300,000, provided by Jerry Germann.

Results

Estimated hourly and monthly ichthyoplankton entrainment estimates are provided in Table 3-1 and Phase III totals and projections are presented in Table 3-2. Only larval fish are included in these estimates, since no eggs were collected in samples. Estimated monthly entrainment and ±2 and 3 standard errors are provided in Tables 3-3, 3-4, 3-5, and 3-6 for Phase III, wet year, average year, and dry year, respectively. Due to damage that occurred during netting many clupeids could not be identified below family level. Figure 3-1a, 3-1b, and 3-1c present timelines of estimated numbers of larval fish collected per hour by species from April-September. Figure 3-2a, 3-2b, and 3-2c show the expanded estimated number of larval fish collected per hour. The expansion factor used to expand the netted volume of water sampled to the volume of water passing through the dam was between 120,000 and 134,000.

The number of larval fish collected in tailwater trawls was considerably less than observed in 1987 through 1989 varying from less than one/100m^3 in the tailwater, to about 50/m^3 in the Russell Creek tributary (Figure 3-3) . A similar trend was seen in 1987 and 1988 (Table 3-7).

Discussion

Composition of ichthyoplankton collected during 1993 and 1994 (Table 3-8) was similar to collections in 1996. More species were collected in 1996, however, probably due to a more efficient, and increased, sampling effort.

Larval fish entrainment at RBR dam was estimated at 124,564,935 for Phase III. Projected entrainment estimates range from 26,732,961 (wet year) to 266,858,067 (dry year) (see Ichthyoplankton Entrainment section).

There were differences in tailwater ichthyoplankton densities between the 1987-1989 surveys and the 1996 survey. Phase III operation of RBR Dam involved considerably more generation and pumpback than during the surveys of the late 1980's. Consequently, the constant flushing of the tailwater by RBR dam would reduce ichthyoplankton densities. Zimpfer (1990) indicates that operation of RBR dam was responsible for the decrease in ichthyoplankton near the dam.

A mean monthly point estimate and combined mean were calculated for 1987-1989 for each group of fish (Table 3-9). The point estimate of number of larval fish entrained was divided by the point estimate of larval fish in the lake to arrive at an estimate of percent entrainment. Estimated entrainment for Phase III varied from 0.002% for crappie in May to 1.778 % for yellow perch in May (Table 3-10). Estimates ranged from 0.0003% to 3.367% for dry, average, and wet years (Table 3-11, 3-12, 3-13).

Note: The lake wide population estimate of 160 billion larval fish provided in the earlier copy of this report was estimated from calculations in the SEIS. The mean larval fish estimate for JST in 1987-89 was multiplied by the number of days larval fish were expected to occur during the year and divided by 3.5, the recruitment rate of larval fish stated in the SEIS and Phase 2 reports.

Disclaimer

The arithmetic mean values and the standard errors associated with them in this report should be used with caution. The data used for this section is not normally distributed and is negatively skewed.

Table 3-1. Estimated ichthyoplankton entrainment during April-September 1996 at RBR dam, and estimated entrainment for dry, average, and wet years, using arithmetic means.

		#/hour	Phase III	Minimum	Average	Maximum
	Pump hours		162.1	34	309	497
April	Dorosoma sp.	1,187.9	192,561	40,389	367,065	590,393
	Threadfin shad	1,187.9	192,561	40,389	367,065	590,393
	Yellow perch	3,088.2	500,604	105,000	954,267	1,534,856
May	Pump hours		292.4	35	390	549
	Clupeid	101,092.4	29,559,412	3,538,233	39,426,028	55,499,716
	Blueback herring	2,140.7	625,937	74,924	834,869	1,175,238
	Threadfin shad	46,661.0	13,643,666	1,633,134	18,197,776	25,616,870
	Pomoxis sp.	164.2	48,020	5,748	64,049	90,161
	Yellow perch	8,562.2	2,503,581	299,676	3,339,250	4,700,636
June	Pump hours		259.6	69	497	634
	Clupeid	48,837.3	12,678,156	3,369,772	24,272,124	30,962,830
	Blueback herring	12,831.1	3,330,943	885,343	6,377,037	8,134,892
	Threadfin shad	142,011.1	36,866,090	9,798,768	70,579,532	90,035,057
	Gizzard shad	29,603.4	7,685,036	2,042,633	14,712,877	18,768,540
	Lepomis sp.	20,574.5	5,341,139	1,419,640	10,225,524	13,044,230
	Common carp	2,484.1	644,880	171,405	1,234,611	1,574,937
	Spottail shiner	1,966.0	510,377	135,655	977,109	1,246,453
	Redbreast	2,303.9	598,089	158,968	1,145,031	1,460,663
July	Pump hours		606.4	195	691	744
	Clupeid	3,911.5	2,371,906	762,733	2,702,812	2,910,119
	Blueback herring	248.5	150,698	48,460	171,723	184,894
	Threadfin shad	6,768.6	4,104,469	1,319,874	4,677,091	5,035,826
	Lepomis sp.	3,316.5	2,011,120	646,716	2,291,695	2,467,469
August	Pump hours		564.0	142	691	744
	Bluegill	1658.5	1,005,690	235,501.3	1,145,996	1,233,894
September	*No fish were found in samples					

Table 3-2. Estimated ichthyoplankton entrainment during phase III, April-September 1996, at RBR dam and estimates for dry, average, and wet years.

	Phase III	Minimum	Average	Maximum
Clupeid	44,609,474	7,670,738	66,400,964	89,372,665
Blueback herring	4,107,578	1,008,727	7,383,629	9,495,024
Dorosoma sp.	192,561	40,389	367,065	590,393
Threadfin shad	54,806,786	12,792,165	93,821,464	121,278,146
Gizzard shad	7,685,036	2,042,633	14,712,877	18,768,540
Yellow perch	3,004,185	404,676	4,293,517	6,235,492
Common carp	644,880	171,405	1,234,611	1,574,937
Spottail shiner	510,377	135,655	977,109	1,264,453
Pomoxis sp.	48,020	5,748	64,049	90,161
Lepomis sp.	7,352,259	2,066,356	12,517,219	15,511,699
Bluegill	1,005,690	235,501	1,145,996	1,233,894
Redbreast	598,089	158,968	1,145,031	1,460,663
Total	124,564,935	26,732,961	204,063,531	266,858,067

Table 3-3. Estimated ichyoplankton entrainment during Phase III and ±2 and 3 standard errors.

		SE	-3 SE	-2 SE	Phase III	+2 SE	+3 SE
April	Dorosoma sp.	192,561	-385,122	-192,561	192,561	577,683	770,244
	Threadfin shad	192,561	-385,122	-192,561	192,561	577,683	770,244
	Yellow perch	459,574	-878,118	-418,544	500,604	1,419,752	1,879,326
May	Clupeid	7,387,661	7,396,429	14,784,090	29,559,412	44,334,734	51,722,395
	Blueback herring	549,798	-1,023,457	-473,659	625,937	1,725,533	2,275,331
	Threadfin shad	3,344,423	3,610,397	6,954,820	13,643,666	20,332,512	23,676,935
	Pomoxis sp.	48,020	-96,040	-48,020	48,020	144,060	192,080
	Yellow perch	2,026,474	-3,575,841	-1,549,367	2,503,581	6,556,529	8,583,003
June	Clupeid	3,913,582	937,410	4,850,992	12,678,156	20,505,320	24,418,902
	Blueback herring	2,055,993	-2,837,036	-781,043	3,330,943	7,442,929	9,498,922
	Threadfin shad	8,265,711	12,068,957	20,334,668	36,866,090	53,397,512	61,663,223
	Gizzard shad	4,399,025	-5,512,039	-1,113,014	7,685,036	16,483,086	20,882,111
	Lepomis sp.	2,056,975	-829,786	1,227,189	5,341,139	9,455,089	11,512,064
	Common carp	577,019	-1,086,177	-509,158	644,880	1,798,918	2,375,937
	Spottail shiner	510,377	-1,020,754	-510,377	510,377	1,531,131	2,041,508
	Redbreast	31,917	-997,662	-465,745	598,089	1,661,923	2,193,840
July	Clupeid	1,681,183	-2,671,643	-990,460	2,371,906	5,734,272	7,415,455
	Blueback herring	150,698	-301,396	-150,698	150,698	452,094	602,792
	Threadfin shad	2,247,460	-2,637,911	-390,451	4,104,469	8,599,389	10,846,849
	Lepomis sp.	1,070,690	-1,200,950	-130,260	2,011,120	4,152,500	5,223,190
August	Bluegill	905,518	-1,710,864	-805,346	1,005,690	2,816,726	3,722,244
September	*No fish were found in samples						

Table 3-4. Estimated ichthyoplankton entrainment in a wet year, based on samples collected from April-September 1996. Confidence intervals of ±2 and 3 standard errors were also calculated.

		SE	-3 SE	-2 SE	Minimum	+2 SE	+3 SE
April	Dorosoma sp.	40,389	-80,778	-40,389	40,389	121,167	161,556
	Threadfin shad	40,389	-80,778	-40,389	40,389	121,167	161,556
	Yellow perch	96,394	-184,182	-87,788	105,000	297,788	394,182
May	Clupeid	884,296	885,345	1,769,641	3,538,233	5,306,825	6,191,121
	Blueback herring	65,810	-122,506	-56,696	74,924	206,544	272,354
	Threadfin shad	400,324	432,162	832,486	1,633,134	2,433,782	2,834,106
	Pomoxis sp.	5,748	-11,496	-5,748	5,748	17,244	22,992
	Yellow perch	242,567	-428,025	-185,458	299,676	784,810	1,027,377
June	Clupeid	1,040,205	249,157	1,289,362	3,369,772	5,450,182	6,490,387
	Blueback herring	546,470	-754,067	-207,597	885,343	1,978,283	2,524,753
	Threadfin shad	2,196,972	3,207,852	5,404,824	9,798,768	14,192,712	16,389,684
	Gizzard shad	1,169,232	-1,465,063	-295,831	2,042,633	4,381,097	5,550,329
	Lepomis sp.	546,731	-220,553	326,178	1,419,640	2,513,102	3,059,833
	Common carp	153,368	-288,699	-135,331	171,405	478,141	631,509
	Spottail shiner	135,655	-271,310	-135,655	135,655	406,965	542,620
	Redbreast	141,380	-265,172	-123,792	158,968	441,728	583,108
July	Clupeid	540,618	-859,121	-318,503	762,733	1,843,969	2,384,587
	Blueback herring	48,460	-96,920	-48,460	48,460	145,380	193,840
	Threadfin shad	722,715	-848,271	-125,556	1,319,874	2,765,304	3,488,019
	Lepomis sp.	344,302	-386,190	-41,888	646,716	1,335,320	1,679,622
August	Bluegill	235,501	-471,002	-235,501	235,501	706,503	942,004
September	*No fish were found in samples						

Table 3-5. Estimated ichthyoplankton entrainment in an average year, based on samples collected from April-September 1996. Confidence intervals of ±2 and 3 standard errors were also calculated.

		SE	-3 SE	-2 SE	Mean	+2 SE	+3 SE
April	Dorosoma sp.	367,065	-734,130	-367,065	367,065	1,101,195	1,468,260
	Threadfin shad	367,065	-734,130	-367,065	367,065	1,101,195	1,468,260
	Yellow perch	876,053	-1,673,892	-797,839	954,267	2,706,373	3,582,426
May	Clupeid	9,853,583	9,865,279	19,718,862	39,426,028	59,133,194	68,986,777
	Blueback herring	733,314	-1,365,073	-631,759	834,869	2,301,497	3,034,811
	Threadfin shad	4,460,756	4,815,508	9,276,264	18,197,776	27,119,288	31,580,044
	Pomoxis sp.	64,049	-128,098	-64,049	64,049	192,147	256,196
	Yellow perch	2,702,889	-4,769,417	-2,066,528	3,339,250	8,745,028	11,447,917
June	Clupeid	7,492,490	1,794,654	9,287,144	24,272,124	39,257,104	46,749,594
	Blueback herring	3,936,166	-5,431,461	-1,495,295	6,377,037	14,249,369	18,185,535
	Threadfin shad	15,824,569	23,105,825	38,930,394	70,579,532	102,228,670	118,053,239
	Gizzard shad	8,421,862	-10,552,709	-2,130,847	14,712,877	31,556,601	39,978,463
	Lepomis sp.	3,938,046	-1,588,614	2,349,432	10,225,524	18,101,616	22,039,662
	Common carp	1,104,693	-2,079,468	-974,775	1,234,611	3,443,997	4,548,690
	Spottail shiner	977,109	-1,954,218	-977,109	977,109	2,931,327	3,908,436
	Redbreast	1,018,346	-1,910,007	-891,661	1,145,031	3,181,723	4,200,069
July	Clupeid	1,915,728	-3,044,372	-1,128,644	2,702,812	6,534,268	8,449,996
	Blueback herring	171,723	-343,446	-171,723	171,723	515,169	686,892
	Threadfin shad	2,561,007	-3,005,930	-444,923	4,677,091	9,799,105	12,360,112
	Lepomis sp.	1,220,065	-1,368,500	-148,435	2,291,695	4,731,825	5,951,890
August	Bluegill	1,145,994	-2,291,986	-1,145,992	1,145,996	3,437,984	4,583,978
September	*No fish were found in samples						

Table 3-6. Estimated ichthyoplankton entrainment in a dry year, based on samples collected from April-September 1996. Confidence intervals of ±2 and 3 standard errors were also calculated.

		SE	-3 SE	-2 SE	Maximum	+2 SE	+3 SE
April	Dorosoma sp.	590,393	-1,180,786	-590,393	590,393	1,771,179	2,361,572
	Threadfin shad	590,393	-1,180,786	-590,393	590,393	1,771,179	2,361,572
	Yellow perch	1,409,057	-2,692,315	-1,283,258	1,534,856	4,352,970	5,762,027
May	Clupeid	13,870,813	13,887,277	27,758,090	55,499,716	83,241,342	97,112,155
	Blueback herring	1,032,281	-1,921,605	-889,324	1,175,238	3,239,800	4,272,081
	Threadfin shad	6,279,372	6,778,754	13,058,126	25,616,870	38,175,614	44,454,986
	Pomoxis sp.	90,161	-180,322	-90,161	90,161	270,483	360,644
	Yellow perch	3,804,836	-6,713,872	-2,909,036	4,700,636	12,310,308	16,115,144
June	Clupeid	9,557,824	2,289,358	11,847,182	30,962,830	50,078,478	59,636,302
	Blueback herring	5,021,186	-6,928,666	-1,907,480	8,134,892	18,177,264	23,198,450
	Threadfin shad	20,186,674	29,475,035	49,661,709	90,035,057	130,408,405	150,595,079
	Gizzard shad	10,743,382	-13,461,606	-2,718,224	18,768,540	40,255,304	50,998,686
	Lepomis sp.	5,023,584	-2,026,522	2,997,062	13,044,230	23,091,398	28,114,982
	Common carp	1,409,207	-2,652,684	-1,243,477	1,574,937	4,393,351	5,802,558
	Spottail shiner	1,246,453	-2,492,906	-1,246,453	1,246,453	3,739,359	4,985,812
	Redbreast	1,299,057	-2,436,508	-1,137,451	1,460,663	4,058,777	5,357,834
July	Clupeid	2,062,665	-3,277,876	-1,215,211	2,910,119	7,035,449	9,098,114
	Blueback herring	184,894	-369,788	-184,894	184,894	554,682	739,576
	Threadfin shad	2,757,438	-3,236,488	-479,050	5,035,826	10,550,702	13,308,140
	Lepomis sp.	1,313,644	-1,473,463	-159,819	2,467,469	5,094,757	6,408,401
August	Bluegill	1,233,892	-2,467,782	-1,233,890	1,233,894	3,701,678	4,935,570
September	*No fish were found in samples						

Table 3-7. Mean densities (number/100 m^3) of ichthyoplankton at five stations near RBR dam in 1987 and 1988.

Year	Species[1]	Forebay	Tailrace	Mid-tailwater	Far-tailwater	Tributary
1987	Clupeid	1.8	1.8	2.3	37.7	62.1
1987	Pomoxis sp.	0.0	0.1	1.2	3.7	13.5
1987	Lepomis sp.	0.7	0.1	1.0	2.1	4.4
1987	Yellow perch	0.0	0.1	0.3	1.0	8.9
1988	Clupeid	ns	0.1	17.5	34.2	51.3
1988	Pomoxis sp.	ns	0.0	0.2	2.4	3.6
1988	Lepomis sp.	ns	0.0	0.7	0.6	1.7
1988	Yellow perch	ns	0.1	0.7	0.2	1.5

legend:
tailrace - immediately downstream of dam
midtailwater - about 1 mile downstream of dam
fartailwater - about 2.5 miles downstream of dam
tributary - Russell Creek above Mt. Pleasant boat ramp
ns - not sampled

[1]Densities of larval white bass, shiners, common carp, darters, and black basses never exceeded 0.2/100 m^3.

Table 3-8. Larval fish entrainment estimates from 1993 and 1994 net catches during pumpback sampling at RBR dam.

Pump Date	Species	Mean Fish/ cubic ft.	Geo. Mean Fish/ hour	Min. Pump Hours/ Month	Min. Number/ Month	Mean Pump Hours/ Month	Mean Number/ Month	Max. Pump Hours/ Month	Max. Number/ Month
21May94	common carp	0.00002333	604.7136	36	21,770	398	240,676	556	336,221
21May94	threadfin shad	0.00004670	1210.464	36	43,577	398	481,765	556	673,018
10Jun94	threadfin shad	0.00001583	410.3136	62	25,439	496	203,516	631	258,908
15Jul94	threadfin shad	0.00006417	1663.2864	186	309,371	682	1,134,321	743	1,235,822
23Oct93	yellow perch	0.00008420	2182.464	64	139,678	590	1,287,654	739	1,612,841
30Mar94	yellow perch	0.00012200	3162.24	0	0	202	638,772	484	1,530,524
20Apr94	yellow perch	0.00037750	8764.8	28	273,974	317	3,101.782	492	4,814,122
10Jun94	yellow perch	0.00001583	410.3136	62	25,439	496	203,516	631	290,858
15Jul94	blueback herring	0.00002580	668.736	186	124,385	682	456,078	743	496,871
10Jun94	bluegill	0.00001600	414.72	62	25,713	496	205,701	631	261,688
15Jul94	bluegill	0.00005750	1490.4	186	277,214	682	1,016,453	743	1,107,367
26Aug94	channel catfish	0.00003330	863.136	140	120,839	691	596,427	743	641,310

4 Pumpback Fish Mortality Studies

Summary

Fish survival is an important aspect of assessing turbine passage. Fish passing through the dam experience numerous conditions ranging from pressure changes to contact with the turbine blades. Mortality studies were employed to determine the effects of passage on fish survival. Two separate methods were used to estimate fish mortality: (1) Collect entrained fish as they pass through the dam; (2) Hold control fish and inducted fish, collecting them after passage. The first method provides a conservative (over) estimate of mortality because transport and handling stress increase mortality estimates. After collection, the fish were held for 48 hours to assess survival. In the first method, fish are handled during recovery, transported, and held in water that is of a slightly different water quality. There are stresses on the fish associated with the procedures that will result in fish mortality. The second method provides a more realistic estimate of mortality since groups of control fish are used to subtract out experimental mortality caused by transport, handling, and the recovery net. Reliable estimates of mortality for many of the inducted fish experiments could not be used due to high mortality among control fish, due mainly to the poor condition of fish received from the hatchery. Most mortality estimates in Phase III were obtained from entrained fish.

Mortality estimates ranged from 0.0 to 100.0 percent depending upon the species and time of year. Mortality rates ranged from 65.0 to 100.0 percent for clupeids (blueback herring, threadfin shad, and gizzard shad), 29.5 to 85.0 percent for sunfish and crappie, 0.0 to 28.5 percent for catfish, 17.8 to 72.1 percent for yellow perch, and 45.3 to 81.8 percent for *Morone* sp. (striped bass, hybrid bass, white bass, and white perch). A significant positive relationship between water temperature and mortality was found for clupeids, catfish, and *Morone* sp. (as water temperature increases mortality increases). This relationship was not observed for sunfish and crappie, and yellow perch. The lack of correlation for sunfish and crappie is probably due to damage to the fish caused by the full recovery net. A majority of entrained sunfish and crappie were descaled on one side of their body. Heavy scale loss was also found with control bluegill sunfish inducted directly into the net without going through the turbines, also suggesting a net

effect. The lack of correlation between yellow perch mortality and water temperature is probably due to pressure sensitivity. Yellow perch are highly sensitive to pressure changes resulting in rupture of the swim bladder or kidneys. The majority of dead yellow perch in the study had everted swim bladders.

Introduction

Fish survival is an important aspect of assessing turbine entrainment. Survival estimates of fish passing through the turbines during pump storage operation at Richard B. Russell Dam were estimated from mortality experiments using entrained and inducted fish. Mortality studies were performed to determine the proportions of fishes that could survive passage through the turbines during pumping operation. These studies can be separated into two categories depending upon the hardiness of the target fish species. For relatively hardy species, such as catfishes and bluegill, marked fish were inducted into the units through 4-in. food processing hoses and recovered using the full recovery netting system. Multiple controls were performed by inducting fish into the penstocks (all effects of induction system but without turbine passage) or holding marked fish without induction to determine the effects of marking and handling. For fragile species such as threadfin shad and blueback herring, entrained fish were recovered at the recovery barge to determine immediate and delayed (recovered fish were held in tanks for 48 hours) mortality. Control tests could not be performed for fragile fish species because control mortality was 100 percent. Therefore, estimates of turbine passage mortality are conservative because they have not been adjusted for handling mortality.

Methods

See Chapter IX of the "Phase III Testing and Monitoring Data Collection and Handling Standard Operating Procedures" (Appendix A) guide for a complete description of the methods. Several changes were made, however, during the course of this study.

The induction control group (C2) was eliminated from the study. The unmarked control (C3) group was reassigned the C2 code. The pressured induction system was abandoned in favor of the trash pump since mortality was not reduced, fish retrieval was reduced, and human effort was increased. See Chapter XI of the "Phase III Testing and Monitoring Data Collection and Handling Standard Operating Procedures" guide for a description of the fish induction system. Test species within each grouping were interchanged (e.g., threadfin shad were used with, or instead of blueback herring).

Results

Inducted fish

Results of the fish induction experiments are provided in Table 4-1 and are divided by test date, repetition of the experiment, and size group.

Bluegill were tested in May and October. Mortality rates for the small fish varied from 11.1 to 52.4 percent and control mortality varied from 0.0 to 46.5 percent. Large bluegill in May developed a bacterial infection during pretest holding. Due to their poor condition and high control mortality, conclusions should not be made from this estimate. For large fish, mortality varied from 18.2 to 47.6 percent. Control mortality varied from 10.6 to 39.3 percent.

Channel catfish were tested in May, June, July, and September. The estimate for June should be ignored due to high control mortality. There was some size overlap of the September fish; however, most of the fish tested were 5 in. or smaller. Mortality rates for small catfish ranged from 0.0 to 5.6 percent. Control mortality varied from 0.0 to 5.6 percent, also. Mortality rates for large catfish varied from 0.0 to 18.2 percent. Control mortality varied from 0.0 to 18.2 percent, also.

Morone sp. were tested once at the beginning of April. Mortality rates for 5-6 in. fish varied from 29.3 to 52.0 percent and control mortality varied from 20.6 to 48.8 percent. Mortality rate for 7-9 in. fish was 100 percent and control mortality ranged from 0.0 to 7.1 percent. During pretest holding these fish developed an infection and were not in good condition. Due to the observed condition of these fish and the high mortality of the C1 fish a reasonable mortality estimate cannot be obtained from this experimental group.

Yellow perch were tested once in the middle of April. We were unable to obtain enough fish of either size group suggested in the protocol so the two groups were combined. Mortality rates varied from 26.3 to 90.1 percent and control mortality varied from 12.0 to 82.4 percent.

Entrained fish

Test results for the entrained fish mortality experiments are provided in Table 4-2. Species, size, and number of replications collected was dependent on fish entrainment for the given night.

Forty-eight hour mortality estimates for clupeids (blueback herring, threadfin shad, and gizzard shad) ranged from 20.0 to 100 percent. Mortality rates for catfish varied from 0.0 to 28.6 percent. Mortality ranged from 25.0 to 100 percent for bluegill and black crappie. Mortality for *Morone* sp. and yellow perch varied from 12.5 to 83.3 percent and 0.0 to 94.1 percent, respectively.

Analysis

There was significant size related mortality for clupeids and for bluegill/ crappie in May ($p<0.05$). In both cases large fish survival was higher than for small fish. Significant relationships were not found in other months, or for other species.

Calculations were also conducted to determine if there was a significant difference between mortality estimates of entrained fish, inducted fish, and control fish. Because of similarities in temperature profiles, data from the months of April-June and July-October were combined and size groups combined to ensure large enough sample size. There was a significant difference ($p<0.05$) for *Morone* sp. and bluegill/crappie in April-June and for catfish and bluegill/crappie for July-October. There was not a significant difference for catfish or yellow perch in April-June.

For entrained fish there was a significant positive relationship between water temperature and mortality rate for clupeids, catfish, and *Morone* sp. ($p<0.01$) (Figure 4-1). There was not a significant temperature/mortality relationship for bluegill/crappie or yellow perch (Figure 4-2). There was a significant negative relationship between dissolved oxygen and mortality rates for clupeids, catfish, and *Morone* sp. This should be expected since there is a strong negative relationship between water temperature and dissolved oxygen concentrations.

Mortality estimates

Monthly mortality estimates as decided by the Coordination Group are provided in Table 4-3. Mortality rates are developed from either entrained or inducted fish tests and comments are provided next to the mortality rate of how the estimate was derived if enough fish of the species and size group were not available for that month. See Chapter IX Part II of the "Phase III Testing and Monitoring Data Collection and Handling Standard Operating Procedures" guide for a complete description of criteria for choosing mortality estimates.

Table 4-4 provides a list of prior mortality tests and results.

Discussion

These results provide a conservative (over) estimate of mortality because all sources of stress and damage caused by the net, handling, and transport could not be eliminated. To provide a turbine related mortality estimate, it is necessary to reduce stress incurred due to the experimental protocol. This usually means reducing control mortality below 10 percent (Ruggles 1991). Except for catfish, this criterion was not met. The inability to reduce excess control mortality was the primary reason for use of entrained fish for passage mortality estimation.

Clupeids and bluegill/crappie were the only two groups where mortality was size-related, and occurred only in the May samples. For the other months, size-related mortality was not significant. For the clupeids, this was due to threadfin shad mortality being higher than mortality of the larger blueback herring. The size related difference for bluegill/crappie could not be explained.

Survival estimates for inducted *Morone* spp and bluegill/ crappie were higher in April-June than for entrained fish. Similarly, survival estimates for inducted catfish and bluegill/crappie were higher than for entrained fish in July through October. These increases in survival of inducted over entrained fish are a result of including control mortality into the estimates of passage mortality. Both the results and observations during the experiments indicate that handling of fish during capture, transport, marking, induction, and recovery in the nets inflated turbine passage mortality estimates.

Correlation between mortality and water temperature is expected. The lack of correlation for bluegill and crappie is probably due to damage to the fish caused by the full recovery net. A majority of entrained bluegill and crappie were descaled on one side of their body. The same was seen with inducted bluegill for both treatments. Since fish inducted from the penstock deck also were observed to have heavy scale loss it is likely the net had an increased effect on mortality, masking the temperature effect. The lack of correlation between yellow perch and water temperature is probably due to pressure sensitivity. Forge and Scott (1965) showed that yellow perch are highly sensitivity to drastic pressure changes resulting in rupturing of the swim bladder and kidney damage. Everted air bladders were observed on most yellow perch that died. No internal analysis was done. This pressure related injury was not seen with any other species entrained.

There was also a strong negative correlation between dissolved oxygen levels and survival of clupeids, catfish, and *Morone* sp. The lack of correlation for yellow perch and bluegill/crappie is the same as described for lack of correlation with temperature. Temperature and dissolved oxygen levels are strongly negatively correlated and probably have an additive effect on fish.

Literature Cited

Foye, R. E., and Scott, M. (1965). Effects of Pressure on Survival of Six Species of Fish. Transactions of the American Fisheries Society, 94:99-91.

Ruggles, C. P. (1993). Effect of stress on turbine fish passage mortality estimates, 39-57. *in* U. P. Williams, D. A. Scruton, R. F. Goosney, C. E. Bourgeois, D. C. Orr, and C. P. Ruggles (ed.) Proceedings of the workshop on fish passage at hydroelectric developments. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1905.

Table 4-1. Percent immediate and 48 hour (total) mortality of inducted fish at RBR dam (Control fish C1-marked, C2-unmarked).

April 2-3, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Morone sp.	7-9"	28	25	0	100	88.9	100	88.9	0
Morone sp.	7-9"	9.1	15.4	0	92.9	43.8	100	43.8	7.1
Morone sp.	5-6"	7.7	19.4	0	8.7	19.5	29.3	19.5	20.6
Morone sp.	5-6"	0	26.5	0	3.2	4	52	4	48.8
Morone sp.	5-6"	6.9	37.5	0	17.6	13.3	43.3	13.3	25.7

*Note: Striped Bass developed a bacteria and fungal infection during pretest holding. The condition of the fish was poor for the test.

April 17-18, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Yellow perch	5-8"	0.0	16.7	7.1	14.3	10.5	26.3	3.4	12.0
Yellow perch	5-6"	0.0	0.0	0.0	0.0	33.3	60.0	33.3	60.0
Yellow perch	5-7"	0.0	13.3	0.0	7.7	45.4	90.1	45.4	82.4

Table 4-1. (Continued)

May 8-9, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Bluegill	3-5"	0	6.5	0	33.3	12.5	12.5	12.5	-20.8
Bluegill	3-5"	0	0	0	5.9	9.5	52.4	9.5	46.5
Bluegill	3-5"	0	0	0	37.5	6.1	50	6.1	12.5
Bluegill	6-8"	87.5	38.7	4.6	90.9	20	100	15.5	9.1
Bluegill	6-8"	60	34.8	5	75	26.7	80	21.7	5
Bluegill	6-8"	36.4	36	9.1	90.9	50	91.7	40.9	0.8

*Note: Large bluegill developed a bacteria infection during pretest holding. The condition of the fish was poor for the test.
*Note: a negative value for turbine mortality indicates no effect (i.e., PS mortality higher than DT mortality).

May 20-21, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Channel Catfish	7-12"	0	0	0	0	0	0	0	0
Channel Catfish	7-12"	0	0	0	0	18.2	18.2	18.2	18.2
Channel Catfish	7-12"	0	0	6.3	6.3	8.3	8.3	2.1	2.1

Table 4-1. (Continued)

June 4-5, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Channel catfish	'4-5"	43.9	43.9	0	25.9	0	16.7	0	-9.

July 24, 1996

Species	Size	C1 Mortality	C2 Mortality	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate	Total	Immediate	Total	Immediate	Total
Channel catfish	4-5"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Channel catfish	6-8"	0.0	0.0	2.6	10.3	2.0	12.0	-0.6	1.7
Channel catfish	6-9"	0.0	0.0	0.0	25.7	0.0	11.8	0.0	-14.0

Table 4-1. (Continued)

September 16-17, 1996

		C1	C2	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
Species	Size	Mortality	Mortality	Immediate	Total	Immediate	Total	Immediate	Total
Channel catfish		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Channel catfish	4-7"	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6
Channel catfish	4-7"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Channel catfish	3-6"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Channel catfish	3-5"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Channel catfish	3-6"	0.0	0.0	2.4	2.4	0.0	0.0	-2.4	-2.4

October 2-3, 1996

		C1	C2	Penstock Mortality (PS)		Draft Tube Mortality (DT)		Turbine Mortality (DT-PS)	
Species	Size	Mortality	Mortality	Immediate	Total	Immediate	Total	Immediate	Total
Bluegill	2"	2.6	0.0	0.0	0.0	18.2	36.4	18.2	36.4
Bluegill	2"	3.4	3.2	25.0	37.5	18.2	45.5	-6.8	8.0
Bluegill	2"	3.2	0.0	12.5	12.5	11.1	22.2	-1.4	9.7
Bluegill	4-7"	0.0	0.0	0.0	8.3	19.0	47.6	19.0	39.3
Bluegill	4-7"	0.0	0.0	9.1	22.7	16.7	33.3	7.6	10.6
Bluegill	4-6"	0.0	4.5	0.0	5.3	9.1	18.2	9.1	12.9

Table 4-2. Percent immediate, delayed, and 48 hour mortality of entrained fish at RBR dam.

April 2-3, 1996					
Species	Size	Number	Immediate Mortality	Delayed Mortality	Total Mortality
Morone sp.	6"	9	33.3	22.2	55.5
Morone sp.	6"	17	47.1	0	47.1
Morone sp.	6"	12	41.7	0	41.7
Morone sp.	6"	8	12.5	0	12.5
Morone sp.	7-9"	7	42.9	0	42.9
Morone sp.	7-11"	13	15.4	0	15.4
Morone sp.	7-10"	7	57.1	0	57.1
Morone sp.	7-16"	21	66.7	0	66.7
Yellow perch	4-5"	12	0	8.3	8.3
Yellow perch	4-5"	24	8.3	16.7	25
Catfish sp.	7-9"	11	0	0	0
Blueback herring	6"	5	20	0	20
April 17-18, 1996					
Morone sp.	6"	33	54.5	3	57.6
Morone sp.	6"	11	36.4	0	36.4
Morone sp.	5-6"	24	54.2	4.2	58.4
Morone sp.	6"	30	60	3.3	63.3
Morone sp.	7-11"	40	45	2.5	47.5
Morone sp.	7-11"	15	46.7	0	46.7
Morone sp.	7-11"	15	53.3	0	53.3
Morone sp.	7-11"	19	42.1	0	42.1
Yellow perch	4-6"	15	20	0	20
Yellow perch	4-6"	6	16.7	0	16.7
Catfish sp.	4-5"	2	0	0	0
Catfish sp.	5"	3	0	0	0
Catfish sp.	7-9"	8	0	0	0
Catfish sp.	7-13"	16	0	0	0
Blueback herring	5-6"	20	20	45	65
May 8-9, 1996					
Morone sp.	6-10"	38	26.3	7.9	34.2
Morone sp.	6-10"	59	17	27.1	44.1
Morone sp.	6-11"	30	30	23.3	53.3
Morone sp.	5-12"	96	36.5	11.5	47.9
Catfish sp.	5-9"	18	0	0	0
Catfish sp.	6-8"	18	0	0	0
Catfish sp.	3-8"	19	0	0	0
Catfish sp.	6-10"	31	0	0	0
Catfish sp.	7-10"	30	6.7	6.7	13.3
Catfish sp.	5-8"	22	0	0	0
Blueback herring	5-7"	154	0	92.9	92.9
Blueback herring	5-8"	108	0	81.5	81.5

Blueback herring	5-7"	48	0	33.3	33.3
Blueback herring	5-6"	41	4.9	65.9	70.7
Blueback herring	5-8"	53	1.9	69.8	71.7
Blueback herring	5-9"	38	0	50	50
Black crappie	5"	13	84.6	15.4	100
Black crappie	5-8"	10	70	0	5"
May 20-21, 1996					
Morone sp.	6-10"	10	20	30	50
Morone sp.	6-10"	38	39.5	10.5	50
Morone sp.	5-8"	16	43.8	31.3	75
Catfish sp.	5-8"	12	16.7	0	16.7
TFS/BBH	3-6"	30	6.7	46.7	53.3
TFS/BBH	3-6"	54	14.8	81.5	96.3
TFS	3-5"	59	15.3	45.8	61
TFS/BBH	3-6"	54	3.7	44.4	48.1
TFS/BBH	2-6"	54	37	31.5	68.5
June 4-5, 1996					
Morone sp.	5-7"	16	37.5	18.8	56.3
Morone sp.	6-8"	23	47.8	4.4	52.2
BBH	5-7"	44	18.2	68.2	86.4
TFS	3-5"	82	7.3	52.4	59.8
TFS	3-4"	118	5.9	69.5	75.4
TFS	3-4"	27	18.5	51.9	70.4
TFS	3-5"	44	4.6	61.4	65.9
BBH	5-7"	29	20.7	65.5	86.2
Yellow perch	4-7"	17	94.1	0	94.1
June 24-25, 1996					
Bluegill/Crappie	3-5"	29	31	13.8	44.8
TFS/BBH	2-6"	62	83.9	6.5	90.3
TFS/BBH	2-7"	54	72.2	11.1	83.3
Yellow perch	4-7"	16	43.8	6.3	50
July 7-8, 1996					
Bluegill/Crappie	3-5"	19	68.4	15.8	84.2
Yellow perch	3-5"	13	38.5	0	38.5
TFS/BBH	2-6"	141	83.7	14.9	98.6
TFS/BBH	1-4"	79	59.5	38	97.5
TFS/BBH	1-6"	81	60.5	39.5	100
TFS/BBH	1-7"	74	97.3	2.7	100
TFS/BBH	1-7"	66	75.8	18.2	93.9
TFS/BBH	2-8"	36	77.8	22.2	100
TFS/BBH	1-6"	48	81.3	18.8	100
TFS/BBH	1-6"	92	85.9	13	98.9
July 24 and 26, 1996					
White perch	6-8"	6	0	66.7	66.7
Yellow perch	4-5"	6	0	16.7	16.7
Bluegill/Crappie	4-5"	3	0	33.3	33.3

Catfish	7-8"	3	0	0	0
BBH/TFS	1-7"	100	98	1	99
TFS	1-4"	117	97.4	2.6	100
BBH/TFS	1-8"	147	91.2	6.8	98
BBH/TFS	2-7"	87	100	0	100
BBH/TFS	1-6"	111	73.9	26.1	100
BBH/TFS	1-6"	152	99.3	0.7	100
BBH/TFS	1-6"	135	93.3	6.67	100
TFS	1-4"	82	98.8	1.22	100
August 5-6, 1996					
White perch	6-7"	6	83.3	0	83.3
Yellow perch	4-5"	15	20	0	20
Bluegill/Crappie	2-5"	4	0	33.3	33.3
Bluegill/Crappie	6-14"	5	80	0	80
Catfish	3-5"	8	12.5	0	12.5
Catfish	6-9"	4	0	0	0
BBH/TFS	1-7"	132	97	3	100
TFS	1-3"	307	77.2	22.8	100
BBH/TFS	1-6"	178	97.8	1.7	99.4
BBH/TFS	2-7"	87	100	0	100
August 21-22, 1996					
White perch	6-7"	5	80	0	80
Yellow perch	4-5"	11	27.3	9.1	36.4
Bluegill/Crappie	2-5"	4	0	25	25
Bluegill/Crappie	6"	3	33.3	33.3	66.7
Catfish	6-9"	11	9.1	18.2	27.3
BBH/TFS	1-6"	159	99.4	0.6	100
TFS/BBH	1-6"	191	95.3	4.7	100
BBH/TFS	1-6"	164	97	3.1	100
TFS	1-3"	82	93.9	6.1	100
TFS	1-3"	73	97.3	2.7	100
TFS	1-4"	78	96.2	3.9	100
BBH	3-6"	36	22.2	77.7	100
September 3-4, 1996					
BBH	3-6"	3	100	0	100
BBH	4-6"	10	90	10	100
BBH	3-6"	6	100	0	100
TFS	2-3"	110	100	0	100
TFS	1-3"	86	100	0	100
TFS	2-4"	33	97	3	100
TFS	2-3"	22	100	0	100
TFS	1-3"	18	100	0	100
TFS	1-3"	46	100	0	100
September 16-17, 1996					
Bluegill/BCrappie	4-5"	6	33.3	33.3	66.7
Bluegill/BCrappie	6"	4	100	0	100

Catfish	2-5"	10	10	0	10
Catfish	2-5"	8	12.5	0	12.5
Catfish	6-16"	7	0	28.6	28.6
BBH	3-6"	7	42.9	57.1	100
TFS	1-3"	39	100	0	100
TFS	1-4"	119	100	0	100
TFS	2-3"	61	100	0	100
TFS	2-3"	30	100	0	100
TFS	2-3"	38	100	0	100
October 2-3, 1996					
BG/BCrappie	3-5"	6	66.7	0	66.7
BG/BCrappie	6-7"	7	57.1	0	57.1
Yellow perch	4-5"	3	0	0	0
Catfish	2-5"	6.0	20.0	0.0	20
Catfish	2-5"	16.0	6.3	0.0	6.3
Catfish	6-9"	15.0	13.3	6.7	20
TFS	1-4"	50.0	100.0	0.0	100
TFS	2"	30.0	100.0	0.0	100
October 16, 1996					
Catfish	2-5"	13.0	7.7	0	7.7
Catfish	6-9"	2.0	0.0	0.0	0
TFS	2-4"	44.0	95.5	4.5	100
TFS	2-3"	34.0	91.2	5.9	97.1

Table 4-3. Fish mortality estimates used to estimate mortality of entrained fish at Richard B. Russell Dam as agreed upon by the Coordination Group.

April

Species/Length	Mortality rate	# of reps	Note
Clupeid	65.00	1	
Sunfish ≤5	29.50	2	From May inducted fish
Sunfish ≥6	85.00	1	From May data
Ictalurid ≤5	0.00	-	From large Ictalurid
Ictalurid ≥6	0.00	2	
Yellow perch ≤5	17.77	3	Overlapping sizes 4-6"
Yellow perch ≥6	17.77	3	Overlapping sizes 4-6"
Morone sp.≤6	50.75	6	
Morone sp.≥7	45.28	6	

May

Species/Length	Mortality rate	# of reps	Note
Clupeid	66.12	11	
Sunfish ≤5	29.50	2	From May inducted fish
Sunfish ≥6	85.00	2	
Ictalurid ≤5	5.00	7	Overlapping size classes
Ictalurid ≥6	5.00	7	Overlapping size classes
Yellow perch ≤5	17.77	3	From April data
Yellow perch ≥6	17.77	3	From April data
Morone sp. ≤6	50.65	-	From large Morone
Morone sp. ≥7	50.65	7	

June

Species/Length	Mortality rate	# of reps	Note
Clupeid	77.21	8	
Sunfish ≤5	44.80	1	
Sunfish ≥6	85.00	1	From May data
Ictalurid ≤5	5.00	-	From May data
Ictalurid ≥6	5.00	7	From May data
Yellow perch ≤5	72.06	3	Overlapping sizes 4-7"
Yellow perch ≥6	72.06	3	Overlapping sizes 4-7"
Morone sp.≤6	54.22	-	From large Morone sp.
Morone sp.≥7	54.22	2	

Table 4-3. (Continued)

July

Species/Length	Mortality rate	# of reps	Note
Clupeid	99.12	16	
Sunfish ≤5	84.21	1	
Sunfish ≥6	84.21	-	From small sunfish
Ictalurid ≤5	27.27	1	From August data
Ictalurid ≥6	27.27	1	From August data
Yellow perch ≤5	38.46	1	
Yellow perch ≥6	38.46	-	From small Yellow perch
Morone sp.≤6	54.22	-	From June data
Morone sp.≥7	54.22	1	From June data

August

Species/Length	Mortality rate	# of reps	Note
Clupeid	99.96	15	
Sunfish ≤5	84.21	1	From July data
Sunfish ≥6	84.21	2	From July data
Ictalurid ≤5	27.27	1	From large Ictalurid
Ictalurid ≥6	27.27	1	
Yellow perch ≤5	28.18	2	
Yellow perch ≥6	28.18	-	From small Yellow perch
Morone sp.≤6	81.81	1	Overlapping size classes
Morone sp.≥7	81.81	1	Overlapping size classes

September

Species/Length	Mortality rate	# of reps	Note
Clupeid	100.00	10	
Sunfish ≤5	84.21	1	From July data
Sunfish ≥6	84.21	2	From July data
Ictalurid ≤5	28.50	1	
Ictalurid ≥6	28.50	1	From small Ictalurid
Yellow perch ≤5	28.18	2	From August data
Yellow perch ≥6	28.18	2	From August data
Morone sp.≤6	81.81	-	From August data
Morone sp.≥7	81.81	1	From August data

Table 4-3. (Concluded)

October

Species/Length	Mortality rate	# of reps	Note
Clupeid	99.28	4	
Sunfish ≤5	84.21	1	From July data
Sunfish ≥6	84.21	2	From July data
Ictalurid ≤5	7.70	1	
Ictalurid ≥6	7.70	-	From small Ictalurid
Yellow perch ≤5	28.18	2	From August data
Yellow perch ≥6	28.18	2	From August data
Morone sp.≤6	81.81	-	From August data
Morone sp.≥7	81.81	1	From August data

Table 4-4. Immediate and total turbine-passage mortality. 1993-June 1995.

Species	Size	Month	Control Mortality	Penstock Mortality (PS)		DraftTube Mortality (DT)		Turbine Mortality (DT-PS)	
				Immediate (%)	Total(%)	Immediate (%)	Total(%)	Immediate (%)	Total(%)
Blueback Herring	4-6"	JUN93	17.0	26.0	100.0	55,0	100.0	29.0	-----
Blueback Herring	4-6"	JUL93	61.0	54.0	100.0	91.0	100.0	37.0	-----
Blueback Herring	4-6"	JUL94	-----	32.0	-----	59.0	-----	27.0	-----
Blueback Herring	4-6"	MAR95	68.4	-----	100.0	-----	100.0	-----	-----
Blueback Herring	4-6"	APR95	72.7	-----	100.0	-----	100.0	-----	-----
Blueback Herring	4-6"	APR95	66.6	-----	100.0	-----	100.0	-----	-----
Blueback Herring	4-6"	AUG95	89.9	-----	100.0	-----	100.0	-----	-----
Blueback Herring	4-6"	DEC95	93.1	32.2	73.7	60.9	100.0	28.7	-----
Morone spp.	3-6"	JUN93	61.0	55.0	91.0	50.0	85.0	-5.0	-6.0
Morone spp.	10-14"	JUN93	96.0	14.0	100.0	35.0	100.0	21.0	-----
Bluegill	3-5"	JUN93	2.0	2.0	29.0	6.0	32.0	4.0	3.0
Bluegill	3-5"	JUL93	3.0	8.0	29.0	20.0	64.0	12.0	35.0
Bluegill	3-5"	JUN94	2.0	0.0	41.0	17.0	48.0	17.0	7.0
Bluegill	>6"	JUL93	38.0	41.0	84.0	89.0	100.0	48.0	16.0
Channel Catfish	3-6"	JUN93	8.0	1.0	46.0	4.0	23.0	3.0	-23.0
Channel Catfish	3-5"	JUL93	1.0	14.0	64.0	25.0	68.0	11.0	4.0
Channel Catfish	3-5"	AG	5.0	0.0	12.0	3.0	28.0	3.01	6.0
Channel Catfish	9-12"	JAN	19.0	1.0	56.0	7.0	61.0	6.0	5.0
Channel Catfish	9-12"	JUG	0.0	0.0	13.0	22.0	46.0	22.0	33.0
Yellow Perch	4-6"	JAN	26.7	-----	79.7	------	91.9	------	12.2

/1 = a negative value for turbine mortality indicates no effect (i.e., PS mortality higher than DO mortality).

Figure #4-1 Relationship between mortality rate and water temperature for entrained clupeids, catfish, and Morone sp. (1 stderr) at RBR dam

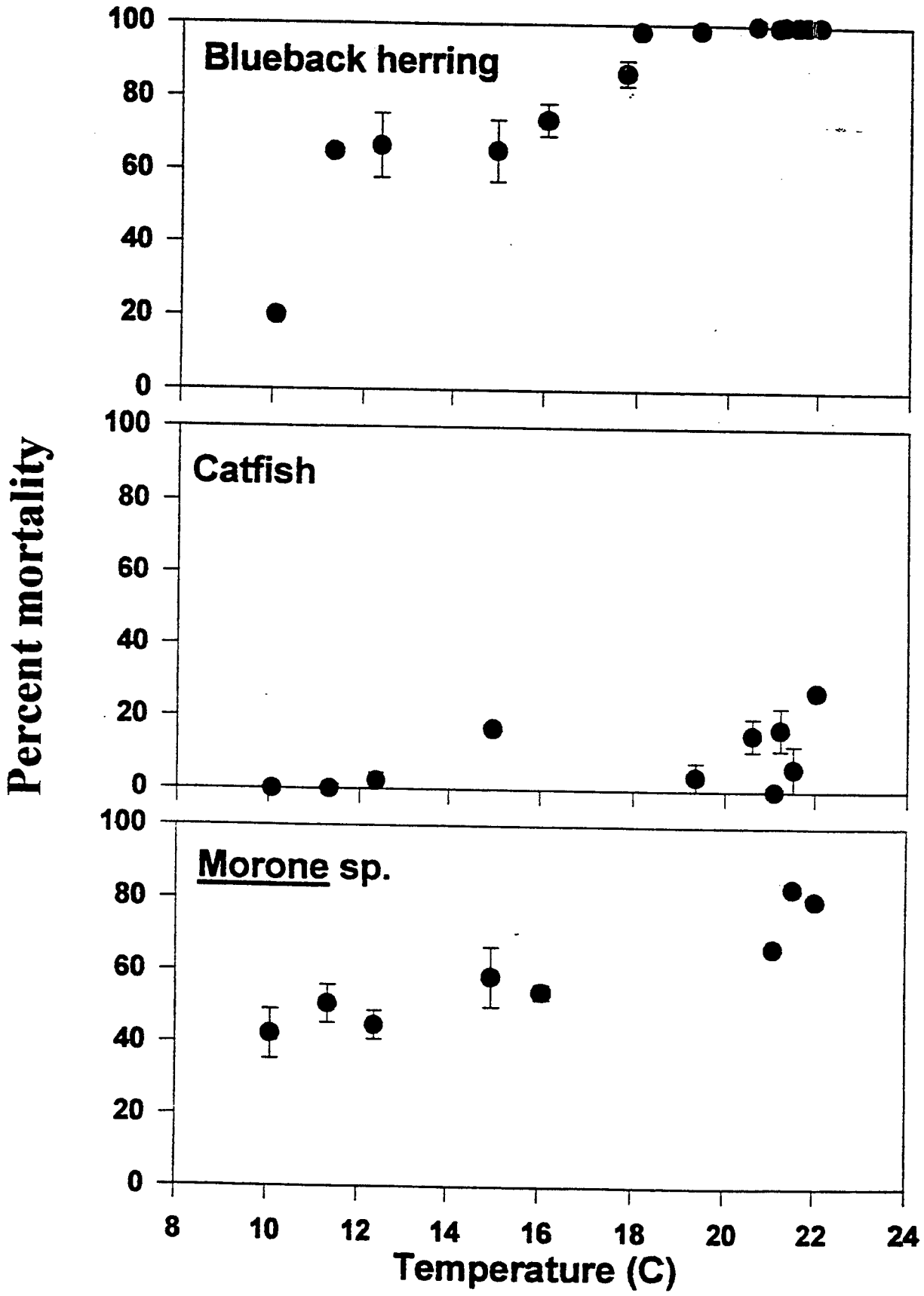
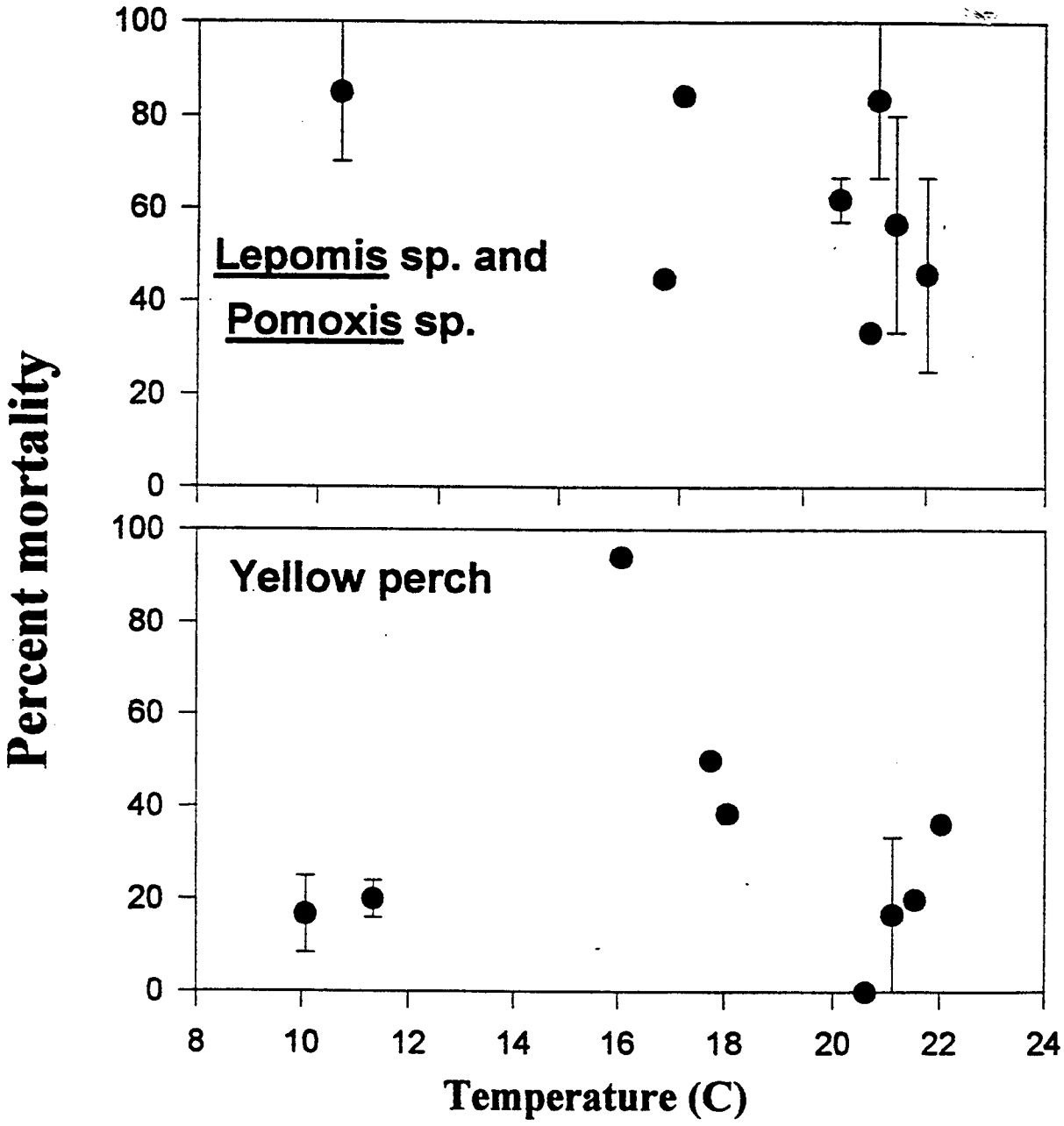


Figure #4-2 Mortality rate of Lepomis sp., Pomoxis sp. and yellow perch in relation to water temperature (1 stderr) at RBR dam.



5 Baseline Fisheries Studies

Summary

Baseline studies using a variety of different collecting gears (because different types of fish are best sampled with different kinds of sampling gears) were performed to describe the species composition and temporal and spatial distribution of the fish community of J. Strom Thurmond Lake. The general objectives of baseline monitoring activities were to determine (1) the principal components of the fish communities in the two reservoirs; (2) spatial variation of fish communities in terms of species composition and biomass; (3) seasonal and annual variation in fish communities in terms of species composition and biomass; and (4) the uniqueness of the tailwater area immediately below Richard B. Russell Dam.

Baseline sampling included the following major tasks. Gillnetting, electrofishing and rotenone sampling were used to describe the fish communities and to assess spatial and temporal trends in abundance of fishes; Larval fish sampling was used to describe spatial and temporal patterns of fish reproduction; Zooplankton sampling was used to describe spatial and temporal trends in abundance of zooplankton; Purse seining was used to relate size distributions of fish with target strengths from hydroacoustics sampling; Telemetry was used to evaluate the spring and summer distribution of striped bass, hybrid bass, and sauger in the tailwater and to relate fish movements to operations at RBR dam. Lastly, draft tube sampling was used to determine the species, numbers and sizes of fish potentially susceptible to entrainment during pumpback.

The culmination of baseline sampling efforts shows that the highest biomass of fish occurs at station 1 during the period of March, April and May. In fact, this period encompassed all species that showed definable temporal trends in distribution. Numbers of all fish other than threadfin shad were also highest during these months. Peaks in threadfin shad abundance ranged from March to September for all gears, and numbers/net (or transect) were often very high. The "boom or bust" nature of threadfin shad catches suggests that potential entrainment (by number) could be high in any month between March and September. It is important to note that temporal predictions in entrainment are *relative* and do not imply that entrainment in other months will necessarily be low in terms of absolute numbers or biomass. Absolute numbers cannot be inferred from catch rate data.

Introduction

This report is intended to serve as a comprehensive resource of all sampling conducted as part of the baseline fisheries monitoring for the Richard B. Russell Fish Entrainment Study (RBRFES). For data previously reported, the methods and significant results are briefly paraphrased from the original reports and the appropriate references provided. References are also provided for research conducted outside the scope of the baseline monitoring.

Baseline sampling for the RBRFES was initiated on J. Strom Thurmond reservoir (JST) in 1986 and was dynamic over the eleven year study period. The sampling gears used, the locations of sampling, and the frequency of sampling changed over time in response to the changing informational needs and objectives of the RBRFES.

Baseline sampling occurred throughout J. Strom Thurmond reservoir (JST) from 1986 to 1990 to evaluate reservoir wide trends. From 1990 to 1996, sampling was limited to the upper end of the reservoir to monitor near-field trends below Russell dam. Also in 1990, sampling was initiated on the lower third of Richard B Russell reservoir (RBR) to monitor near field trends above Russell Dam.

The general objectives of baseline monitoring activities were to determine:

a. What are the principal components of the fish communities in the two reservoirs?

b. How do the communities vary spatially within reservoirs in terms of species composition and biomass?

c. How do the communities vary seasonally and annually in terms of species composition and biomass?

d. Is the tailwater area immediately below Russell Dam unique?

Baseline monitoring activities included gillnetting, electrofishing, cove rotenone sampling, larval fish and zooplankton sampling, purse seining, telemetry and draft tube sampling. General information obtained from each sampling gear is briefly described below. Specific objectives of each sampling method can be found in Nestler (1990) and Nestler (1991). Gillnetting, electrofishing and rotenone sampling were used to describe the fish communities and to assess spatial and temporal trends in abundance of fishes; Larval fish sampling was used to describe spatial and temporal patterns of fish reproduction; Zooplankton sampling was used to describe spatial and temporal trends in abundance of zooplankton; Telemetry was used to evaluate the spring and summer distribution of striped bass, hybrid bass, and sauger in the tailwater and to relate fish movements to operations at RBR dam. Purse seining was used concurrently with mobile hydroacoustics to provide information on species composition and size distribution of fish. Vertical

gillnetting was used to relate patterns of distribution to temperature and dissolved oxygen. Lastly, draft tube sampling was used to determine the species, numbers and sizes of fish potentially susceptible to entrainment during pumpback.

Methods

Rotenone sampling

Rotenone sampling was conducted on J. Strom Thurmond in 1986 and 1987. Sampling consisted of four coves in 1986 (Buoy 140, Bussey Point, Little River - S.C., and Murray Creek) and five coves in 1987 (Buoy 140, Bussey Point, Cliatt Creek, Little River - S.C., and Murray Creek). Data for 1985, 1990, and 1994 were obtained from the Georgia Department of Natural Resources (GADNR) in Serber table format. Figure 5-1 (all Section 5 figures and tables are in Appendix B) shows the approximate locations of each cove. All coves were mapped each year to estimate volume and surface area.

Rotenone sampling was conducted annually on Richard B. Russell from 1990 to 1996. Three coves were sampled each year in Richard B. Russell (Island Cove, Elbert Cove, and Dam Cove). Figure 2 shows the approximate locations of each cove. The three coves were mapped in 1990. Surface area estimates for each cove in subsequent years were calculated using the formula:

$$SA_{1990} + (SA_{1990} \times (\text{lake elev}_{\text{year i}} - \text{lake elev}_{1990}) \times 0.022222)$$

where

SA_{1990} = Mapped Surface Area in 1990

lake elev_{1990} = lake elevation at time of mapping in 1990

lake $\text{elev}_{\text{year i}}$ = lake elevation at time of sampling in 1991-1996

0.022222 is a constant

This equation was derived from the area capacity curve for RBR. The relationship between surface area and lake elevation was approximately linear across the range of elevations encountered in August for the years 1990 to 1996 (473 to 478). The slope of the relationship was 0.022222 indicating that surface area increases by 2.2222 percent per foot of increase in elevation.

Procedures in 1985 and 1986 were consistent with those used by GADNR and GADNR personnel often provided assistance during sampling (on coves in Georgia). A block net was set across the mouth of the cove the evening prior to sampling, rotenone was applied the next day, and fish were picked up for two days.

Routine Gill Netting

Gill net sampling was conducted at eleven stations in JST from July 1986 to September 1988 (Figure 5-1). Stations 1-4 were sampled monthly while stations 5-11 were sampled approximately quarterly. Gillnetting effort at station 1 was increased in October of 1987 to include moratorium (non-generation) samples. From October 1988 to October 1996 stations 1-5 were sampled monthly. Gillnet sampling was conducted monthly at five stations (21-25) in RBR for the period of May thru October from 1990 to 1996 (Figure 5-2).

WES personnel sampled JST from February to June in 1986. However, the nets used were multifilament and configured slightly different than those used by GCFWRU. Therefore, these data were omitted from long term trend analyses.

Sampling effort for both lakes typically consisted of four experimental gill nets (replicates) at each station, except for non-moratorium samples at JST station 1 which consisted of two nets. All samples were overnight sets with durations typically in the range of 15 to 24 hours.

From July 1986 to February 1992, the experimental nets were 45.72 m × 2.44 m and consisted of six 7.62 m × 2.44 m panels. Mesh sizes (bar measure, mm) across the panels were 25.4, 38.1, 50.8, 63.5, 76.2 and 88.9. No effort was made to record the mesh sizes that fish were captured in. From March 1992 to October 1996, the experimental nets were 76.20 m × 2.44 m and consisted of ten 7.62 m × 2.44 m panels. Mesh sizes (bar measure, mm) across the panels were 9.5, 12.7, 19.1, 25.4, 38.1, 50.8, 63.5, 76.2, 88.9, and 101.6. The mesh size was recorded for each fish sampled.

Because meshes less than one inch were not used prior to 1992, the data were split into two data sets for analysis. The first set consisted of data from meshes that were 25.4 mm and larger (July 1986 to October 1996). The second set consisted of data from the 9.5, 12.7 and 19.1mm meshes (March 1992 to October 1996). Station groupings for JST analysis were determined by the RBR Coordination Group (CG) and were primarily based on proximity of the stations to Russell Dam and each other. For J. Strom Thurmond, the groupings were station 1 (tailrace), stations 2-4 (tailwaters), station 5 (Broad River) and stations 6-11 (downlake). For Richard B Russell, the groupings were stations 21-23 (downlake), station 24 and station 25. Stations 21-23 were pooled because of their close proximity to each other and Russell Dam (i.e., these stations would be the most impacted by immigration or emigration of fish from dam operations).

Electrofishing

Electrofishing samples were collected at eleven stations (consistent with locations for gillnet sampling) in JST from July 1986 to September 1988. Stations 1-4 were sampled monthly while stations 5-11 were sampled approximately quarterly.

From October 1988 to October 1996 stations 1-5 were sampled monthly. Electrofishing samples were collected monthly at five stations in RBR (consistent with locations for gillnet sampling) for the period of May thru October from 1990 to 1996.

Sampling effort consisted of three permanent transects (replicates) of equal length (152 m) at JST stations 2-11 and RBR stations 21-25. These transects were randomly selected at the beginning of the study from 20 possible transects at each station. Sampling effort consisted of three longer transects at JST station 1. Replicates at station 1 were approximately 300 m each along the Georgia shoreline, the South Carolina shoreline, and along the dam face. Station groupings for analysis were the same as those for gillnetting.

Horizontal "Clupeid" Gill Netting

Horizontal clupeid netting was conducted from April 1989 to February 1992 on J. Strom Thurmond and from May 1991 to October 1991 on Richard B. Russell. Sampling effort consisted of two or four experimental gill nets (replicates) at each station. All samples were overnight sets with durations typically in the range of 15 to 24 hours. The experimental nets were 22.86 m × 2.44 m and consisted of three 7.62 m × 2.44 m panels. Mesh sizes (bar measure, mm) were 12.7, 19.1, and 25.4. The mesh size was recorded for each fish sampled.

Blueback herring, gizzard shad and threadfin shad were the targeted species of these nets with other fishes considered as incidental catch. However, catch of gizzard shad was generally low in these nets relative to nets with larger meshes. Therefore, analysis of catch was limited to blueback herring and threadfin shad.

Defining Principal Components of the Fish Community

The Index of Relative Importance (IRI) was used to define the species that were principal components of the fish community. Because of differential selectivity or gears, IRI scores were calculated for each gear. Each species IRI score within gear was calculated using the formula:

Species IRI = (% by number + % by weight) X F.O.

where

% by number = the percent of total catch by number

% by wt = the percent of total catch by weight

F.O. = percent of samples that caught at least one fish of the species

Data analyses for these gears were limited to total catch and the top ten IRI species for each gear. Spatial and temporal trends were identified from plots of catch per unit effort (CPUE) by kilograms and numbers over time. Each page consisted of three graphs per station grouping: mean catch by month over the entire sampling period, mean catch by month with the median plotted as a measure of central tendency for the month, and coefficients of variations (CV's) for the monthly means. When evaluating seasonality of catch, ranges of the means and the medians were compared among months. Evaluations of size composition were based on the surer size categories used for the rotenone tables (see Section 1 of Appendix C). All fish collected were used to calculate size distributions by surber categories.

Ichthyoplankton Sampling

Ichthyoplankton sampling was conducted on JST from 1987 to 1989. Samples were collected in the channel at each station using a conical plankton net with a mouth diameter of 0.5m, a length of 1.8m, and 505 μm mesh. Sample tows were stepwise oblique tows starting at 4 m deep and ending at the surface. Total time per tow was ten minutes (approximately 2.5 minutes at each 1 m depth interval). A flow meter was mounted in the mouth of the net to estimate total volume of water sampled. Four replicate tows were collected at each station. Stations were the standard stations in J. Strom Thurmond.

Zooplankton Sampling

Zooplankton sampling was conducted on JST from 1987 to 1989. Samples were collected in the channel at each station using a conical plankton net with a mouth diameter of 0.5 m, a length of 2.0 m, and 64μm mesh. Samples were vertical tows. The net was lowered to a depth of 4.6 m and raised to the surface with an electric winch. Total volume of each tow was approximately 0.9 m^3. Four replicate tows were collected at each station. Stations were the standard stations in J. Strom Thurmond except for station 0 which is the Richard B. Russell forebay.

Telemetry

Telemetry studies were conducted in 1987 and 1988. Hybrid bass, striped bass, and sauger were collected primarily with gillnets and radio transmitters were surgically implanted or externally mounted depending on the size and the condition of the fish. Routine tracking was conducted by boat or plane twice per week in the tailwater area and once per week outside of the tailwater area using a scanning receiver and hand-held directional antenna. Tracking was also performed on a diel

basis (every 4 to 6 hours over 24 or 48 hour periods) in the immediate tailwater area (within 4 km of RBR dam).

Other Sampling Gears

Vertical gillnetting was conducted on JST in 1988 and 1989 to relate patterns of vertical distribution to temperature and dissolved oxygen. Sampling effort consisted of two or four vertical gill nets (replicates) at each station. All samples were overnight sets with durations typically in the range of 15 to 24 hours. The vertical nets consisted of two adjacent 1.8m panels that extended from the surface to the bottom. Mesh sizes (bar measure, mm) across the panels were 12.7 and 19.1. The mesh size and depth was recorded for each fish sampled.

Blueback herring and threadfin shad were the targeted species of these nets with other fishes considered as incidental catch. Therefore, analysis of catch was limited to blueback herring and threadfin shad.

Purse seine samples were collected in 1988 and 1989 concurrent with hydroacoustic samples at the base of Russell Dam. These data were collected to provide verification of species composition and size distribution to complement mobile hydroacoustics sampling. The protocol was to follow the hydroacoustics boat and deploy the seine (20 ft × 300 ft) when a large congregation of fish was found. Sampling effort (number of times the seine was deployed) was dependent on catch. The net was usually deployed until a minimum sample size of 100 to 200 fish was obtained. No effort was made to quantify total catch once the minimum sample size was obtained. When large numbers of fish were collected, fish were randomly subsampled for species composition and lengths. Because no attempts were made to standardize effort or quantify total catch, these data were not used to examine seasonality of catch.

Draft tubes at RBR were dewatered periodically to determine the species, numbers, and sizes of fish present and potentially susceptible to entrainment during pumpback. Draft tube sampling was conducted from 1988 to 1994, but the frequency of samples was variable. Draft tube gates were set in place before penstocks were closed to minimize the escape of fish as the water was removed. All fish remaining in the draft tube after dewatering were collected, identified, measured to the nearest millimeter and weighed to the nearest gram.

All Data

Section 1 of Appendix D provides all gillnet configurations used over the course of study. The actual number of samples (replicates) collected for each reservoir and gear is provided by month in Section 2 of Appendix D.

The accuracy of the digital data against the original field sheets was verified through a combination of computer programs and manual line by line proofing. All "questionable data" output by proofing programs were verified against the original sheets and approximately 90 percent of all data were manually proofed independent of the computer proofing. Therefore, most "questionable data" were verified twice.

After proofing, plots of weight versus length by species revealed a number of aberrant lengths and/or weights. These points represented very small percentage of the data and were considered field measurement errors. The magnitude of some of the points warranted correction prior to analysis or summarization of data by weights. Therefore, regressions of $\log_{10}$ weight versus $\log_{10}$ length were calculated for each species by reservoir and used to replace suspected field errors and missing weights. Essentially, as data were read into a working data set by SAS, fish weights that were 30 percent less than or 35 percent greater than the predicted weight (based on length) were replaced by the predicted weight. These bounds were fitted by eye to approximate the 95 percent confidence intervals about the regressions using all data. Section 3 of Appendix D provides the regression equations for each reservoir and species and plots of weight versus length for selected species.

Results

J. Strom Thurmond Reservoir

Rotenone sampling

The top 10 IRI species for this gear were: bluegill sunfish, threadfin shad, gizzard shad, largemouth bass, redear sunfish, warmouth sunfish, yellow perch, common carp, black crappie, and spotted sucker. These ten species accounted for over 91 percent by number and 82 percent by weight of all fish caught during the five years evaluated (Tables 5-1 and 5-2). The top 10 IRI species accounted for 84 percent, 76 percent, 88 percent, 81 percent, and 78 percent of the total biomass sampled in 1985, 1986, 1987, 1990, and 1994, respectively (Table 5-3).

Total fish biomass varied considerably across the five years (range 70 to 255 kg/ha; Figure 5-3). Total biomass by cove varied temporally and spatially (Figures 5-4a and 5-4b). Patterns of annual variation were similar among coves in direction but differed in magnitude. Biomass among coves within a year (spatial variation) varied greatly and showed no distinct patterns, with the exception of Little River, which had the highest biomass of all coves in the two years it was sampled.

Biomass by species was highly variable among years (Table 5-3). Percent of total biomass by species varied among coves and between years for the same coves (Figure 5-5). Bluegill sunfish were the dominant species by weight in all

years. Gizzard shad and largemouth bass were one of the top five biomass contributors every year sampled. The other top 10 IRI species that ranked in the top five biomass species were redear sunfish (3 years), spotted sucker (2 years), common carp (2 years), threadfin shad (1 year) and black crappie (1 year). Silver redhorse was the only species outside of the top 10 IRI species that ranked as one of the top five biomass contributors in any year (1 year).

Size composition was variable for some species and relatively constant for others across years (Figure 5-6). Black crappie exhibited the widest variation in size across years with the percent (by weight) of harvestable sized black crappie going from 76 percent in 1985 to 20 percent in 1994, respectively. Common carp exhibited no variation with 100 percent of all carp being harvestable size.

Information for all fish caught are summarized in Appendix C (Sections 2 and 3). Section 2 provides summaries by year in standard Surber table format. Section 3 provides catch for all species by cove and year and the weighted mean for all coves by year.

Routine and Moratorium Gill Netting (meshes 25.4 mm and larger)

The top 10 IRI species for this gear were: gizzard shad, hybrid bass, striped bass, longnose gar, common carp, silver redhorse, channel catfish, river carpsucker, black crappie, and white perch. These ten species accounted for over 90 percent and 91 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-4 and 5-5).

Spatial variability in CPUE among months

Seasonality in total catch (all species) was much more pronounced at stations 1 moratorium (1M) and 1 non-moratorium (1NM) than the other stations (Figures 5-7 and 5-8). Median CPUE's of total catch by number and weight were much higher at stations 1M and 1NM during the period of March to May than other months. Catch at 1M and 1NM were also higher than the other stations during these months. Stations 2-4 and 5 showed no obvious seasonality in CPUE by weight though median CPUE's were slightly higher in March and April, respectively. Station 5 showed a more pronounced peak in median CPUE by number in April and May. Median CV's showed slight variation among stations and months ,but ranges of CV's were generally similar among stations and months. The similarity in CV's suggests that, on the average, precision of estimates is the same for all stations and months.

Several IRI species showed distinct spatial trends in CPUE among months (see Figures 5-9 thru 5-28). For hybrid bass, highest CPUE at all stations occurred in March and April. Longnose gar had essentially zero CPUE's at all stations from

December to April. Common carp catch was highest at 1M and 1NM in April and May. Silver redhorse CPUE's were essentially zero at stations 1M and 1NM from June to November. River carpsucker were rarely caught at stations 1M and 1NM in months other than April and May, and were generally not caught at other stations during summer months.

Spatial variability in CPUE among years

Mean annual catch rates for all species and the top 10 IRI species are provided in Figures 5-29 and 5-30. Because catch was highly seasonal for certain species and stations, means for years with missing samples should be evaluated carefully and the likely result of the missing samples on the calculation of the mean taken into account. For example, total catch for station 1M is probably underestimated in 1990 and 1991 because March and April, respectively, were not sampled and are typically the highest catches of the year for that station.

Mean annual total CPUE (all species) by kilograms and numbers were variable among years and between stations for the same year. Station 1NM had the two highest CPUE's by weight for the study period and was typically higher than all other stations within years. CPUE by number and weight at station 1NM decreased from 1986 to 1992 but has been fairly constant since 1992. There was an opposite trend at Station 5 where CPUE remained at relatively low levels until 1992 and then increased to higher levels until the end of the study period.

Annual catch rates for the top 10 IRI species varied greatly among years and between stations. Gizzard shad were generally most abundant at station 2-4 until 1992. In 1992, biomass and numbers of shad increased at station 5 to levels roughly equivalent to stations 2-4. Catch at 1M and 1NM were variable among years but usually relatively low. Annual catch rates of hybrid and striped bass were highest at 1NM for most years. Stations 1M, 2-4 and 6-11 were similar in range of CPUE's by weight. Mean annual CPUE of hybrid and striped bass at station 5 was relatively low for the entire study period. Longnose gar showed longitudinal patterns in distribution with CPUE being highest at the downlake stations (6-11), moderate at station 5, low at stations 2-4, and always very low at stations 1M and 1NM. CPUE by biomass of common carp was comparable among stations overall, but much more variable at stations 1M and 1NM than the other stations. CPUE of silver redhorse decreased sharply at station 1NM in 1990 and has remained low. CPUE at other stations has been fairly constant among years. Prior to 1990, CPUE of silver redhorse was much higher at station 1M than other stations. Since 1990, CPUE was highest at stations 2-4. Silver redhorse were virtually non-existent in downlake samples, with zero catches reported for two of the three years sampled. Channel catfish CPUE showed pronounced longitudinal spatial patterns in distribution. Channel catfish were virtually absent from stations 1M and 1NM, present in low abundance at stations 2-4, and relatively abundant at stations 5 and 6-11. Channel catfish CPUE's were highly variable among years at station five, but have increased steadily since 1991. River carpsucker also showed longitudinal patterns of distribution with the highest

catches in the tailwater areas. From 1986 to 1990, CPUE of river carpsuckers was relatively high at stations 1M, 1NM, and 2-4, low at station 5, and close to zero at station 6-11. Since 1990, river carpsucker abundance has decreased sharply at all stations. Black crappie and white perch showed similar patterns in abundance both temporally and spatially. Catch was highly variable among years at all stations. However, CPUE's of both species have increased at stations 2-4 and 5 since 1992.

Species composition

The percent of total weight represented by each species for each station and year, and all stations pooled, is presented in Figure 5-31. Temporal and spatial patterns are similar to those discussed above, but evaluate trends relative to total catch rather than tracking catch of a particular species. For example, even though catch of white perch increased three-fold (by weight) at station 5 in 1996, Figure 5-31 shows that white perch are still a minor component of the overall catch of this gear in terms of biomass. The relative importance of each species overall is best illustrated by the data pooled among stations (Figure 5-31, All stations).

Size composition

There was little variation in size composition for all IRI species (Figure 5-32) with the majority of biomass consisting of harvestable sizes. This is likely the result of gear selectivity (i.e., this evaluation is only using fish from meshes greater than or equal to 25.4 mm) for larger fish and is probably not indicative of the relative abundance of smaller size classes.

Routine and Moratorium Gill Netting (meshes less than 25.4 mm)

The top 10 IRI species for this gear were: blueback herring, threadfin shad, longnose gar, gizzard shad, white perch, hybrid bass, yellow perch, striped bass, channel catfish, and spottail shiner. These ten species accounted for over 98 percent and 97 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-6 and 5-7). Three species (blueback herring, threadfin shad and longnose gar) dominated the catch and accounted for over 92 percent and 78 percent of the numbers and weight of fish collected, respectively.

Spatial variability in CPUE among months

Seasonality in total catch (all species) was much more pronounced at stations 1M and 1NM than the other stations (Figures 5-33 and 5-34). Median CPUE's of

total catch by number and weight were much higher at stations 1M and 1NM during the period of April to June than other months. Catch at 1M and 1NM were also higher than the other stations during these months. CPUE at stations 2-4 and 5 were highest during warm weather months (May thru September). Ranges of CV's were generally similar among stations and months.

Numerous IRI species showed distinct spatial trends in CPUE among months (Figures 5-35 thru 5-54). For blueback herring, CPUE's were highest at all stations in April and May and highest at stations 1M and 1NM. Threadfin shad, gizzard shad and longnose gar were only caught in warmer months with zero or low CPUE's at all stations from November to April. Catch of threadfin shad was much higher at station 1 during moratorium periods than non-moratorium periods. CPUE's of gizzard shad and longnose gar were highest at stations 2-4 and 5. Catch of yellow perch was highest from February to April at stations 1M and 1 NM, but similar among months at stations 2-4 and 5. Spottail shiner CPUE's were variable but were highest at stations 1M and 1NM from February to June. White perch, hybrid bass, striped bass, channel catfish showed no consistent seasonal trends in catch.

Spatial variability in CPUE among years

Mean annual total CPUE (all species) by kilograms and numbers were variable among years and between stations for the same year (Figures 5-55 and 5-56). Total catch was usually highest at stations 1M and 1NM within years.

Annual catch rates for the top 10 IRI species varied greatly among years and between stations. Blueback herring were generally most abundant at stations 1M and 1NM and virtually absent from station 5. Annual catch rates of threadfin shad were variable among years, but patterns of annual variation were similar across stations. Annual catch of longnose gar was highest at stations 2-4 and 5 and relatively constant from 1992 to 1996. Annual CPUE's for gizzard shad were variable with no discernable patterns. Annual abundance of white perch has increased at all stations from 1992 to 1996. Annual catch of threadfin shad, longnose gar, gizzard shad, and white perch were much lower at station 1 in non-moratorium samples than moratorium samples. Annual CPUE's for hybrid bass were variable with no discernable annual patterns, but were highest at station 1M for three of the five years. Annual CPUE's for yellow perch were highest at station 1M, similar at stations 1NM and 2-4, and low at station 5 for all years. Annual CPUE's for striped bass were variable with no discernable annual patterns. Channel catfish catch was much higher at station 5 in all years than the other stations. Spottail shiner abundance was variable among years but was generally higher at stations 1M and1MN than the other stations.

Species composition

The percent of total weight represented by each species for each station and year, and all stations pooled, is presented in Figure 5-57. Blueback herring dominated the catch at Stations 1M and 1NM while threadfin shad and longnose gar dominated the catch at stations 2-4 and 5.

Size composition

There was slight variation in size composition among years and between stations within years for all IRI species (Figure 5-58). For example, intermediate sized fish composed the majority of the blueback herring catch (by number) in all years at all stations.

Electrofishing

The top 10 IRI species for this gear were: bluegill sunfish, largemouth bass, yellow perch, silver redhorse, spottail shiner, redear sunfish, spotted sucker, gizzard shad, threadfin shad and whitefin. These ten species accounted for over 90 percent and 80 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-8 and 5-9).

Spatial variability in CPUE among months

There was no identifiable seasonality in total catch (all species) at any station, except that median CPUE's were lowest at station 5 in June and July. Median CPUE's at other stations, and other months for station 5, varied differently in numbers and weight, and ranges of mean CPUE's were highly variable within months (Figures 5-59 and 5-60). Median CV's showed slight variation among stations and months ,but ranges of CV's were generally similar among stations and months.

Relatively few of the IRI species showed spatial trends in CPUE among months (Figures 5-61 thru 5-80). Yellow perch had the highest CPUE's at station 1 from January to June. CPUE's of silver redhorse were lowest at station 5 in June and July. Spottail shiner abundance was highest at station 1 from January to April and lowest at stations 2-4 and 5 from May to August and May to June, respectively).

Spatial variability in CPUE among years

Mean annual total CPUE (all species) by kilograms and numbers were highly variable among years and between stations for the same year (Figures 5-81 and

5-82). Over all years, mean total CPUE by weight tended to be highest at station 1, was similar at stations 2-4 and 5, and slightly lower at station 6-11.

Annual catch rates for the top 10 IRI species also varied among years and between stations. Bluegill sunfish and largemouth bass showed similar trends in CPUE by weight over time and space. CPUE by weight has steadily decreased at all stations since 1992. CPUE of yellow perch showed a longitudinal distribution with highest catch rates at station 1, followed by much lower CPUE's at station 2-4, and very low CPUE's at stations 5 and 6-11. CPUE's of silver redhorse were highest and approximately equal at stations 2-4 and 5. CPUE of silver redhorse at station 6-11 was very low. CPUE's of spottail shiner and redear sunfish were variable, but similar (within species) among stations. CPUE's of spotted sucker and gizzard shad showed different patterns between CPUE by number and CPUE by weight. Highest numbers of both species occurred at station 5 while the highest biomass generally occurred at station 1. This discrepancy was related to the size distributions of spotted sucker and gizzard shad at each station (see size composition section). Annual CPUE of threadfin shad was sporadic for all stations and revealed no clear spatial patterns in abundance. Lastly, abundance of whitefin shiner was highest at station 2-4.

Species composition

The percent of total weight represented by each species for each station and year, and all stations pooled, is presented in Figure 5-83. Bluegill sunfish, largemouth bass and, to a lesser extent, spotted sucker were major components of catch at all stations. Silver redhorse was a major biomass contributor at stations 2-4 and 5, but not at stations 1 or 6-11.

Size composition

Size composition was variable for most IRI species among stations and years (Figure 5-84) but general statements can be made for some species. Species which had one size group that typically contributed to the majority of the numbers for that species were: bluegill sunfish - intermediates; largemouth bass - harvestables; silver redhorse - harvestables; and redear sunfish - harvestables. Size distributions of spotted sucker and gizzard shad varied by station. All spotted suckers and gizzard shad collected at station 1 were of harvestable size. At station 5, fingerling and intermediate sizes made up a large percentage of the fish collected in most years. Size distributions of yellow perch were variable, but the presence or absence of fingerlings was similar among stations within years. Fingerling yellow perch were captured in relatively higher numbers from 1986 to 1988 and again in 1993 to 1995. Whether this phenomenon is random, related to slower growth in those years, or related to cyclic reproduction is unknown.

Horizontal "Clupeid" Gill Netting

This section presents results from the original horizontal blueback herring nets that were set from April of 1989 to February of 1992. Samples were also obtained in March and August of 1996 (concurrent with hydroacoustics sampling) but had different objectives than the previous sampling, used a different net configuration and have already been reported by Bruce and VanDenAvyle (reports attached as appendices G and H). Therefore, the 1996 data are not included in these results. For the 1989 to 1992 data, only blueback herring and threadfin shad data are summarized, but information on catch of all other species is presented in Tables 5-10 and 5-11.

Spatial variability in CPUE among months

Blueback herring CPUE's were highest at all stations in April, May and June with the highest CPUE's at stations 1 (Figures 5-85 and 5-86). CPUE's of threadfin shad were highest from May to October at all stations (Figures 5-87 and 5-88). Abundance of threadfin shad was lowest at station 1 in all months. Though lowest at station 1, peak catches approached 80 fish/net.

Spatial variability in CPUE among years

Mean annual total CPUE (both species) by kilograms and numbers were variable among years and between stations for the same year (Figures 5-89 and 5-90). Total catch was highest at station 1 within years. Blueback herring were most abundant at station 1 and virtually absent from station 5 in all years. Annual catch rates of threadfin shad were variable among years, but patterns of annual variation were similar across stations. Abundance of threadfin shad was lowest at station 1 in all years.

Species composition

The percent of total weight represented by each species for each station and year, and all stations pooled, is presented in Figure 5-91. Blueback herring dominated the catch at station 1 while threadfin shad dominated the catch at stations 2-4, 5, and 6-11. Across the lake as a whole (All Stations), blueback herring biomass increased steadily from 1989 to 1992 relative to threadfin shad biomass.

Size composition

There was slight variation in size composition among years and between stations within years for either species (Figure5-92). Intermediate sized fish

composed the majority of the catch (by number) for both species in all years and at all stations.

Ichthyoplankton Sampling

The following results are paraphrased from VanDenAvyle (1990) and Zimpfer (1990). Additional references (attached as appendices E and F) relating to larval fishes in J. Strom Thurmond are Higginbotham (1991) and Betsill (1996) .

Four major taxa made up more than 98 percent of the larvae collected at all sites. The four taxa were clupeids (threadfin shad, gizzard shad, and blueback herring), crappies (white crappie and black crappie), sunfish (bluegill, redbreast, redear, and several others), and yellow perch. Species composition was similar among regions of the lake. Larval fish densities were lowest at tailwater stations (1-3) and highest at tributary stations (4, 5, 6, and 11).

Spawning peaks varied by up to a month annually, but relative timing for the four major taxa was the same. Yellow perch were the earliest spawners, followed by crappies, clupeids and sunfish. The timing of spawning was similar among regions of the reservoir within each year.

For samples in the immediate area of the dam, larval fish abundance was very low in the Richard B Russell forebay and at station 1. This finding suggested that few larvae were entering JST from RBR. Abundance of larvae in the tailwaters generally increased with distance from the RBR Dam. Lastly, diel studies at station 2 revealed that densities of larval fish were always low during or immediately after generation.

Zooplankton Sampling

The following results are paraphrased from Betsill (1996). An additional reference relating to zooplankton and larval feeding in J. Strom Thurmond is Higginbotham (1991).

Rotifers (14 genera) averaged more than 70 percent of total zooplankton collected each year. The seasonal progression in relative abundance of rotifer genera was Polyarthra (February to May) to Keratella (June) to a variety of small rotifers consisting of Conochilus, Pleosoma, Conochiloides and Branchionus (July). Crustacean zooplankton made up a small proportion of total zooplankton and only copepod nauplii regularly exceeded 10 percent.

Significant differences in abundance of rotifers were found between uplake and downlake areas on 15 of 17 dates. Differences in zooplankton abundance were also found between mainlake sites and embayments but were ephermeral in nature.

Spring peaks in zooplankton abundance occurred later at upstream sites than at downstream sites.

Telemetry

The following results are paraphrased from Welch (1990). Additional references (attached) relating to radio tracking of hybrid bass and sauger in J. Strom Thurmond are Windham (1986) and Earle (1991), respectively.

Hybrid and striped bass were widely distributed in the upper portion of the reservoir during spring months (March to May). However, movements of fish from June to September were limited to certain locations along the upper Savannah arm of the reservoir. Sauger movements were restricted to the tailwater area throughout the spring and summer of both years.

Conventional operation of RBR Dam had little influence on the movements of hybrid bass or sauger. In addition, there were no movements toward or away from the dam in response to generation.

Other Sampling Methods

Vertical gillnetting showed distinctly different behavioral distributions of blueback herring and threadfin shad during stratified periods of the year (July, August, and September). Blueback herring occurred at depths of 4-14 meters where temperatures ranged from 17-24 ^{0}C (Figure 5-93). Threadfin shad occurred primarily in the upper two meters of the water column at temperatures of 24-29 °C. Temperature was an important factor in distribution of bluebacks as approximately 30 percent of blueback herring were found at temperatures where dissolved oxygen levels were below 5 ppm.

Blueback herring appeared to move uplake as stratification became more pronounced (Figure 5-94). Catch of bluebacks was highest at downlake stations (9 and 10) in May and June but higher at stations 7 and 8 in July August and September. Blueback herring were rarely caught at any time up the Little River arm in Georgia (station 11). Surprisingly, catch of threadfin shad was also lower downlake from July to September. Threadfin appeared to move up both the Savannah and Little River arms during the summer as catch increased at stations 7, 8 and 11 during this time.

Purse seine samples at station 1 caught few fishes other than blueback herring and threadfin shad (Table 5-24). Blueback herring were usually the dominant species and often comprised 100 percent of the catch for a given month (Figure 5-95). Catch of threadfin shad was sporadic among months as with the other gears previously reported. Length frequency distributions of blueback herring were similar within months across years (1988 and 1989). Two modes of bluebacks were

typically evident from March to June. Modes in March were the 120 and 160 mm groups. The 120 mm mode progressed to 160 to 170 mm groups by October. The larger mode was not as easily discerned over time and appeared to broaden over time. A smaller mode (70 mm) was evident only in September 1989. This is also the time of year that this size of blueback herring was recruited into the catch of small meshed gillnets. The infrequency of capture and generally low numbers of threadfin shad prohibit even general conclusions regarding size distributions over time.

Relatively few fish were collected in any of the draft tube dewatering samples taken from 1988 to 1994 (Table 5-25). The mean numbers and weights (in grams) of fish for all samples were 13 and 543 (or 0.543 kilograms), respectively. The highest number of fish collected in any sample was 44 fish in February 1988. Forty-one of these were threadfin shad. The highest biomass of fish collected in any sample was approximately 2 kilograms in November 1988. Over 90 percent of the biomass of this sample consisted of flathead catfish. Five ictalurid species were collected and ictalurids often comprised the majority of biomass for all samples. As with other gears, white perch did not appear in samples until 1991 and was present in all, but one, subsequent samples.

Richard B. Russell Reservoir

Rotenone sampling

The top 10 IRI species for this gear were: threadfin shad, bluegill sunfish, common carp, gizzard shad, yellow perch, redbreast sunfish, largemouth bass, green sunfish, redear sunfish, and warmouth sunfish. These ten species accounted for over 98 percent by number and 94 percent by weight of all fish caught during the five years evaluated (Tables 5-12 and 5-13). The top 10 IRI species accounted for 94 percent, 94 percent, 88 percent, 98 percent, 95 percent, 89 percent and 91 percent of the total biomass sampled from 1990 to 1996, respectively (Tables 5-14).

Total fish biomass varied considerably across the five years (range 48 to 186 kg/ha; Table 5-14, Figure 5-96). Total biomass by cove varied temporally and spatially (Figures 5-97a and 5-97b). Patterns of annual variation were generally similar among coves in direction but differed in magnitude. Total kilograms/hectare was highest for all coves in 1994. Within years (spatial variation), Dam cove had the lowest biomass estimate every year except for 1991. Island and Elbert coves varied in relation to each other, but were generally similar.

Biomass by species was highly variable among years (Table 5-14). Percent of total biomass by species varied among coves and between years for the same coves (Figure 5-98). Common carp were the dominant species by weight in all years except 1996. Gizzard shad, bluegill, and threadfin shad were one of the top five biomass contributors every year sampled. The other top 10 IRI species that ranked as one of the top five biomass contributors were largemouth bass (3 years)

and yellow perch (1 year). Three species outside of the top 10 IRI species ranked as one of the top five biomass contributors in any year. They were chain pickerel (5th in 1990; 1.76 kg/ha), channel catfish (5th in 1992; 2.39 kg/ha) and black crappie (4th in 1996; 2.2 kg/ha).

Size composition was variable for some species and relatively constant for others across years (Figure 5-99). Relative abundance of fingerlings was highest in 1993 and 1994 for many of the littoral species (yellow perch, redbreast sunfish, green sunfish, and warmouth sunfish). With the exception of redbreast sunfish, the higher relative abundance of fingerlings appears to be due to higher reproduction in 1993 and 1994 as these were also the years with the highest biomass of fingerlings. For redbreast sunfish, the increase in the percent of fingerlings was not related to higher reproduction as the biomass of fingerlings in 1993 and 1994 was not appreciably higher than other years (and was lower than some years).

Information for all fish caught are summarized in Appendix C (Sections 4 and 5). Section 4 provides summaries by year in standard Surber table format. Section 5 provides catch for all species by cove and year and the weighted mean for all coves by year.

Routine Gill Netting (meshes 25.4 mm and larger)

The top 10 IRI species for this gear were: gizzard shad, common carp, longnose gar, largemouth bass, white perch, channel catfish, black crappie, hybrid bass, silver redhorse, and white catfish. These ten species accounted for over 91 percent and 91 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-13 and 5-14).

Spatial variability in CPUE among months

Total catch (all species) varied by month and between stations within months (Figures 5-100 and 5-101). Median catch rates were higher at stations 21-23 and 24 in May, but ranges in CPUE were similar among months. CPUE's of all species pooled were variable at station 25, and similar in range, among months.

Because sampling was restricted to "warm weather" months (May through October) each year, seasonal or monthly trends in catch were difficult to discern or were not apparent for most IRI species (Figures 5-102 thru 5-121).

Spatial variability in CPUE among years

Mean annual total CPUE (all species) by kilograms and numbers was variable among years and between stations for the same year (Figures 5-122 and 5-123). However, total catch in numbers and weight were of similar magnitude with the

exception of station 24 in 1990 and 1991 which was much lower than the other stations.

Annual catch rates for the top 10 IRI species also varied among years and between stations. Annual CPUE's of gizzard shad were similar among stations in magnitude with the exception of station 24 in 1990 and 1991. Abundance of carp was highest at station 25 in all years sampled, and similar among stations 21-23 and 24. Longnose gar were generally least abundant at station 24 and similar at stations 21-23 and 25. CPUE by weight of largemouth bass was nearly identical in magnitude and in year to year fluctuations at stations 21-23 and station 25. CPUE of largemouth bass was always relatively low at station 24. White perch were rarely caught at any station other than station 25 and annual catch at station 25 was highly variable. CPUE's of channel catfish by weight generally increased at all stations over the seven years sampled. Abundance of channel catfish was lower at stations 21-23 than the other stations. Hybrid bass were most abundant at station 21-23 in all years and rarely sampled at the other stations. CPUE's silver redhorse were highest at station 21-23, and low or zero at stations 24 and 25. Lastly, CPUE's of white catfish were generally similar at all stations among years.

Species composition

Temporal and spatial patterns in species composition are similar to those discussed above. For the lake as a whole (all stations), gizzard shad, common carp, and longnose gar made up over 50 percent of the total biomass in all years sampled (Figure 5-124). These three species also constituted a large portion of the biomass at each station. The other top ten IRI species that generally contributed at least 10 percent to the total biomass at a station were channel catfish and black crappie station 24, and hybrid bass at station 21-23.

Size composition

There was little variation in size composition for all IRI species (Figure 5-125) with the majority of biomass consisting of harvestable sizes. This is likely the result of gear selectivity (i.e., evaluation only using fish from meshes greater than or equal to 25.4 mm) for larger fish and is probably not indicative of the relative abundance of smaller size classes.

Routine Gill Netting (meshes less than 25.4 mm)

The top 10 IRI species for this gear were: threadfin shad, blueback herring, longnose gar, common carp, bluegill sunfish, gizzard shad, spottail shiner, whitefin shiner, white perch and yellow perch. These ten species accounted for over 99 percent and 93 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-17 and 5-18). Three species (blueback

herring, threadfin shad and longnose gar) dominated the catch and accounted for over 95 percent and 78 percent of the numbers and weight of fish collected, respectively.

Spatial variability in CPUE among months

CPUE by weight of all species pooled was highly variable with no consistent trends among stations or months (Figure 5-126). CPUE by number of all species pooled was generally much higher in May than other months at all stations (Figure 5-127).

Several IRI species showed distinct trends in CPUE among months (Figures 5-128 thru 5-147). CPUE's of threadfin shad and blueback herring were highest in May at all stations, but were variable in May among stations. Longnose gar and common carp showed no distinct monthly patterns in CPUE but both species were caught more frequently at stations 21-23 and 25 than at station 24. Bluegill sunfish and gizzard shad showed no monthly trends in CPUE. CPUE's of spottail and whitefin shiners were highest from May to June at all stations and similar among stations. White perch and yellow perch were caught sporadically at all stations. Bluegill sunfish and gizzard shad showed no monthly trends.

Spatial variability in CPUE among years

Mean annual total CPUE (all species) by kilograms and numbers was variable among years and between stations for the same year (Figures 5-148 and 5-149). Total catch by weight was generally highest at station 25 which also exhibited the greatest year to year variation. Total catch by number (which was essentially the catch threadfin shad) showed no distinct annual patterns among stations.

Annual catch rates for the top 10 IRI species also varied greatly among years and between stations within years. In fact, few generalizations can be made from this gear. Common carp were generally absent from samples at station 24 with zero catch rates in four of the five years. Gizzard shad were most abundant at station 24 with very low catches at stations 21-23 and 25.

Species composition

Temporal and spatial patterns in species composition are similar to those discussed above. For the lake as a whole (all stations), longnose gar averaged over 50 percent of the total biomass for all years sampled (Figure 5-150). Longnose gar were the dominant biomass species at stations 21-23 and 25 in all years, and was variable at station 24. Threadfin shad and blueback herring made up the largest portion of the remaining biomass at all stations in most years. Common carp were sporadically important at all stations and gizzard shad contributed to total biomass only at station 24.

Size composition

There was some variation in size composition for most IRI species (Figure 5-151), but overall (all stations) the majority of the biomass within species generally consisted of a specific size, or the relative percentages of sizes were similar. The one exception was blueback herring which steadily went from consisting of mostly harvestable sizes to consisting of mostly intermediate sizes.

Electrofishing

The top 10 IRI species for this gear were: bluegill sunfish, largemouth bass, threadfin shad, redbreast sunfish, green sunfish, yellow perch, yellow bullhead, spottail shiner, common carp and redear sunfish. These ten species accounted for over 97 percent and 84 percent of the total number and weight of fish caught during the study period, respectively (Tables 5-19 and 5-20).

Spatial variability in CPUE among months

Total catch (all species) varied among months and stations within months, but the highest catches within a year at all stations usually occurred in May or October (Figures 5-152 and 5-153).

Few IRI species showed spatial trends in CPUE among months or monthly trends among years (Figures 5-154 through 5-173). Bluegill sunfish were one of the few exceptions with highest CPUE's typically in May or October, and monthly patterns within years were similar among stations. Largemouth bass CPUE's were also highest in May or October but there were no consistent trends among stations within years or years within stations. CPUE's of largemouth bass were higher at station 24 for most given months and years. There were no discernable monthly patterns in threadfin shad CPUE's, but catch was generally higher at station 24 with threadfin shad being caught infrequently at the other stations. CPUE's for the other top 10 IRI species were highly variable among stations within months and did not show any monthly patterns across years.

Spatial variability in CPUE among years

Mean annual catch rates for all species and the top 10 IRI species are provided in Figures 5-174 and 5-175. Mean annual total CPUE (all species) by kilograms and numbers were highly variable among years and between stations for the same year. Over all years, mean CPUE was higher at station 24 than stations 21-23 or 25.

Annual catch rates for the top 10 IRI species were highly variable among years and between stations. CPUE's of bluegill sunfish, largemouth bass and threadfin shad were higher at station 24 in almost all years than the other stations.

Redbreast sunfish have generally decreased in numbers at all stations since 1992 while green sunfish numbers increased since 1994. None of the other IRI species showed definable trends in annual abundance.

Species composition

Bluegill sunfish and largemouth bass constituted the majority of the biomass at all stations in virtually all years (Figure 5-176). Common carp were the only other IRI species that frequently contributed more than 10 percent to the total biomass at all three stations.

Size composition

Relative proportions of size classes by number were variable for some species and relatively constant for others. Size composition of bluegill sunfish, largemouth bass, threadfin shad, redbreast sunfish and common carp were relatively constant across years overall (Figure 5-177; all stations).

Horizontal "Clupeid" Gill Netting

Though only blueback herring and threadfin shad data are summarized below, information on catch of all other species is presented in Tables 5-21 and 5-22. Because this gear was only used for one year, conclusions regarding spatial or temporal patterns in abundance were limited. However, the distribution of catch by month for these two species was similar to that from the routine gillnets (meshes less than 25.4 mm) in following years.

Spatial variability in CPUE among months

Blueback herring catch was highest at all stations in May and was sporadic in other months. Blueback herring CPUE's were highest at station 21-23 (Figure 5-178 and 5-179). CPUE's of threadfin shad were highest in May at stations 21-23 and 25, and in October at station 24 (Figures 5-180 and 5-181). Threadfin shad were caught infrequently (for threadfin shad) at all stations, with the highest catch for any month or station being approximately four fish/net.

Spatial variability in CPUE among years

No data for this gear (see routine gillnetting- meshes less than 25.4 mm).

Species composition

For the catch of blueback herring and threadfin shad, blueback herring constituted 97 percent of the catch by weight across all stations (Figure 5-182).

Size composition

Blueback herring catch consisted mostly of intermediate sizes (68 percent for all stations) with the remainder of catch being harvestable sizes (Figure 5-183). Threadfin shad catch consisted of almost entirely of intermediate sizes.

Discussion

One of the goals of baseline sampling was to define temporal patterns in abundance of fishes at station 1 (immediate tailrace) for predicting potential entrainment during pumpback operation of the dam. Predictions regarding potential entrainment depend on the parameter of interest (i.e., numbers or biomass). When numbers only are evaluated, predictions will be based essentially on threadfin shad and blueback herring, as these two species totally overwhelmed all other species in terms of numbers/net during peak catch times. However, threadfin shad are essentially unimportant and blueback herring less important in determining temporal distribution of biomass.

The culmination of baseline sampling efforts (Table 5-23) shows that the highest biomass of fish occurs at station 1 during the period of March, April and May. In fact, this period encompassed all species that showed definable temporal trends in distribution. Numbers of all fish other than threadfin shad were also highest during these months. Peaks in threadfin shad abundance ranged from March to September for all gears, and numbers/net (or transect) were often very high. The "boom or bust" nature of threadfin shad catches suggests that potential entrainment (by number) could be very high in any month between March and September. It is important to note that temporal predictions in entrainment are *relative* and do not imply that entrainment in other months will necessarily be low in terms of absolute numbers or biomass. Absolute numbers cannot be inferred from catch rate data.

Use of the top ten IRI species was a good way to represent the majority of the data, even for gears that collected the highest diversity of species. The top 10 IRI species typically accounted for over 90 percent by number and 80 percent by weight of total catch for a given gear and exceeded 95 percent by number and weight for some gears. The lower percentage by weight usually resulted from a few (in relative terms) large individuals from a few infrequently caught species. Because the IRI scores were calculated for all years and stations pooled, there were a few cases where a relatively large percentage of total biomass for a given station or year was from an unknown species. However, Tables 5-1 through 5-22

provide a general idea of the non-IRI species that likely provided substantial biomass to catch.

Defining long-term trends in abundance is important for future evaluations of the effects of pumpback operation on the respective fisheries. For example, extirpation of a species after pumpback operations may not be related to pumpback if the species showed continual declines in abundance prior to 1996. There were several long term trends identified for JST fishes. Abundances of black crappie and white perch have increased in JST over the eleven years of study based on routine gillnetting. These increases were also evident in cove rotenone sampling (Sections 3 & 4 in Appendix C). White perch were not captured in rotenone samples until 1990, and increased from 5 fish/ha (0.11 kg/ha) in 1990 to 148 fish/ha (2.66 kg/ha) in 1994. Numbers and kilograms per hectare of black crappie were higher in 1994 than any previous year. Increased presence of white perch was also noted in draft tube dewatering samples. Sauger and walleye decreased in abundance from 1986 to 1991 and have been virtually absent from samples since. Two sauger and one walleye have been collected since 1991. Total numbers of sauger collected from 1986 to 1988 were 130, 36 and 26. Total numbers of walleye captured for the same years were 8, 10, and 5. Because almost all sauger and walleye were collected at stations 1 through 4, differences in annual numbers are not related to increased effort at stations 6-11 for those years. Lastly, river carpsucker abundance decreased in the early 1990's and has remained low through the end of the study period.

Because of individual gear biases, a variety of gears were used during baseline monitoring to assess spatial and temporal patterns in relative abundance. Regardless of the gear, all of the results presented assume that catch rate was related to abundance in a localized area (i.e., stations) at all times. While this assumption is likely valid for most species and times of year, it should be noted that there are few species which may exhibit seasonal behavior patterns that would alter the relationship between abundance and catch. For example, because gillnetting is a passive collection gear, catch rates are dependent on the activity levels of the fish. Therefore, catch rates of a species like threadfin shad, which are lethargic at cold water temperatures, could be very low regardless of local relative abundance during cold weather months. Even active collection gears like electrofishing may be influenced by seasonal behavior patterns of fish. Some littoral species may move to slightly deeper water in colder months (and thus would not be captured by electrofishing) but stay in the same general area. These cautionary statements do not negate the results presented above, but rather, illustrate the importance of meshing these results with other gears such as hydroacoustic sampling (which is less affected by fish behavior).

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Table 5-1. IRI scores for species caught in JST rotenone sampling.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Bluegill Sunfish	55.98	25.40	100.00	8138
Threadfin Shad	19.62	5.51	94.44	2374
Gizzard Shad	0.83	11.42	100.00	1225
Largemouth Bass	1.78	10.07	100.00	1185
Redear Sunfish	2.33	6.54	100.00	887
Warmouth Sunfish	4.54	3.18	100.00	772
Yellow Perch	4.13	3.46	100.00	759
Common Carp	0.02	8.28	72.22	600
Black Crappie	1.47	3.73	94.44	491
Spotted Sucker	0.14	4.30	83.33	371
Green Sunfish	1.82	1.02	100.00	284
Channel Catfish	0.15	2.73	94.44	272
White Catfish	0.43	2.15	100.00	258
Silver Redhorse	0.11	3.47	44.44	159
Spottail Shiner	1.82	0.28	66.67	140
Flathead Catfish	0.01	2.28	55.56	127
Redbreast Sunfish	0.53	0.58	88.89	99
Chain Pickerel	0.10	0.65	83.33	62
Tadpole Madtom	0.47	0.09	100.00	56
River Carpsucker	0.01	2.07	22.22	46
Mosquitofish	0.43	0.02	100.00	46
Unidentified Shiner	1.06	0.10	38.89	45
Flat Bullhead	0.43	0.48	44.44	40
Longnose Gar	0.01	0.56	66.67	38
Blueback Herring	0.56	0.07	50.00	32
Brown Bullhead	0.18	0.21	61.11	24
White Perch	0.17	0.36	33.33	18
Tesselated Darter	0.17	0.01	88.89	16
Golden Shiner	0.14	0.19	50.00	16
Whitefin Shiner	0.30	0.05	33.33	12
White Crappie	0.02	0.08	38.89	4
Yellow Bullhead	0.03	0.08	22.22	3
Dollar Sunfish	0.04	0.03	27.78	2
Unidentified Bullhead	0.06	0.09	11.11	2
Quillback Carpsucker	0.00	0.29	5.56	2
Swamp Darter	0.04	0.00	33.33	2
Snail Bullhead	0.02	0.03	5.56	0
Northern Hogsucker	0.00	0.01	16.67	0
Hybrid Bass	0.00	0.04	5.56	0
Coastal Shiner	0.01	0.00	11.11	0
Longear Sunfish	0.01	0.01	5.56	0
Striped Bass	0.00	0.02	5.56	0
White Bass	0.00	0.01	11.11	0
Creek Chubsucker	0.00	0.01	5.56	0
Pumpkinseed Sunfish	0.00	0.00	5.56	0
Coosa Bass	0.00	0.00	5.56	0
White Sucker	0.00	0.00	5.56	0
River Chub	0.00	0.00	5.56	0

Table 5-2. Frequency of occurrence (number of coves), total number, and kilograms of fish caught in JST rotenone sampling.

Species	Number of Coves	Number of Fish	Kilograms of Fish
Bluegill Sunfish	18	157880	612.98
Threadfin Shad	17	55338	133.07
Gizzard Shad	18	2334	275.72
Largemouth Bass	18	5008	243.11
Redear Sunfish	18	6570	157.79
Warmouth Sunfish	18	12818	76.66
Yellow Perch	18	11650	83.51
Common Carp	13	63	199.96
Black Crappie	17	4140	90.03
Spotted Sucker	15	409	103.91
Green Sunfish	18	5135	24.72
Channel Catfish	17	432	65.81
White Catfish	18	1213	51.92
Silver Redhorse	8	317	83.75
Spottail Shiner	12	5131	6.75
Flathead Catfish	10	40	55.03
Redbreast Sunfish	16	1496	14.01
Chain Pickerel	15	286	15.61
Tadpole Madtom	18	1318	2.26
River Carpsucker	4	34	50.08
Mosquitofish	18	1225	0.53
Unidentified Shiner	7	2978	2.31
Flat Bullhead	8	1200	11.64
Longnose Gar	12	30	13.56
Blueback Herring	9	1586	1.73
Brown Bullhead	11	506	5.11
White Perch	6	479	8.66
Tesselated Darter	16	481	0.36
Golden Shiner	9	396	4.47
Whitefin Shiner	6	837	1.20
White Crappie	7	52	2.04
Yellow Bullhead	4	98	2.05
Dollar Sunfish	5	102	0.60
Unidentified Bullhead	2	156	2.26
Quillback Carpsucker	1	6	7.10
Swamp Darter	6	118	0.08
Snail Bullhead	1	55	0.77
Northern Hogsucker	3	3	0.32
Hybrid Bass	1	2	1.01
Coastal Shiner	2	40	0.02
Longear Sunfish	1	39	0.24
Striped Bass	1	1	0.42
White Bass	2	8	0.14
Creek Chubsucker	1	1	0.26
Pumpkinseed Sunfish	1	4	0.08
Coosa Bass	1	5	0.01
White Sucker	1	1	0.04
River Chub	1	1	0.01

Table 5-3. Weighted mean kilograms per hectare for the top 10 IRI species from J Strom Thurmond rotenone surveys by year, and the percent of total biomass represented by the top 10 IRI species.

	Year				
Species	1985	1986	1987	1990	1994
Bluegill Sunfish	15.31	50.40	43.48	59.04	31.66
Threadfin Shad	2.16	18.32	7.72	17.05	2.56
Gizzard Shad	4.43	37.18	20.17	19.94	10.61
Largemouth Bass	14.79	27.94	13.37	14.95	10.13
Redear Sunfish	5.63	19.82	9.71	10.36	7.46
Warmouth Sunfish	3.36	4.95	6.02	6.35	3.24
Yellow Perch	1.49	7.21	6.64	6.86	4.43
Common Carp	2.47	19.80	25.29	1.52	6.28
Black Crappie	1.34	6.10	7.43	0.83	10.59
Spotted Sucker	7.69	2.42	3.34	9.64	10.84
kg/ha (10 IRI species)	58.67	194.14	143.17	146.54	97.80
Total kg/ha (all species)	70.30	255.44	162.95	179.84	125.89
Percent of total biomass	83.46	76.00	87.86	81.48	77.69

Table 5-4. IRI scores for species caught in JST routine and moratorium gillnetting (meshes 25.4 mm or larger).

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Gizzard Shad	43.98	17.35	72.82	4466
Hybrid Bass	16.76	27.86	39.11	1745
Striped Bass	4.94	8.40	29.54	394
Longnose Gar	4.33	11.72	19.91	320
Common Carp	2.44	10.49	18.74	242
Silver Redhorse	4.47	5.17	22.31	215
Channel Catfish	4.38	3.73	25.52	207
River Carpsucker	2.74	5.16	10.20	81
Black Crappie	2.83	0.72	17.47	62
White Perch	3.31	0.56	14.05	54
Spotted Sucker	1.71	2.00	12.95	48
Largemouth Bass	1.64	1.48	11.44	36
White Bass	1.20	0.89	9.32	19
Flathead Catfish	0.36	1.53	3.46	7
White Catfish	0.48	0.56	4.48	5
Redear Sunfish	0.60	0.13	5.40	4
Blueback Herring	0.80	0.07	4.41	4
Quillback Carpsucker	0.50	0.87	1.84	3
Sauger	0.33	0.50	2.79	2
White Crappie	0.39	0.10	3.39	2
Yellow Perch	0.37	0.05	2.89	1
Golden Shiner	0.25	0.03	1.91	1
Walleye	0.11	0.29	1.09	0
Northern Hogsucker	0.11	0.09	1.09	0
Bluegill Sunfish	0.14	0.01	1.48	0
Warmouth Sunfish	0.09	0.01	0.95	0
Chain Pickerel	0.06	0.05	0.71	0
Threadfin Shad	0.38	0.00	0.14	0
Rainbow Trout	0.05	0.03	0.49	0
Coosa Bass	0.05	0.03	0.46	0
Yellow Bullhead	0.04	0.01	0.49	0
Brown Bullhead	0.04	0.01	0.42	0
Golden Redhorse	0.03	0.05	0.25	0
Blue Catfish	0.03	0.04	0.28	0
Spotted Bass	0.02	0.01	0.21	0
Redbreast Sunfish	0.02	0.00	0.14	0
Green Sunfish	0.01	0.00	0.07	0
Spottail Shiner	0.01	0.00	0.04	0
Spotted Gar	0.00	0.00	0.04	0
Bluehead Chub	0.00	0.00	0.04	0

Table 5-5. Frequency of occurrence (number of nets), total number, and kilograms of fish caught in JST routine and moratorium gillnetting (meshes 25.4 mm or larger).

Species	Number of Nets	Number of Fish	Kilograms of Fish
Gizzard Shad	2063	14409	4750
Hybrid Bass	1108	5490	7627
Striped Bass	837	1620	2300
Longnose Gar	564	1419	3209
Common Carp	531	798	2872
Silver Redhorse	632	1466	1417
Channel Catfish	723	1435	1022
River Carpsucker	289	897	1413
Black Crappie	495	927	196
White Perch	398	1083	152
Spotted Sucker	367	561	549
Largemouth Bass	324	536	405
White Bass	264	392	244
Flathead Catfish	98	118	419
White Catfish	127	157	153
Redear Sunfish	153	195	36
Blueback Herring	125	262	19
Quillback Carpsucker	52	165	238
Sauger	79	109	138
White Crappie	96	128	28
Yellow Perch	82	120	15
Golden Shiner	54	81	8
Walleye	31	35	78
Northern Hogsucker	31	37	24
Bluegill Sunfish	42	45	2
Warmouth Sunfish	27	29	2
Chain Pickerel	20	20	14
Threadfin Shad	4	124	1
Rainbow Trout	14	17	9
Coosa Bass	13	15	8
Yellow Bullhead	14	14	4
Brown Bullhead	12	14	3
Golden Redhorse	7	11	13
Blue Catfish	8	9	10
Spotted Bass	6	7	3
Redbreast Sunfish	4	5	1
Green Sunfish	2	2	0
Spottail Shiner	1	3	0
Spotted Gar	1	1	1
Bluehead Chub	1	1	0

Table 5-6. IRI scores for species caught in JST routine and moratorium gillnetting (meshes less than 25.4 mm).

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Blueback Herring	34.40	36.36	50.44	3569
Threadfin Shad	57.41	17.92	45.79	3449
Longnose Gar	0.41	24.10	11.14	273
Gizzard Shad	2.15	2.67	10.61	51
White Perch	1.13	2.16	15.09	50
Hybrid Bass	0.23	6.63	7.19	49
Yellow Perch	1.11	1.24	18.33	43
Striped Bass	0.30	4.13	7.28	32
Channel Catfish	0.40	2.19	11.58	30
Spottail Shiner	1.02	0.51	12.81	20
Black Crappie	0.72	0.85	12.19	19
Bluegill Sunfish	0.28	0.15	9.21	4
Golden Shiner	0.12	0.24	3.95	1
Warmouth Sunfish	0.07	0.08	2.72	0
Silver Redhorse	0.02	0.30	0.70	0
Largemouth Bass	0.04	0.11	1.40	0
Whitefin Shiner	0.08	0.02	1.84	0
Spotted Sucker	0.03	0.12	0.96	0
White Crappie	0.04	0.04	1.49	0
Spotted Bass	0.01	0.02	0.44	0
Chain Pickerel	0.00	0.05	0.18	0
Redear Sunfish	0.01	0.03	0.26	0
White Catfish	0.01	0.02	0.26	0
White Bass	0.00	0.04	0.18	0
Coosa Bass	0.00	0.00	0.18	0
Green Sunfish	0.00	0.00	0.18	0
Redbreast Sunfish	0.00	0.00	0.09	0
Spotfin Shiner	0.00	0.00	0.09	0

Table 5-7. Frequency of occurrence (number of nets), numbers and kilograms of fish caught in JST routine and moratorium gillnetting (meshes less than 25.4 mm).

Species	Number of Nets	Number of Fish	Kilograms of Fish
Blueback Herring	575	17383	452
Threadfin Shad	522	29015	223
Longnose Gar	127	205	300
Gizzard Shad	121	1085	33
White Perch	172	571	27
Hybrid Bass	82	118	83
Yellow Perch	209	559	15
Striped Bass	83	150	51
Channel Catfish	132	202	27
Spottail Shiner	146	516	6
Black Crappie	139	366	11
Bluegill Sunfish	105	144	2
Golden Shiner	45	60	3
Warmouth Sunfish	31	35	1
Silver Redhorse	8	9	4
Largemouth Bass	16	22	1
Whitefin Shiner	21	42	0
Spotted Sucker	11	16	1
White Crappie	17	19	0
Spotted Bass	5	5	0
Chain Pickerel	2	2	1
Redear Sunfish	3	3	0
White Catfish	3	3	0
White Bass	2	2	0
Coosa Bass	2	2	0
Green Sunfish	2	2	0
Redbreast Sunfish	1	1	0
Spotfin Shiner	1	1	0

Table 5-8. IRI scores for species caught in JST electrofishing.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Bluegill Sunfish	60.29	14.86	88.59	6658
Largemouth Bass	4.15	23.00	53.85	1462
Yellow Perch	7.25	2.89	43.74	443
Silver Redhorse	1.44	15.92	25.44	442
Spottail Shiner	6.81	1.02	46.51	364
Redear Sunfish	3.02	5.20	42.18	347
Spotted Sucker	1.24	12.37	20.86	284
Gizzard Shad	1.04	4.65	18.85	107
Threadfin Shad	3.00	0.31	21.47	71
Whitefin Shiner	2.57	0.23	22.27	62
Redbreast Sunfish	1.95	1.07	18.10	55
Blueback Herring	1.91	0.80	13.22	36
Common Carp	0.09	5.97	2.21	13
Green Sunfish	0.73	0.42	11.51	13
Warmouth Sunfish	0.55	0.49	11.76	12
White Perch	0.78	0.60	8.25	11
Tesselated Darter	0.61	0.02	12.02	8
Longnose Gar	0.11	1.90	3.02	6
Hybrid Bass	0.17	1.88	2.92	6
Striped Bass	0.13	1.75	3.12	6
Channel Catfish	0.30	0.64	6.08	6
Coastal Shiner	0.64	0.02	7.99	5
Black Crappie	0.25	0.42	5.58	4
Coosa Bass	0.16	0.39	3.37	2
River Carpsucker	0.05	0.71	1.21	1
White Bass	0.09	0.29	1.76	1
Spotted Bass	0.09	0.26	1.86	1
Northern Hogsucker	0.05	0.25	1.36	0
Brown Bullhead	0.07	0.15	1.56	0
Chain Pickerel	0.03	0.29	0.90	0
White Catfish	0.08	0.09	1.66	0
Golden Shiner	0.10	0.05	1.86	0
Flathead Catfish	0.04	0.20	1.01	0
White Crappie	0.05	0.08	1.31	0
Golden Redhorse	0.02	0.23	0.40	0
Rainbow Trout	0.02	0.13	0.55	0
Yellow Bullhead	0.03	0.06	0.85	0
Sauger	0.01	0.16	0.30	0
Quillback Carpsucker	0.01	0.15	0.25	0
Swamp Darter	0.02	0.00	0.50	0
Spotted Gar	0.00	0.05	0.10	0
Flat Bullhead	0.01	0.02	0.20	0
Bluehead Chub	0.01	0.01	0.25	0
Blackbanded Darter	0.01	0.00	0.25	0
Hybrid Sunfish	0.01	0.00	0.10	0
Pumpkinseed Sunfish	0.00	0.00	0.10	0
Spotfin Shiner	0.00	0.00	0.10	0
Black Bullhead	0.00	0.00	0.05	0
Blue Catfish	0.00	0.00	0.05	0

Table 5-9. Frequency of occurrence (number of transects), numbers and kilograms of fish caught in JST electrofishing.

Species	Number of Nets	Number of Fish	Kilograms of Fish
Bluegill Sunfish	1762	37028	420
Largemouth Bass	1071	2546	651
Yellow Perch	870	4450	82
Silver Redhorse	506	884	450
Spottail Shiner	925	4184	29
Redear Sunfish	839	1853	147
Spotted Sucker	415	762	350
Gizzard Shad	375	640	132
Threadfin Shad	427	1840	9
Whitefin Shiner	443	1580	6
Redbreast Sunfish	360	1198	30
Blueback Herring	263	1175	23
Common Carp	44	53	169
Green Sunfish	229	450	12
Warmouth Sunfish	234	336	14
White Perch	164	479	17
Tesselated Darter	239	374	0
Longnose Gar	60	67	54
Hybrid Bass	58	102	53
Striped Bass	62	80	50
Channel Catfish	121	182	18
Coastal Shiner	159	391	1
Black Crappie	111	155	12
Coosa Bass	67	97	11
River Carpsucker	24	31	20
White Bass	35	53	8
Spotted Bass	37	56	7
Northern Hogsucker	27	30	7
Brown Bullhead	31	43	4
Chain Pickerel	18	19	8
White Catfish	33	48	3
Golden Shiner	37	63	1
Flathead Catfish	20	23	6
White Crappie	26	31	2
Golden Redhorse	8	10	7
Rainbow Trout	11	14	4
Yellow Bullhead	17	20	2
Sauger	6	6	5
Quillback Carpsucker	5	5	4
Swamp Darter	10	15	0
Spotted Gar	2	2	2
Flat Bullhead	4	4	0
Bluehead Chub	5	6	0
Blackbanded Darter	5	5	0
Hybrid Sunfish	2	4	0
Pumpkinseed Sunfish	2	2	0
Spotfin Shiner	2	2	0
Black Bullhead	1	1	0
Blue Catfish	1	1	0

Table 5-10. IRI scores for species caught in JST horizontal blueback nets.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Threadfin Shad	67.91	19.97	56.11	4931
Blueback Herring	24.16	21.39	50.14	2284
Hybrid Bass	1.65	21.34	28.53	656
Longnose Gar	0.31	19.72	7.01	141
Gizzard Shad	1.57	4.16	23.89	137
Striped Bass	0.40	4.05	11.94	53
Channel Catfish	0.45	2.23	18.86	51
Black Crappie	0.46	1.36	14.79	27
Bluegill Sunfish	0.63	0.33	21.61	21
White Perch	0.36	0.98	11.66	16
Spottail Shiner	0.65	0.33	13.55	13
Yellow Perch	0.40	0.42	13.84	11
Largemouth Bass	0.15	0.55	6.16	4
White Crappie	0.14	0.37	6.54	3
Golden Shiner	0.16	0.29	6.54	3
Warmouth Sunfish	0.18	0.15	7.96	3
Redear Sunfish	0.10	0.16	4.55	1
White Bass	0.05	0.29	2.65	1
Common Carp	0.01	0.94	0.47	0
Silver Redhorse	0.03	0.25	1.61	0
Green Sunfish	0.09	0.06	2.46	0
Yellow Bullhead	0.04	0.14	1.99	0
White Catfish	0.03	0.13	1.90	0
Spotted Sucker	0.01	0.16	0.57	0
Redbreast Sunfish	0.02	0.02	1.14	0
Chain Pickerel	0.01	0.05	0.57	0
Brown Bullhead	0.01	0.03	0.85	0
Rainbow Trout	0.00	0.03	0.28	0
Coosa Bass	0.00	0.02	0.28	0
Spotted Bass	0.00	0.07	0.09	0
Bluehead Chub	0.00	0.01	0.09	0
Coastal Shiner	0.00	0.00	0.09	0
Flathead Catfish	0.00	0.00	0.09	0
Whitefin Shiner	0.00	0.00	0.09	0

Table 5-11. Frequency of occurrence (number of nets), total number, and kilograms of fish caught in JST horizontal blueback nets.

Species	Number of Nets	Number of Fish	Kilograms of Fish
Threadfin Shad	592	49994	443
Blueback Herring	529	17782	474
Hybrid Bass	301	1218	473
Longnose Gar	74	230	437
Gizzard Shad	252	1154	92
Striped Bass	126	295	90
Channel Catfish	199	333	49
Black Crappie	156	341	30
Bluegill Sunfish	228	463	7
White Perch	123	265	22
Spottail Shiner	143	480	7
Yellow Perch	146	296	9
Largemouth Bass	65	110	12
White Crappie	69	103	8
Golden Shiner	69	119	6
Warmouth Sunfish	84	136	3
Redear Sunfish	48	76	3
White Bass	28	38	6
Common Carp	5	6	21
Silver Redhorse	17	19	6
Green Sunfish	26	64	1
Yellow Bullhead	21	26	3
White Catfish	20	23	3
Spotted Sucker	6	6	4
Redbreast Sunfish	12	12	0
Chain Pickerel	6	6	1
Brown Bullhead	9	9	1
Rainbow Trout	3	3	1
Coosa Bass	3	3	0
Spotted Bass	1	1	2
Bluehead Chub	1	1	0
Coastal Shiner	1	2	0
Flathead Catfish	1	1	0
Whitefin Shiner	1	1	0

Table 5-12. IRI scores for all species caught in RBR rotenone sampling.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Threadfin Shad	55.82	13.47	95.24	6598
Bluegill Sunfish	34.87	17.26	100.00	5213
Common Carp	0.42	38.65	100.00	3907
Gizzard Shad	1.12	17.17	100.00	1829
Yellow Perch	1.68	1.61	100.00	329
Redbreast Sunfish	1.17	1.28	100.00	245
Largemouth Bass	0.37	1.91	85.71	195
Green Sunfish	1.27	0.66	100.00	192
Redear Sunfish	0.21	1.14	95.24	129
Warmouth Sunfish	0.77	0.54	95.24	125
Channel Catfish	0.14	1.06	85.71	103
Unidentified Bullhead	0.48	0.54	71.43	73
Chain Pickerel	0.08	0.74	85.71	70
White Catfish	0.09	0.62	71.43	51
Mosquitofish	0.46	0.05	100.00	50
Black Crappie	0.09	0.88	28.57	28
Silver Redhorse	0.01	0.77	33.33	26
Whitefin Shiner	0.28	0.08	66.67	24
Brown Bullhead	0.13	0.35	38.10	18
Spottail Shiner	0.25	0.04	52.38	15
White Perch	0.06	0.16	57.14	12
Longnose Gar	0.00	0.38	19.05	7
White Crappie	0.02	0.17	33.33	6
Tesselated Darter	0.07	0.01	76.19	6
Yellow Bullhead	0.04	0.12	23.81	4
Flat Bullhead	0.02	0.07	23.81	2
Spotted Bass	0.00	0.09	19.05	2
Spotted Sucker	0.00	0.16	9.52	2
Blueback Herring	0.03	0.01	28.57	1
Golden Shiner	0.01	0.01	23.81	1
Coosa Bass	0.00	0.01	19.05	0
Black Bullhead	0.01	0.01	4.76	0
Dollar Sunfish	0.00	0.01	4.76	0
White Bass	0.00	0.00	9.52	0
Northern Pike	0.00	0.01	4.76	0
Coastal Shiner	0.00	0.00	9.52	0
Snail Bullhead	0.00	0.01	4.76	0
Pumpkinseed Sunfish	0.00	0.00	4.76	0
Striped Bass	0.00	0.00	4.76	0
Unidentified Shiner	0.00	0.00	4.76	0

Table 5-13. Frequency of occurrence (number of coves), total number, and kilograms of fish caught in RBR rotenone sampling.

Species	Number of Coves	Number of Fish	Kilograms of Fish
Threadfin Shad	20	97469	188.55
Bluegill Sunfish	21	60897	241.69
Common Carp	21	742	541.18
Gizzard Shad	21	1958	240.45
Yellow Perch	21	2940	22.51
Redbreast Sunfish	21	2043	17.86
Largemouth Bass	18	643	26.69
Green Sunfish	21	2212	9.20
Redear Sunfish	20	374	15.92
Warmouth Sunfish	20	1350	7.55
Channel Catfish	18	242	14.84
Unidentified Bullhead	15	838	7.51
Chain Pickerel	18	135	10.33
White Catfish	15	163	8.70
Mosquitofish	21	799	0.66
Black Crappie	6	153	12.27
Silver Redhorse	7	10	10.73
Whitefin Shiner	14	494	1.14
Brown Bullhead	8	220	4.95
Spottail Shiner	11	445	0.52
White Perch	12	105	2.20
Longnose Gar	4	5	5.33
White Crappie	7	34	2.38
Tesselated Darter	16	115	0.09
Yellow Bullhead	5	68	1.65
Flat Bullhead	5	33	0.98
Spotted Bass	4	8	1.26
Spotted Sucker	2	3	2.24
Blueback Herring	6	60	0.10
Golden Shiner	5	25	0.18
Coosa Bass	4	6	0.14
Black Bullhead	1	14	0.11
Dollar Sunfish	1	6	0.08
White Bass	2	2	0.04
Northern Pike	1	1	0.09
Coastal Shiner	2	6	0.00
Snail Bullhead	1	1	0.08
Pumpkinseed Sunfish	1	2	0.03
Striped Bass	1	1	0.02
Unidentified Shiner	1	1	0.00

Table 5-14. Weighted mean kilograms per hectare for the top 10 IRI species from Richard B Russell rotenone surveys by year, and the percent of total biomass represented by the top 10 IRI species.

Species	Year						
	1990	1991	1992	1993	1994	1995	1996
Threadfin Shad	8.88	5.82	6.54	8.33	44.06	4.08	1.63
Bluegill Sunfish	16.34	17.51	14.50	13.13	20.76	10.53	12.04
Common Carp	26.84	40.48	20.54	24.82	87.98	16.18	13.61
Gizzard Shad	25.82	28.66	6.25	11.26	12.86	5.98	13.98
Yellow Perch	1.51	2.37	1.52	0.66	2.07	1.03	0.57
Redbreast Sunfish	0.61	2.01	1.12	0.59	0.94	0.90	1.60
Largemouth Bass	1.62	0.00	0.60	1.92	4.24	1.83	1.23
Green Sunfish	0.56	0.36	0.24	0.71	0.68	0.72	0.72
Redear Sunfish	0.17	0.61	0.98	1.40	1.68	0.91	1.11
Warmouth Sunfish	0.28	0.33	0.25	0.37	1.06	0.63	0.31
kg/ha (10 IRI species)	82.63	98.15	52.54	63.19	176.33	42.79	46.80
Total kg/ha (all species)	87.48	103.89	59.70	64.62	185.67	48.23	51.21
Percent of total biomass	94.46	94.47	88.01	97.79	94.97	88.72	91.39

Table 5-15. IRI scores for all fish caught in RBR routine nets (meshes 25.4 mm or larger).

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Gizzard Shad	47.04	19.01	71.00	4690
Common Carp	15.24	19.76	47.63	1667
Longnose Gar	5.46	21.83	27.25	744
Largemouth Bass	7.06	8.75	29.63	468
White Perch	5.96	3.13	21.38	194
Channel Catfish	2.88	3.46	16.50	105
Black Crappie	2.20	5.00	11.00	79
Hybrid Bass	1.82	6.30	8.75	71
Silver Redhorse	1.70	2.77	8.75	39
White Catfish	1.87	1.11	12.38	37
Spotted Sucker	1.09	1.66	7.00	19
Striped Bass	0.65	2.38	3.50	11
Blueback Herring	1.43	0.20	6.38	10
Spotted Bass	0.94	0.63	5.88	9
White Bass	0.62	1.01	4.00	7
Yellow Perch	0.71	0.28	4.50	4
Yellow Bullhead	0.62	0.12	4.00	3
Brown Bullhead	0.50	0.14	3.75	2
White Crappie	0.47	0.23	3.00	2
River Carpsucker	0.23	0.60	1.38	1
Coosa Bass	0.24	0.17	1.63	1
Flathead Catfish	0.11	0.68	0.75	1
Bluegill Sunfish	0.26	0.01	2.00	1
Chain Pickerel	0.15	0.18	1.13	0
Black Bullhead	0.18	0.06	1.25	0
Rainbow Trout	0.12	0.10	1.00	0
Threadfin Shad	0.12	0.00	0.88	0
Golden Redhorse	0.06	0.10	0.50	0
Blue Catfish	0.05	0.09	0.38	0
Walleye	0.03	0.11	0.25	0
Warmouth Sunfish	0.06	0.01	0.50	0
Quillback Carpsucker	0.03	0.09	0.25	0
Redear Sunfish	0.03	0.01	0.25	0
Northern Hogsucker	0.02	0.02	0.13	0
Redbreast Sunfish	0.02	0.01	0.13	0
Golden Shiner	0.02	0.00	0.13	0
Whitefin Shiner	0.02	0.00	0.13	0

Table 5-16. Frequency of occurrence (number of nets), total number, and kilograms of fish caught in RBR routine nets (meshes 25.4 mm or larger).

Species	Number of Nets	Number of Fish	Kilograms of Fish
Gizzard Shad	568	3100	730
Common Carp	381	1004	759
Longnose Gar	218	360	838
Largemouth Bass	237	465	336
White Perch	171	393	120
Channel Catfish	132	190	133
Black Crappie	88	145	192
Hybrid Bass	70	120	242
Silver Redhorse	70	112	106
White Catfish	99	123	43
Spotted Sucker	56	72	64
Striped Bass	28	43	91
Blueback Herring	51	94	8
Spotted Bass	47	62	24
White Bass	32	41	39
Yellow Perch	36	47	11
Yellow Bullhead	32	41	4
Brown Bullhead	30	33	5
White Crappie	24	31	9
River Carpsucker	11	15	23
Coosa Bass	13	16	7
Flathead Catfish	6	7	26
Bluegill Sunfish	16	17	0
Chain Pickerel	9	10	7
Black Bullhead	10	12	2
Rainbow Trout	8	8	4
Threadfin Shad	7	8	0
Golden Redhorse	4	4	4
Blue Catfish	3	3	4
Walleye	2	2	4
Warmouth Sunfish	4	4	0
Quillback Carpsucker	2	2	3
Redear Sunfish	2	2	0
Northern Hogsucker	1	1	1
Redbreast Sunfish	1	1	0
Golden Shiner	1	1	0
Whitefin Shiner	1	1	0

Table 5-17. IRI scores for all fish caught in RBR routine nets (meshes less than 25.4 mm).

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Threadfin Shad	82.27	12.87	59.04	5617
Blueback Herring	11.95	14.75	35.64	951
Longnose Gar	0.51	50.50	13.48	687
Common Carp	0.22	8.85	5.32	48
Bluegill Sunfish	1.25	0.54	22.34	40
Gizzard Shad	1.00	2.68	10.11	37
Spottail Shiner	0.87	0.27	12.23	14
Whitefin Shiner	0.77	0.28	12.59	13
White Perch	0.21	1.63	4.61	8
Yellow Perch	0.29	0.82	6.21	7
Largemouth Bass	0.11	1.03	3.01	3
White Catfish	0.08	1.09	2.30	3
Hybrid Bass	0.04	1.90	1.24	2
Channel Catfish	0.07	0.88	2.13	2
Black Crappie	0.05	0.69	1.24	1
Spotted Bass	0.07	0.37	1.42	1
Yellow Bullhead	0.06	0.14	1.95	0
White Crappie	0.04	0.12	1.06	0
Warmouth Sunfish	0.05	0.05	1.24	0
Black Bullhead	0.02	0.10	0.53	0
Silver Redhorse	0.01	0.18	0.18	0
Chain Pickerel	0.01	0.14	0.18	0
White Bass	0.01	0.07	0.18	0
Brown Bullhead	0.01	0.02	0.35	0
Coosa Bass	0.01	0.03	0.18	0
Redear Sunfish	0.01	0.01	0.18	0

Table 5-18. Frequency of occurrence (number of nets), total number, and kilograms of fish caught in RBR routine nets (meshes less than 25.4 mm).

Species	Number of Nets	Number of Fish	Kilograms of Fish
Threadfin Shad	333	14548	49
Blueback Herring	201	2113	57
Longnose Gar	76	91	194
Common Carp	30	39	34
Bluegill Sunfish	126	221	2
Gizzard Shad	57	177	10
Spottail Shiner	69	154	1
Whitefin Shiner	71	136	1
White Perch	26	38	6
Yellow Perch	35	52	3
Largemouth Bass	17	20	4
White Catfish	13	15	4
Hybrid Bass	7	7	7
Channel Catfish	12	13	3
Black Crappie	7	9	3
Spotted Bass	8	13	1
Yellow Bullhead	11	11	1
White Crappie	6	7	0
Warmouth Sunfish	7	8	0
Black Bullhead	3	3	0
Silver Redhorse	1	1	1
Chain Pickerel	1	1	1
White Bass	1	1	0
Brown Bullhead	2	2	0
Coosa Bass	1	2	0
Redear Sunfish	1	1	0

Table 5-19. IRI scores for all fish caught in RBR electrofishing.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Bluegill Sunfish	79.14	29.92	95.00	10360
Largemouth Bass	3.25	37.56	39.33	1605
Threadfin Shad	4.77	0.72	27.00	148
Redbreast Sunfish	2.03	2.44	27.50	123
Green Sunfish	1.93	1.34	26.33	86
Yellow Perch	2.28	1.24	21.83	77
Yellow Bullhead	0.98	1.55	17.17	44
Spottail Shiner	1.40	0.28	16.00	27
Common Carp	0.17	7.50	3.50	27
Redear Sunfish	0.61	1.81	10.17	25
Whitefin Shiner	0.94	0.27	13.17	16
Gizzard Shad	0.30	2.46	5.67	16
Spotted Bass	0.32	1.54	6.17	11
White Catfish	0.23	1.33	4.50	7
Warmouth Sunfish	0.36	0.42	7.33	6
Brown Bullhead	0.23	0.66	4.00	4
Channel Catfish	0.20	0.50	4.17	3
Coosa Bass	0.19	0.84	2.67	3
Chain Pickerel	0.08	1.04	1.83	2
Flathead Catfish	0.08	1.35	1.17	2
Spotted Sucker	0.04	1.61	1.00	2
Tesselated Darter	0.24	0.02	4.33	1
Silver Redhorse	0.03	1.48	0.67	1
Longnose Gar	0.01	1.00	0.33	0
Black Crappie	0.02	0.61	0.50	0
Blueback Herring	0.05	0.07	1.00	0
White Perch	0.04	0.08	0.83	0
Hybrid Bass	0.01	0.21	0.17	0
Black Bullhead	0.01	0.07	0.33	0
Flat Bullhead	0.01	0.05	0.33	0
Golden Shiner	0.02	0.01	0.33	0
Northern Hogsucker	0.01	0.01	0.33	0
Coastal Shiner	0.01	0.00	0.33	0

Table 5-20. Frequency of occurrence (number of transects), total number, and kilograms of fish caught in RBR electrofishing.

Species	Number of Nets	Number of Fish	Kilograms of Fish
Bluegill Sunfish	570	11091	82
Largemouth Bass	236	455	102
Threadfin Shad	162	668	2
Redbreast Sunfish	165	284	7
Green Sunfish	158	271	4
Yellow Perch	131	319	3
Yellow Bullhead	103	138	4
Spottail Shiner	96	196	1
Common Carp	21	24	20
Redear Sunfish	61	85	5
Whitefin Shiner	79	132	1
Gizzard Shad	34	42	7
Spotted Bass	37	45	4
White Catfish	27	32	4
Warmouth Sunfish	44	50	1
Brown Bullhead	24	32	2
Channel Catfish	25	28	1
Coosa Bass	16	26	2
Chain Pickerel	11	11	3
Flathead Catfish	7	11	4
Spotted Sucker	6	6	4
Tesselated Darter	26	34	0
Silver Redhorse	4	4	4
Longnose Gar	2	2	3
Black Crappie	3	3	2
Blueback Herring	6	7	0
White Perch	5	5	0
Hybrid Bass	1	1	1
Black Bullhead	2	2	0
Flat Bullhead	2	2	0
Golden Shiner	2	3	0
Northern Hogsucker	2	2	0
Coastal Shiner	2	2	0

Table 5-21. IRI scores for all fish caught in RBR horizontal blueback nets.

Species	Percent Number	Percent Weight	Percent Occurrence	IRI Score
Blueback Herring	50.47	22.48	24.17	1763
Gizzard Shad	7.96	6.41	26.67	383
Common Carp	2.93	17.18	15.83	318
Largemouth Bass	4.08	7.42	23.33	268
Bluegill Sunfish	6.28	0.78	30.83	218
Threadfin Shad	8.48	0.72	15.83	146
Channel Catfish	2.09	4.66	9.17	62
White Perch	3.46	2.19	10.00	56
Striped Bass	0.42	19.88	2.50	51
Black Crappie	1.57	3.58	7.50	39
Yellow Perch	2.20	0.94	9.17	29
White Crappie	1.88	1.91	5.83	22
Yellow Bullhead	1.26	0.58	8.33	15
Smallmouth Bass	1.47	2.39	3.33	13
Spottail Shiner	1.15	0.13	7.50	10
Flathead Catfish	0.63	0.43	5.00	5
White Catfish	0.42	1.02	2.50	4
Hybrid Bass	0.10	4.18	0.83	4
Brown Bullhead	0.52	0.53	3.33	4
White Bass	0.21	0.74	1.67	2
Coastal Shiner	0.52	0.06	2.50	1
Whitefin Shiner	0.52	0.04	2.50	1
Spotted Bass	0.31	0.41	1.67	1
Warmouth Sunfish	0.31	0.07	2.50	1
Silver Redhorse	0.10	0.83	0.83	1
Coosa Bass	0.21	0.32	0.83	0
Spotfin Shiner	0.21	0.02	1.67	0
Black Bullhead	0.10	0.07	0.83	0
Redbreast Sunfish	0.10	0.03	0.83	0

Table 5-22. Frequency of occurrence (number of nets), total number, and kilograms of fish caught in RBR horizontal blueback nets.

Species	Number of Nets	Number of Fish	Kilograms of Fish
Blueback Herring	29	482	22
Gizzard Shad	32	76	6
Common Carp	19	28	17
Largemouth Bass	28	39	7
Bluegill Sunfish	37	60	1
Threadfin Shad	19	81	1
Channel Catfish	11	20	5
White Perch	12	33	2
Striped Bass	3	4	20
Black Crappie	9	15	4
Yellow Perch	11	21	1
White Crappie	7	18	2
Yellow Bullhead	10	12	1
Smallmouth Bass	4	14	2
Spottail Shiner	9	11	0
Flathead Catfish	6	6	0
White Catfish	3	4	1
Hybrid Bass	1	1	4
Brown Bullhead	4	5	1
White Bass	2	2	1
Coastal Shiner	3	5	0
Whitefin Shiner	3	5	0
Spotted Bass	2	3	0
Warmouth Sunfish	3	3	0
Silver Redhorse	1	1	1
Coosa Bass	1	2	0
Spotfin Shiner	2	2	0
Black Bullhead	1	1	0
Redbreast Sunfish	1	1	0

Table 5-23. General conclusions regarding the temporal variation in abundance of selected species at station 1 in J Strom Thurmond Reservoir.

Species	Collection Method: Gillnetting (meshes=>25.4 mm)	Collection Method: Gillnetting (meshes<25.4 mm and BBH nets)	Collection Method: Electrofishing
Black Crappie	Sporadic catch, generally low abundance, but highest catch rate for study occurred at Sta 1 in March 1996		
Blueback Herring		Peak catch from April - June	
Bluegill Sunfish			Always present, peak catch sporadic. Catch decreased in 1995 and 1996.
Channel Catfish	Rarely caught in any month	Rarely caught in any month	
Common Carp	Peak catch in April & May		
Gizzard Shad	Frequently caught but in low abundance. Peak catch sporadic		
Hybrid Bass	Peak catch in March & April	Sporadic catch	
Largemouth Bass			Always present, peak catch sporadic.
Longnose Gar	Sporadic catch	Sporadic catch	
Redear Sunfish			Always present, peak catch sporadic
River Carpsucker	Peak catch in April & May. Catch decreased to very low levels since 1992.		
Silver Redhorse	Peak catch in April & May. Catch decreased to very low levels since 1991.		Rarely caught in any month
Spotted Sucker			Always present, peak catch sporadic
Spottail Shiner		Peak catch February - June	Peak catch February - May
Striped Bass	Always present, peak catch sporadic.	Sporadic catch	

Table 5-23. Continued

Species	Collection Method		
	Gillnetting (meshes=>25.4 mm)	Gillnetting (meshes<25.4 mm and BBH nets)	Electrofishing
Threadfin Shad		Sporadic catch, but high numbers when caught (negligible biomass)	Sporadic catch, but high numbers when caught (negligible biomass)
Whitefin Shiner			Sporadic catch, generally low abundance
White Perch	Peak catch April - May. Catch increased since 1992.	Peak catch April & May. Catch increased since 1994.	
Yellow Perch		Peak catch February - April. Catch increased in 1995 and 1996.	Peak catch February - April. Catch decreased in 1995 and 1996.

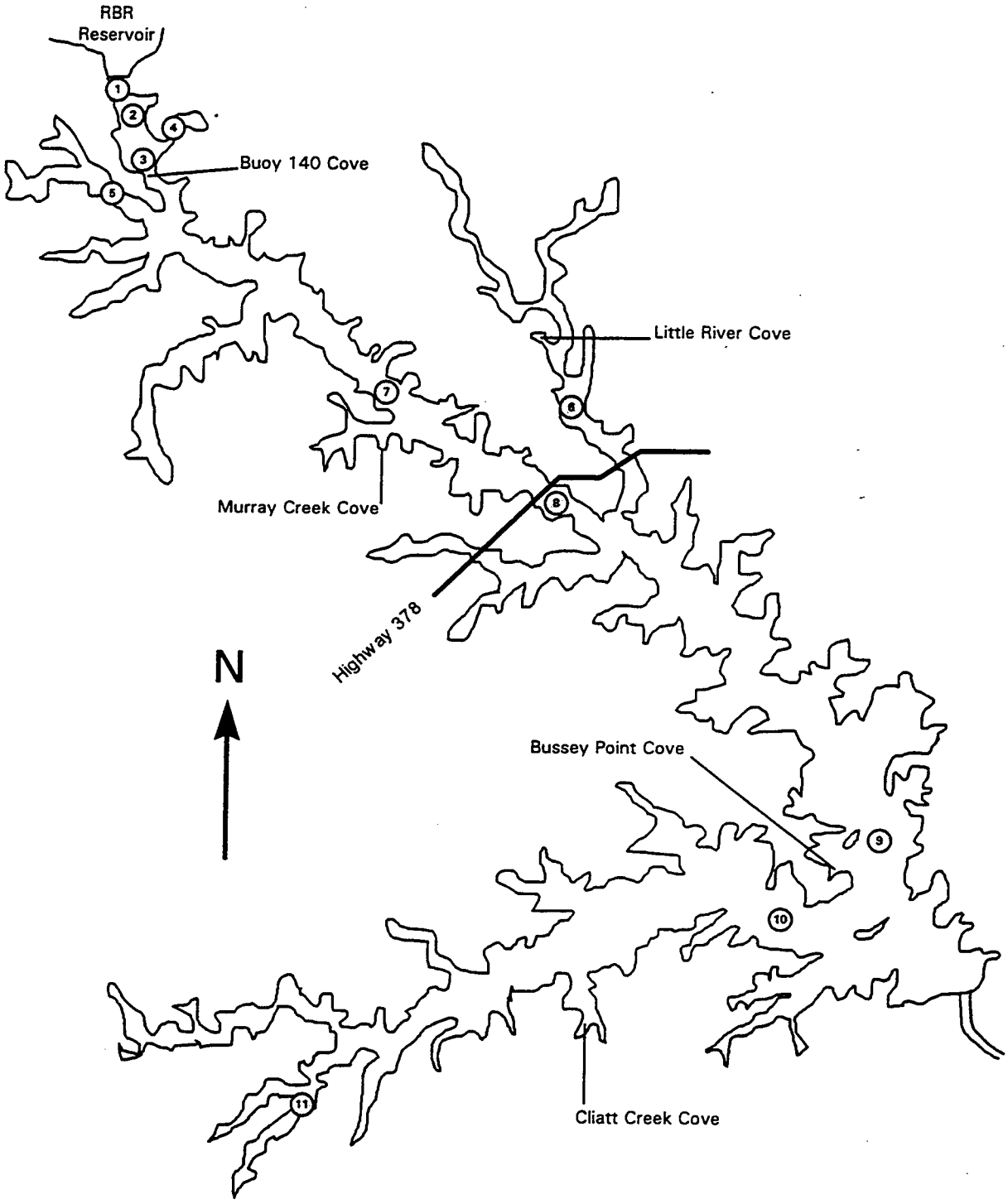


Figure 5-1. Map of J Strom Thurmond Reservoir showing the midpoints of sampling stations 1 thru 11 and cove rotenone sampling locations.

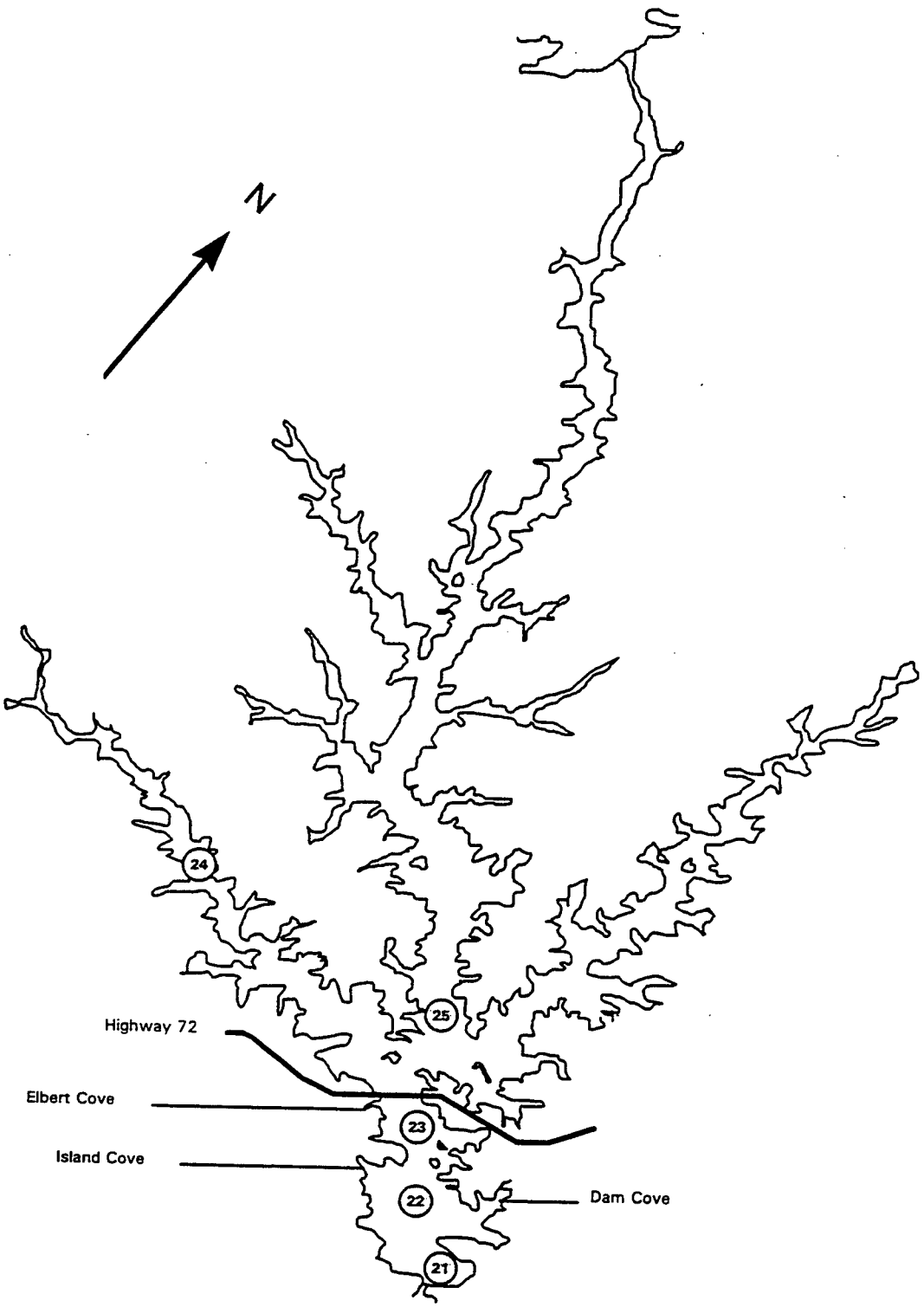


Figure 5-2. Map of Richard B Russell Reservoir showing the midpoints of sampling stations 21 thru 25 and cove rotenone sampling locations.

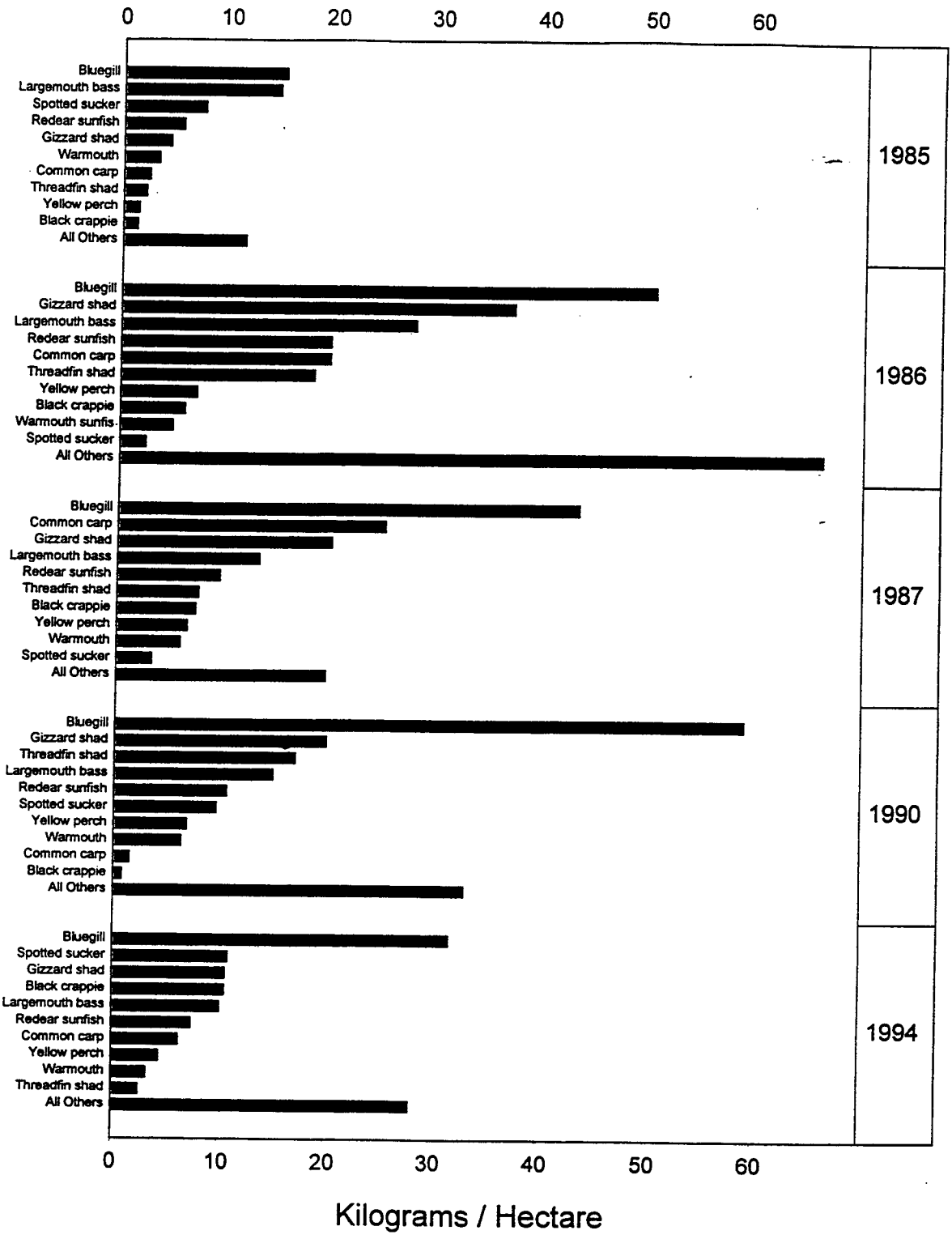


Figure 5-3. The weighted mean kilograms per hectare for the top ten IRI species and all other species combined by year from JST rotenone sampling.

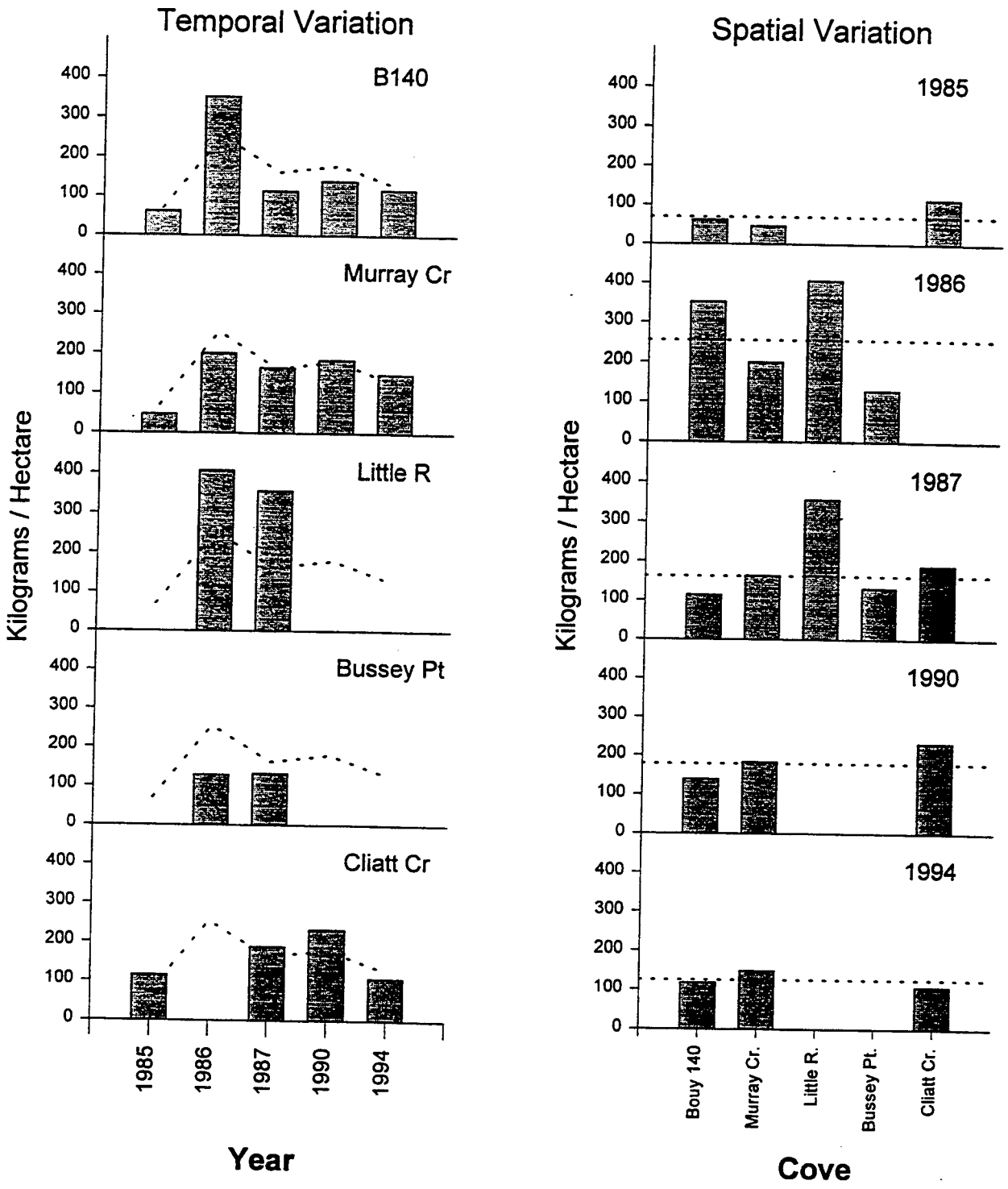


Figure 5-4. Variation in total kilograms per hectare (a) across years by cove and (b) across coves by year from JST rotenone sampling. The dotted line represents the weighted mean across all coves for each year.

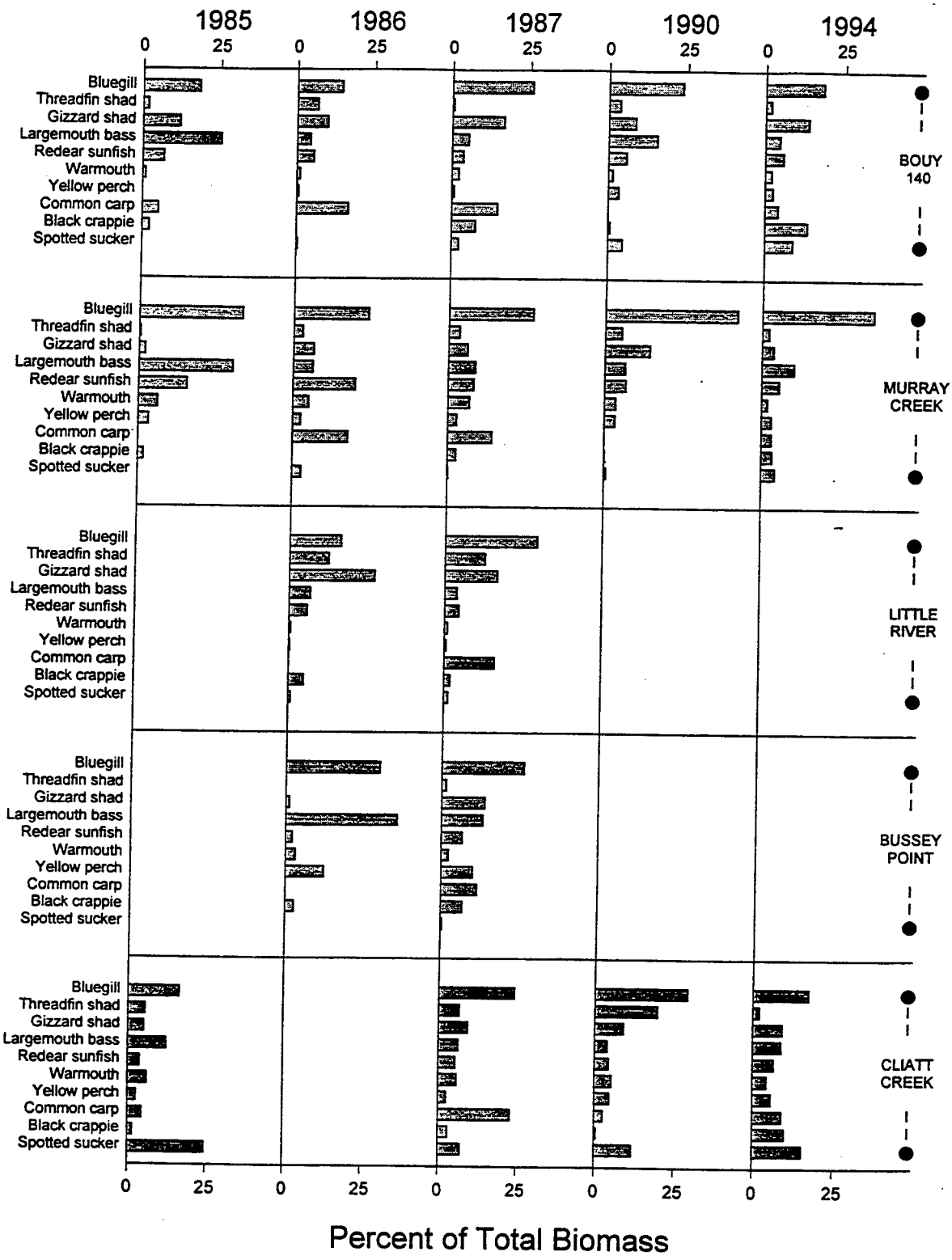


Figure 5-5. Variation in the percent of total biomass for the top ten IRI species by cove and year for JST rotenone sampling.

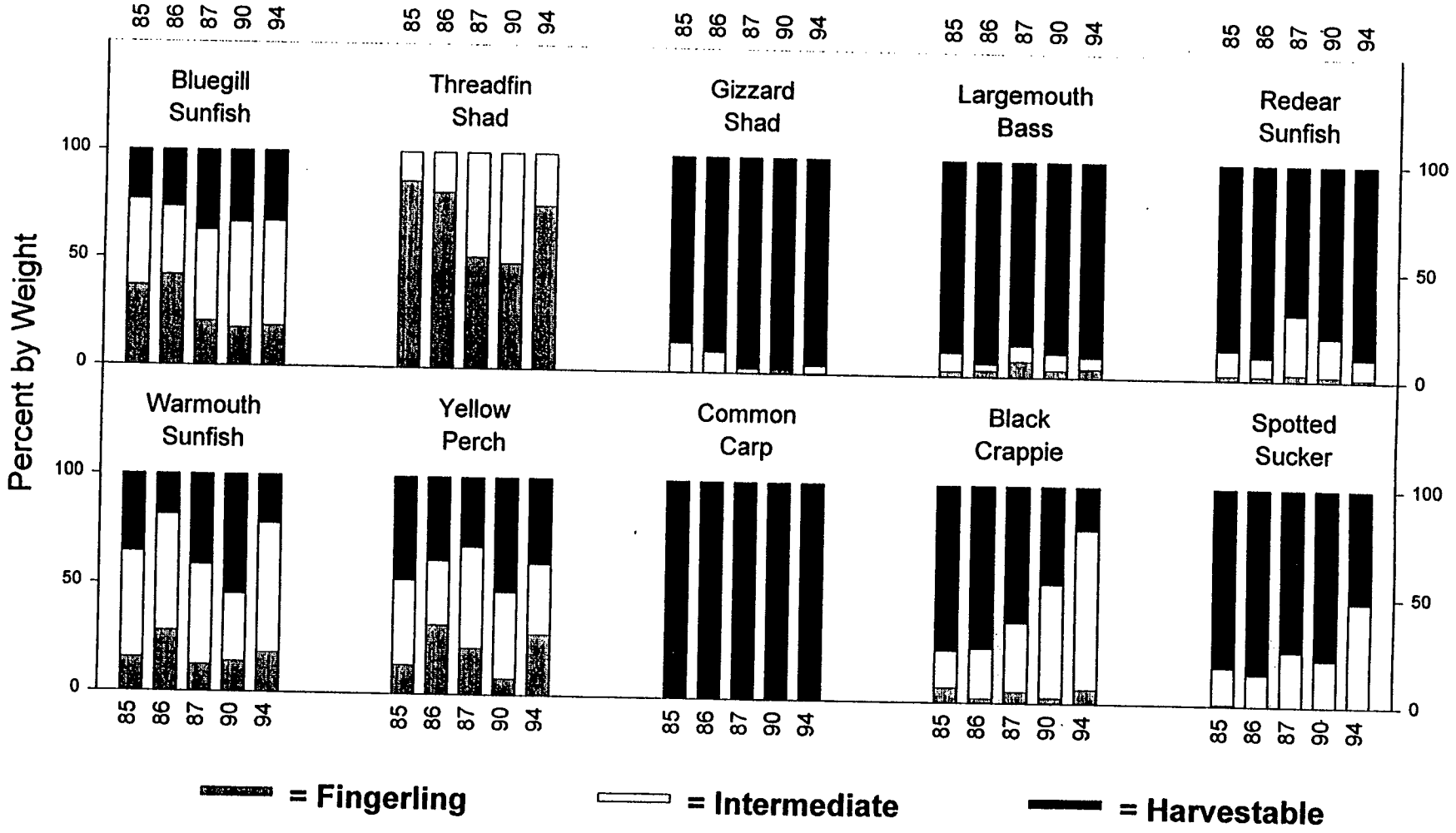


Figure 5-6. Size composition (by weight) of fingerlings (gray portion of bar), intermediates (white portion of bar), and harvestables (black portion of bar) for the top ten IRI species from JST rotenone sampling.

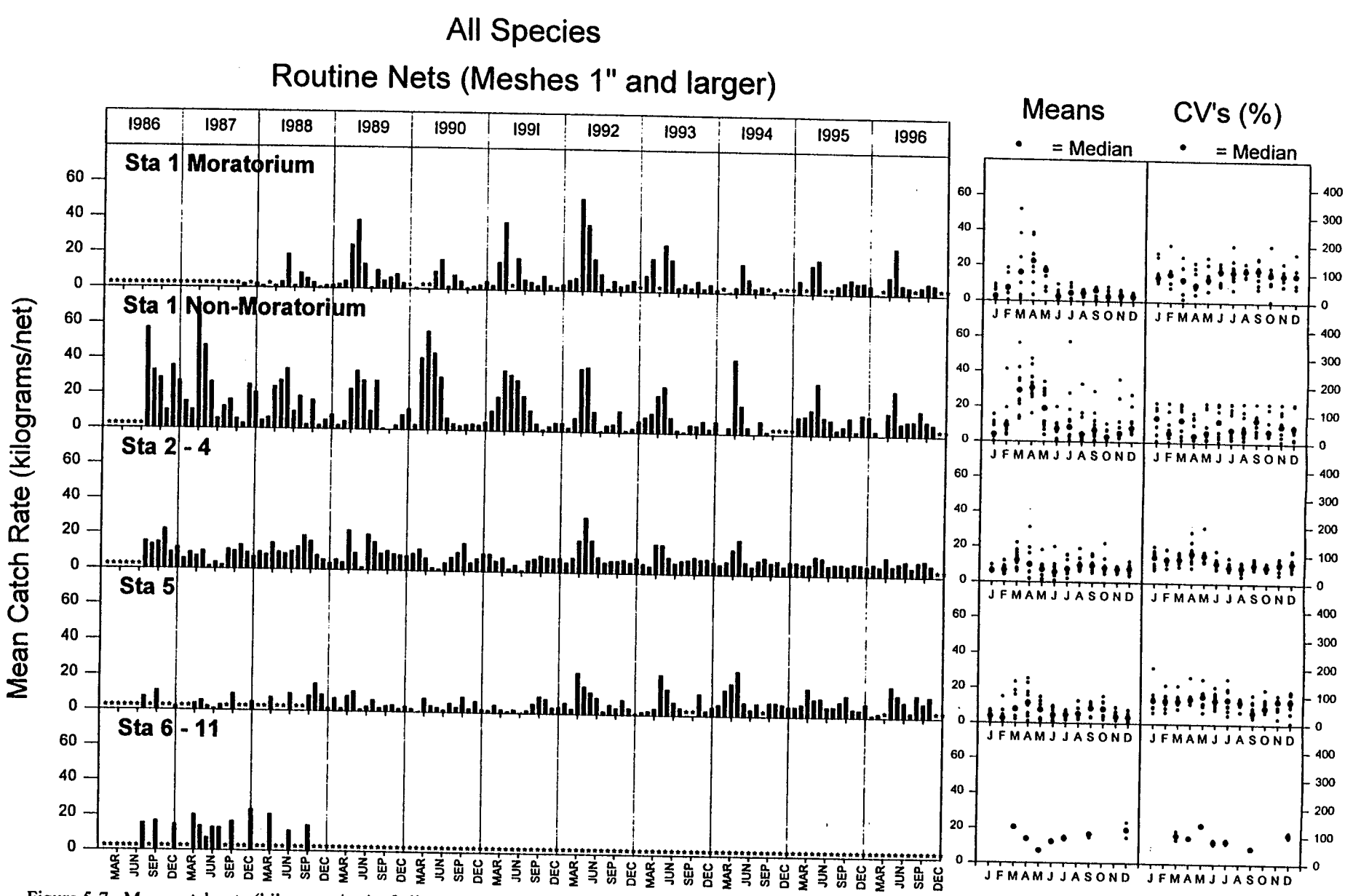


Figure 5-7. Mean catch rate (kilograms/net) of all species pooled for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

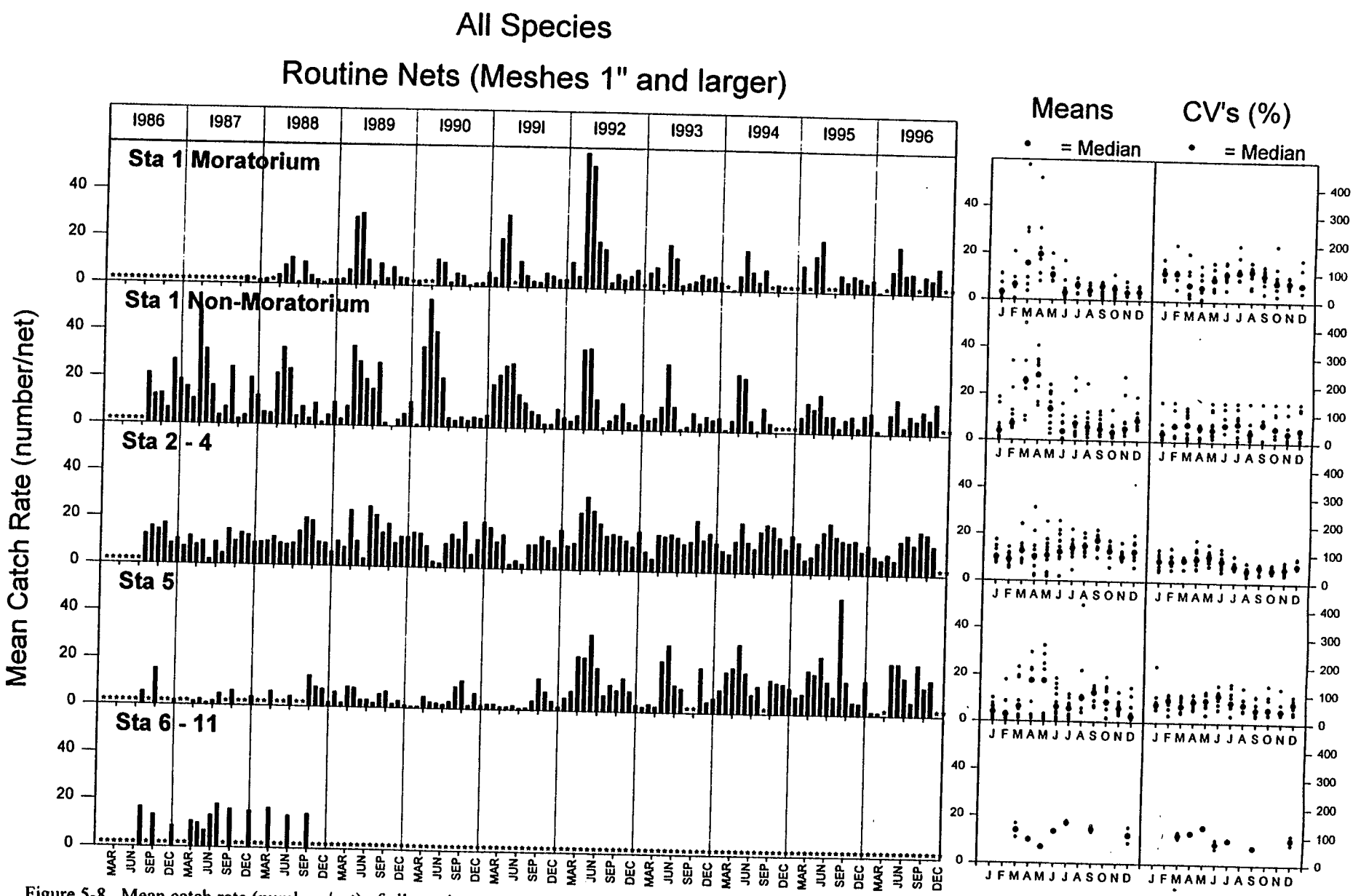


Figure 5-8. Mean catch rate (numbers/net) of all species pooled for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

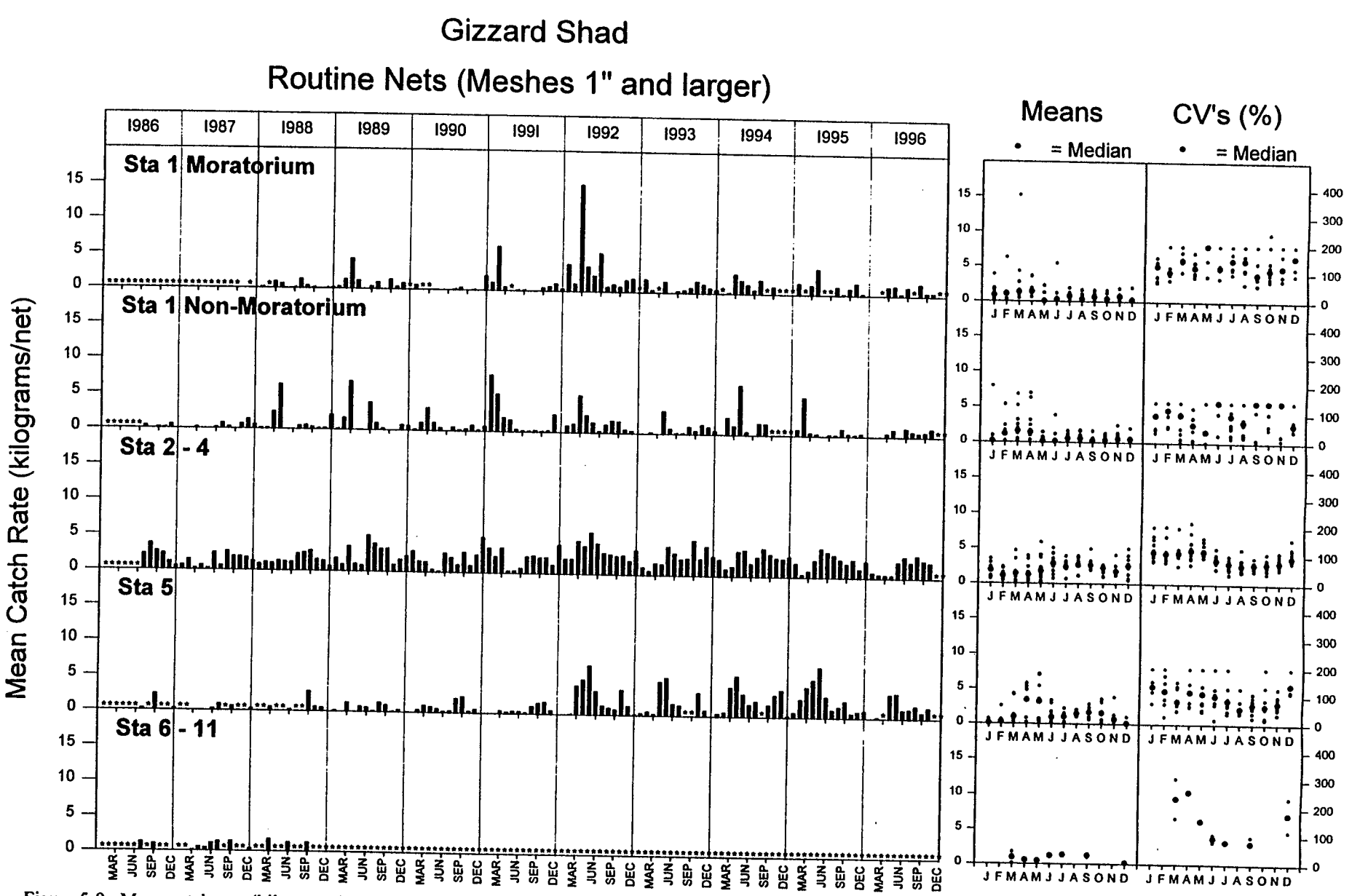


Figure 5-9. Mean catch rate (kilograms/net) of gizzard shad for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

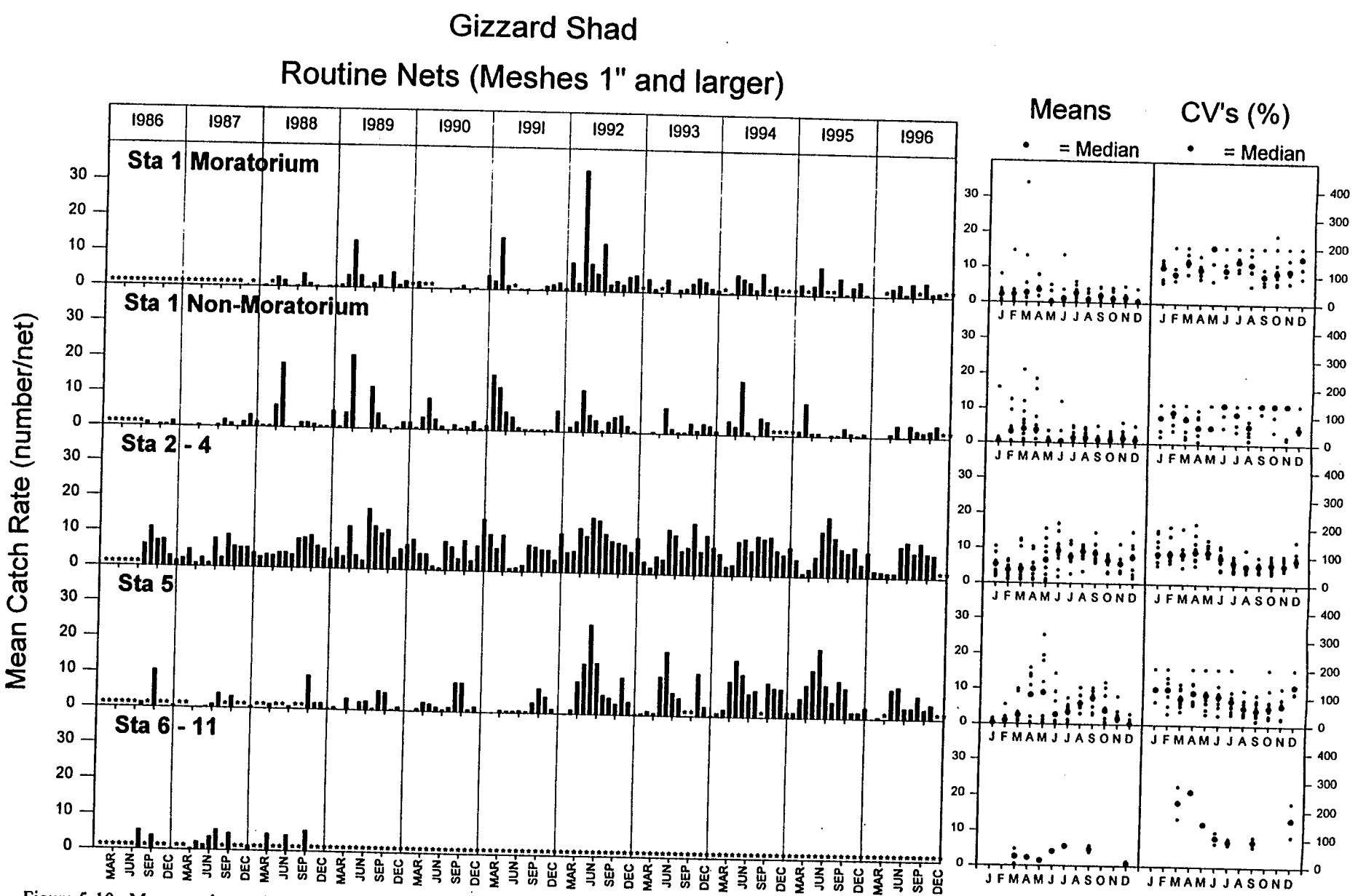


Figure 5-10. Mean catch rate (numbers/net) of gizzard shad for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

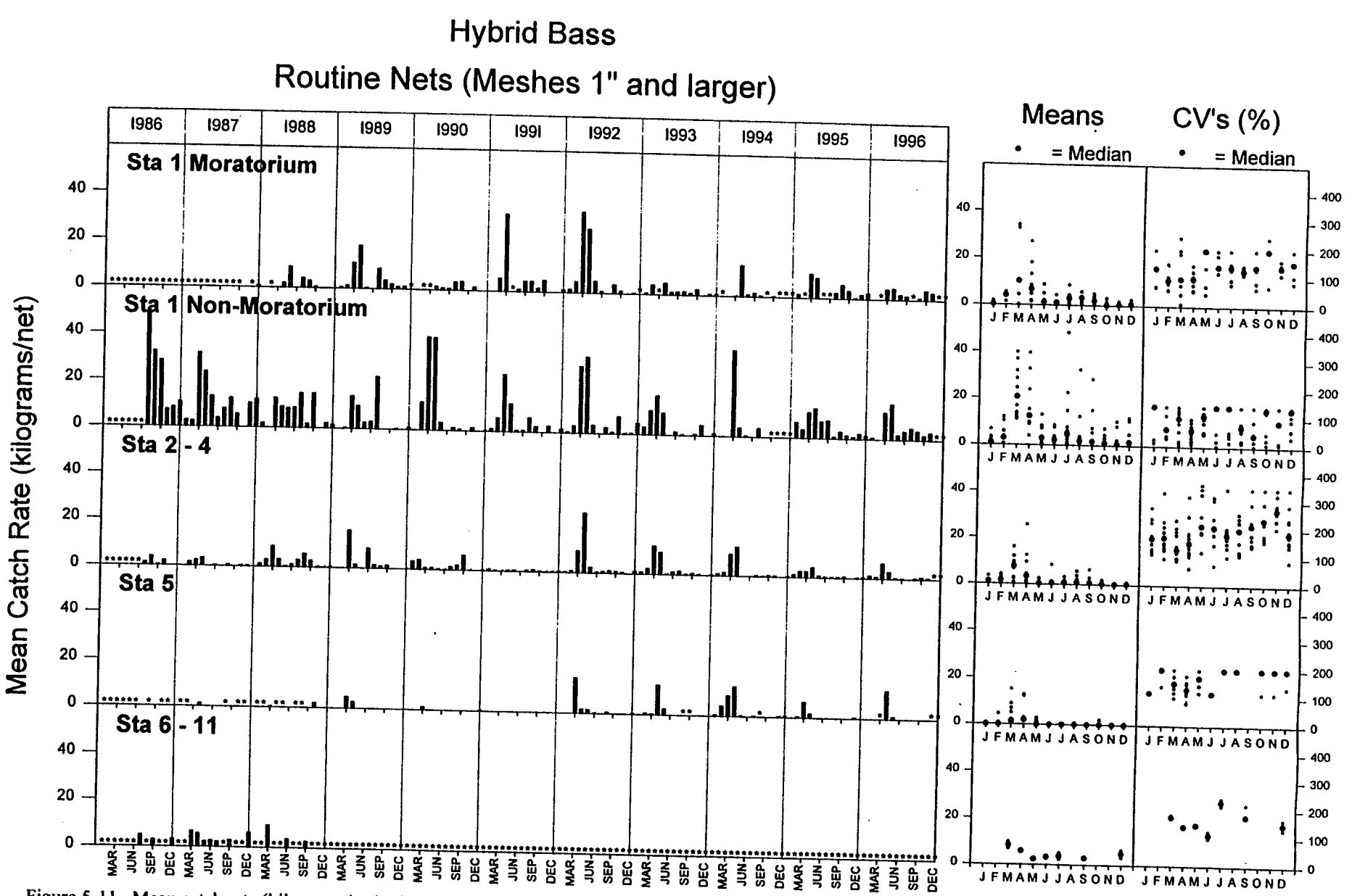


Figure 5-11. Mean catch rate (kilograms/net) of hybrid bass for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

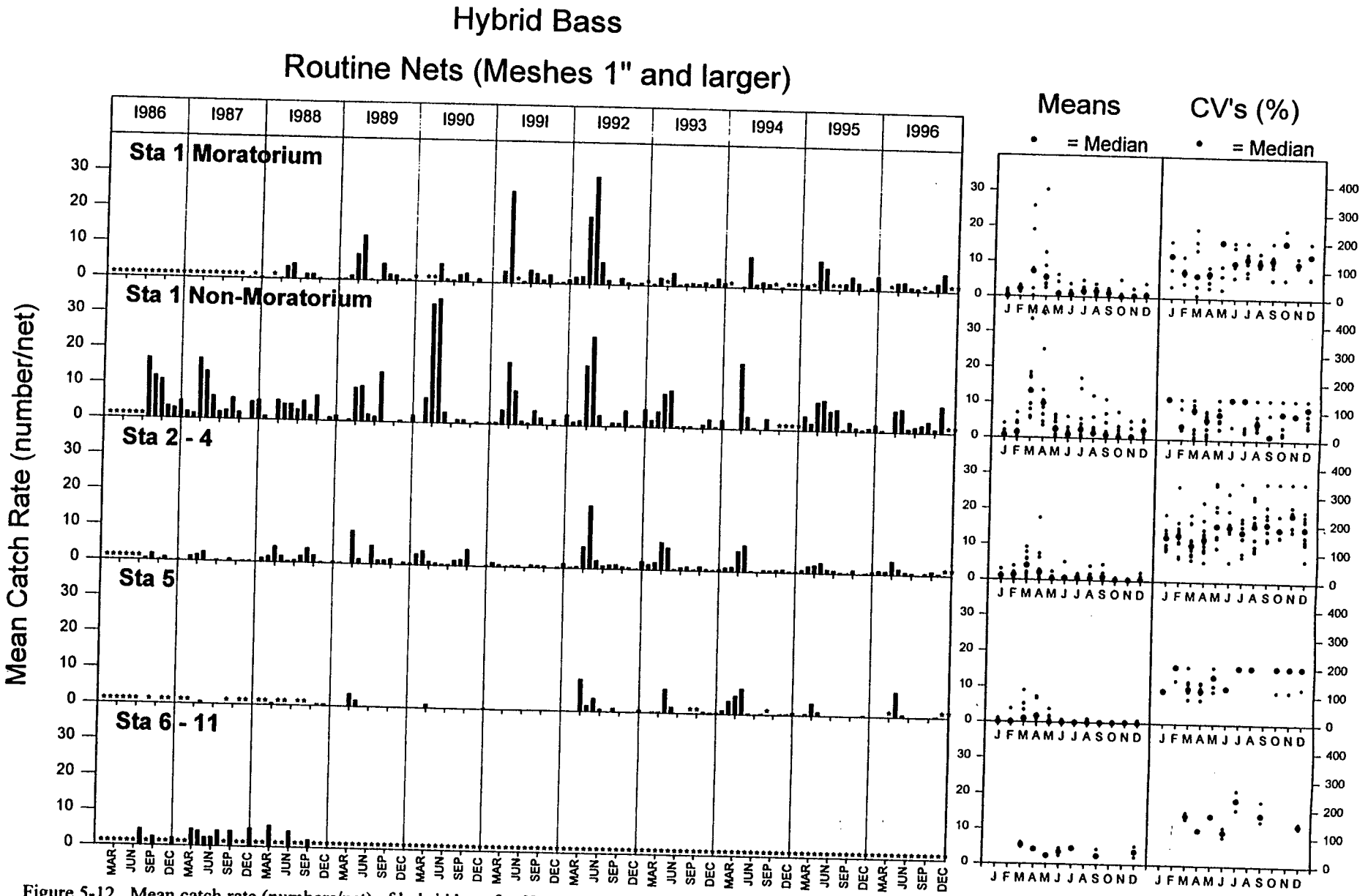


Figure 5-12. Mean catch rate (numbers/net) of hybrid bass for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

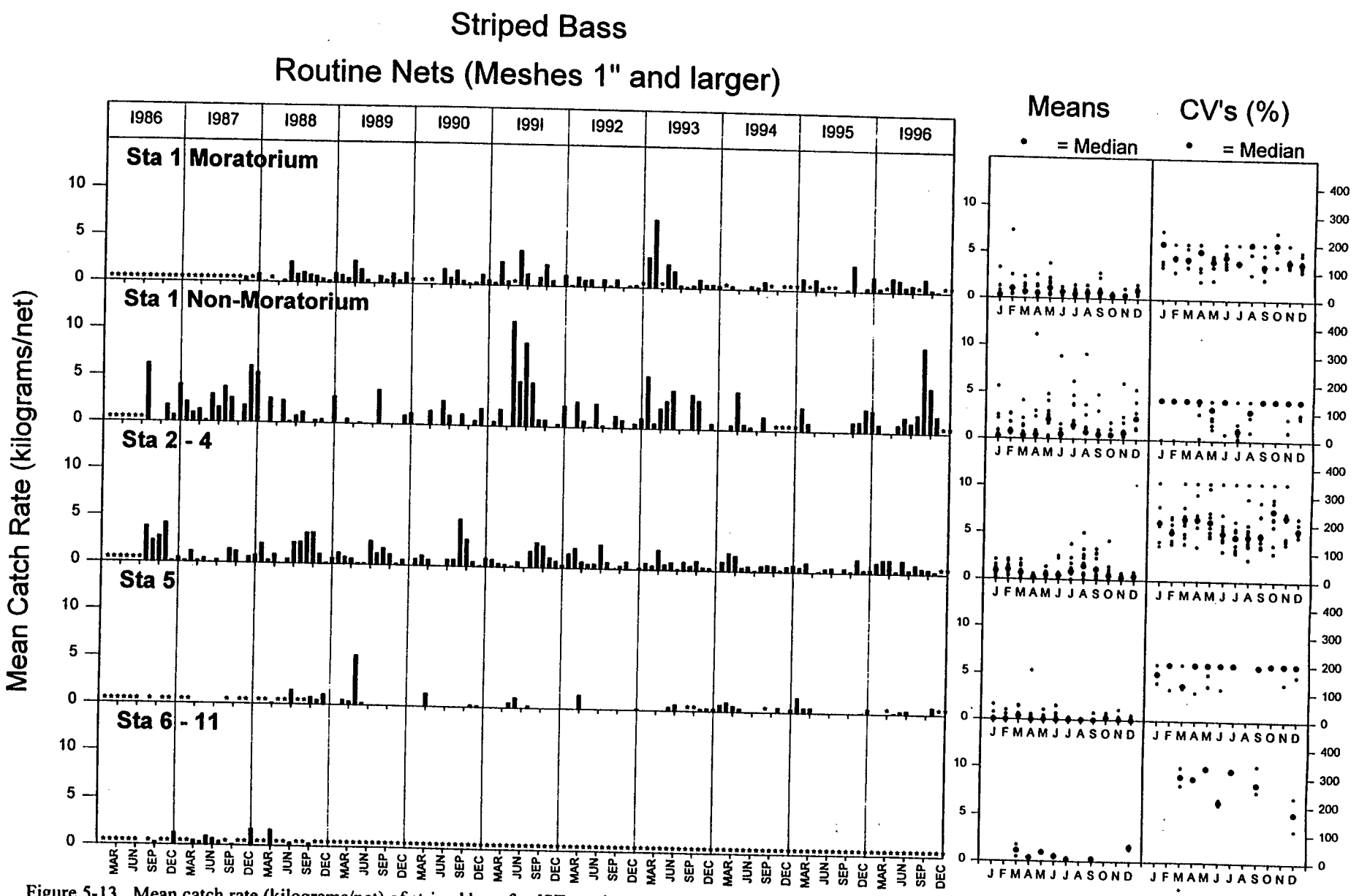


Figure 5-13. Mean catch rate (kilograms/net) of striped bass for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

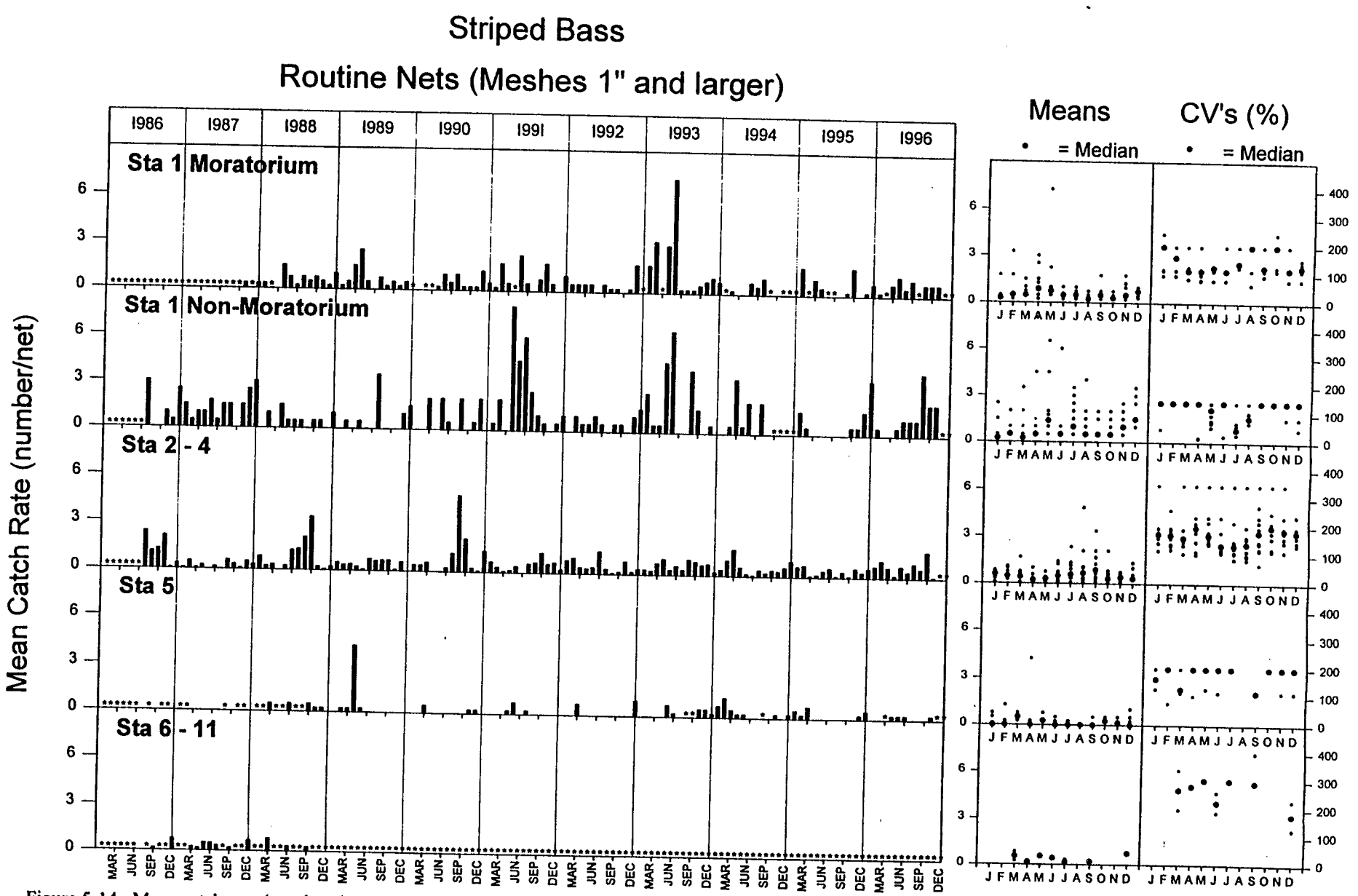


Figure 5-14. Mean catch rate (numbers/net) of striped bass for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

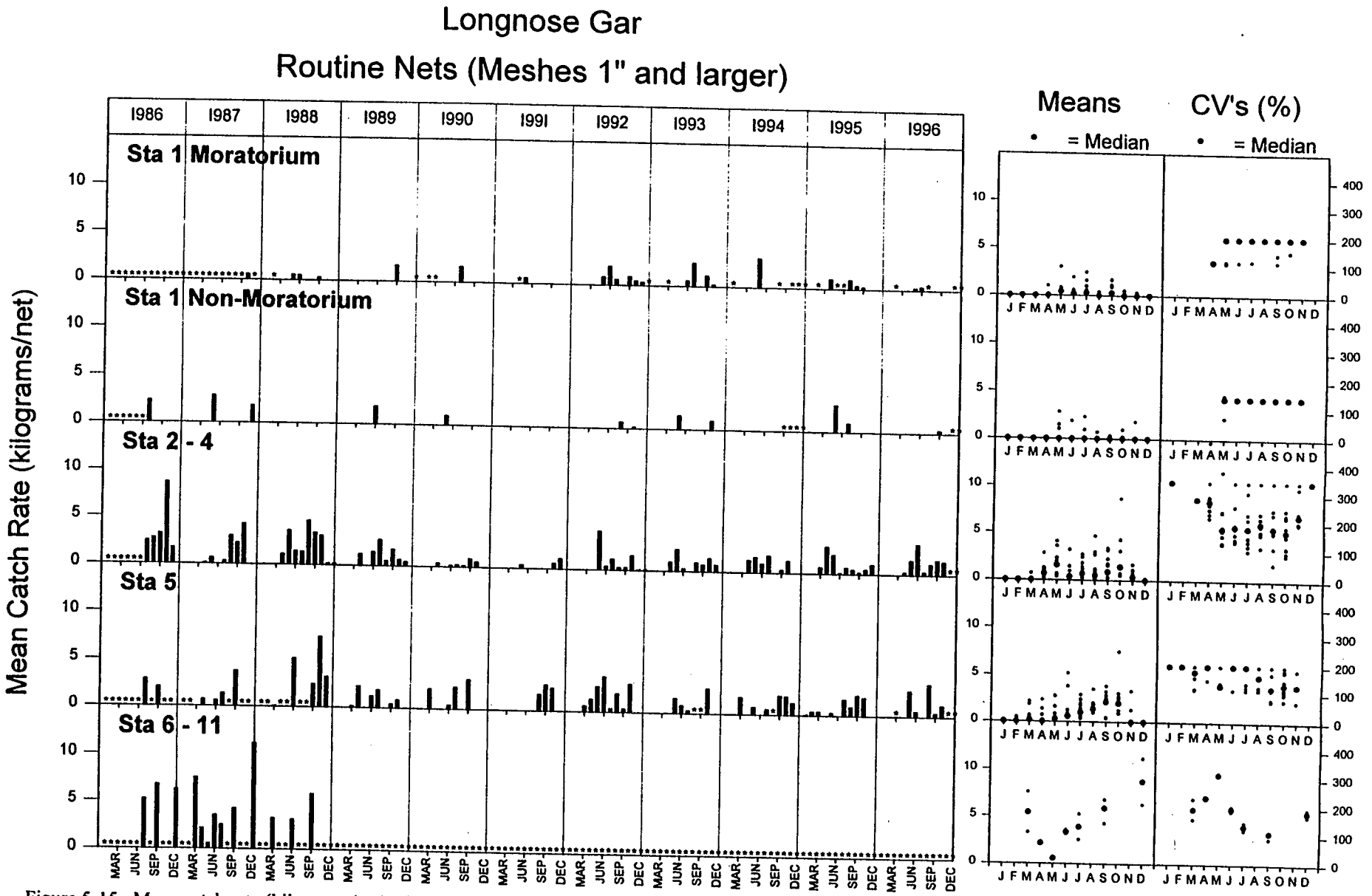


Figure 5-15. Mean catch rate (kilograms/net) of longnose gar for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

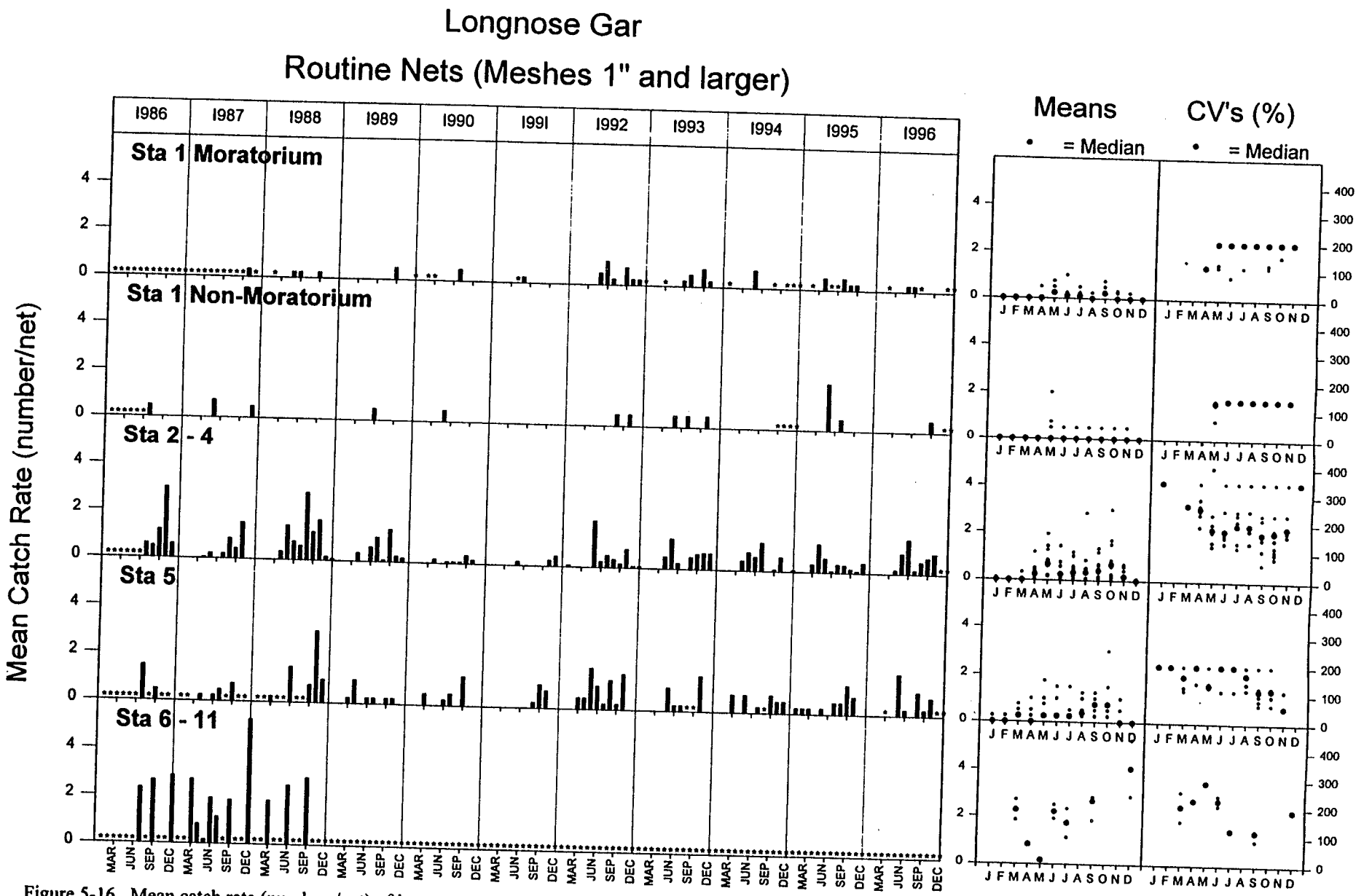


Figure 5-16. Mean catch rate (numbers/net) of longnose gar for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

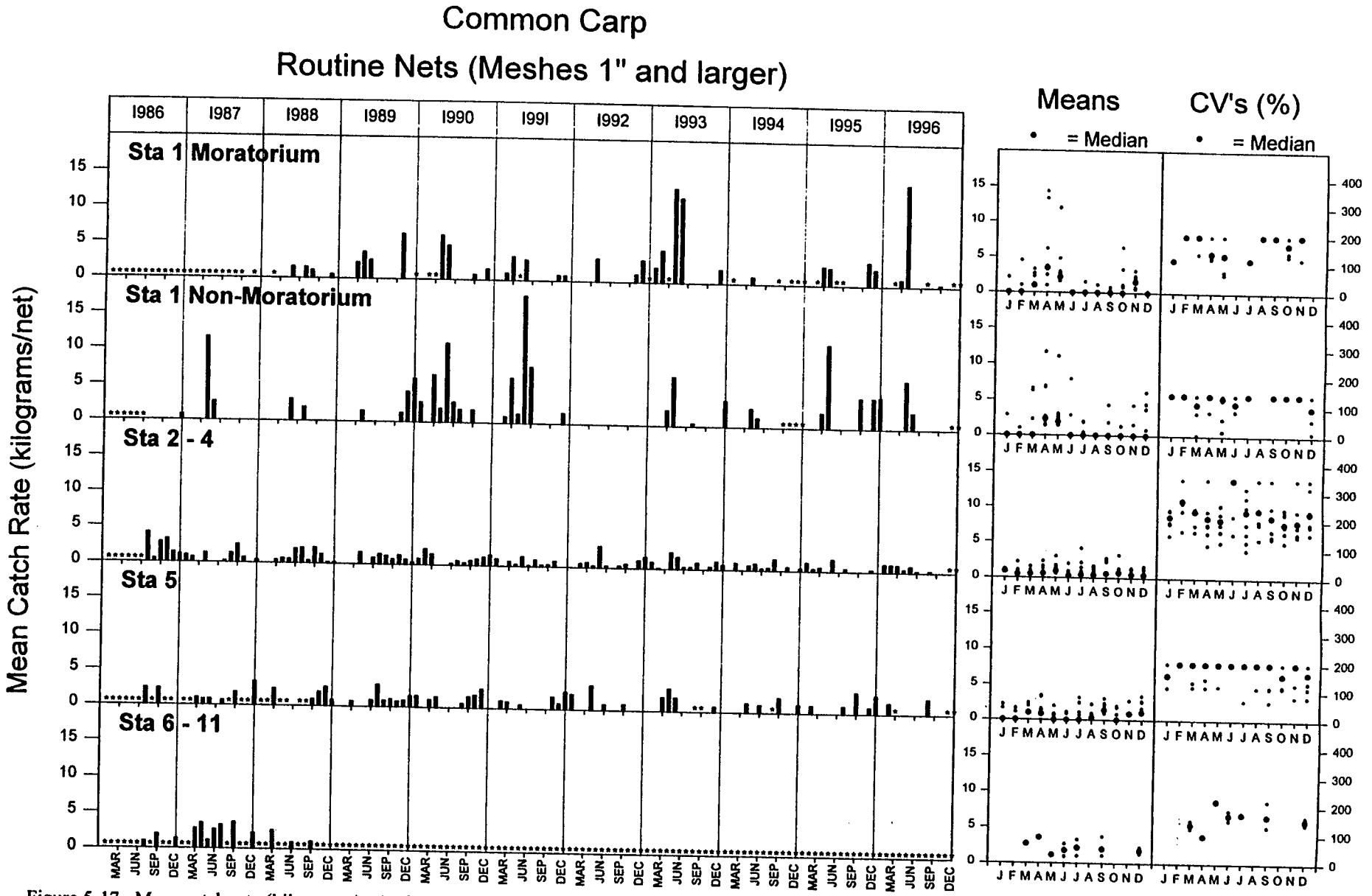


Figure 5-17. Mean catch rate (kilograms/net) of common carp for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

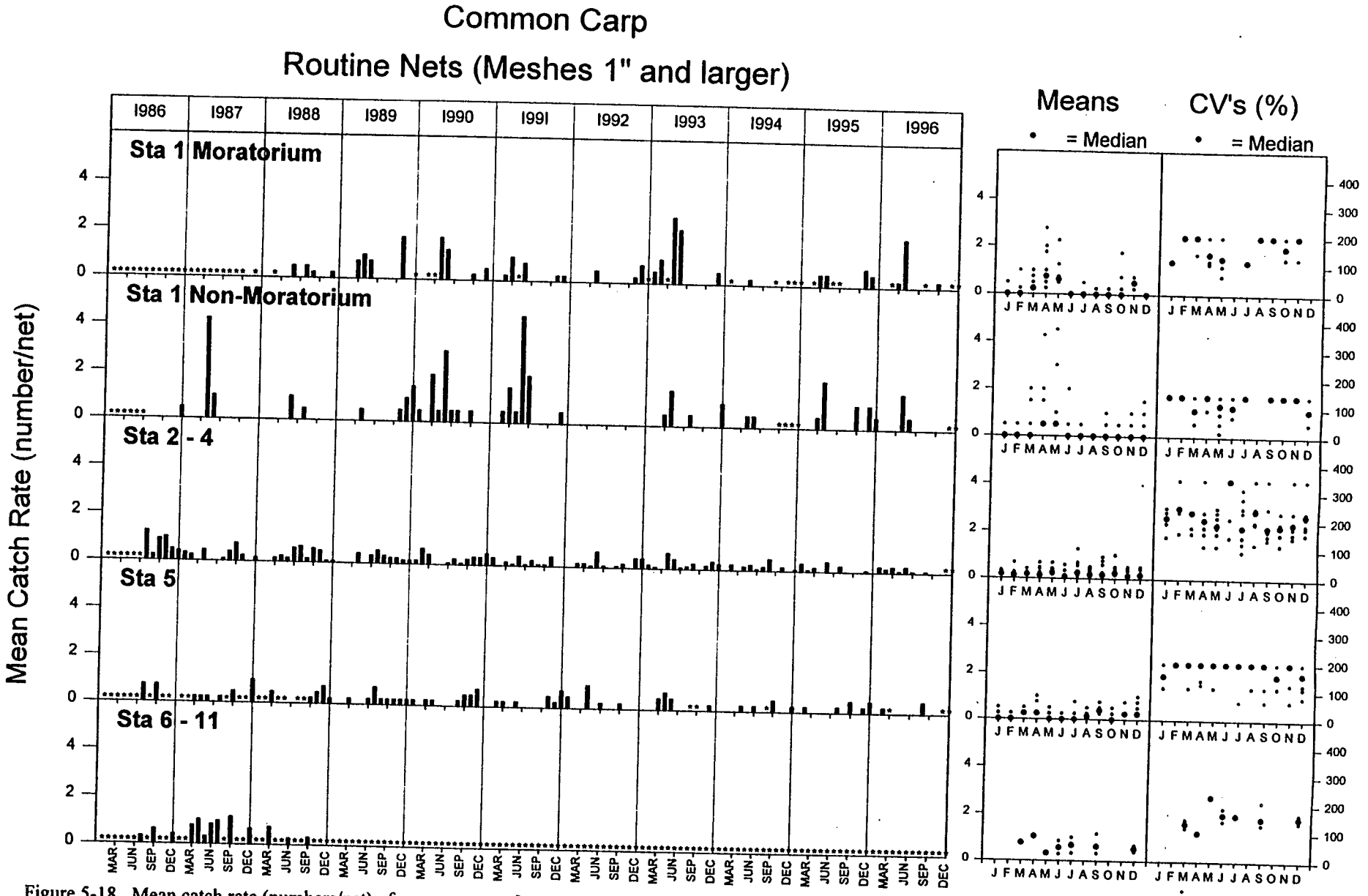


Figure 5-18. Mean catch rate (numbers/net) of common carp for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

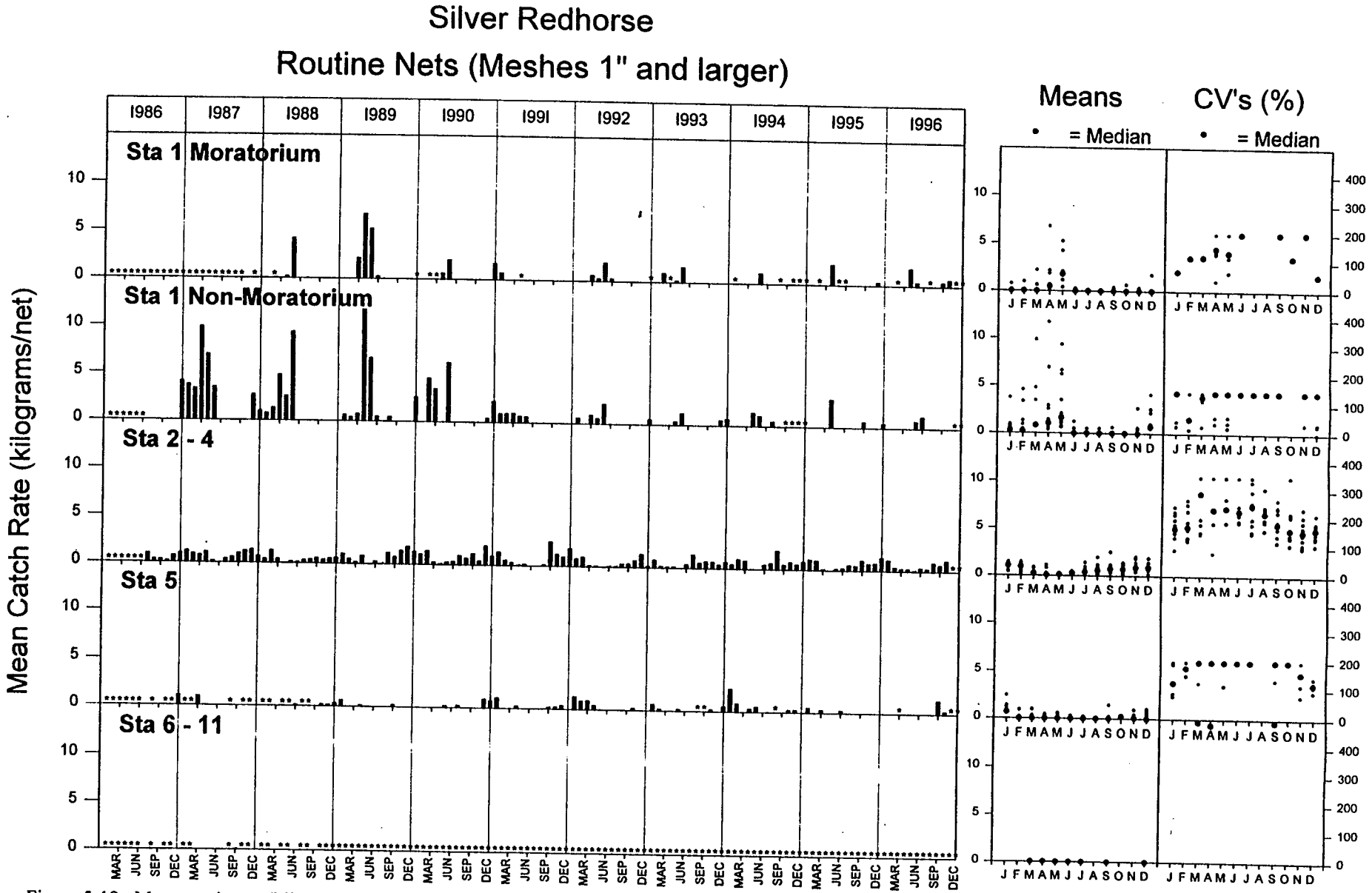


Figure 5-19. Mean catch rate (kilograms/net) of silver redhorse for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

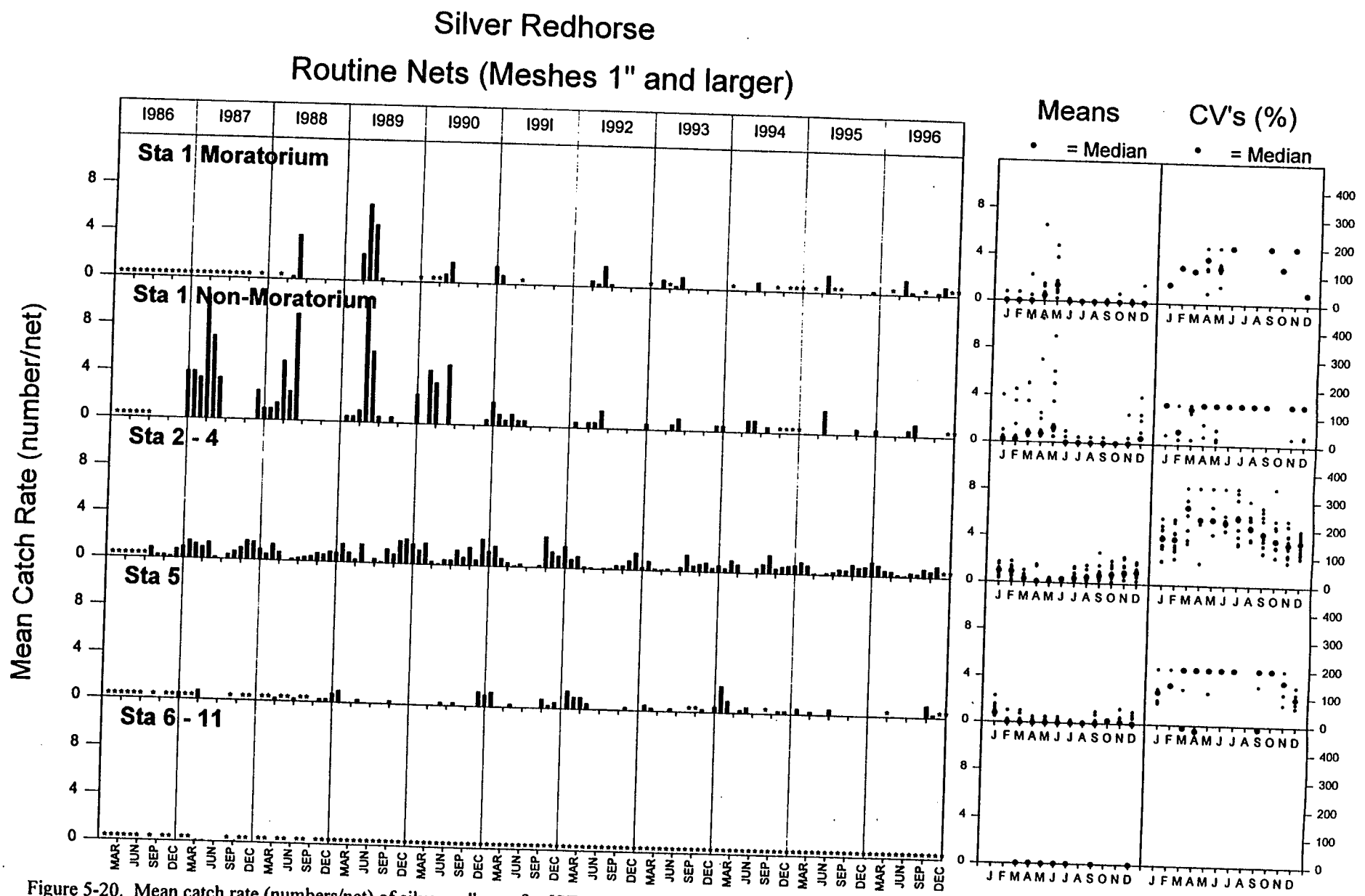


Figure 5-20. Mean catch rate (numbers/net) of silver redhorse for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

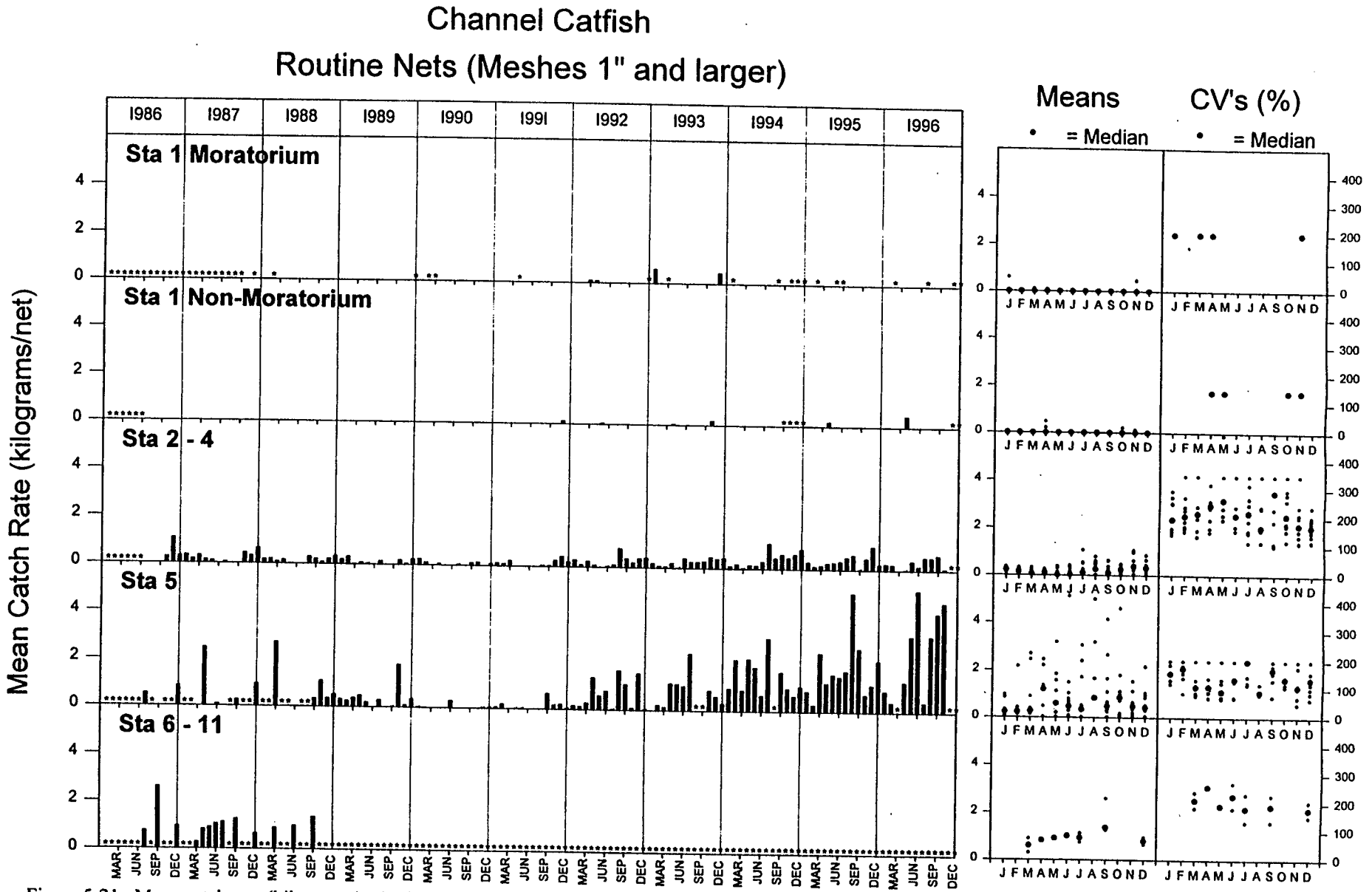


Figure 5-21. Mean catch rate (kilograms/net) of channel catfish for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

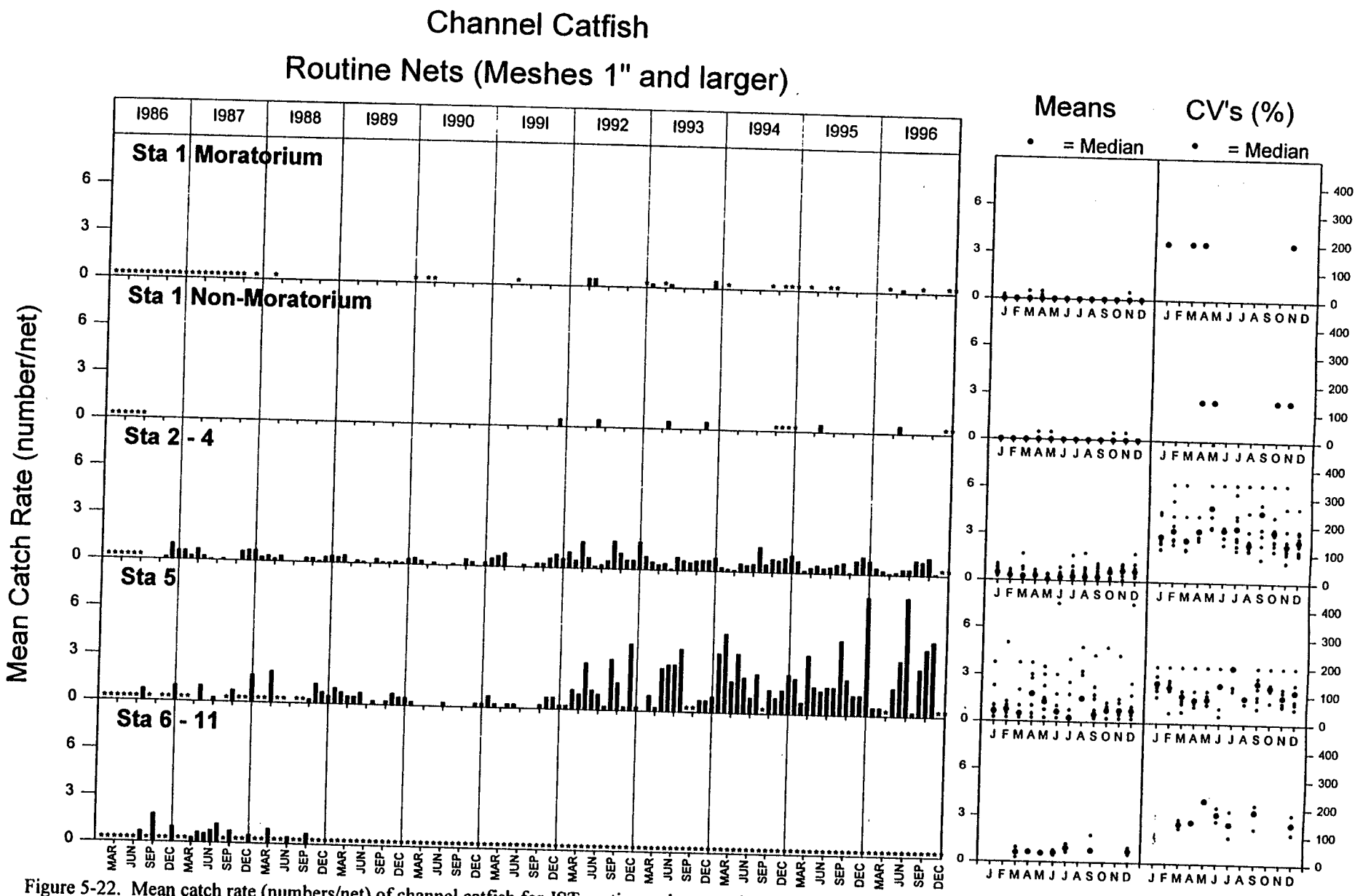


Figure 5-22. Mean catch rate (numbers/net) of channel catfish for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

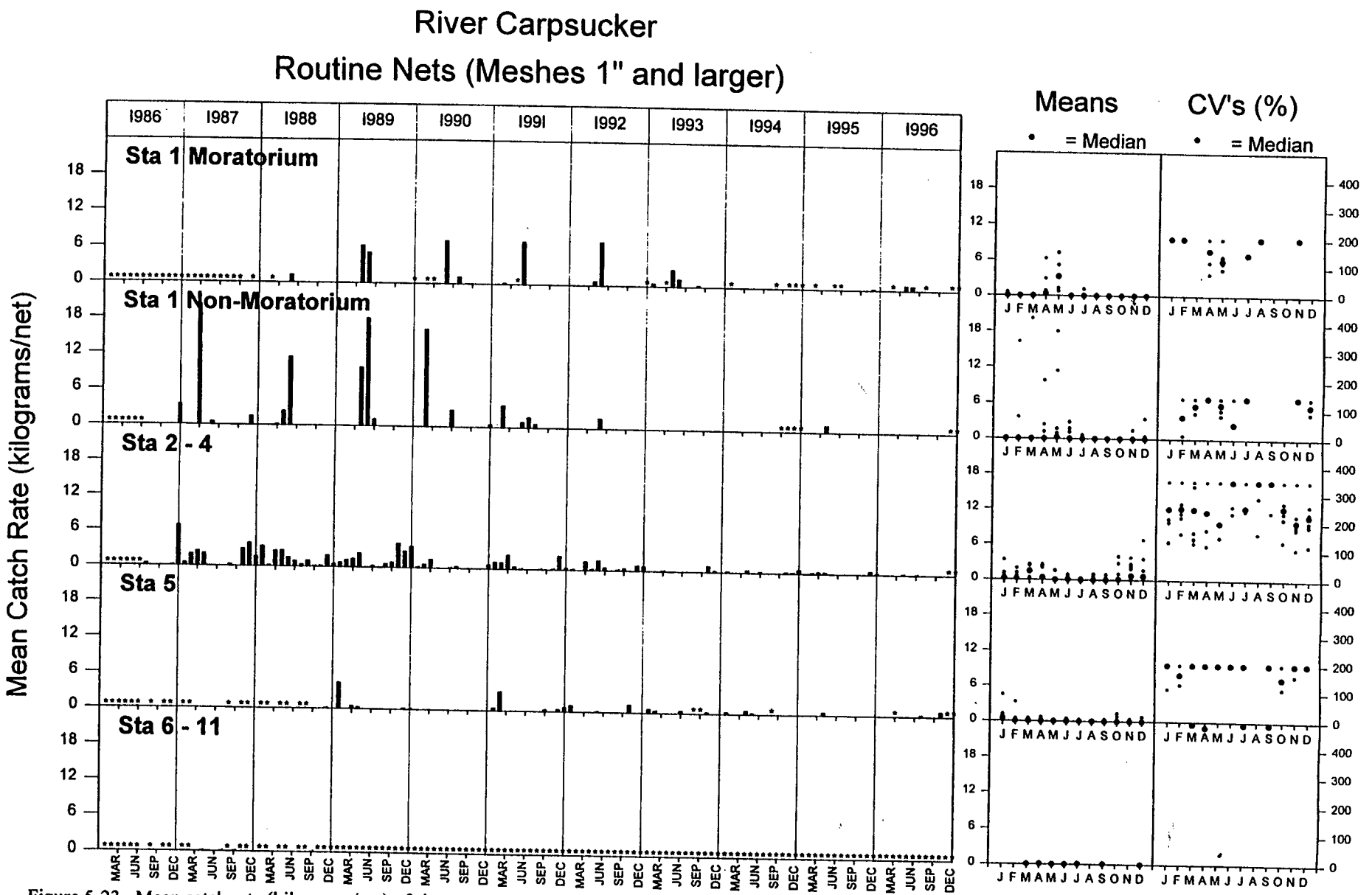


Figure 5-23. Mean catch rate (kilograms/net) of river carpsucker for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

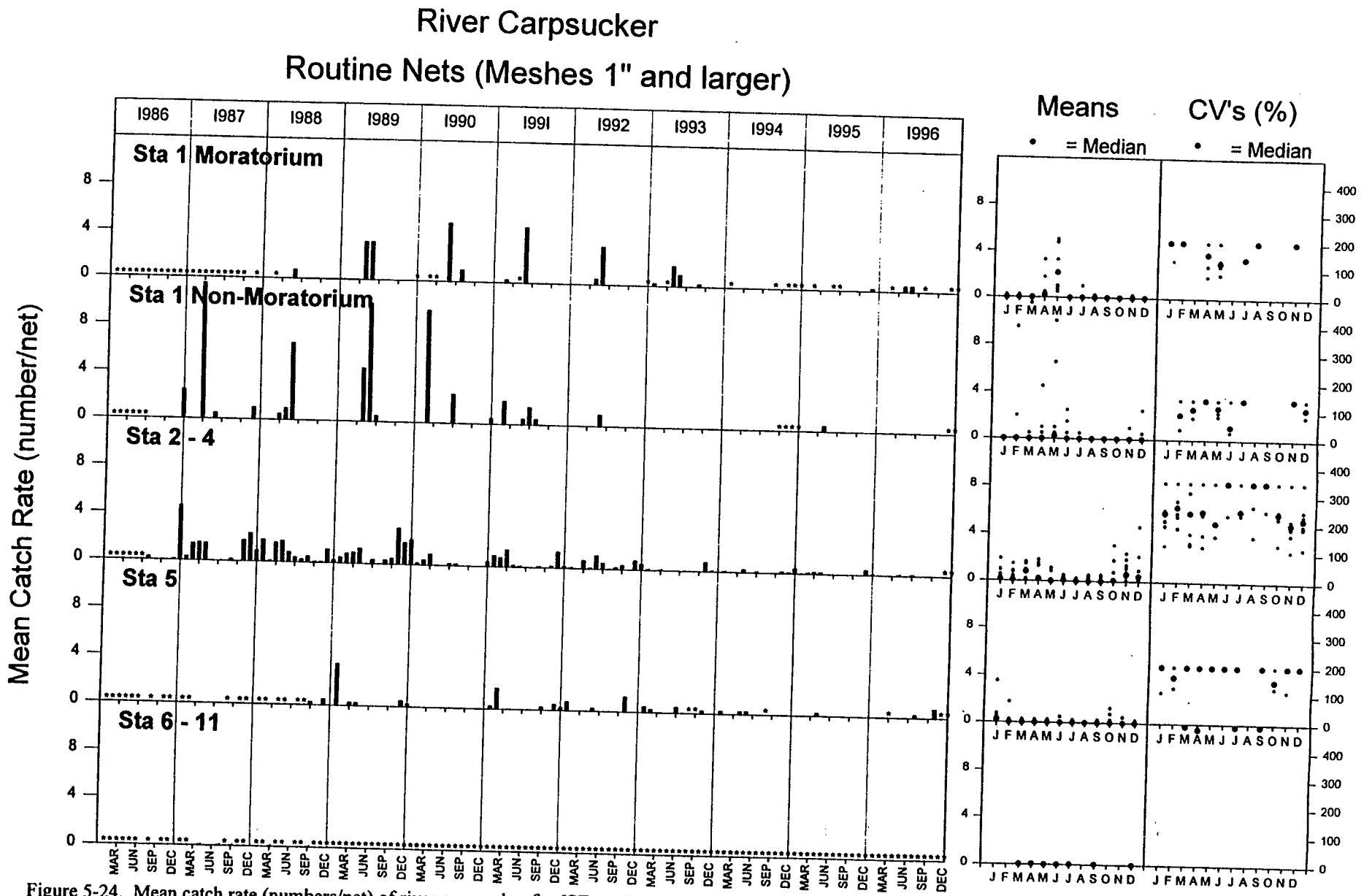


Figure 5-24. Mean catch rate (numbers/net) of river carpsucker for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

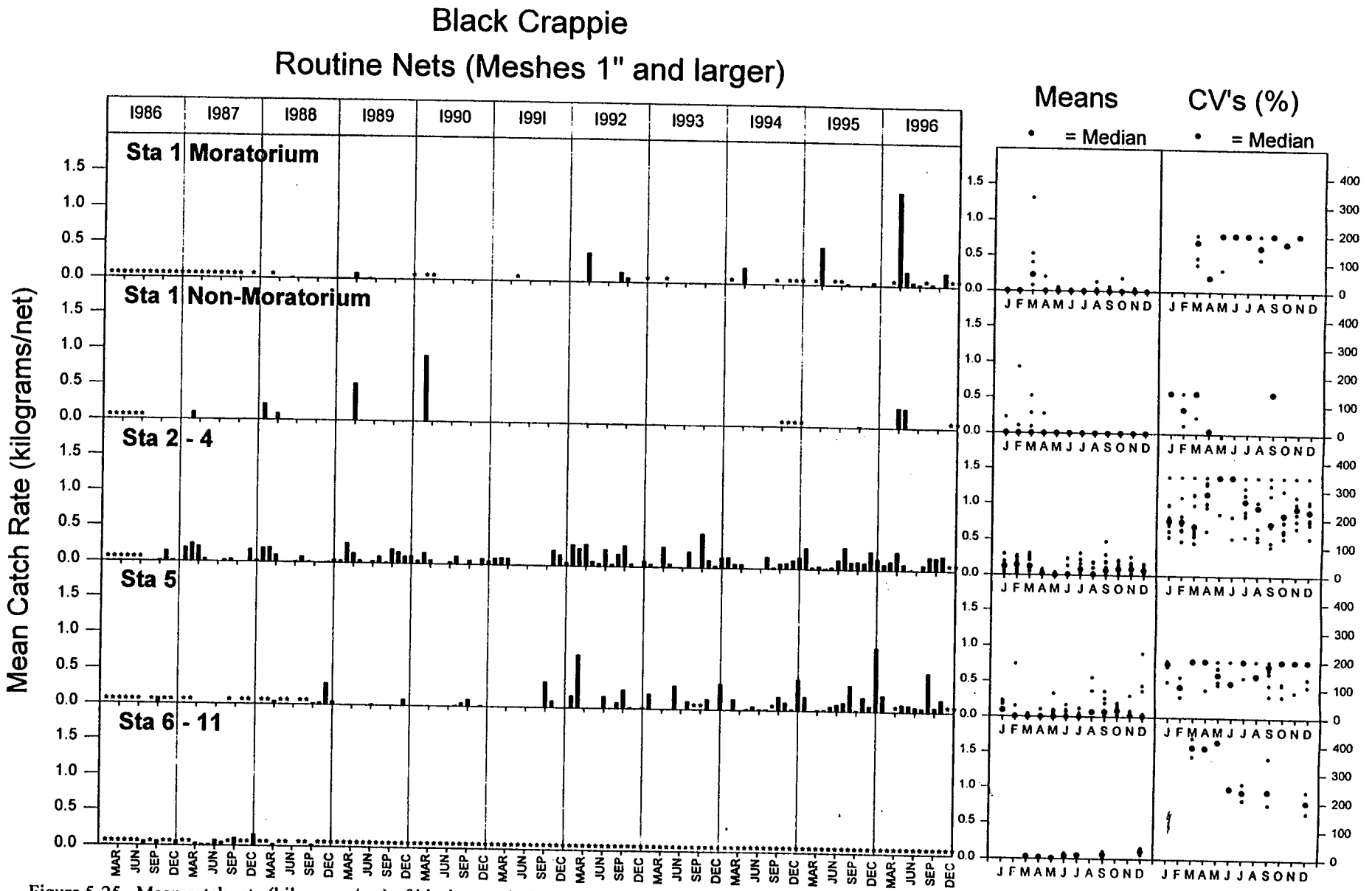


Figure 5-25. Mean catch rate (kilograms/net) of black crappie for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

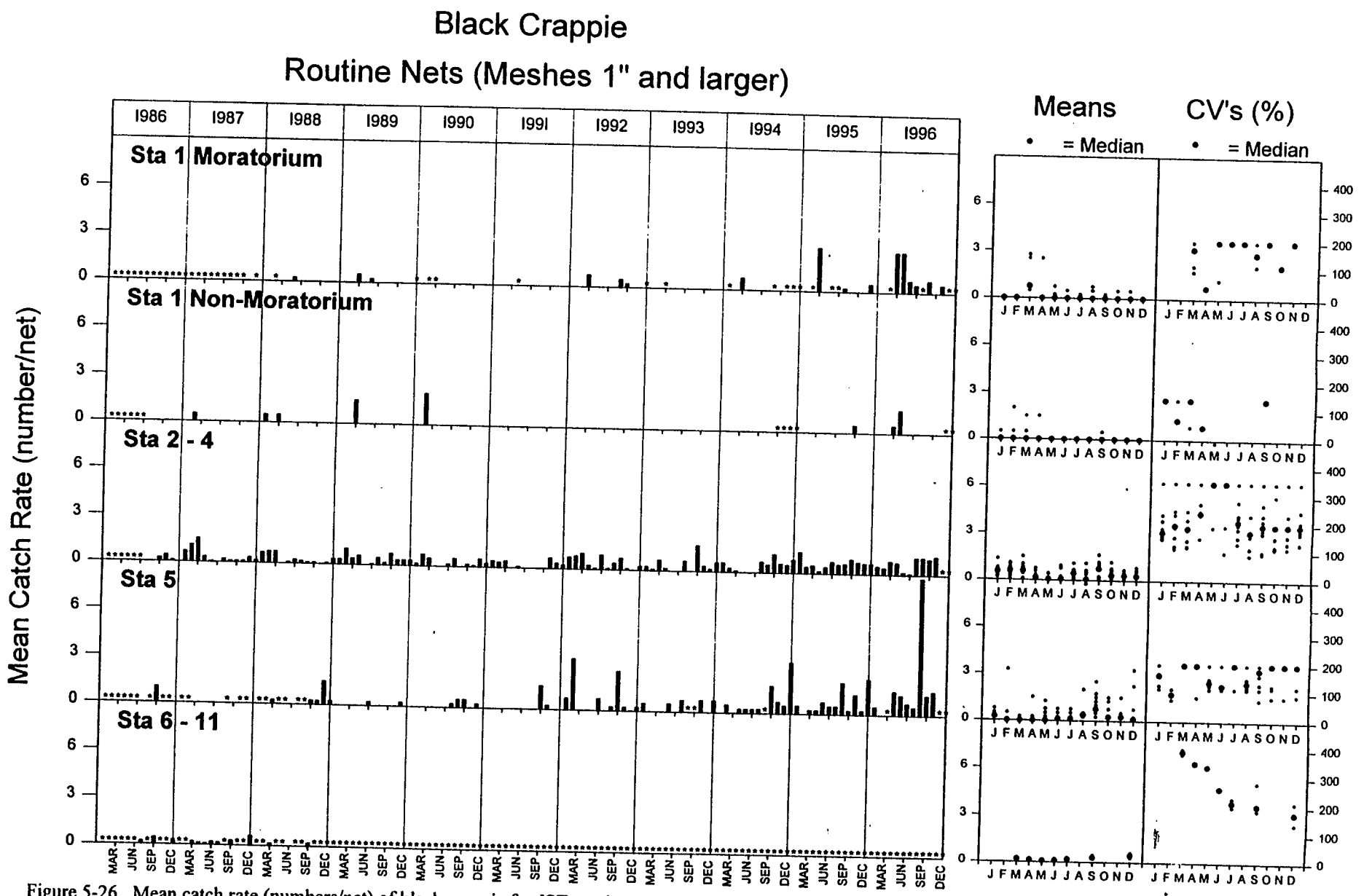


Figure 5-26. Mean catch rate (numbers/net) of black crappie for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

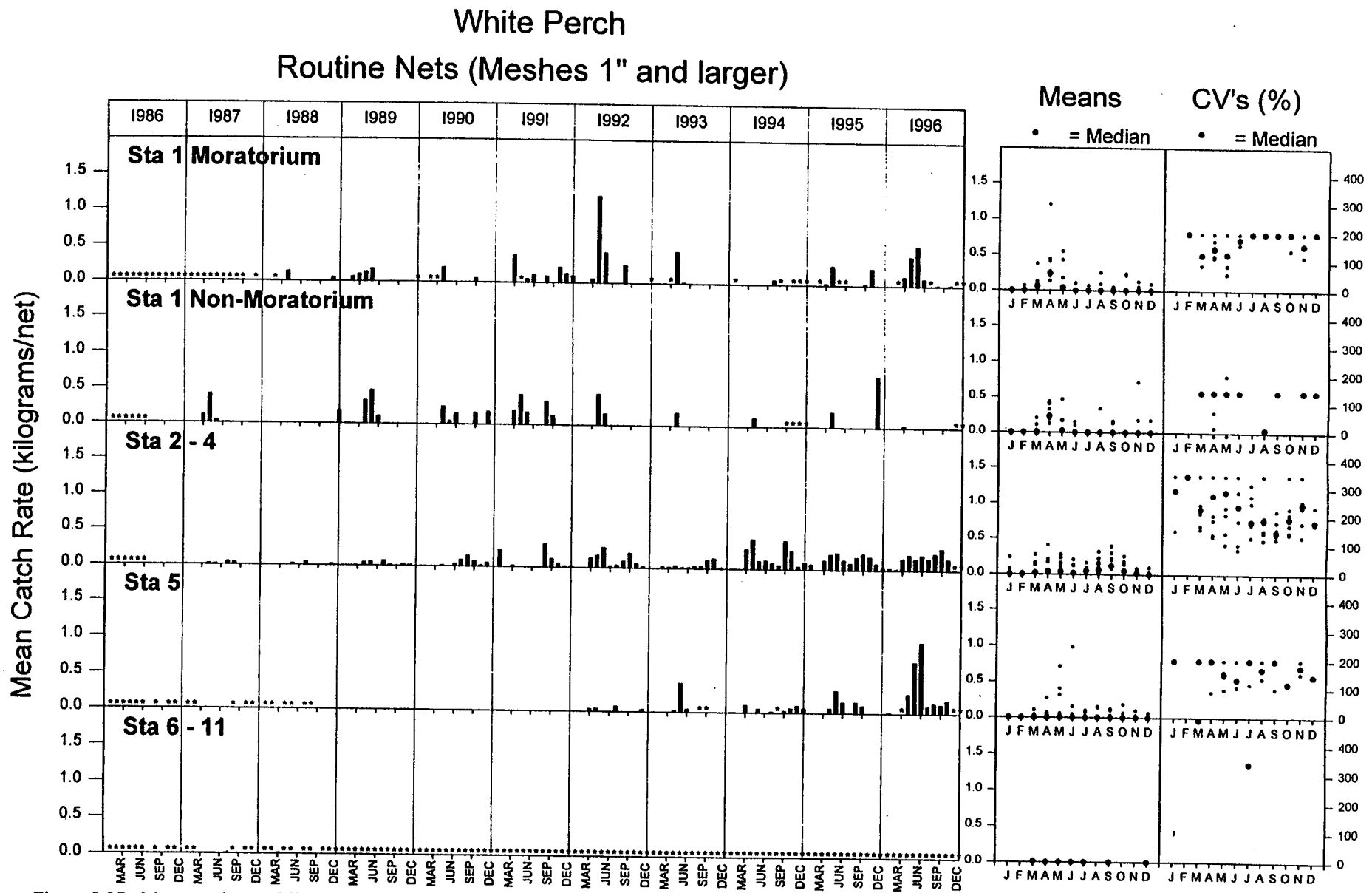


Figure 5-27. Mean catch rate (kilograms/net) of white perch for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

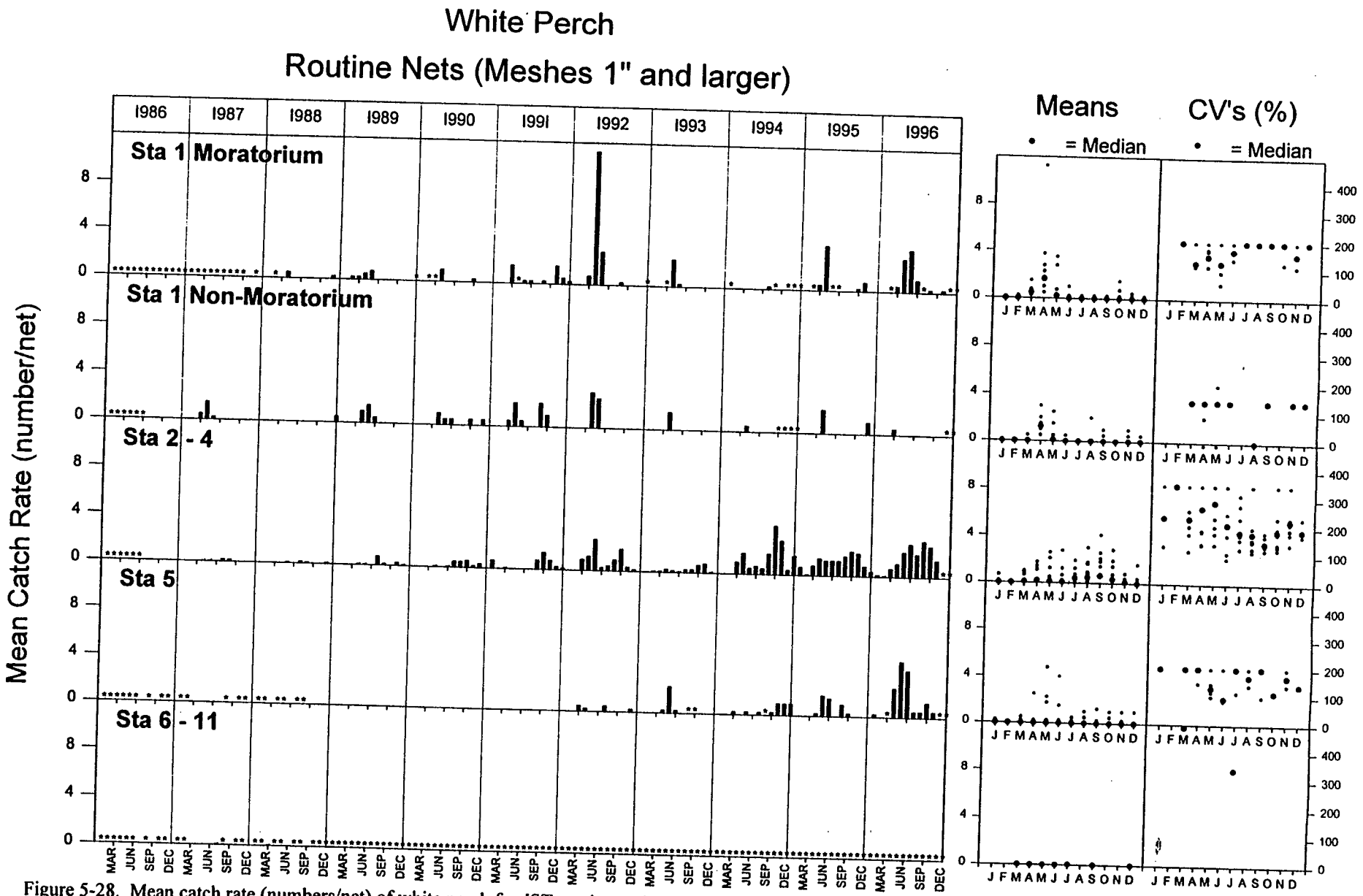


Figure 5-28. Mean catch rate (numbers/net) of white perch for JST routine and moratorium gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

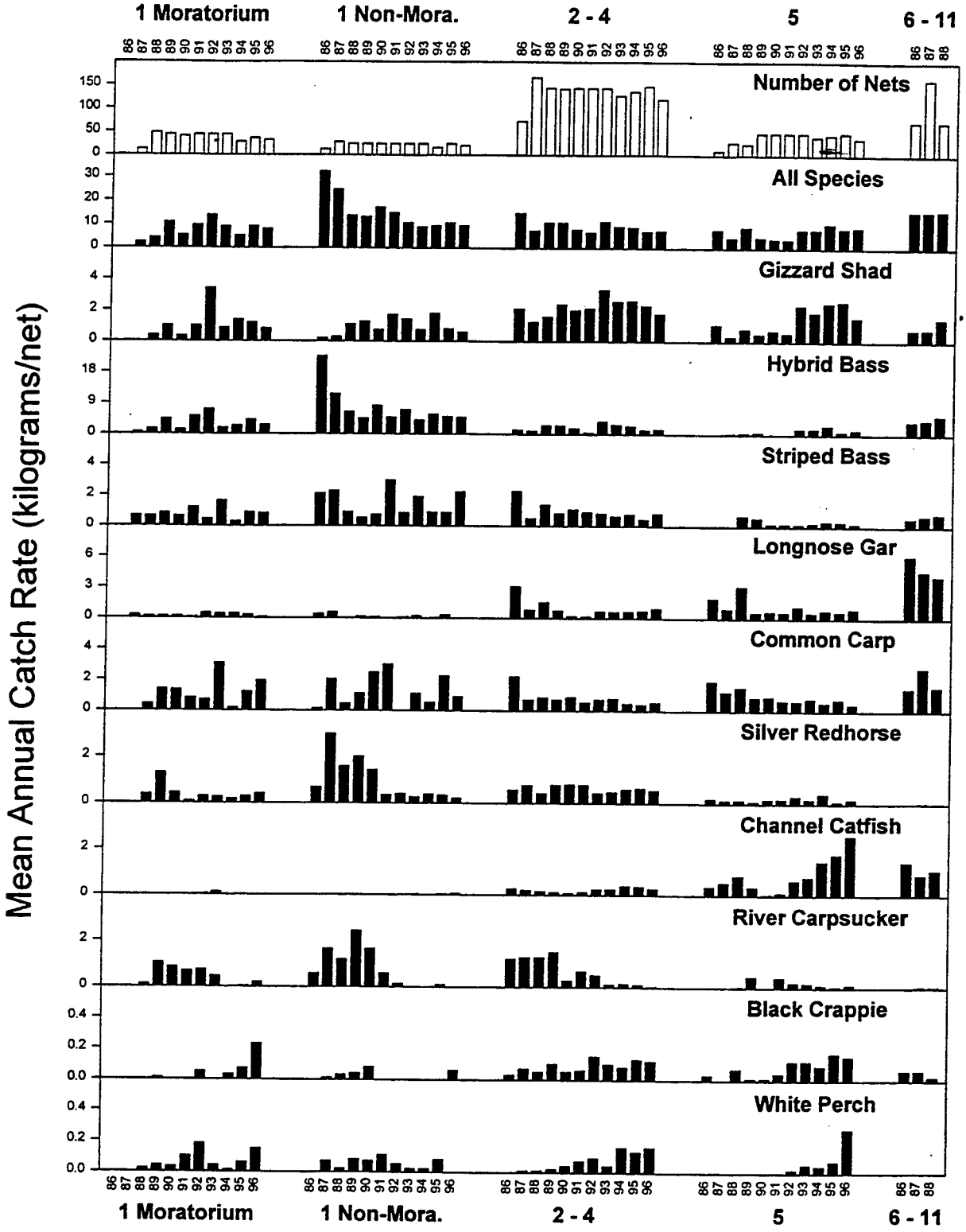


Figure 5-29. Mean annual catch rate (kilograms/net) by station grouping for the top 10 IRI species and all species pooled for JST routine and moratorium gillnetting (meshes 25.4 mm and larger).

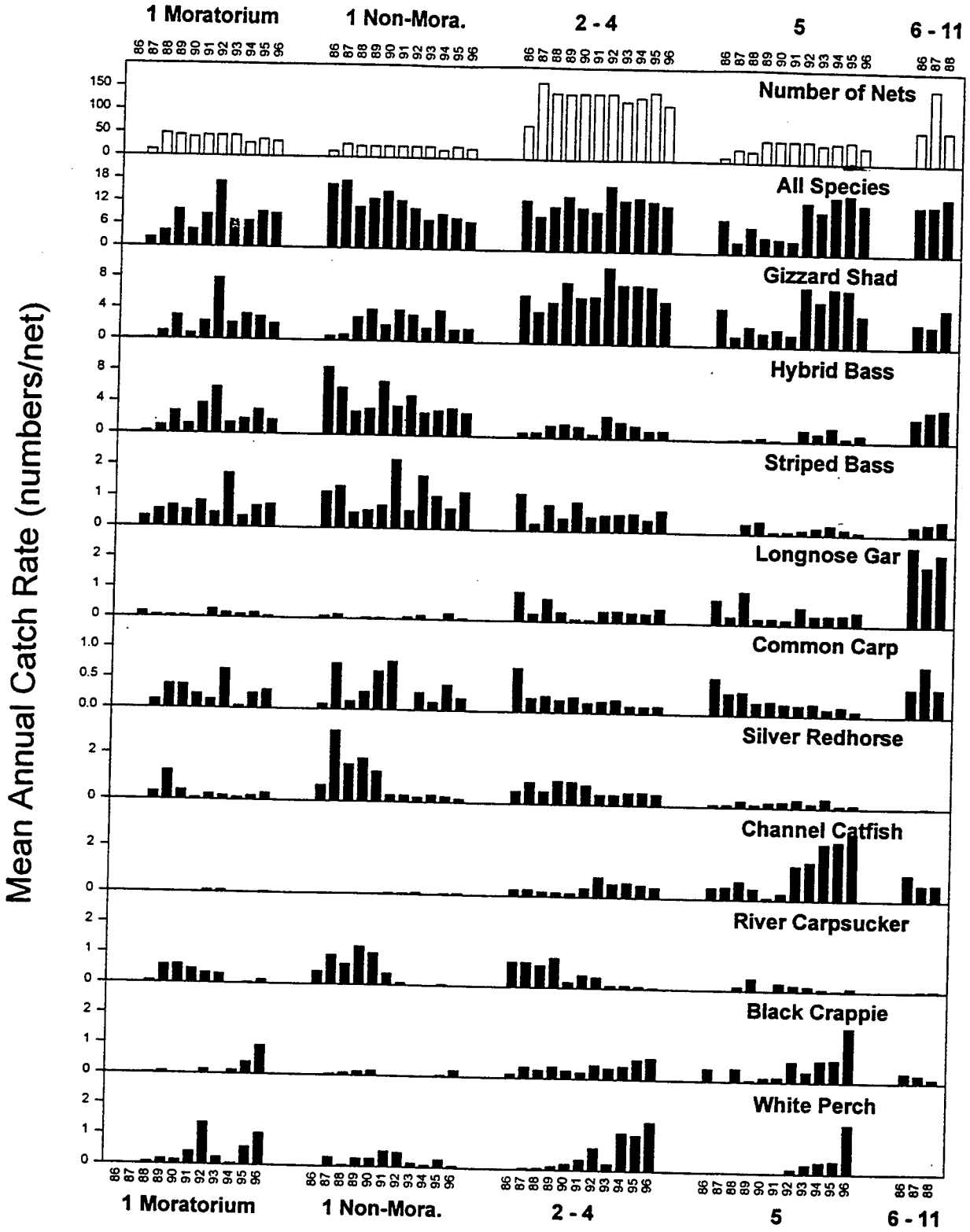


Figure 5-30. Mean annual catch rate (numbers/net) by station grouping for the top 10 IRI species and all species pooled for JST routine and moratorium gillnetting (meshes 25.4 mm and larger).

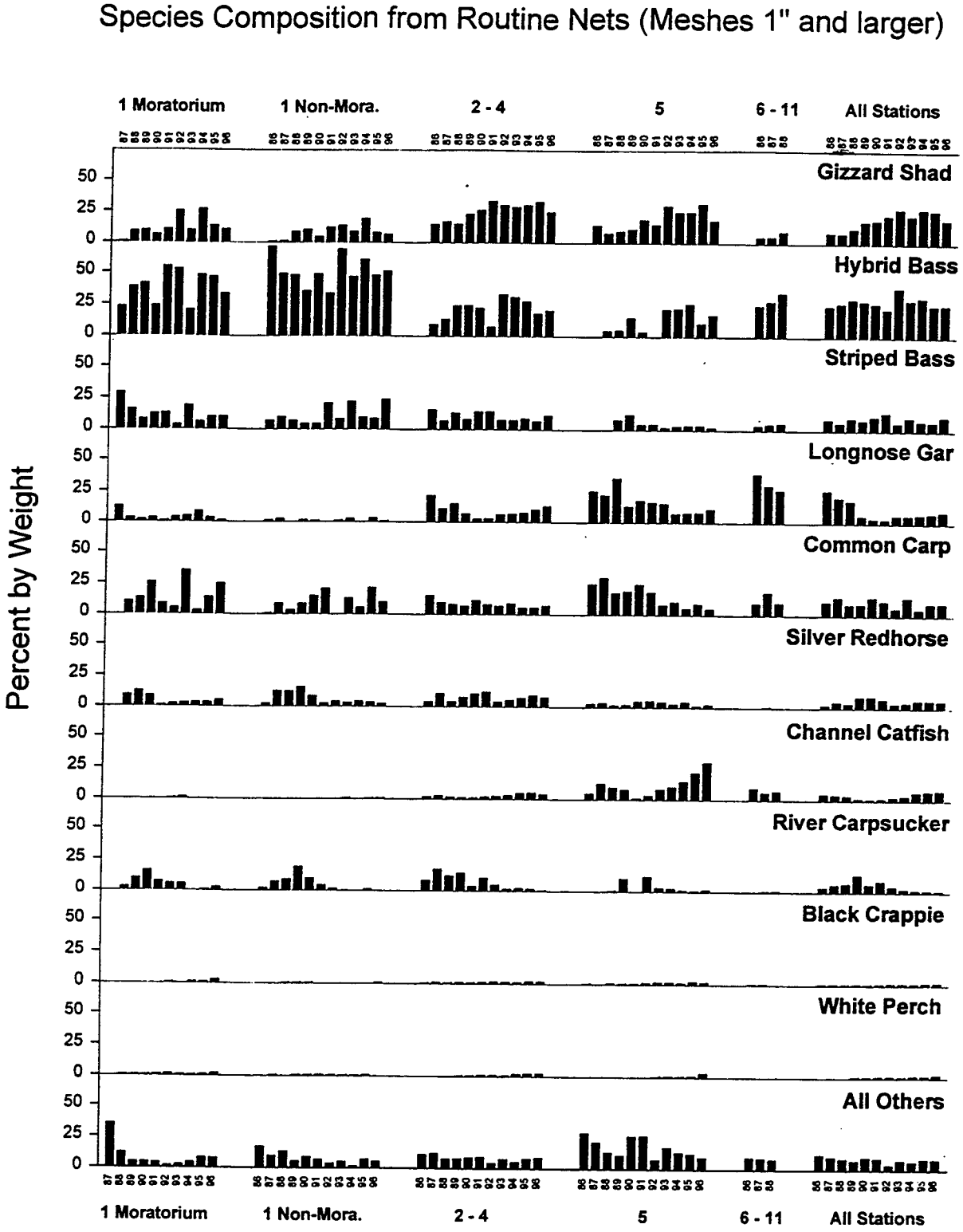


Figure 5-31. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for JST routine and moratorium gillnetting (meshes 25.4 mm and larger).

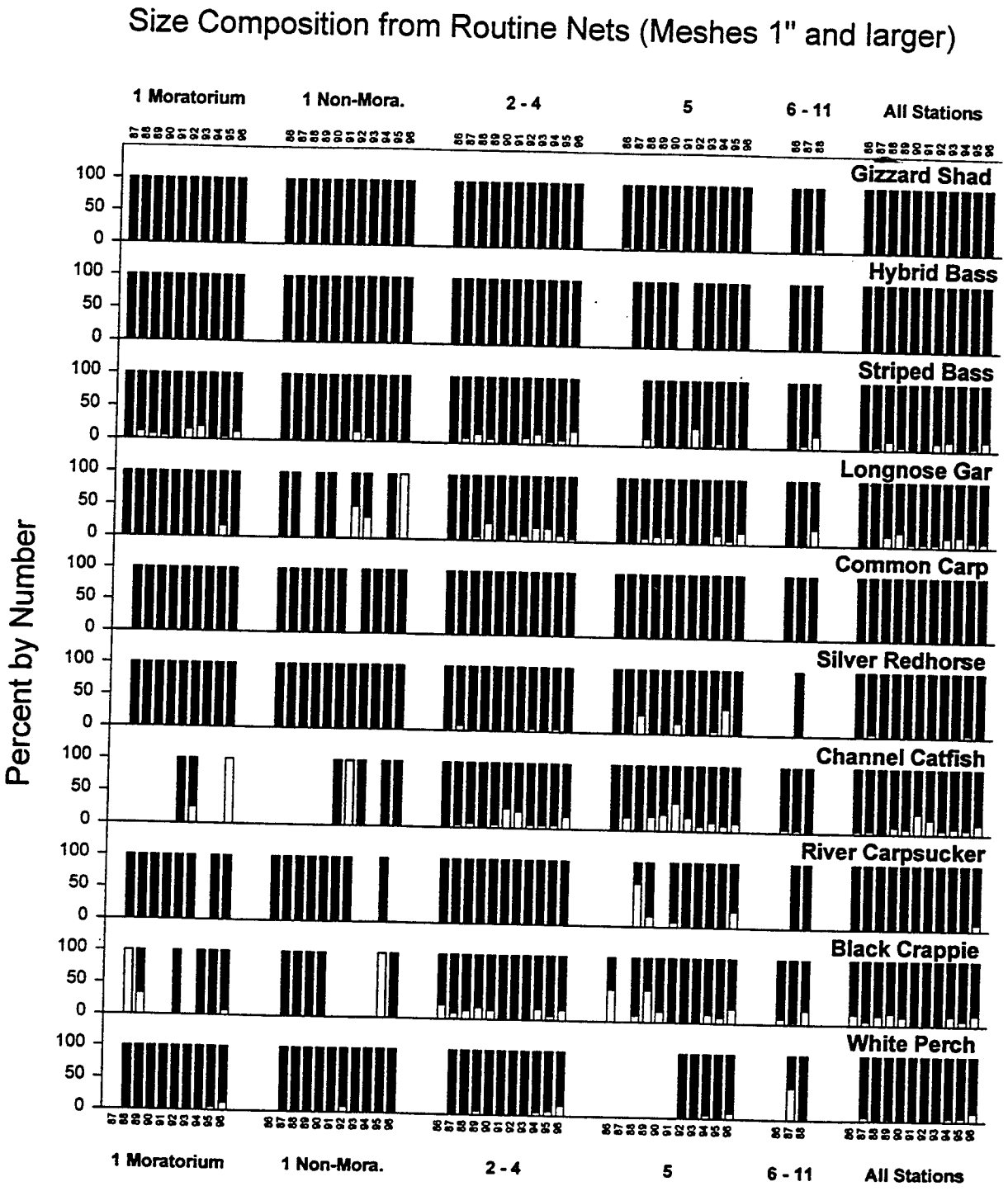


Figure 5-32. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for JST routine and moratorium gillnetting (meshes 25.4 mm and larger).

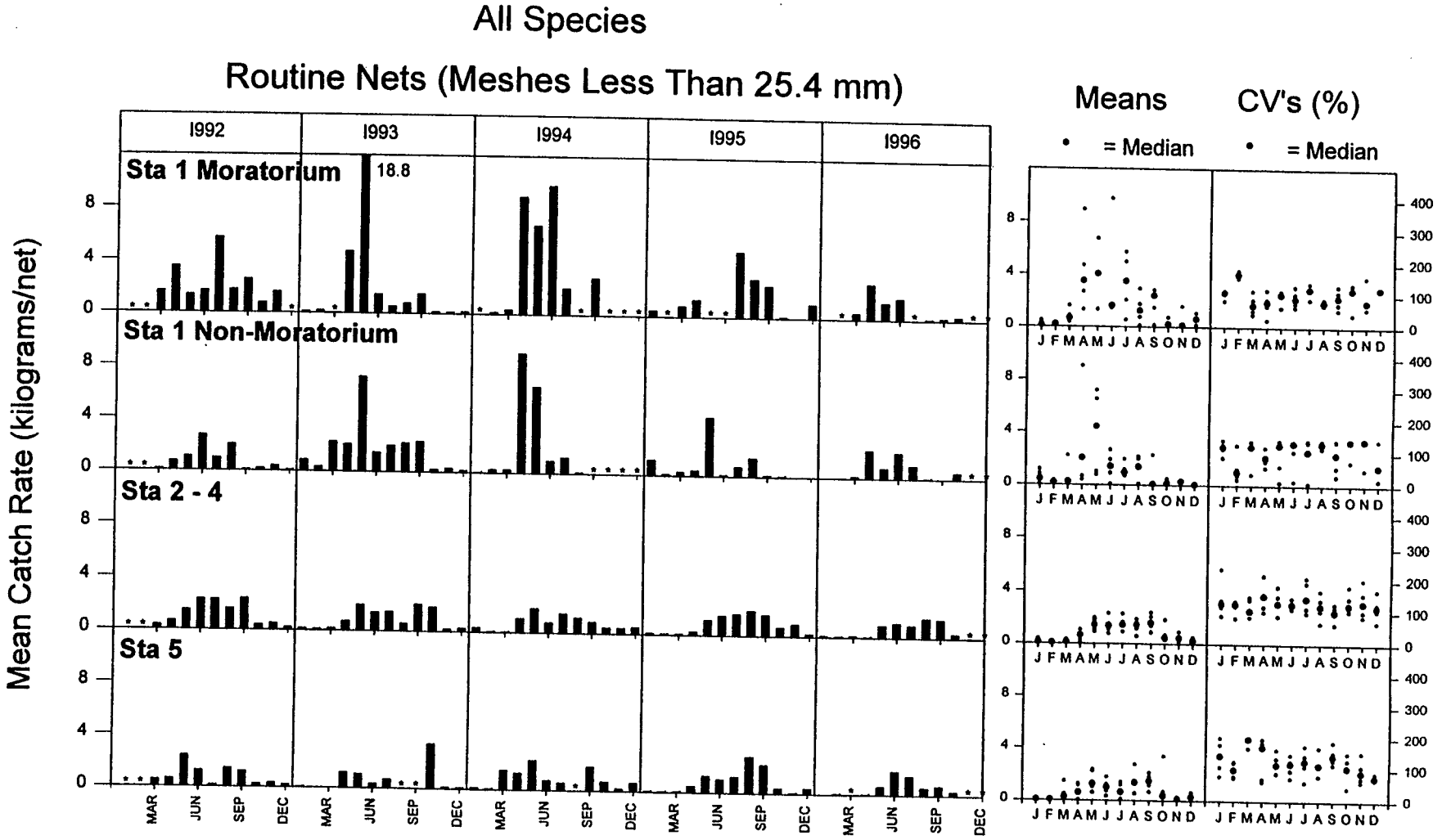


Figure 5-33. Mean catch rate (kilograms/net) of all species pooled for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

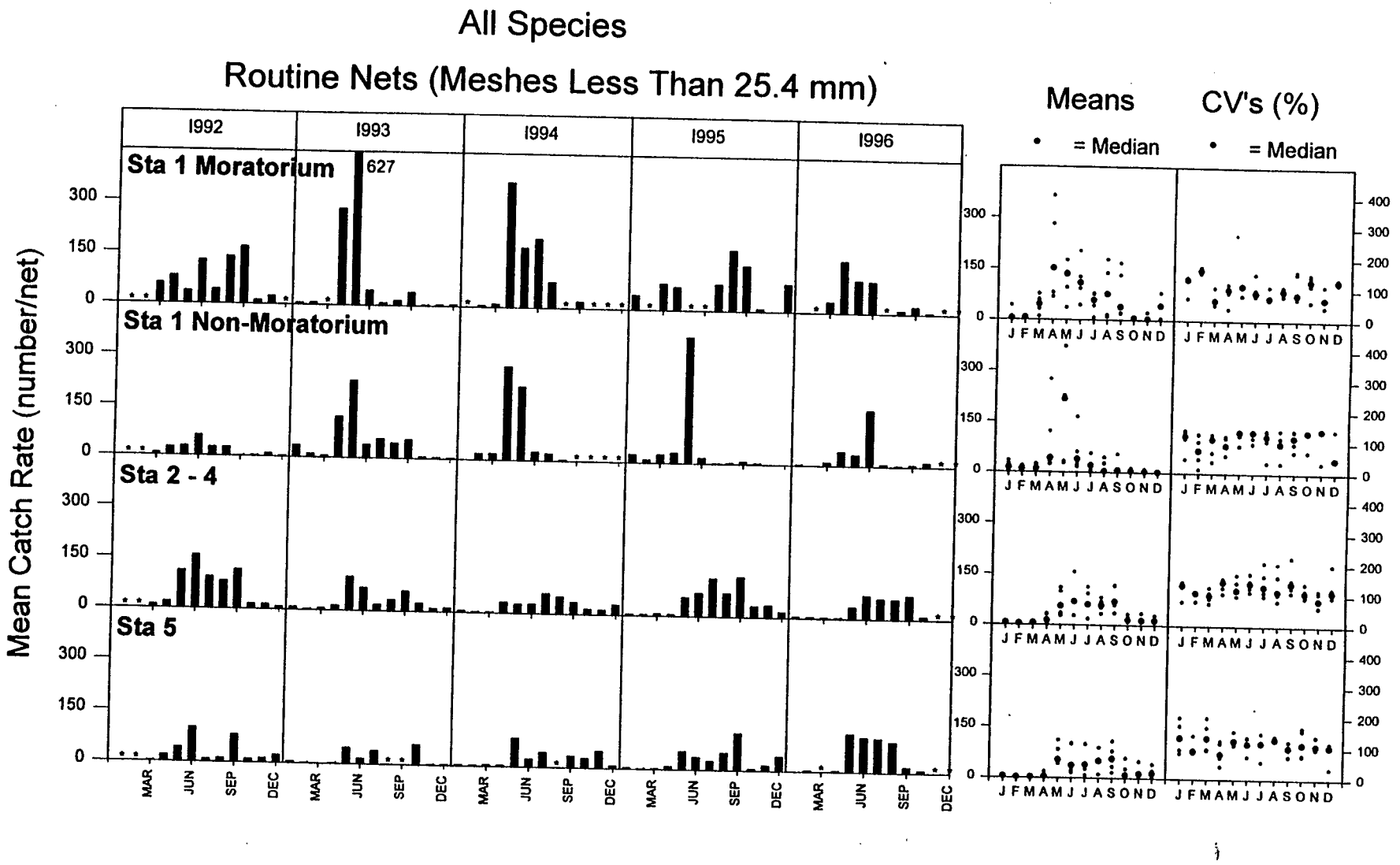


Figure 5-34. Mean catch rate (numbers/net) of all species pooled for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

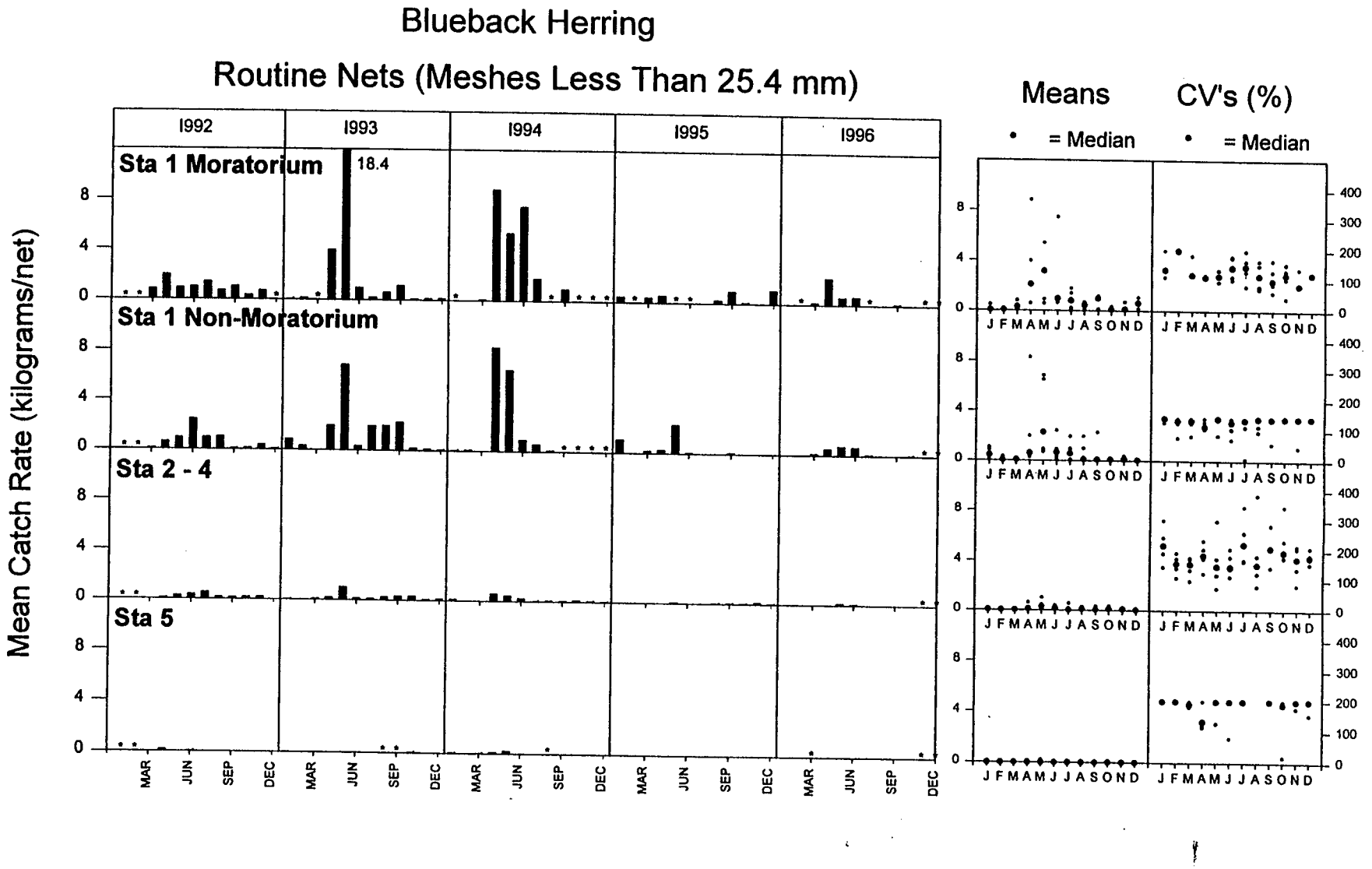


Figure 5-35. Mean catch rate (kilograms/net) of blueback herring for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

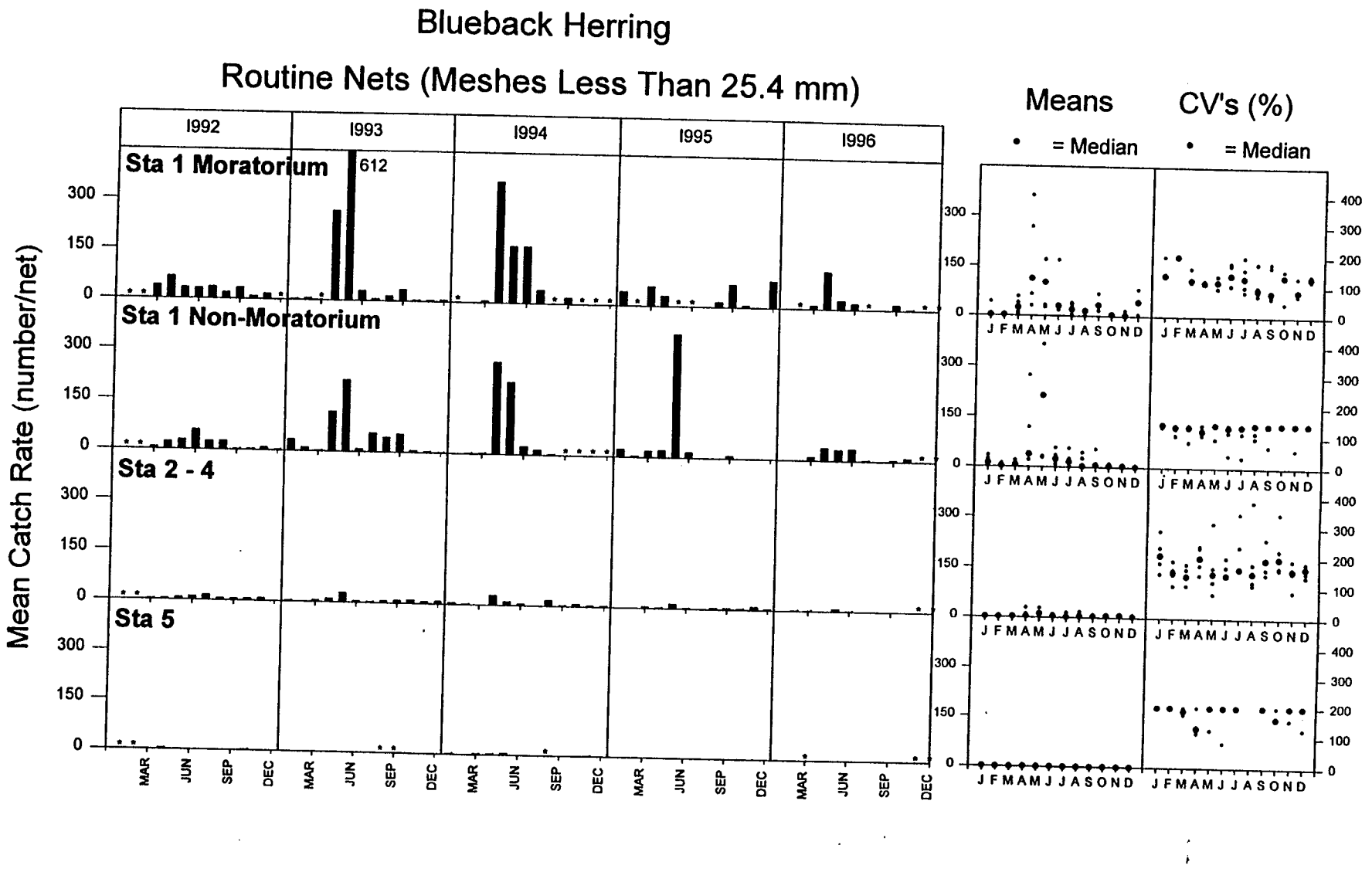


Figure 5-36. Mean catch rate (numbers/net) of blueback herring for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

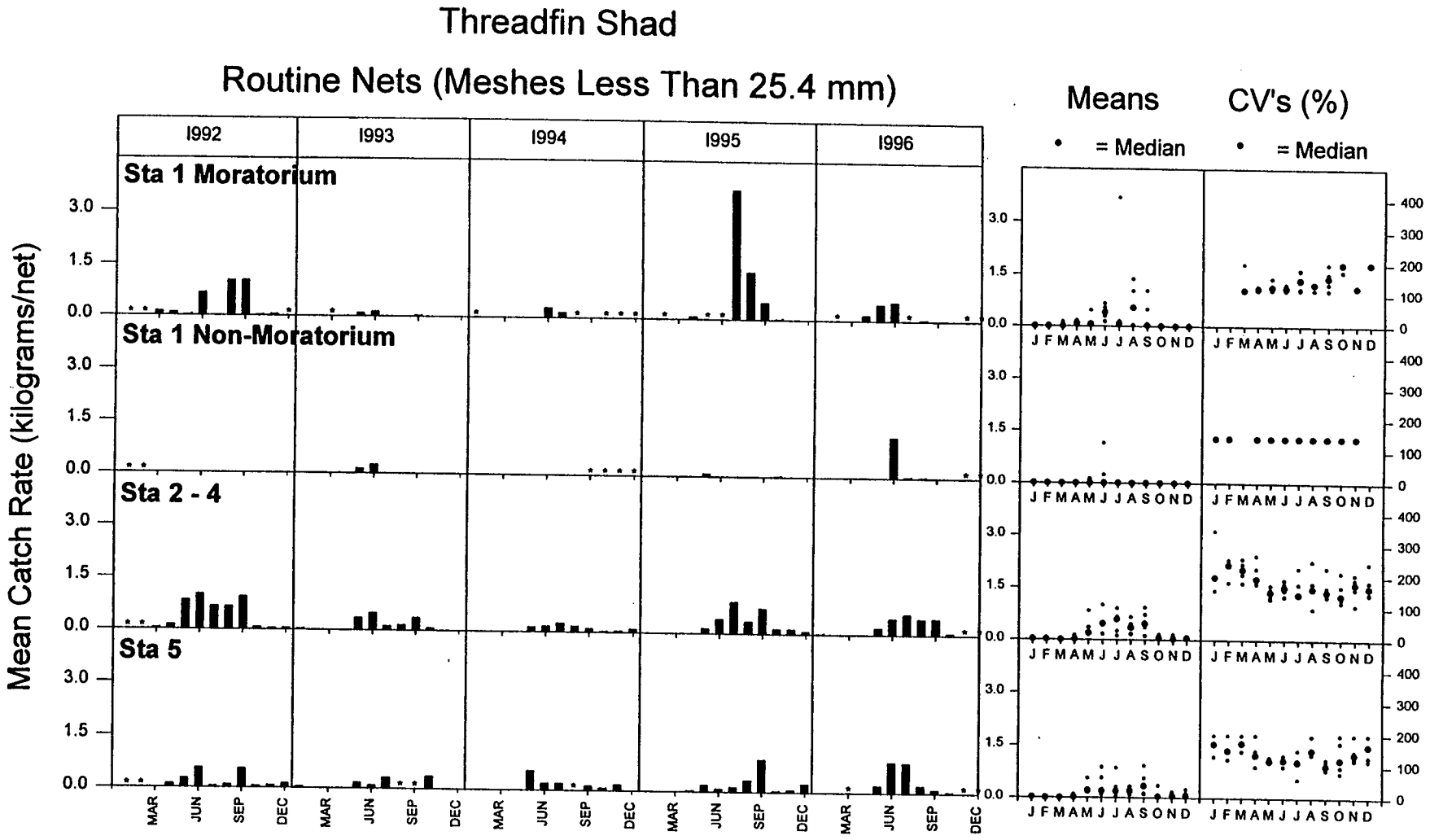


Figure 5-37. Mean catch rate (kilograms/net) of threadfin shad for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

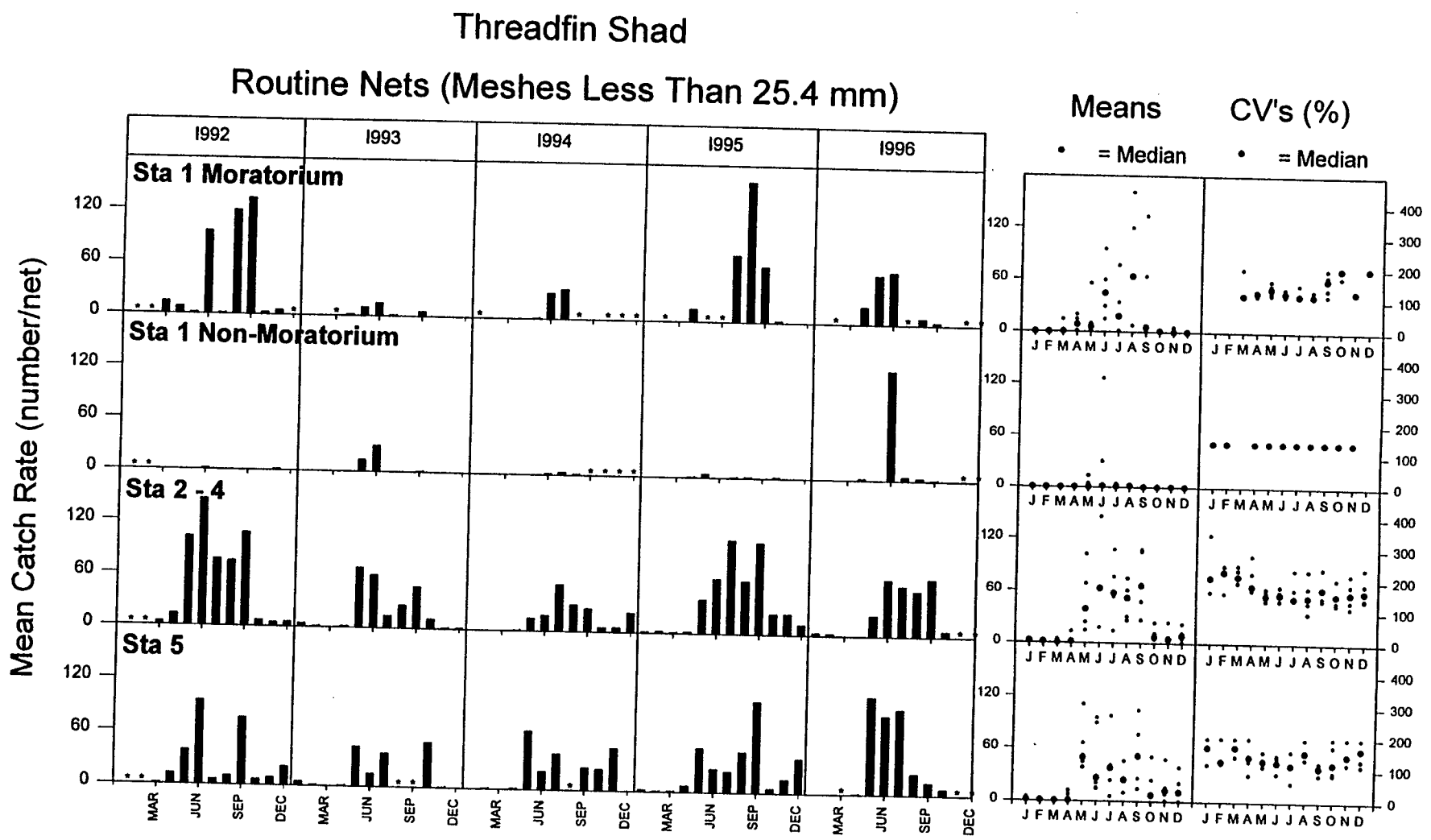


Figure 5-38. Mean catch rate (numbers/net) of threadfin shad for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

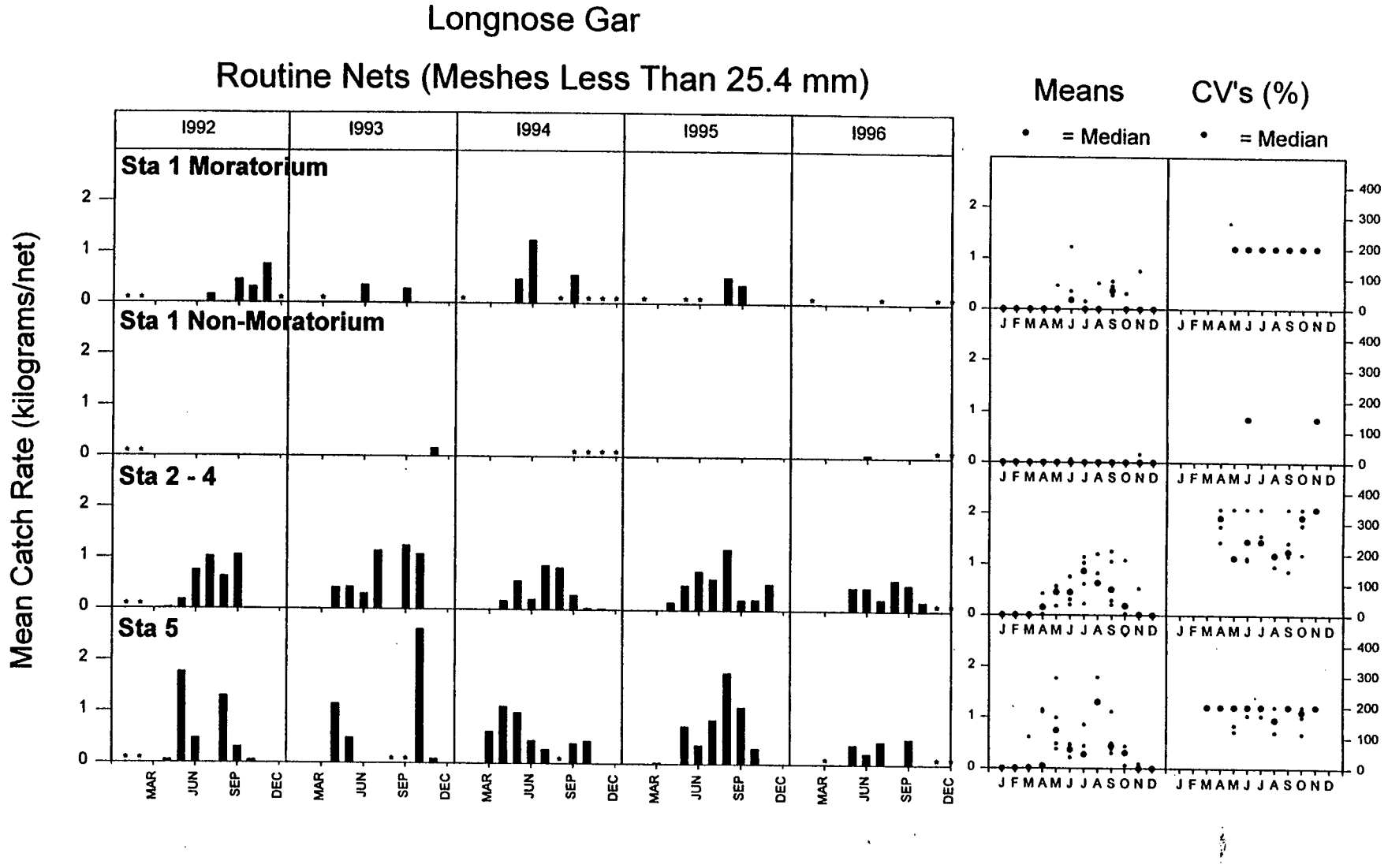


Figure 5-39. Mean catch rate (kilograms/net) of longnose gar for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

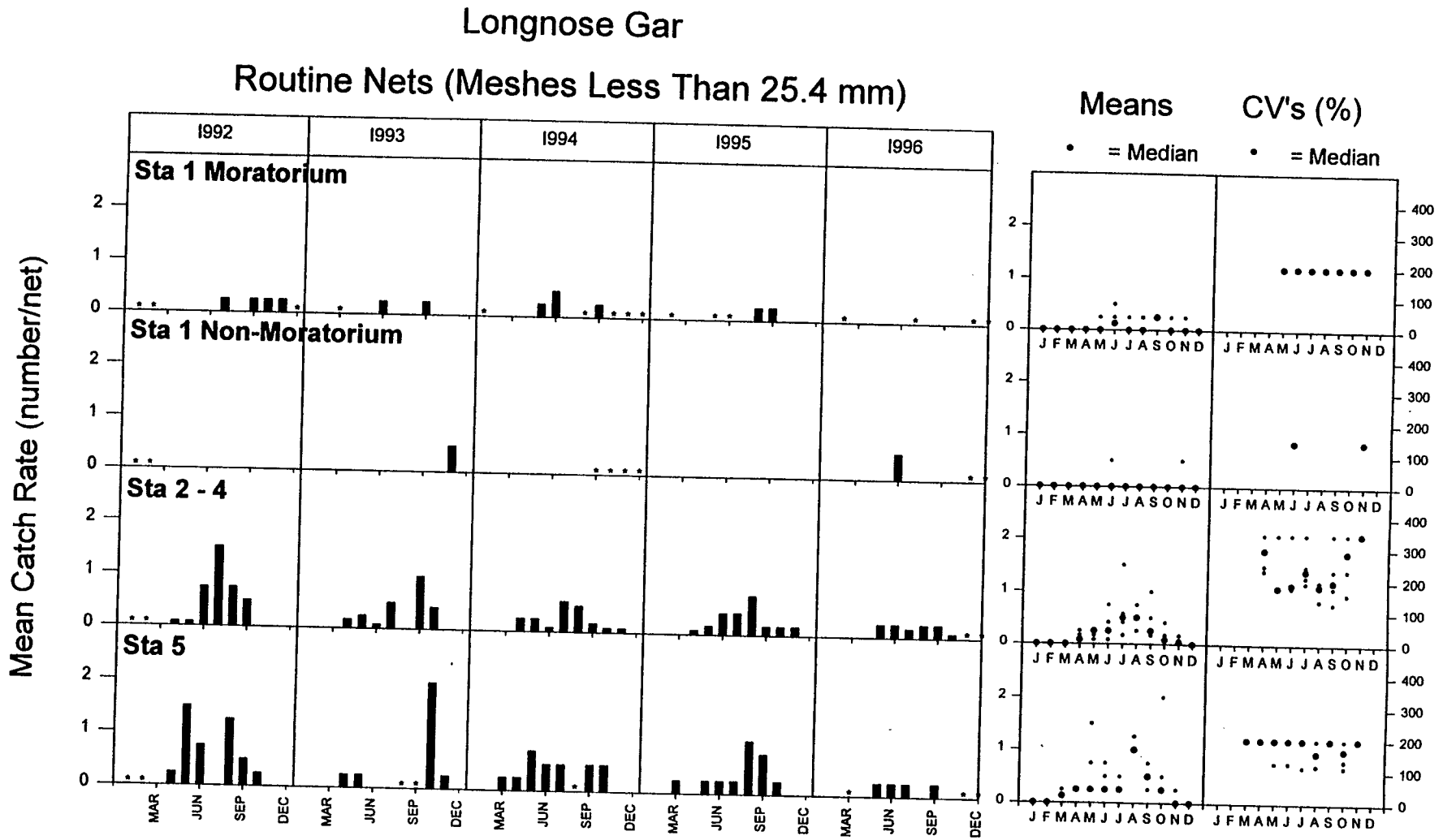


Figure 5-40. Mean catch rate (numbers/net) of longnose gar for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

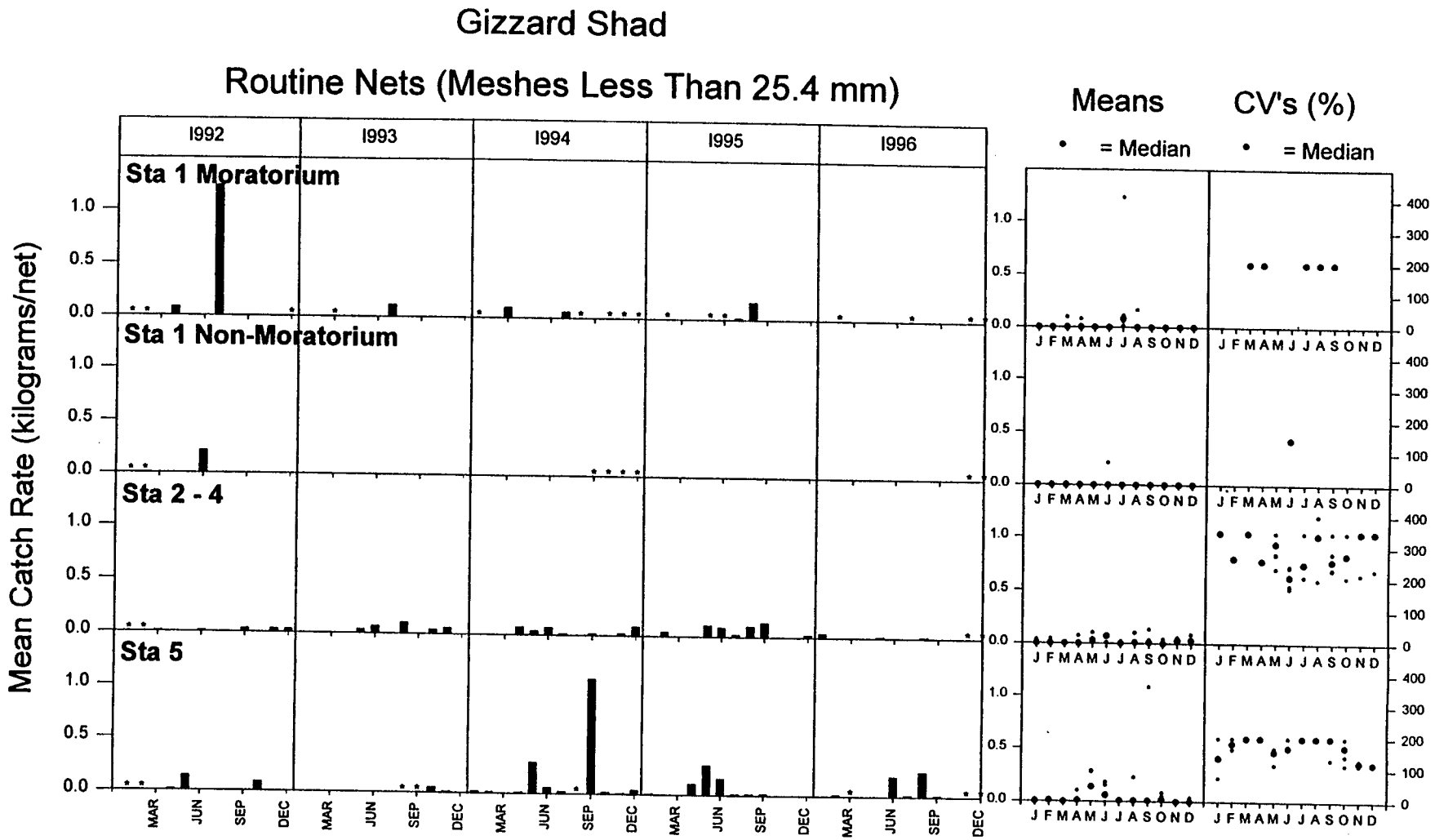


Figure 5-41. Mean catch rate (kilograms/net) of gizzard shad for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

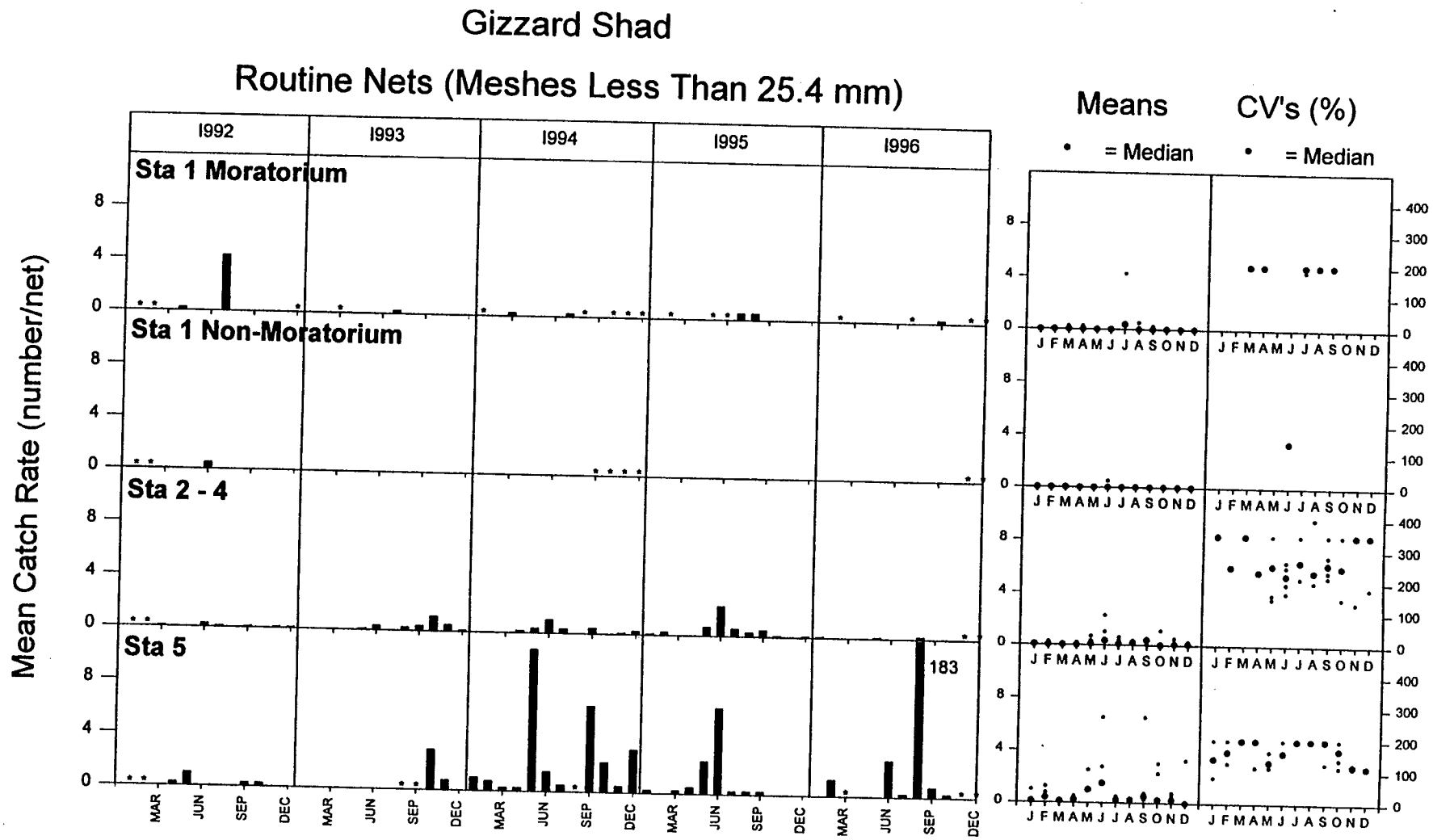


Figure 5-42. Mean catch rate (numbers/net) of gizzard shad for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

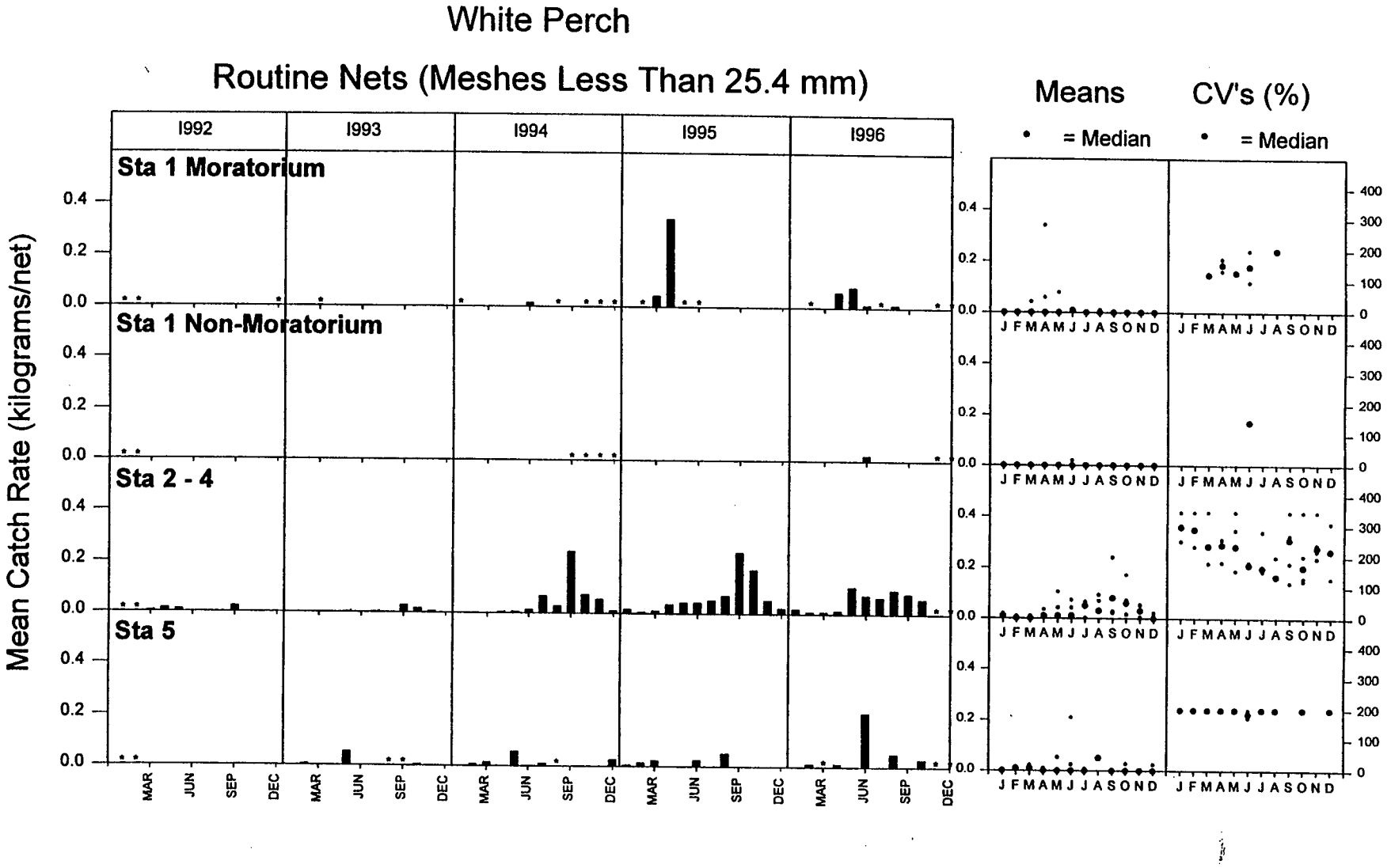


Figure 5-43. Mean catch rate (kilograms/net) of white perch for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

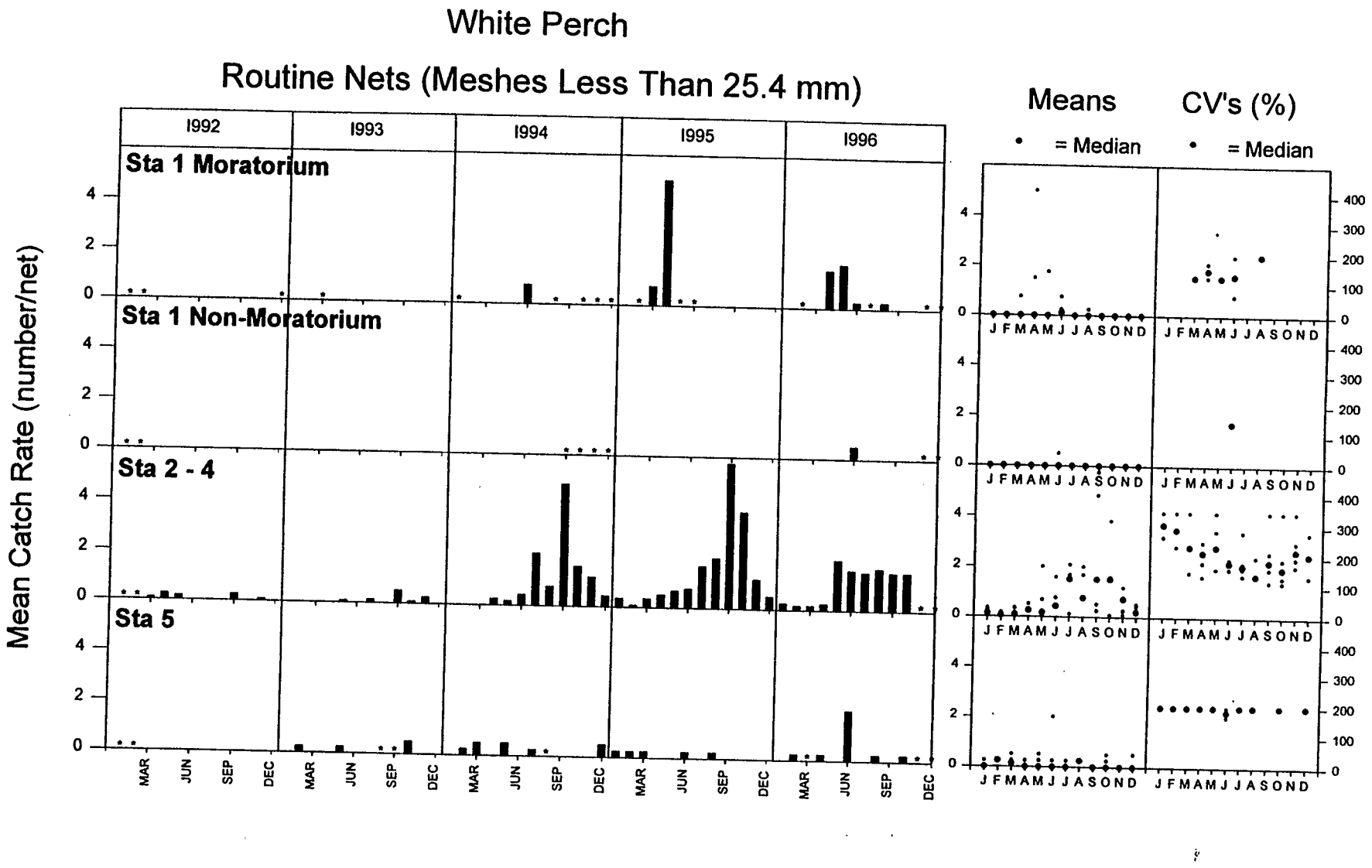


Figure 5-44. Mean catch rate (numbers/net) of white perch for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

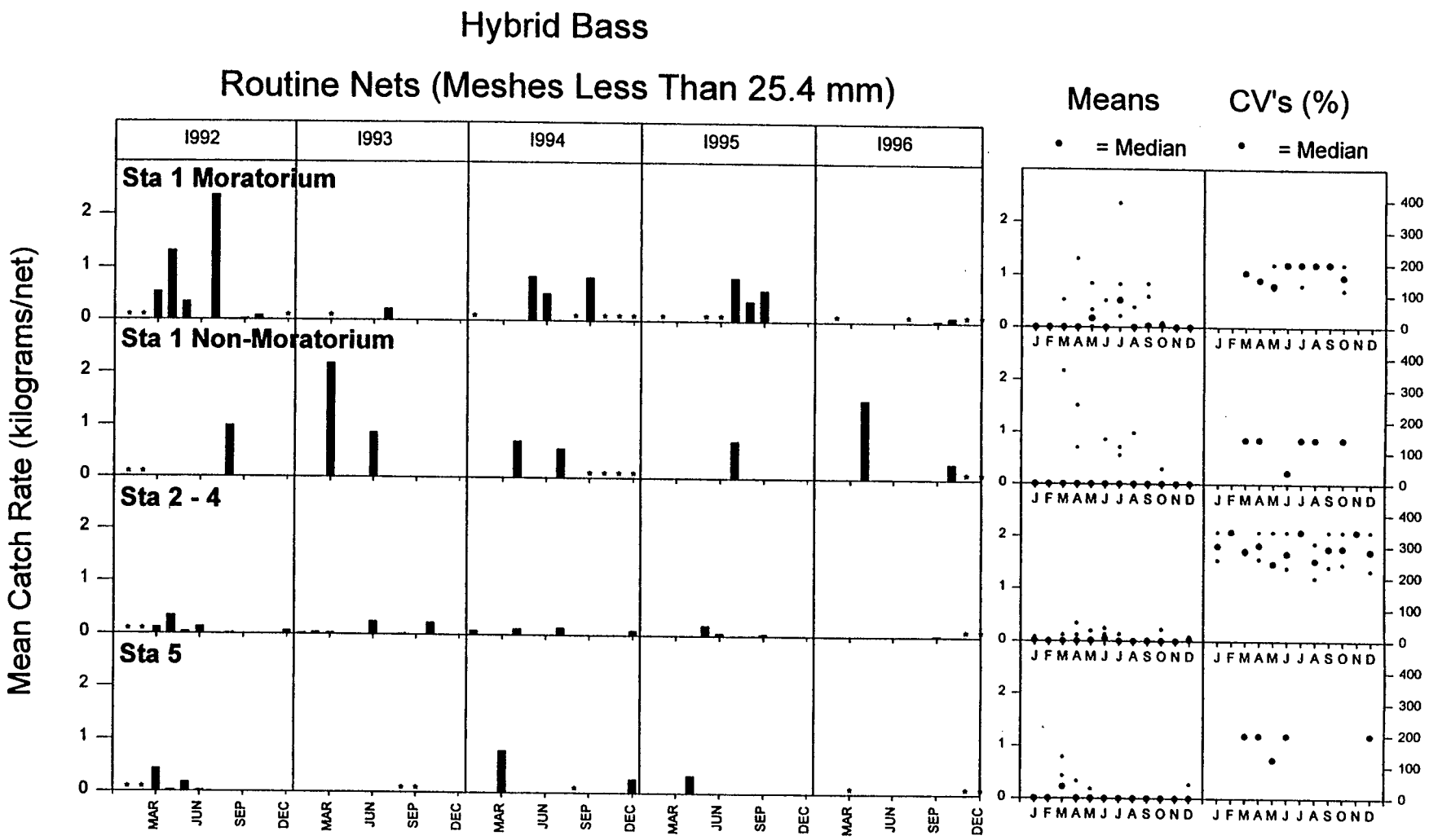


Figure 5-45. Mean catch rate (kilograms/net) of hybrid bass for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

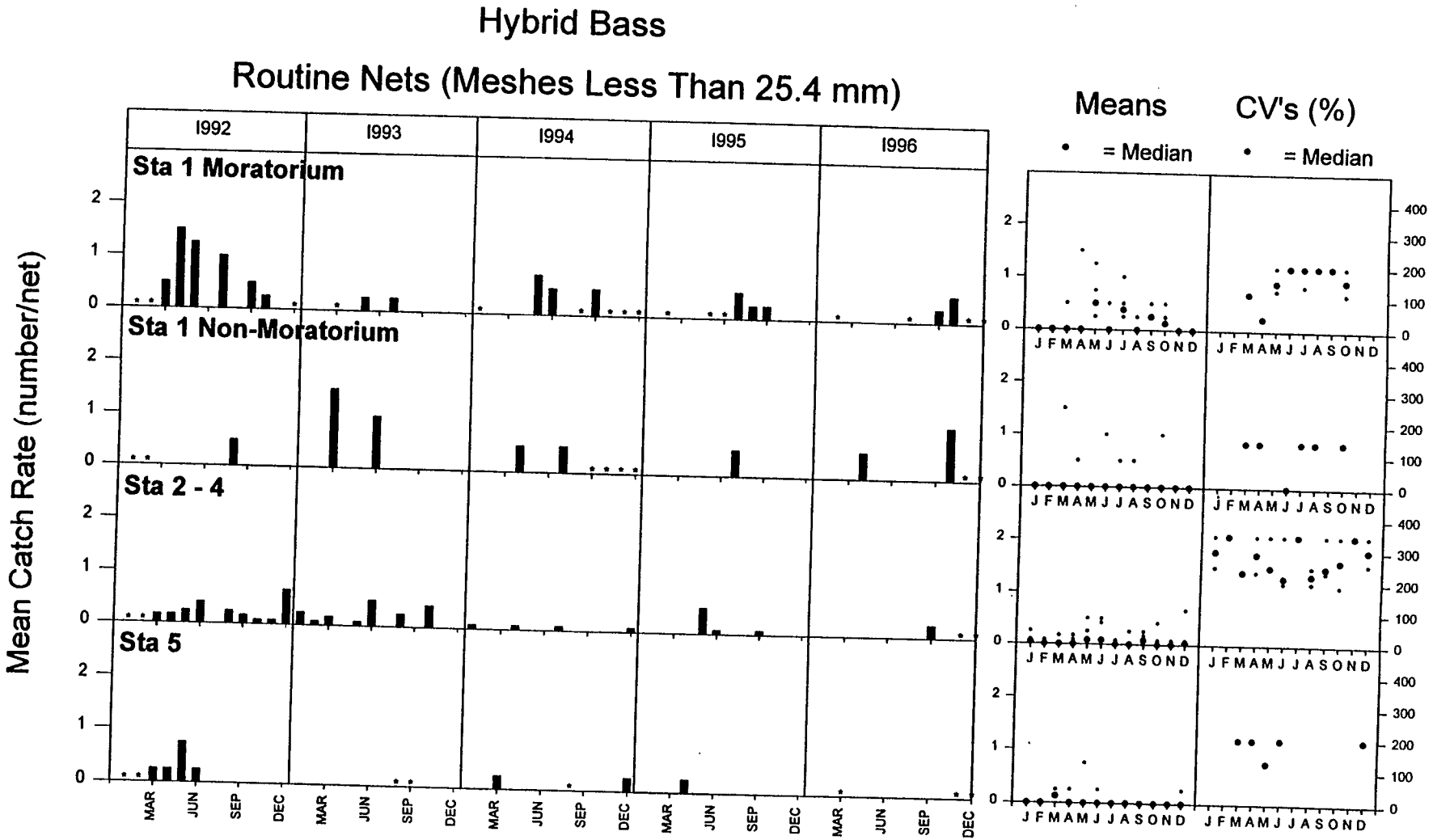


Figure 5-46. Mean catch rate (numbers/net) of hybrid bass for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

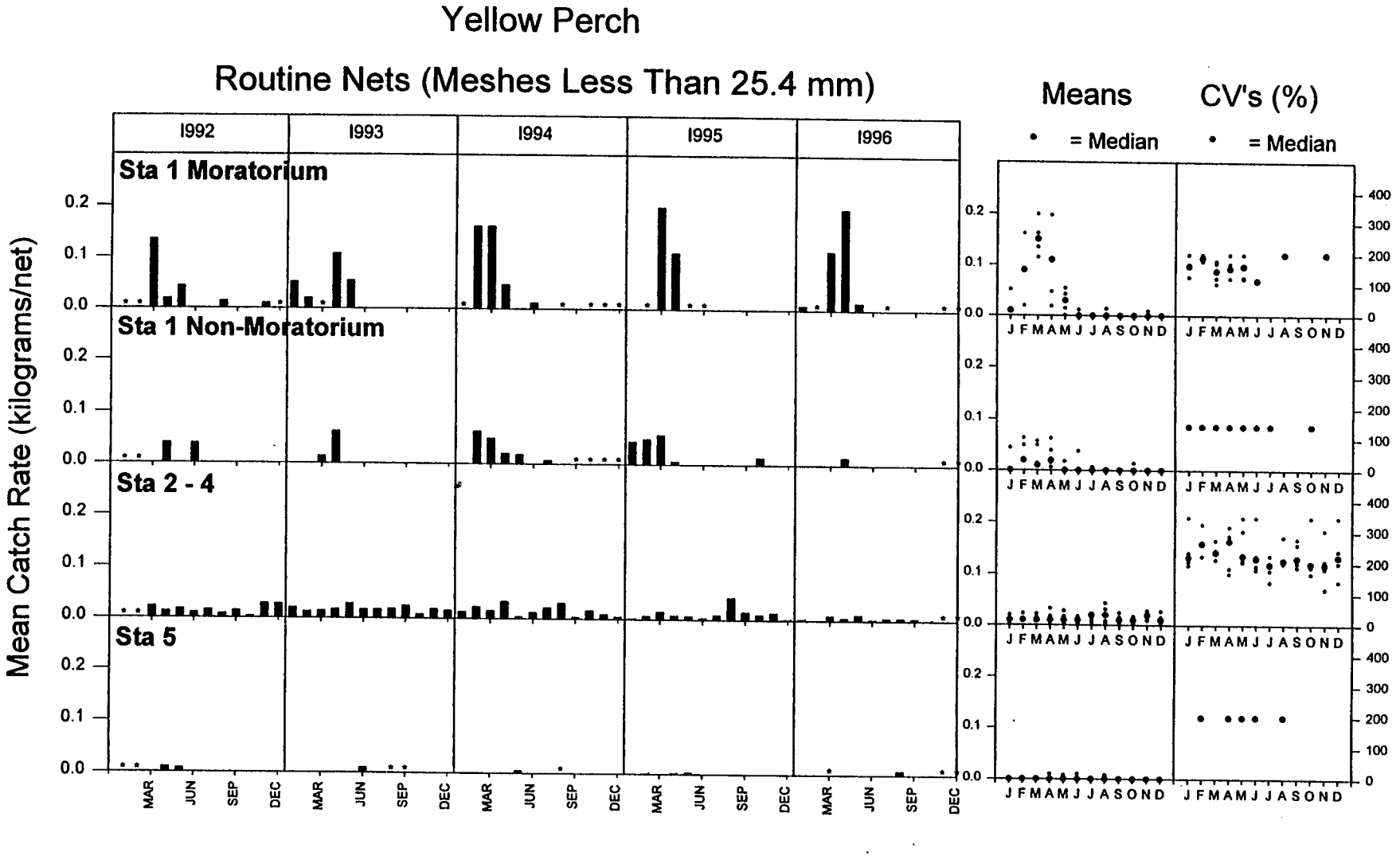


Figure 5-47. Mean catch rate (kilograms/net) of yellow perch for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

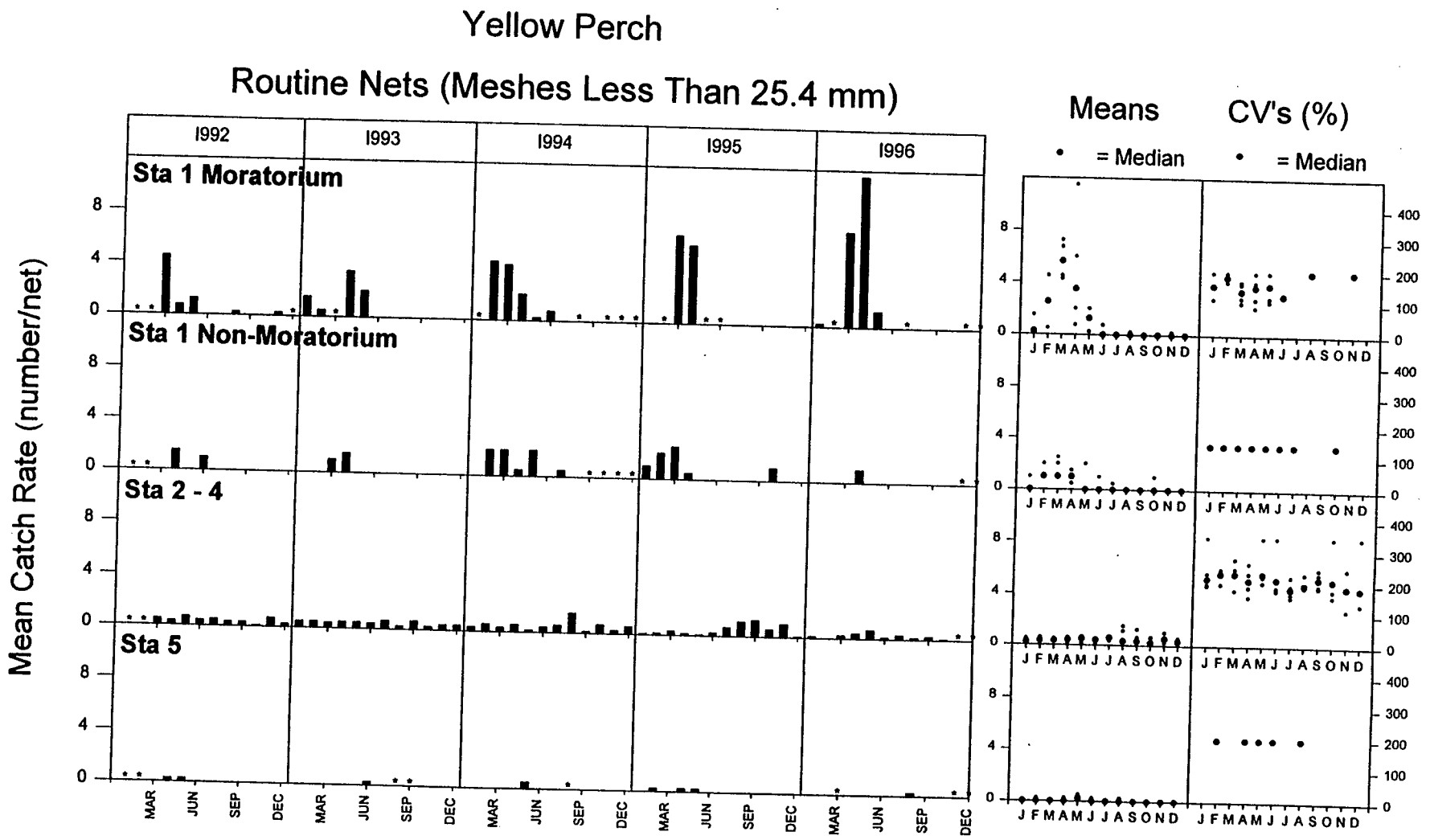


Figure 5-48. Mean catch rate (numbers/net) of yellow perch for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

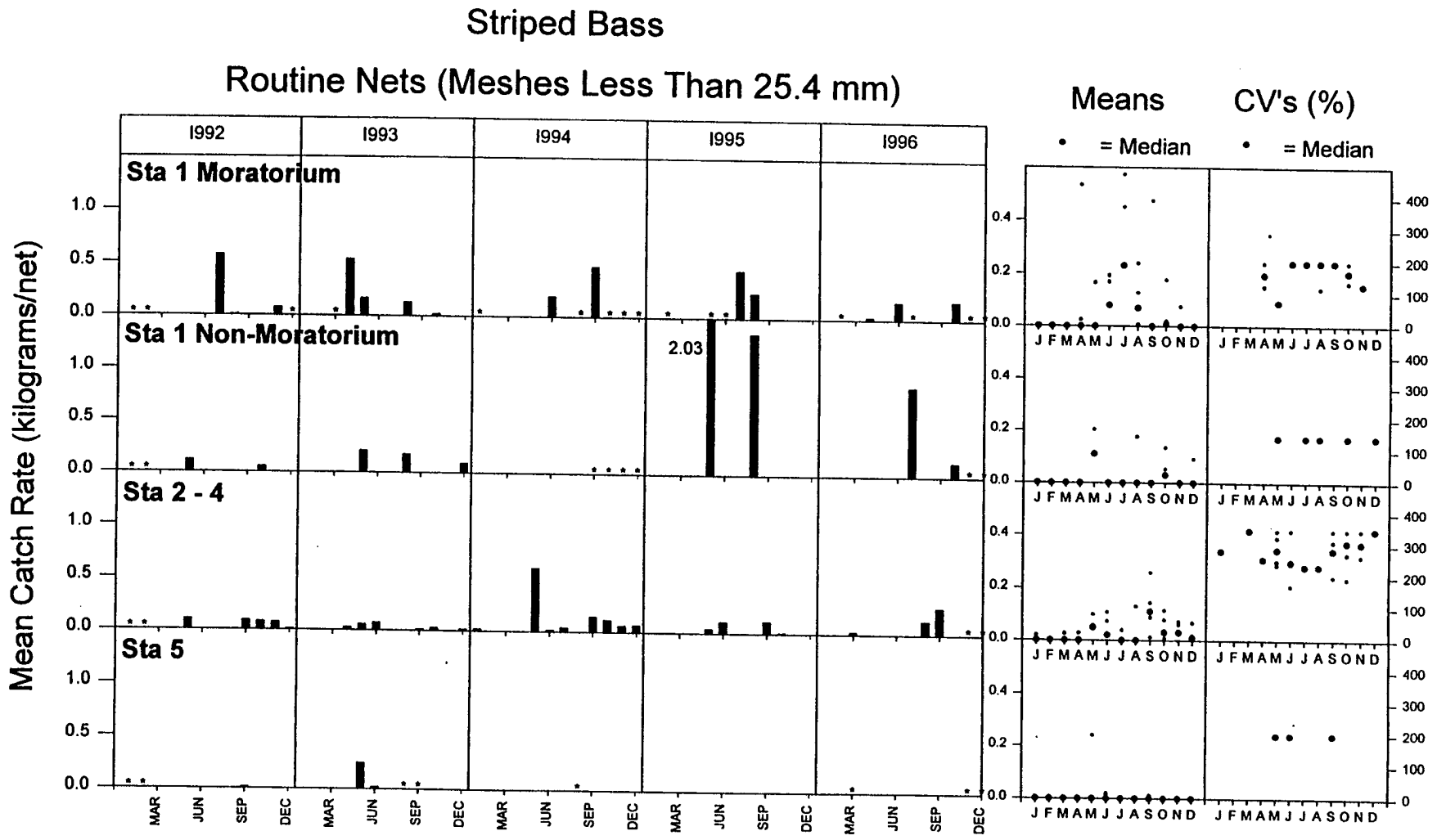


Figure 5-49. Mean catch rate (kilograms/net) of striped bass for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

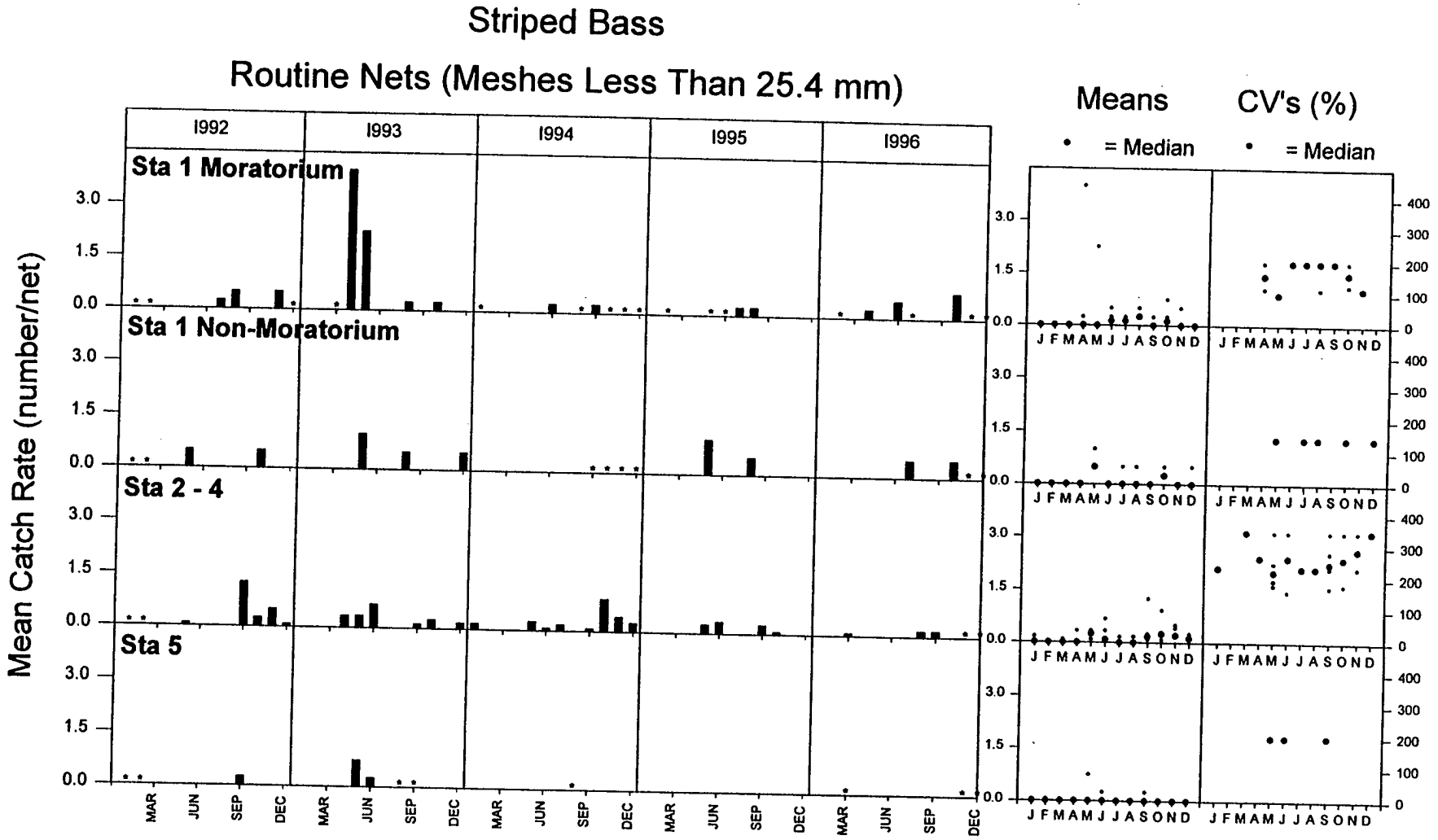


Figure 5-50. Mean catch rate (numbers/net) of striped bass for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

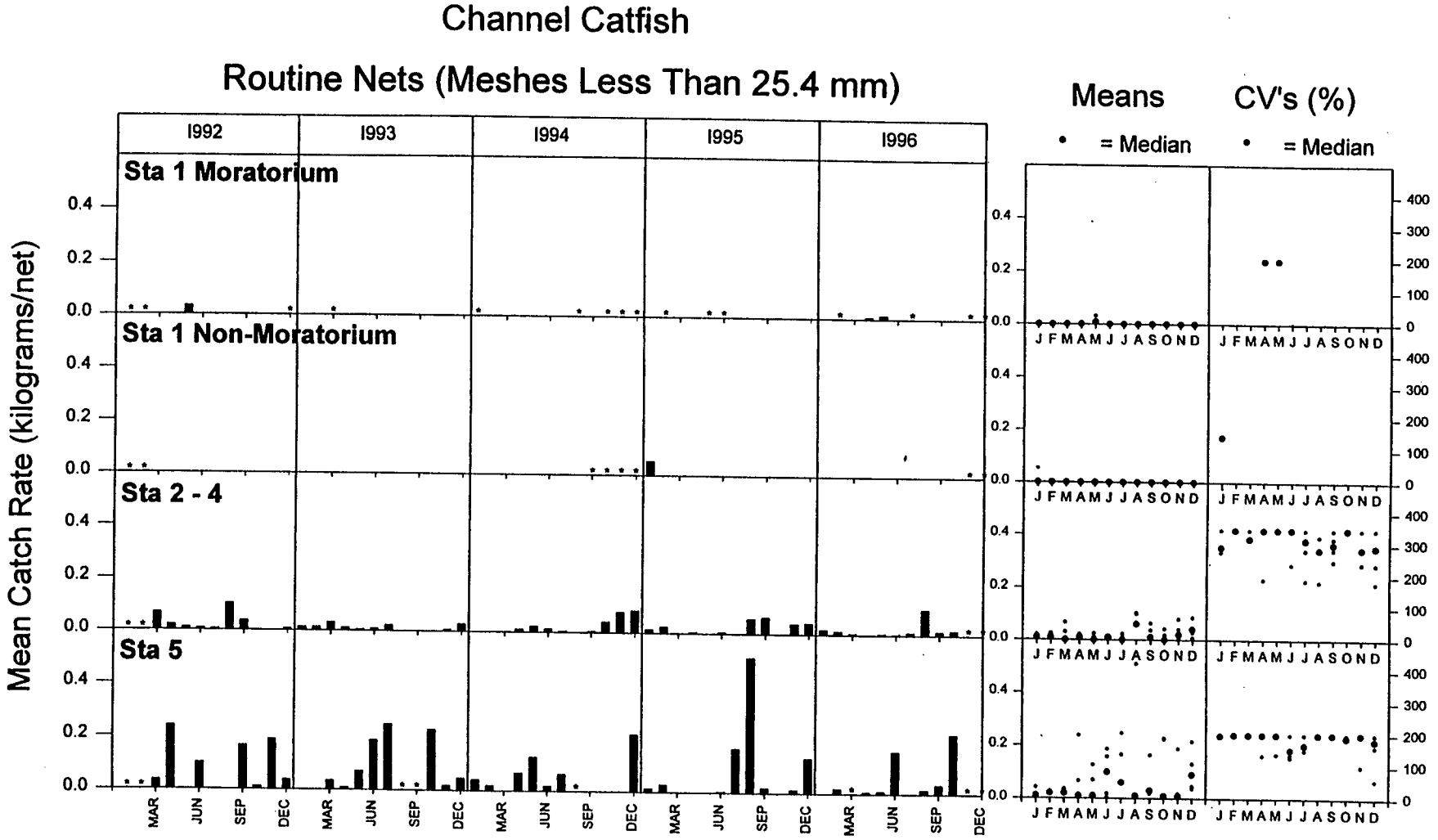


Figure 5-51. Mean catch rate (kilograms/net) of channel catfish for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

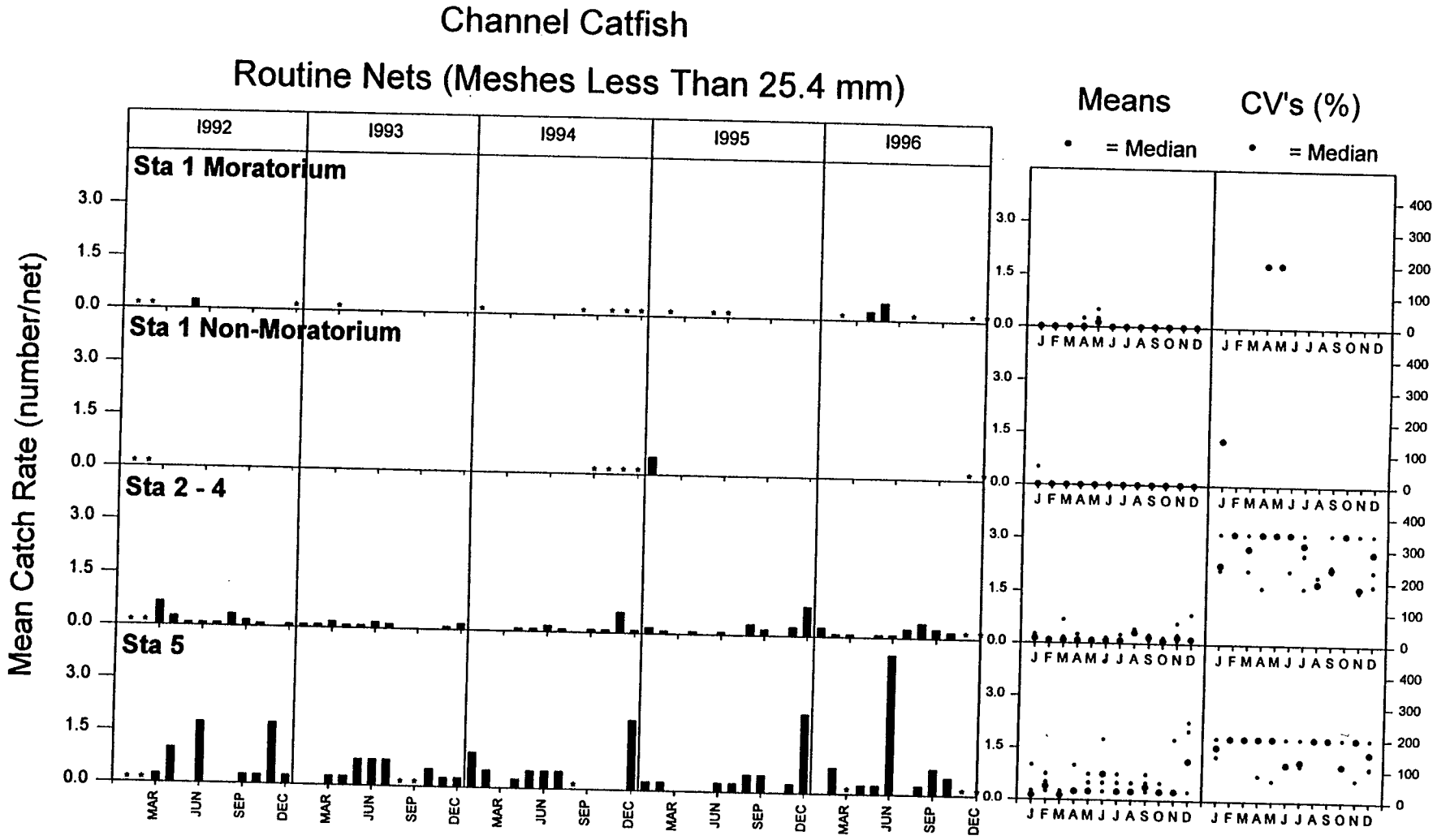


Figure 5-52. Mean catch rate (numbers/net) of channel catfish for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

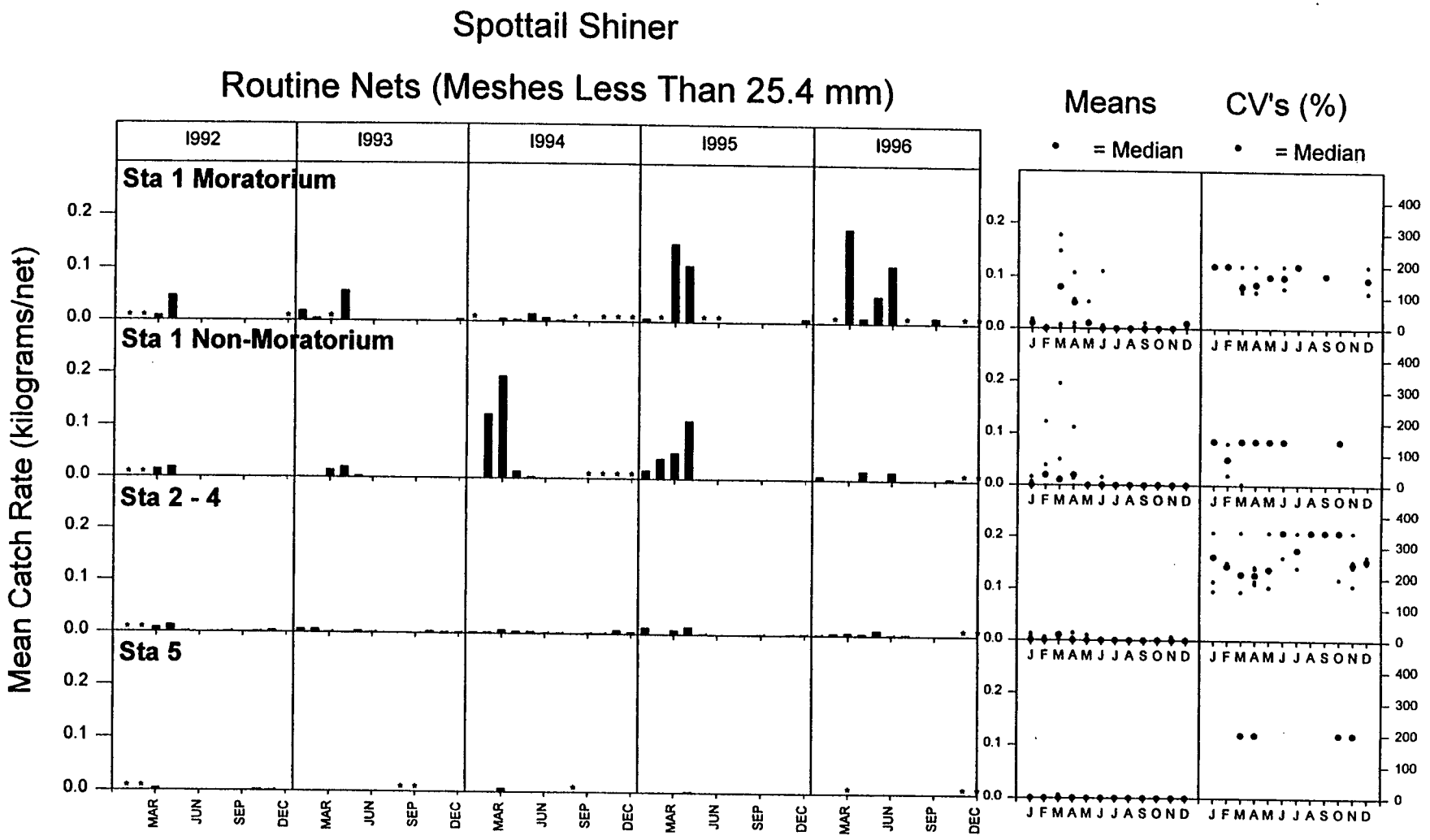


Figure 5-53. Mean catch rate (kilograms/net) of spottail shiner for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

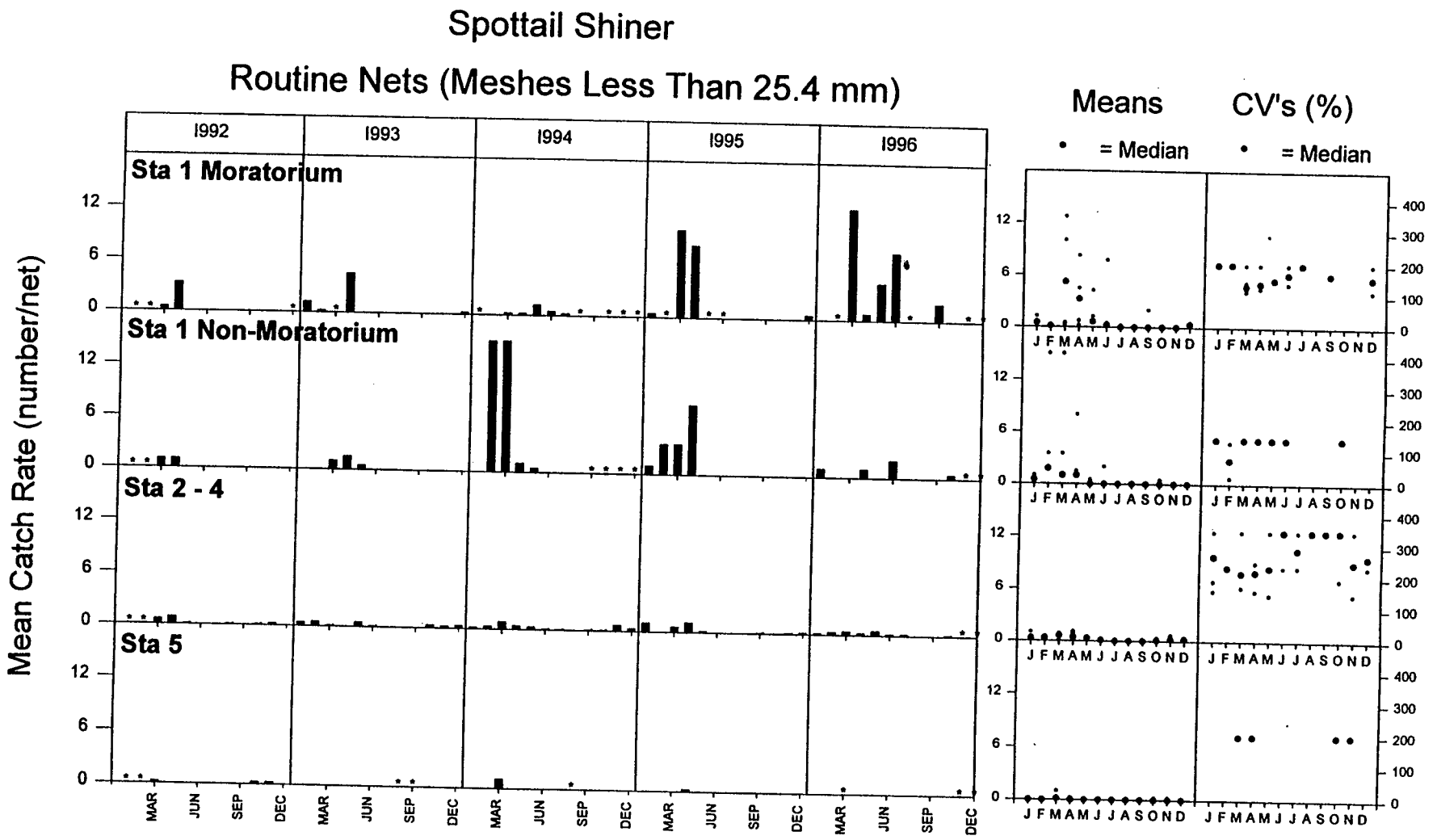


Figure 5-54. Mean catch rate (numbers/net) of spottail shiner for JST routine and moratorium gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

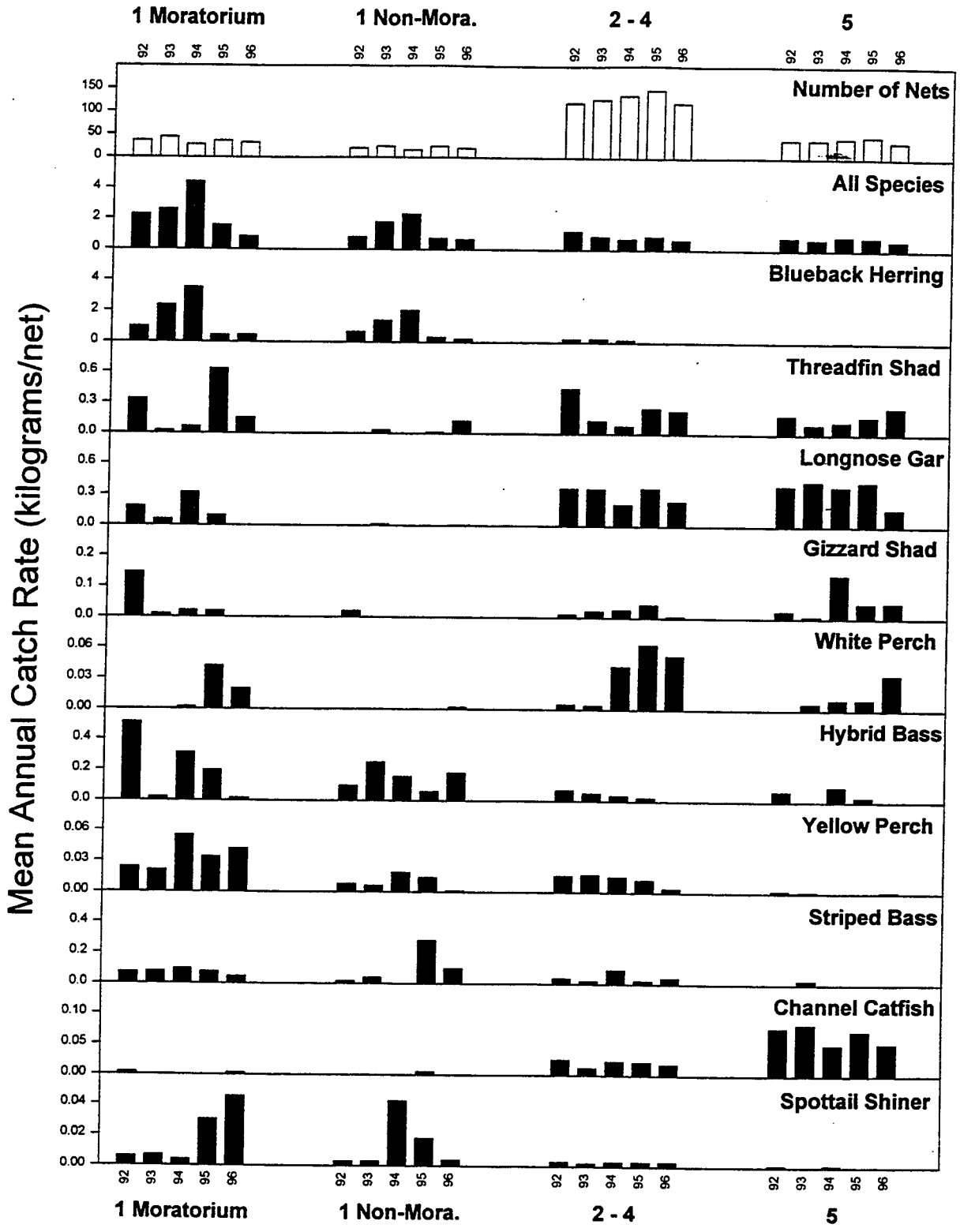


Figure 5-55. Mean annual catch rate (kilograms/net) by station grouping for the top 10 IRI species and all species pooled for JST routine and moratorium gillnetting (meshes less than 25.4 mm).

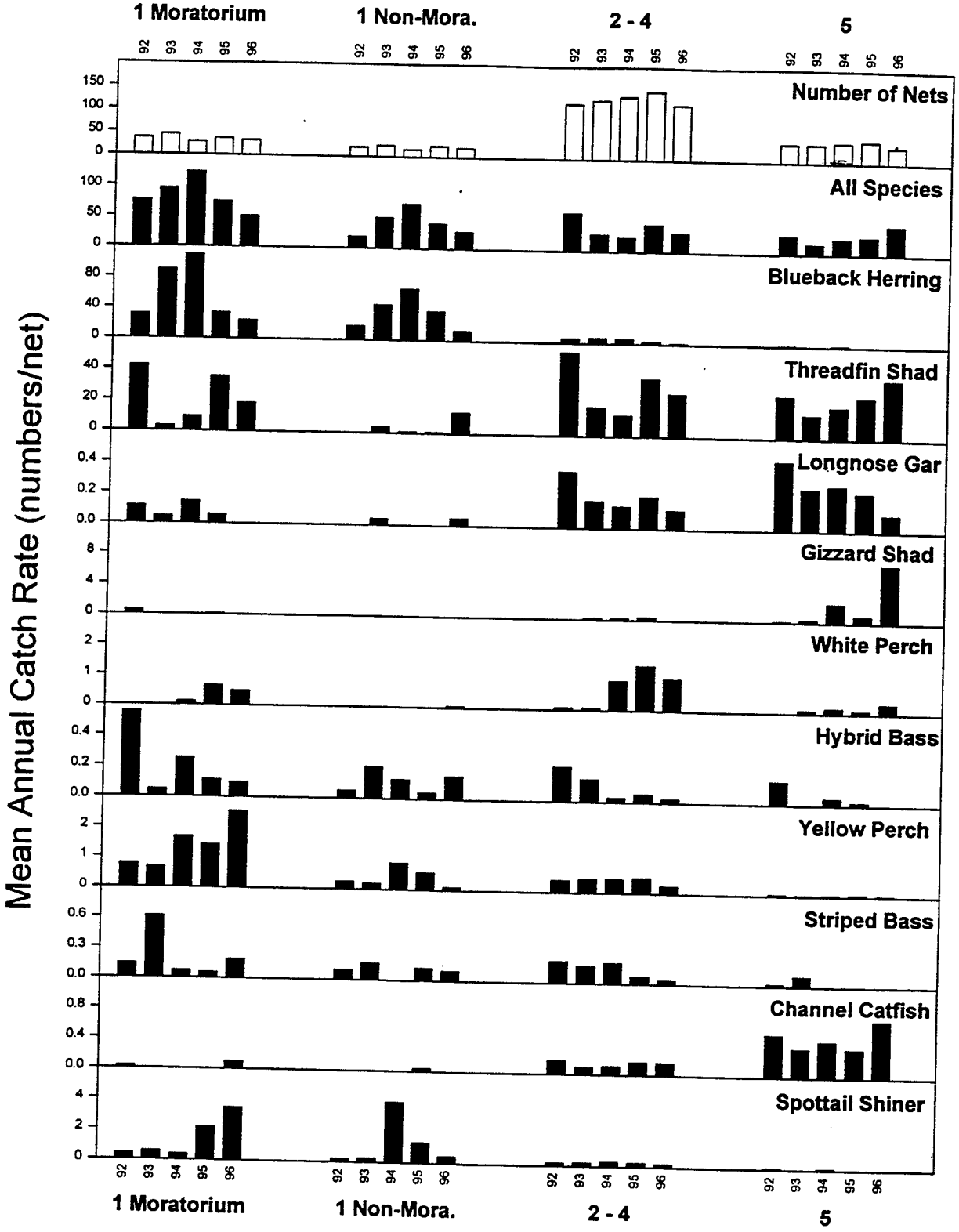


Figure 5-56. Mean annual catch rate (numbers/net) by station grouping for the top 10 IRI species and all species pooled for JST routine and moratorium gillnetting (meshes less than 25.4 mm).

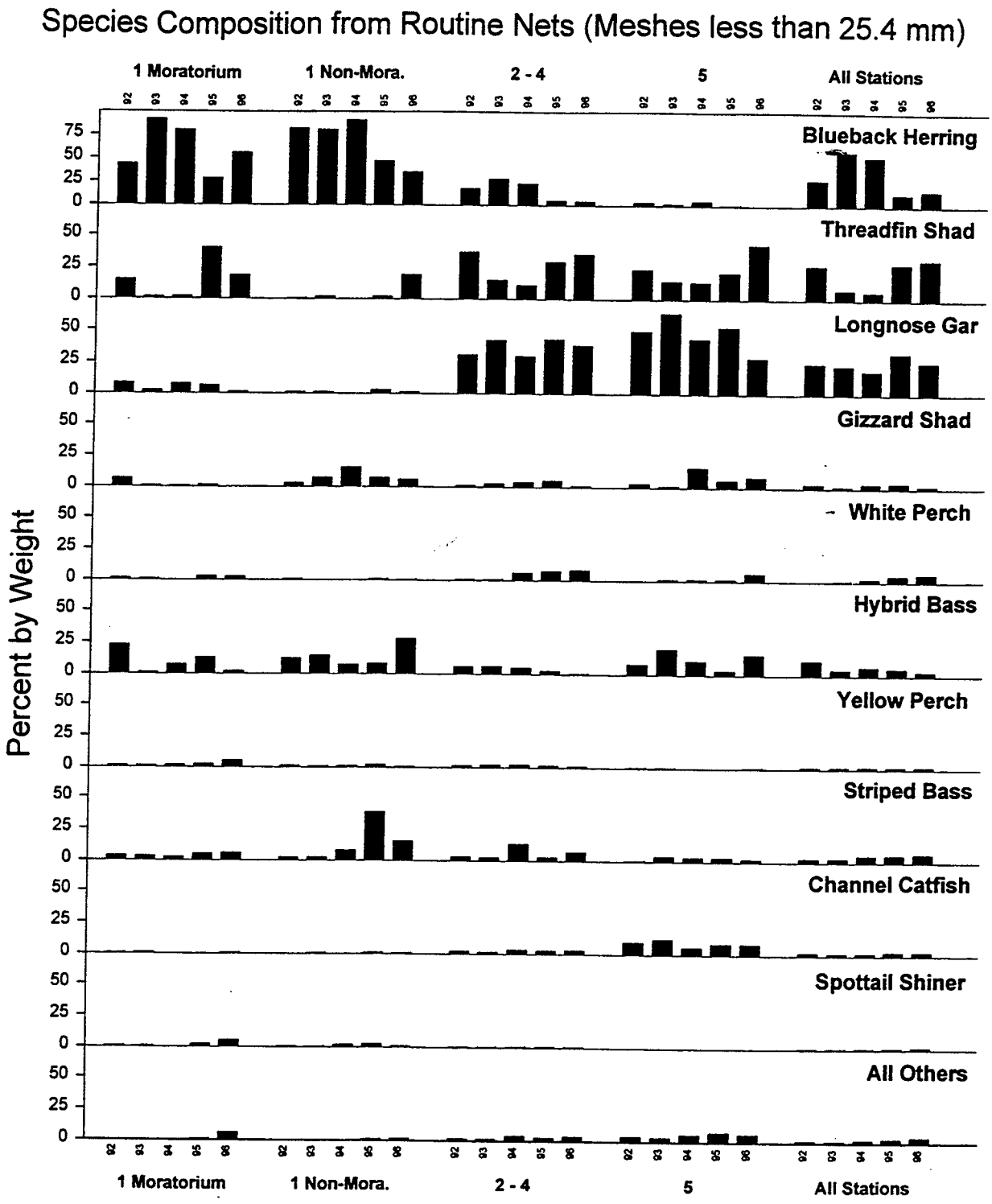


Figure 5-57. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for JST routine and moratorium gillnetting (meshes less than 25.4 mm).

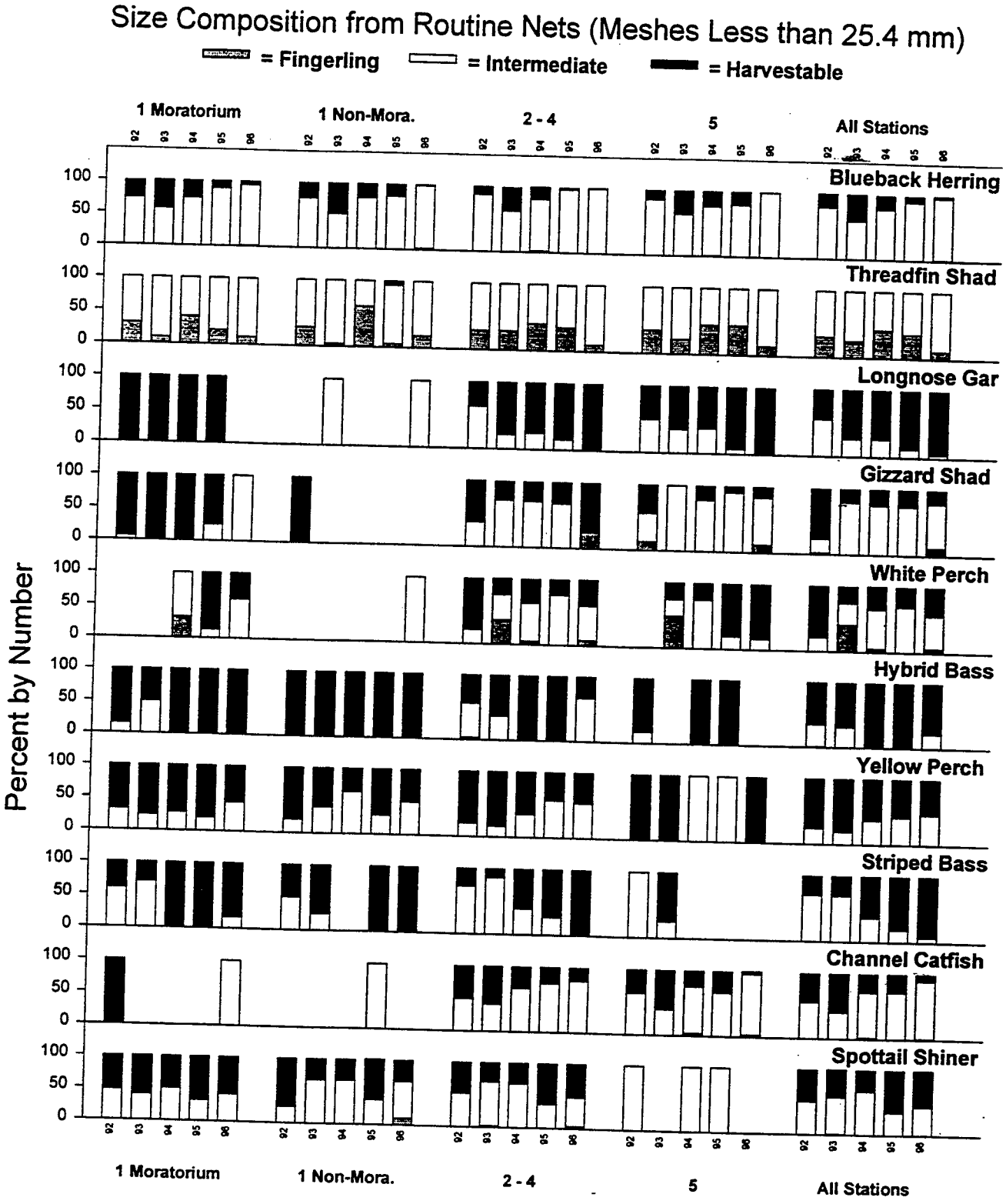


Figure 5-58. Percent (by number) of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for JST routine and moratorium gillnetting (meshes less than 25.4 mm).

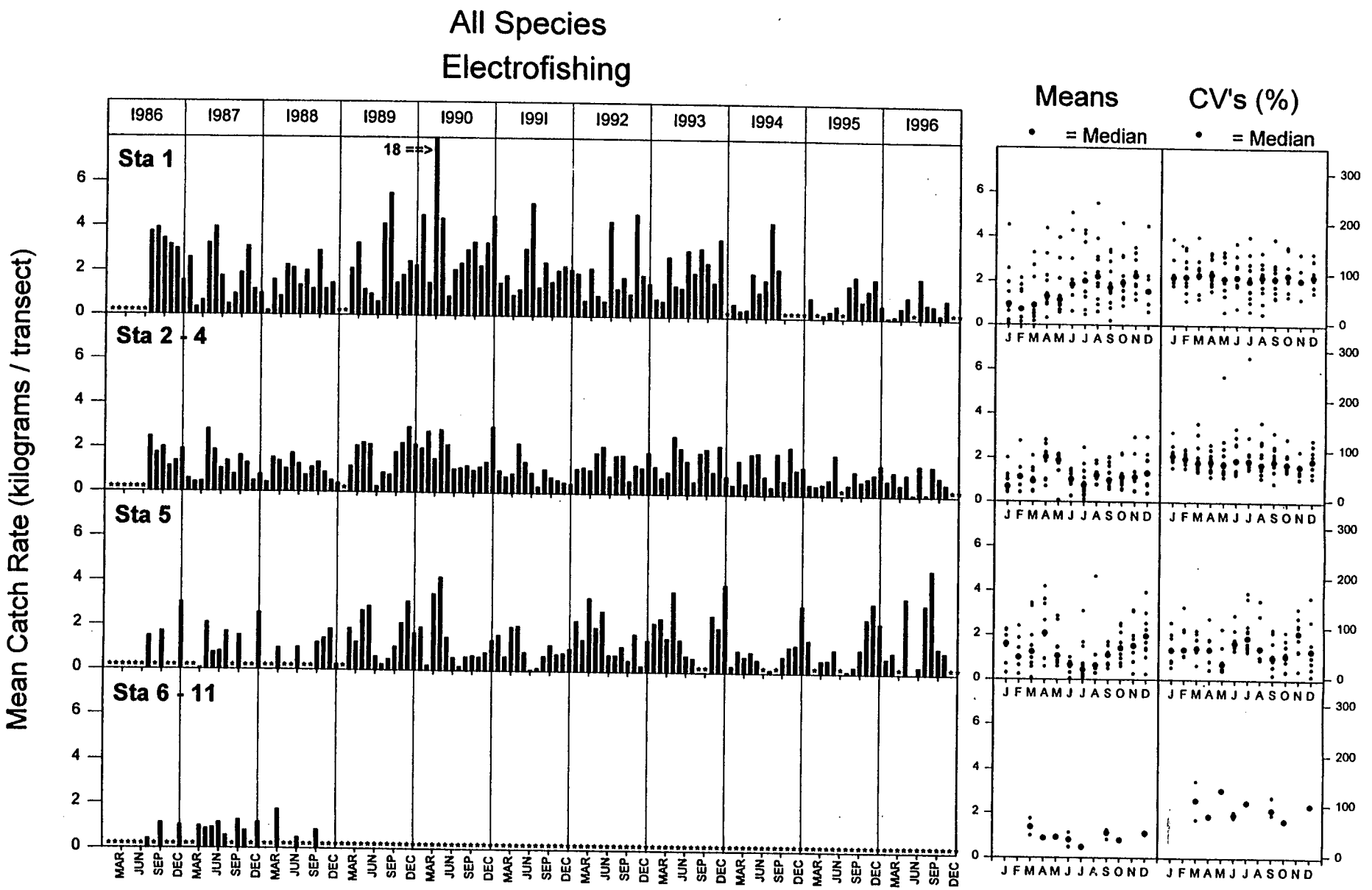


Figure 5-59. Mean catch rate (kilograms/transect) of all species pooled for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

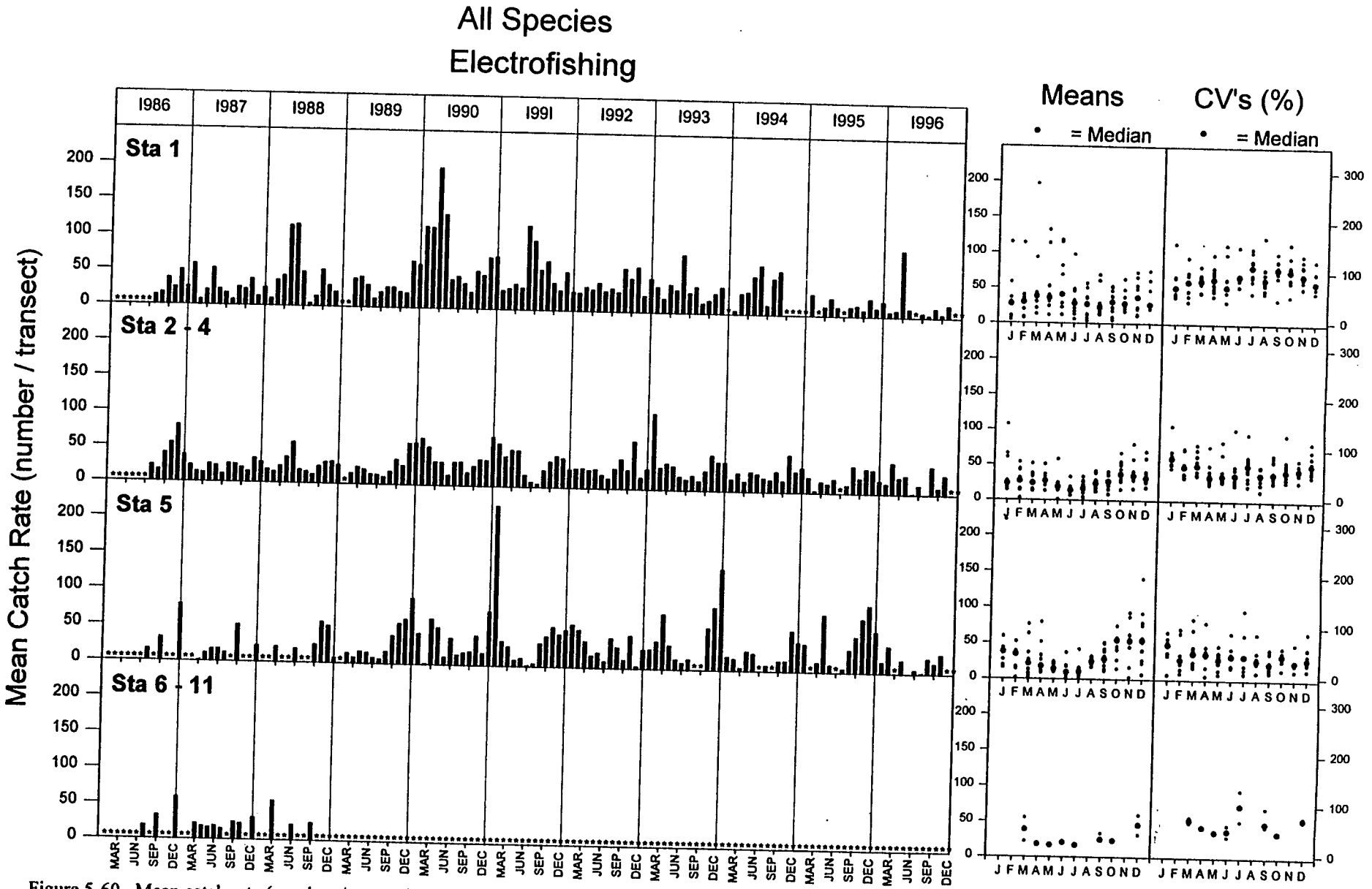


Figure 5-60. Mean catch rate (numbers/transect) of all species pooled for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

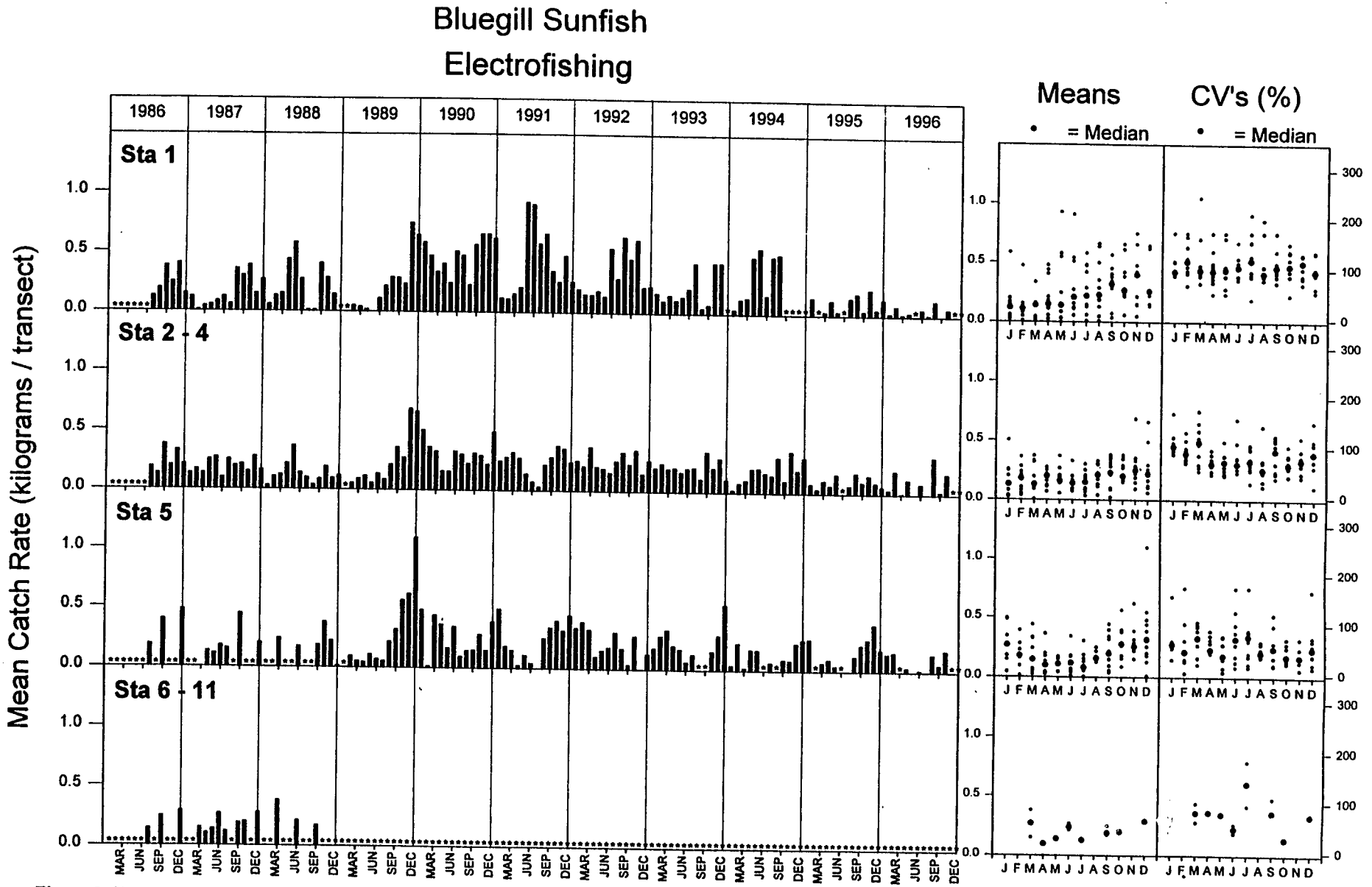


Figure 5-61. Mean catch rate (kilograms/transect) of bluegill sunfish for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

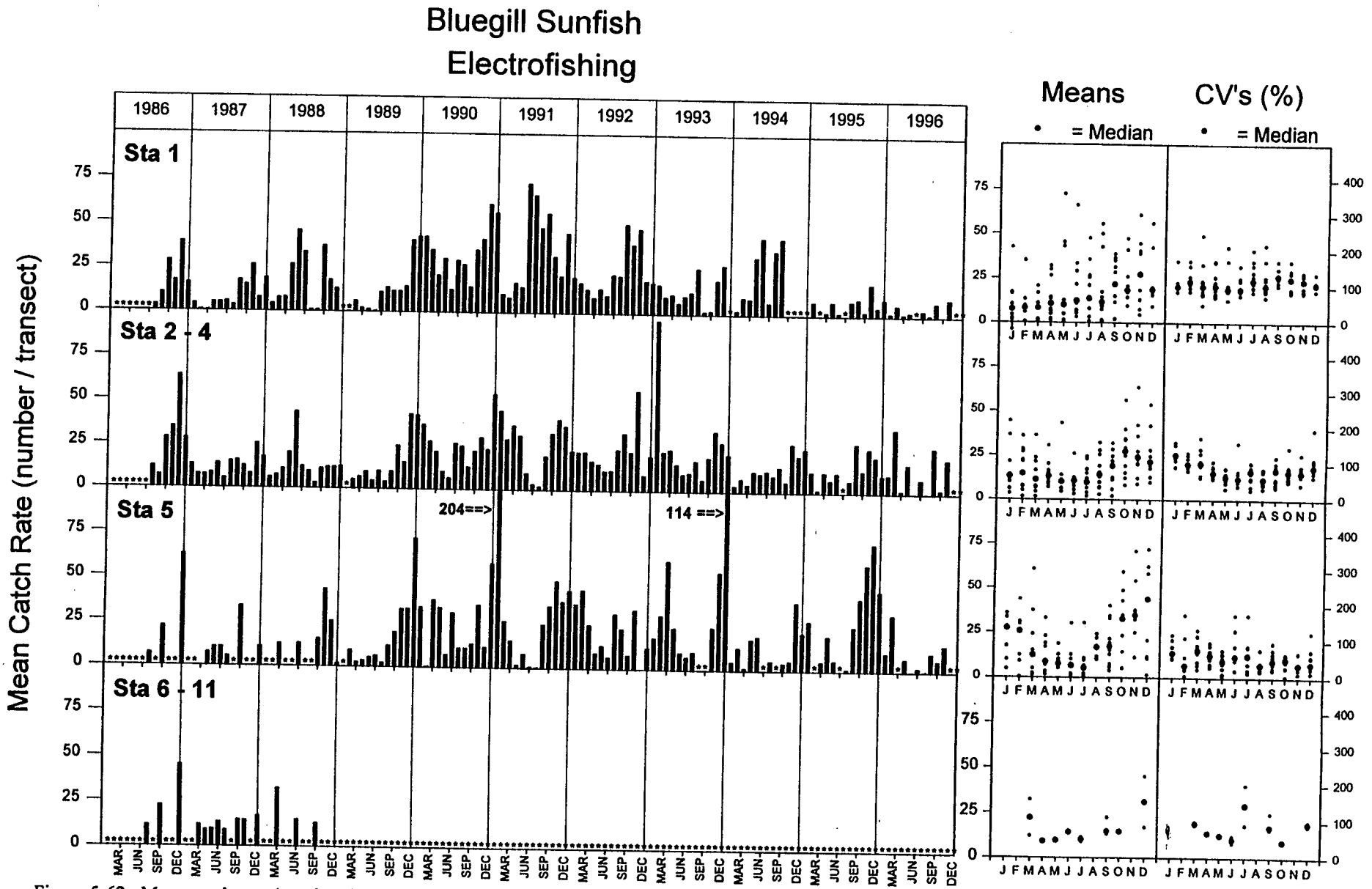


Figure 5-62. Mean catch rate (numbers/transect) of bluegill sunfish for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

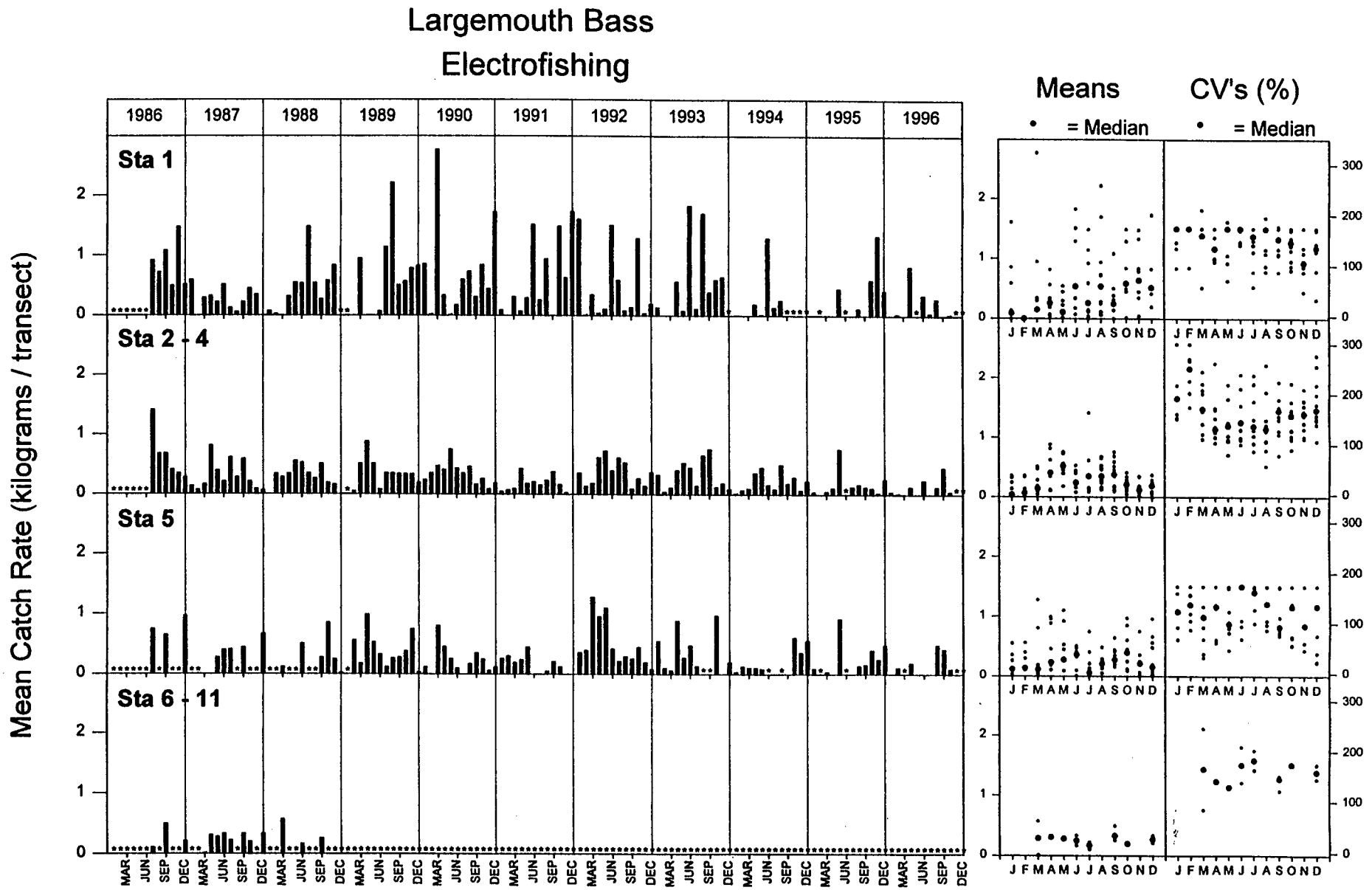


Figure 5-63. Mean catch rate (kilograms/transect) of largemouth bass for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

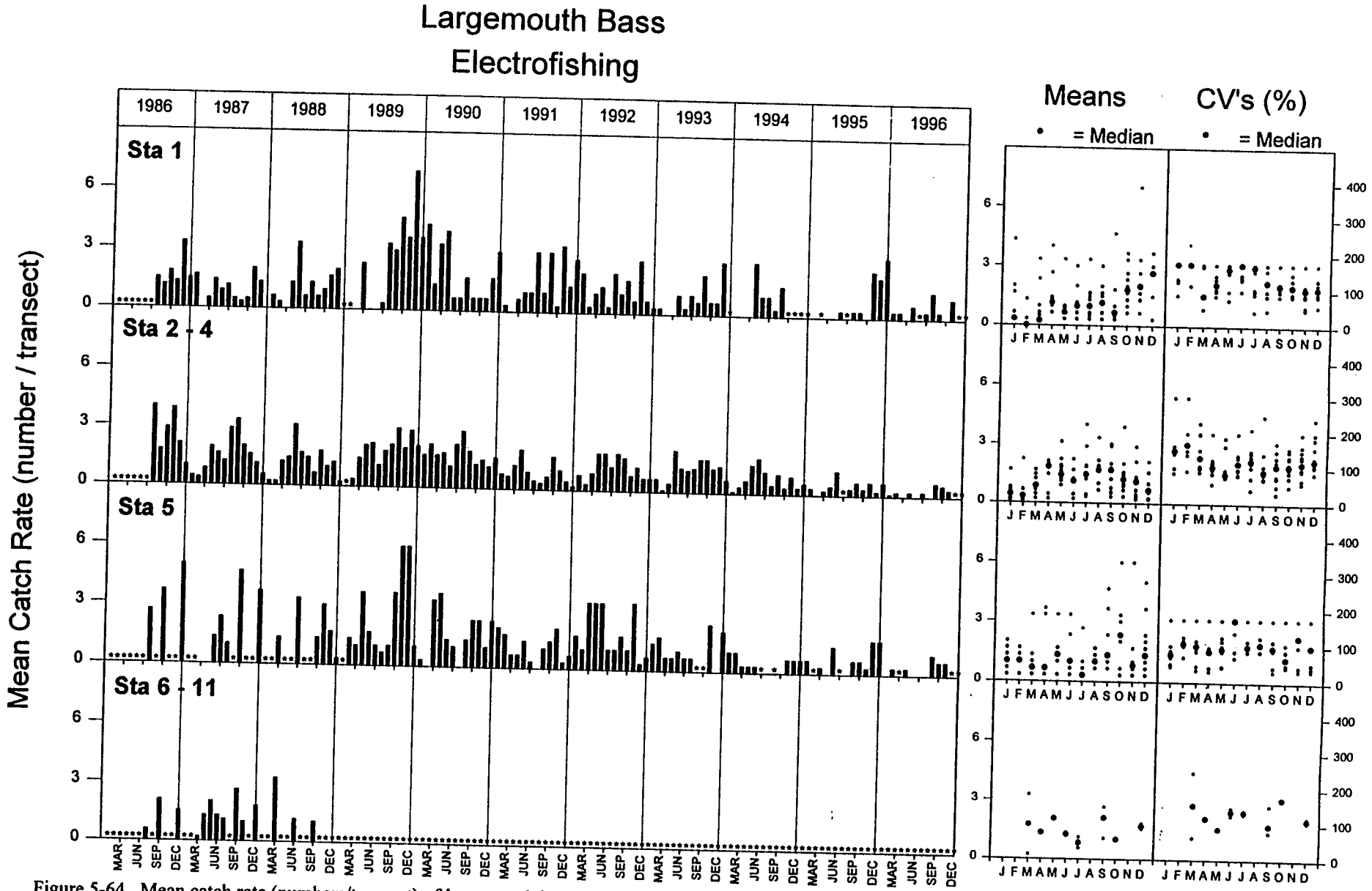


Figure 5-64. Mean catch rate (numbers/transect) of largemouth bass for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

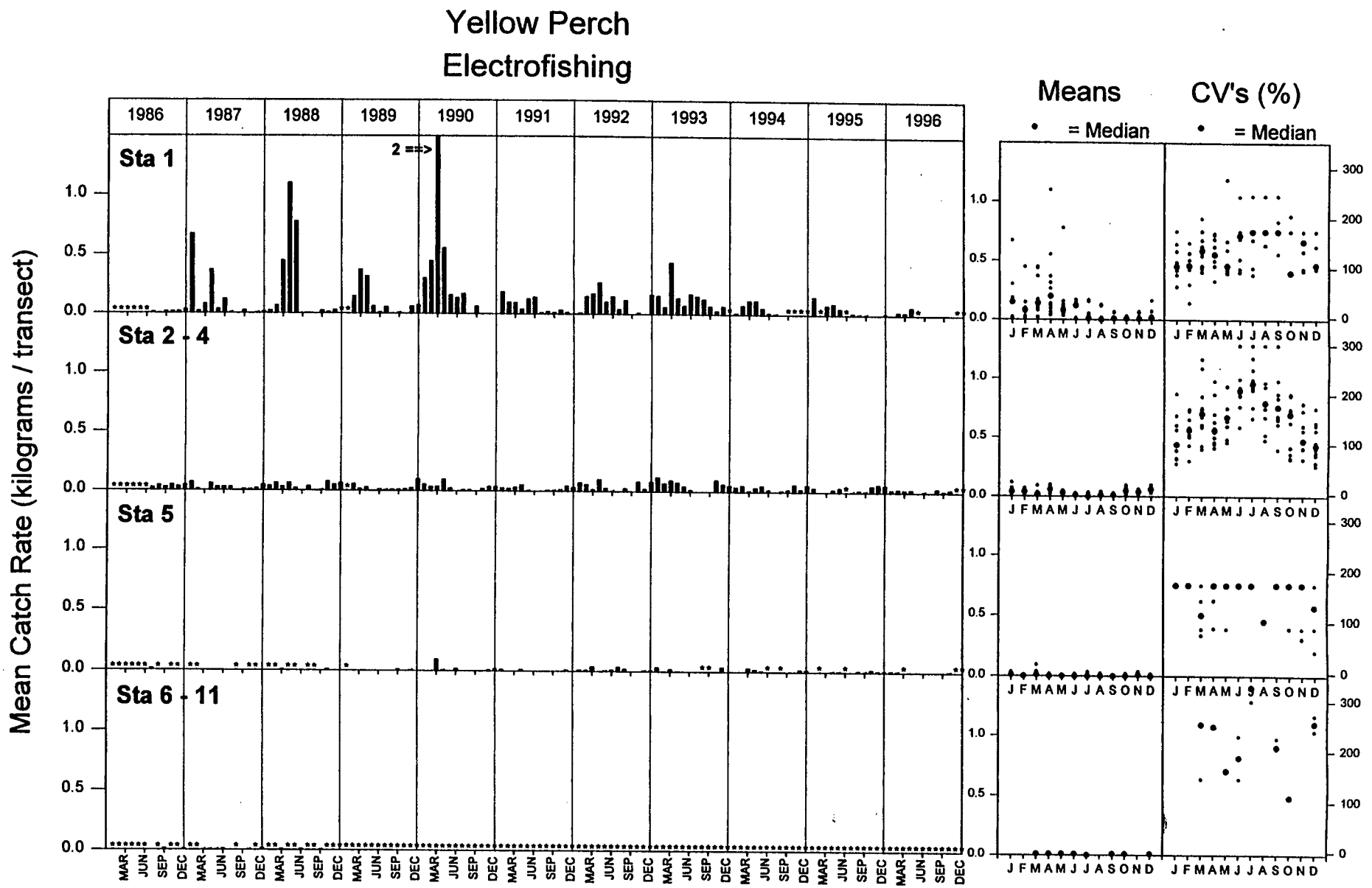


Figure 5-65. Mean catch rate (kilograms/transect) of yellow perch for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

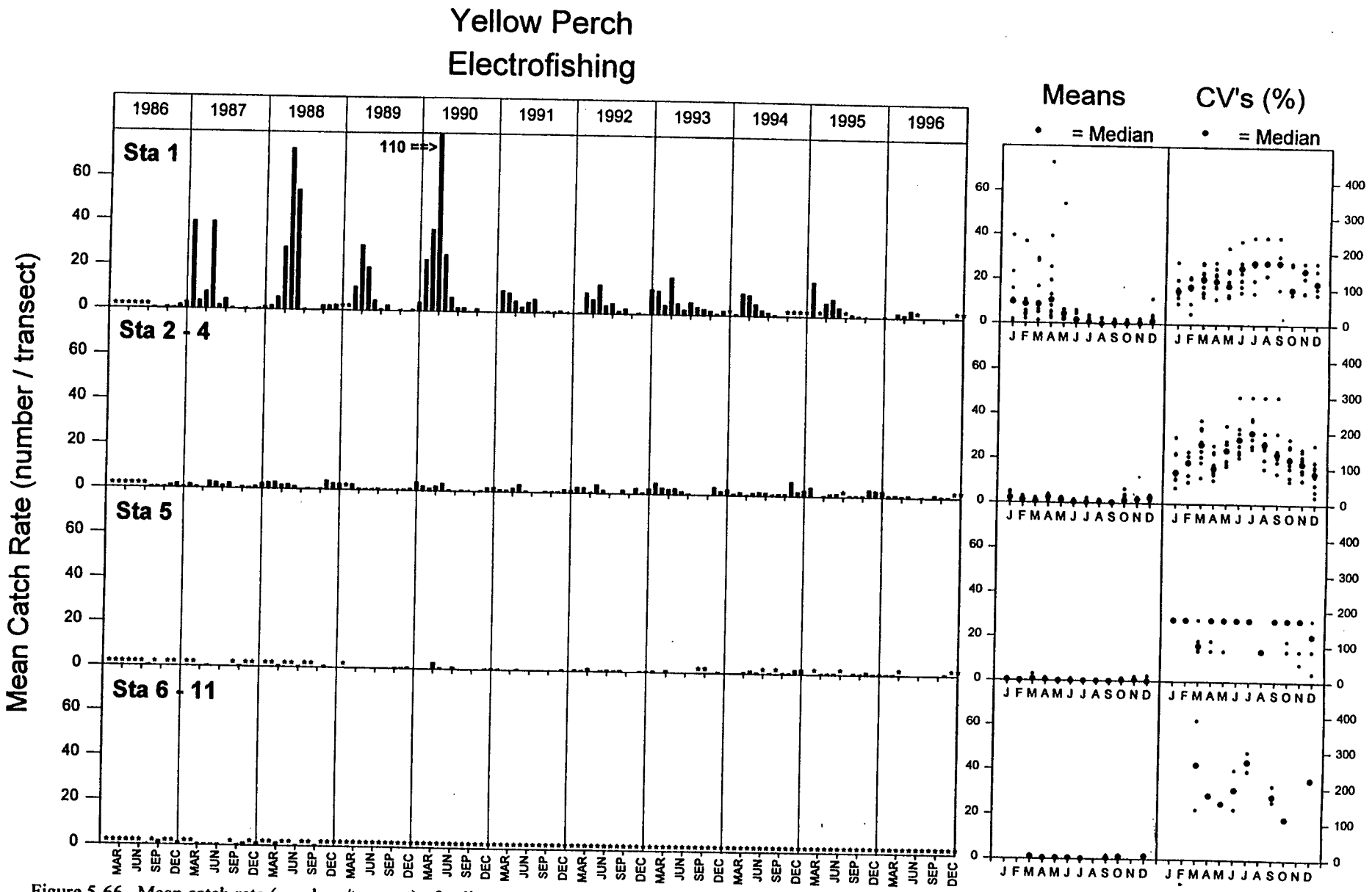


Figure 5-66. Mean catch rate (numbers/transect) of yellow perch for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

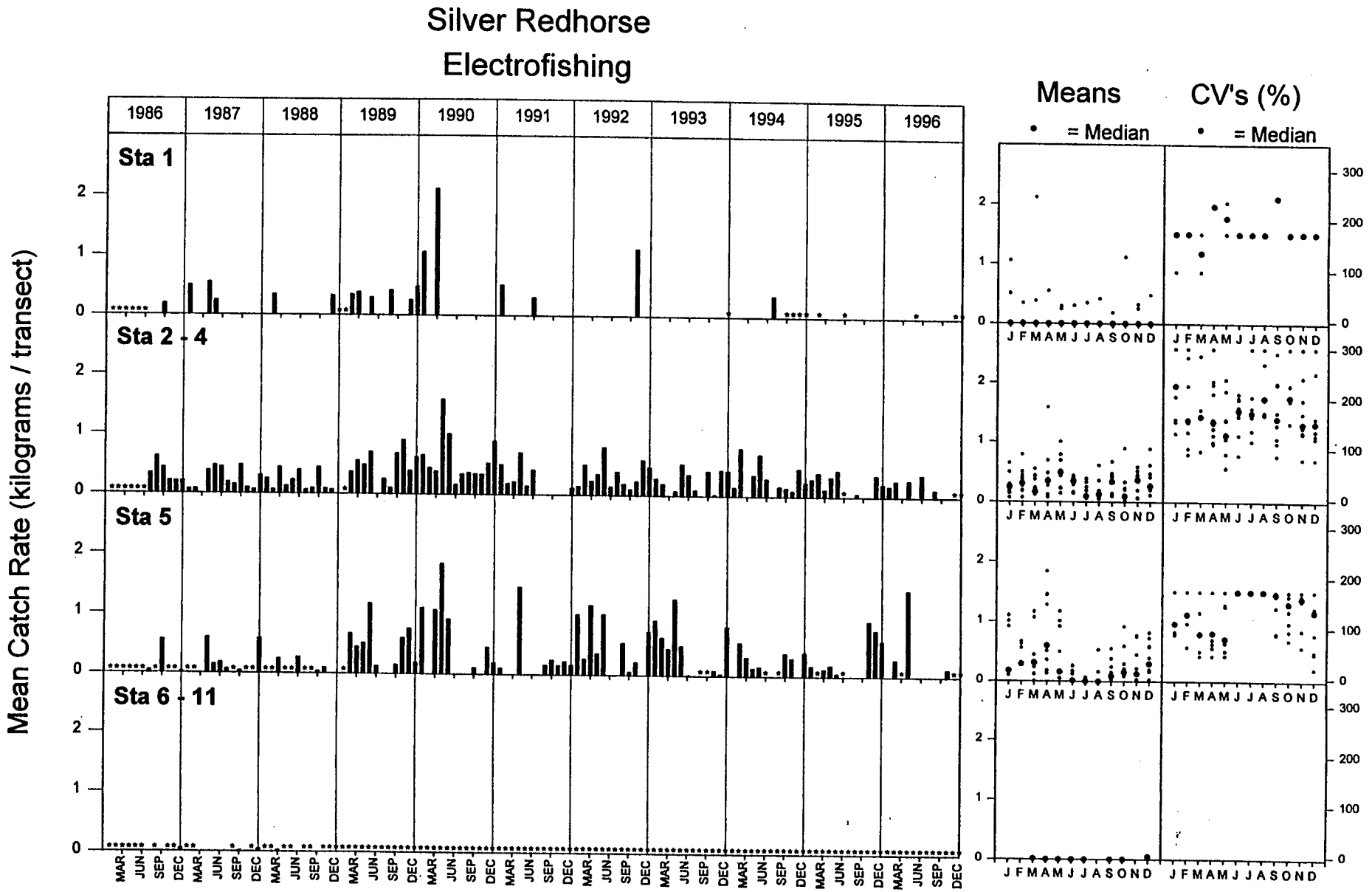


Figure 5-67. Mean catch rate (kilograms/transect) of silver redhorse for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

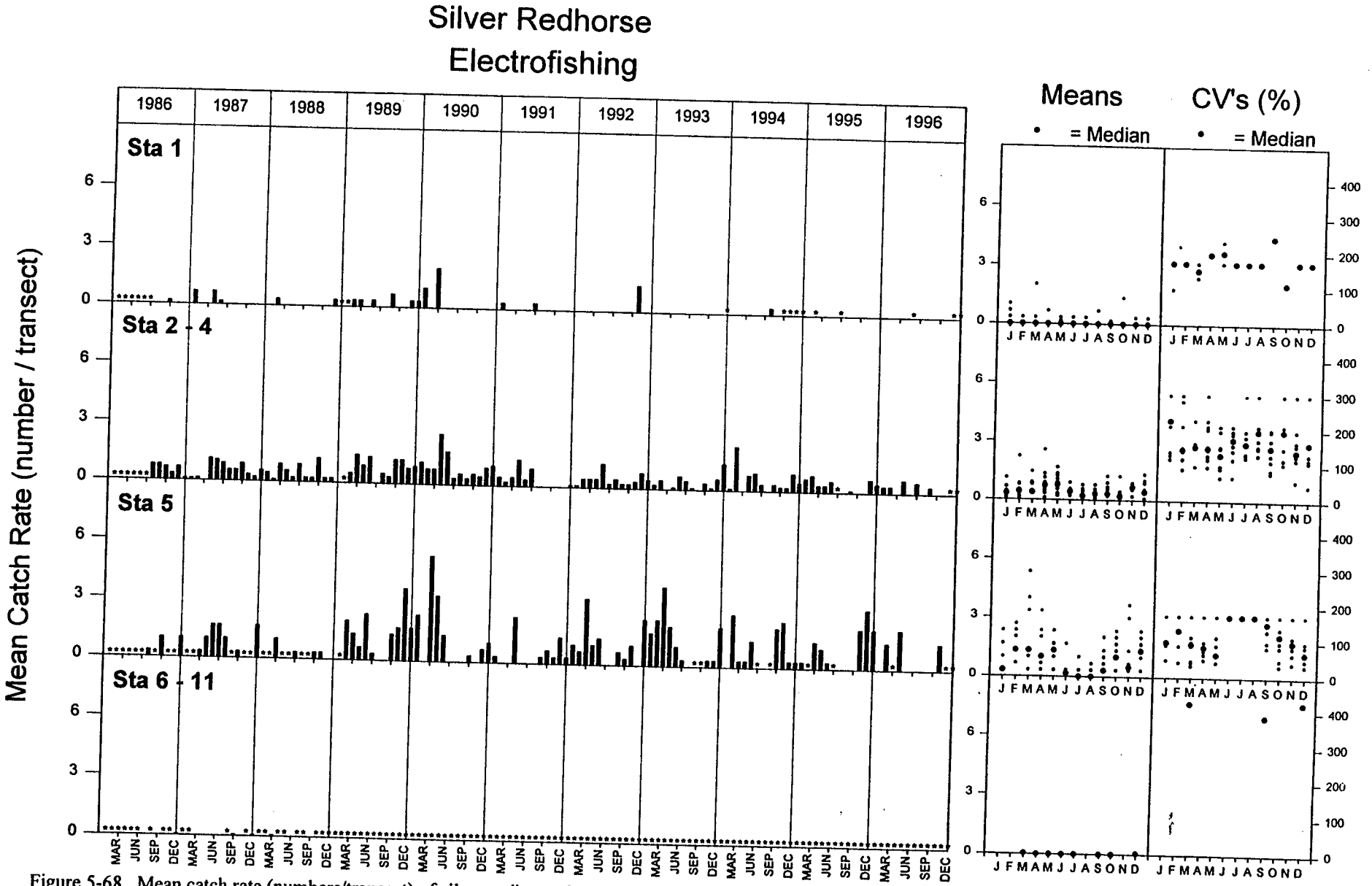


Figure 5-68. Mean catch rate (numbers/transect) of silver redhorse for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

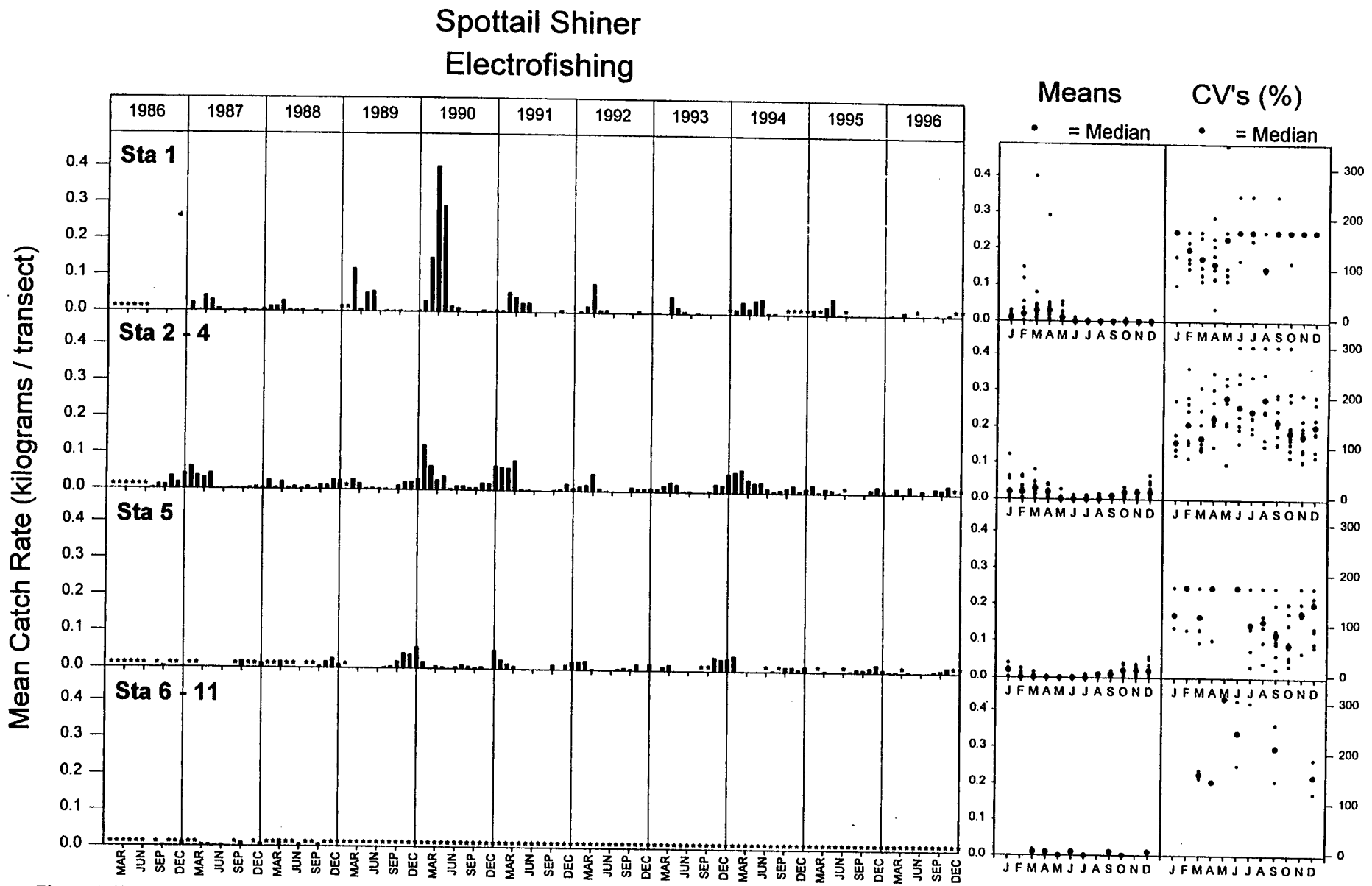


Figure 5-69. Mean catch rate (kilograms/transect) of spottail shiner for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

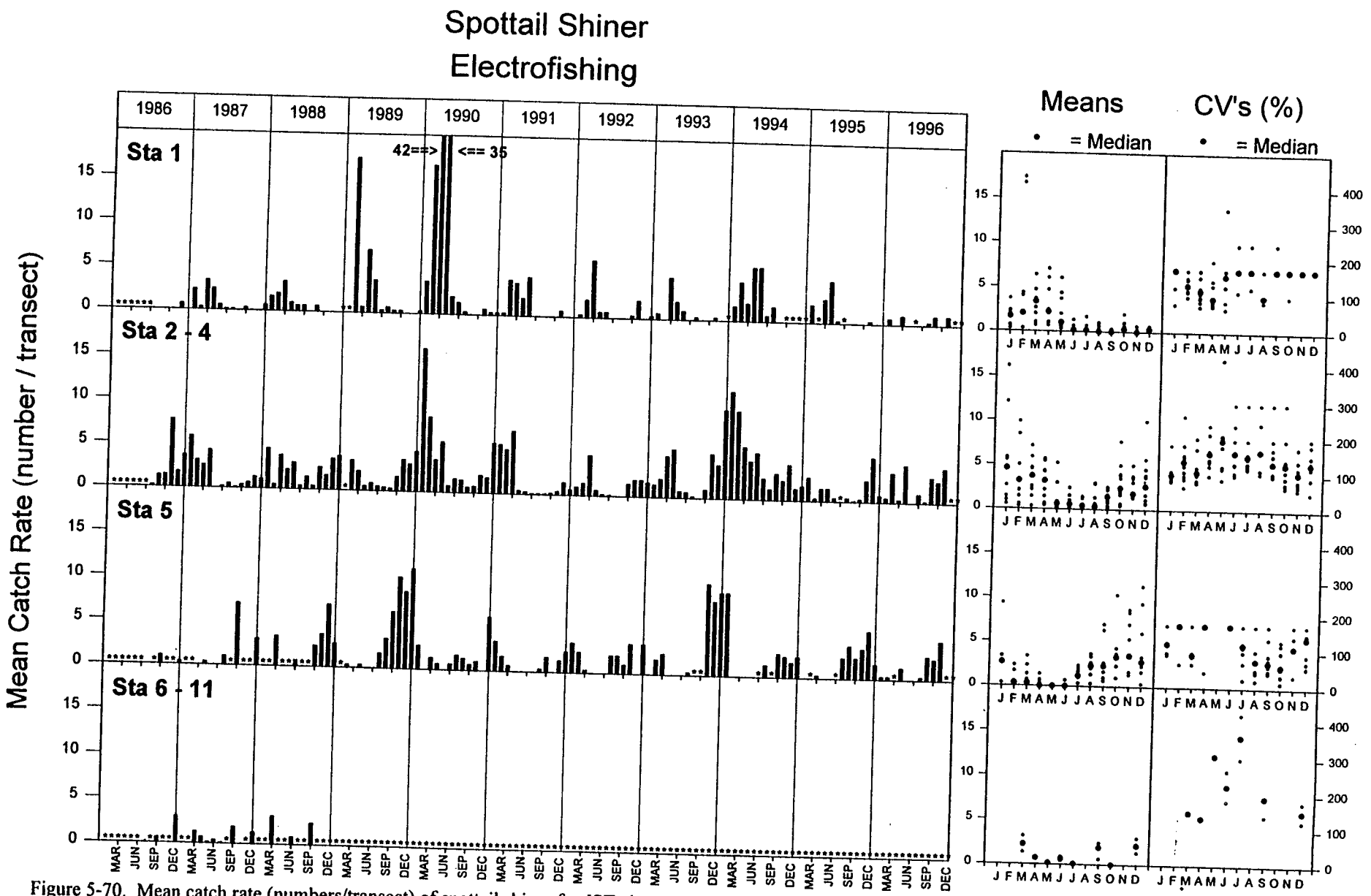


Figure 5-70. Mean catch rate (numbers/transect) of spottail shiner for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

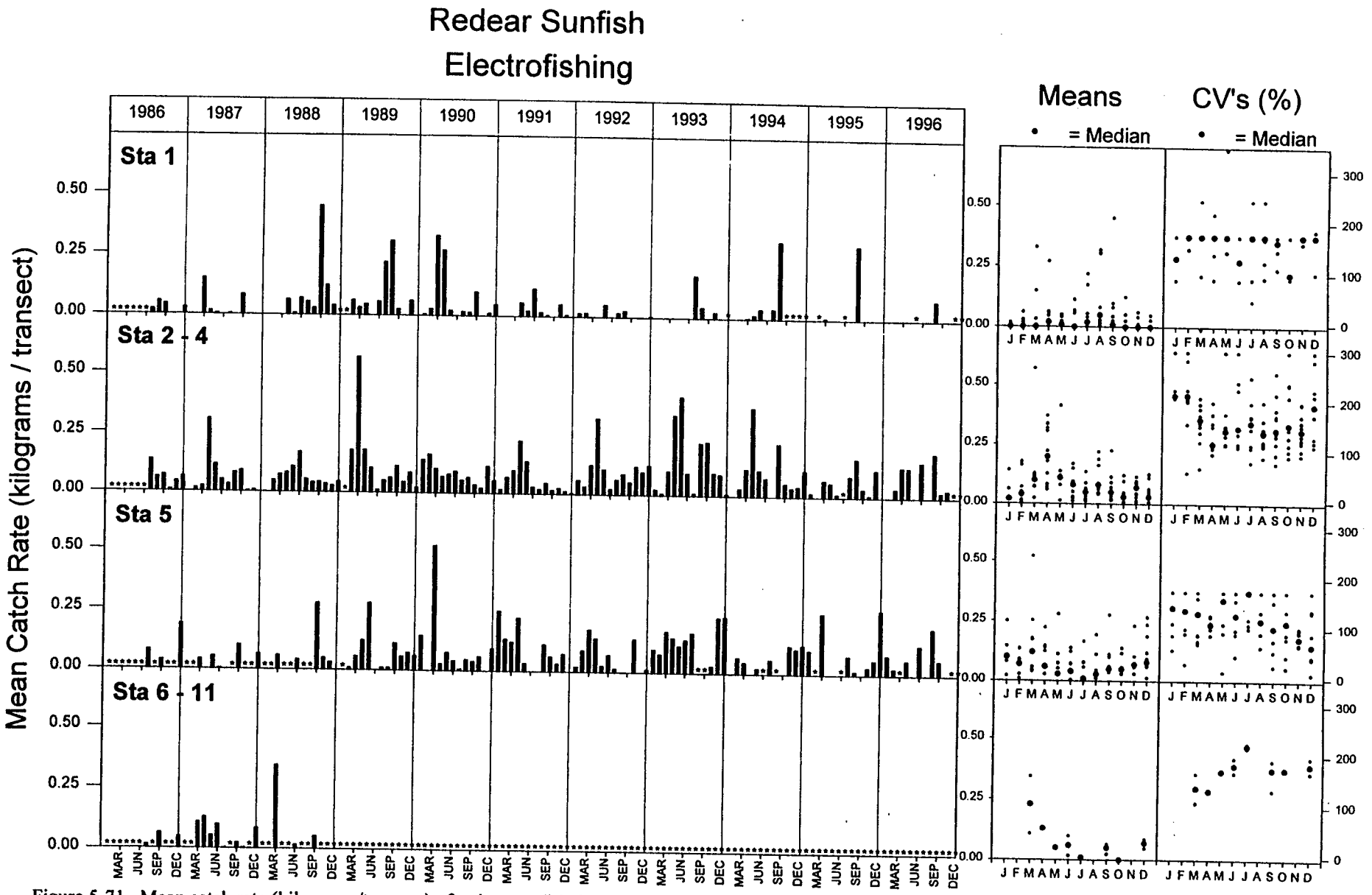


Figure 5-71. Mean catch rate (kilograms/transect) of redear sunfish for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

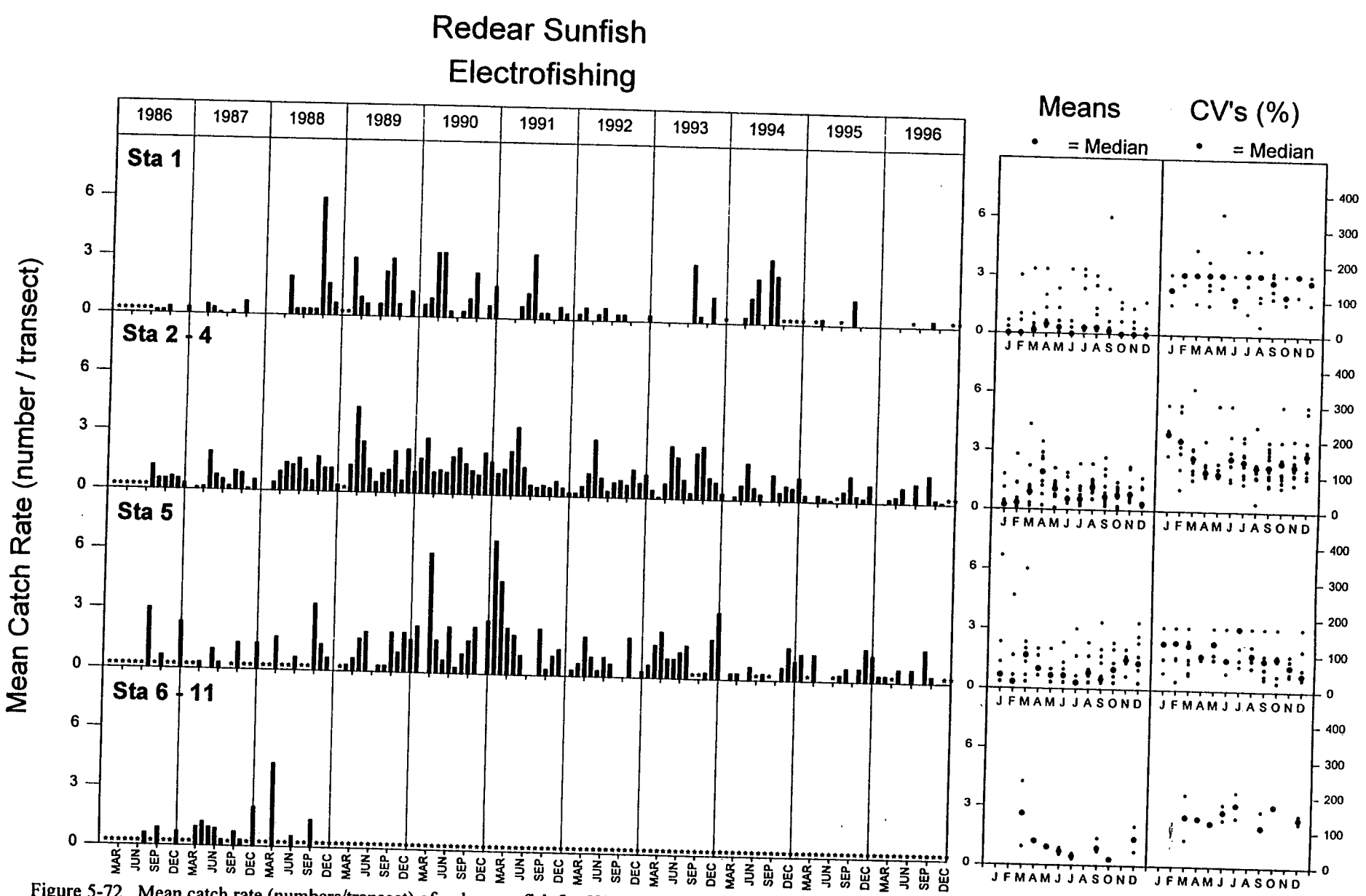


Figure 5-72. Mean catch rate (numbers/transect) of redear sunfish for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

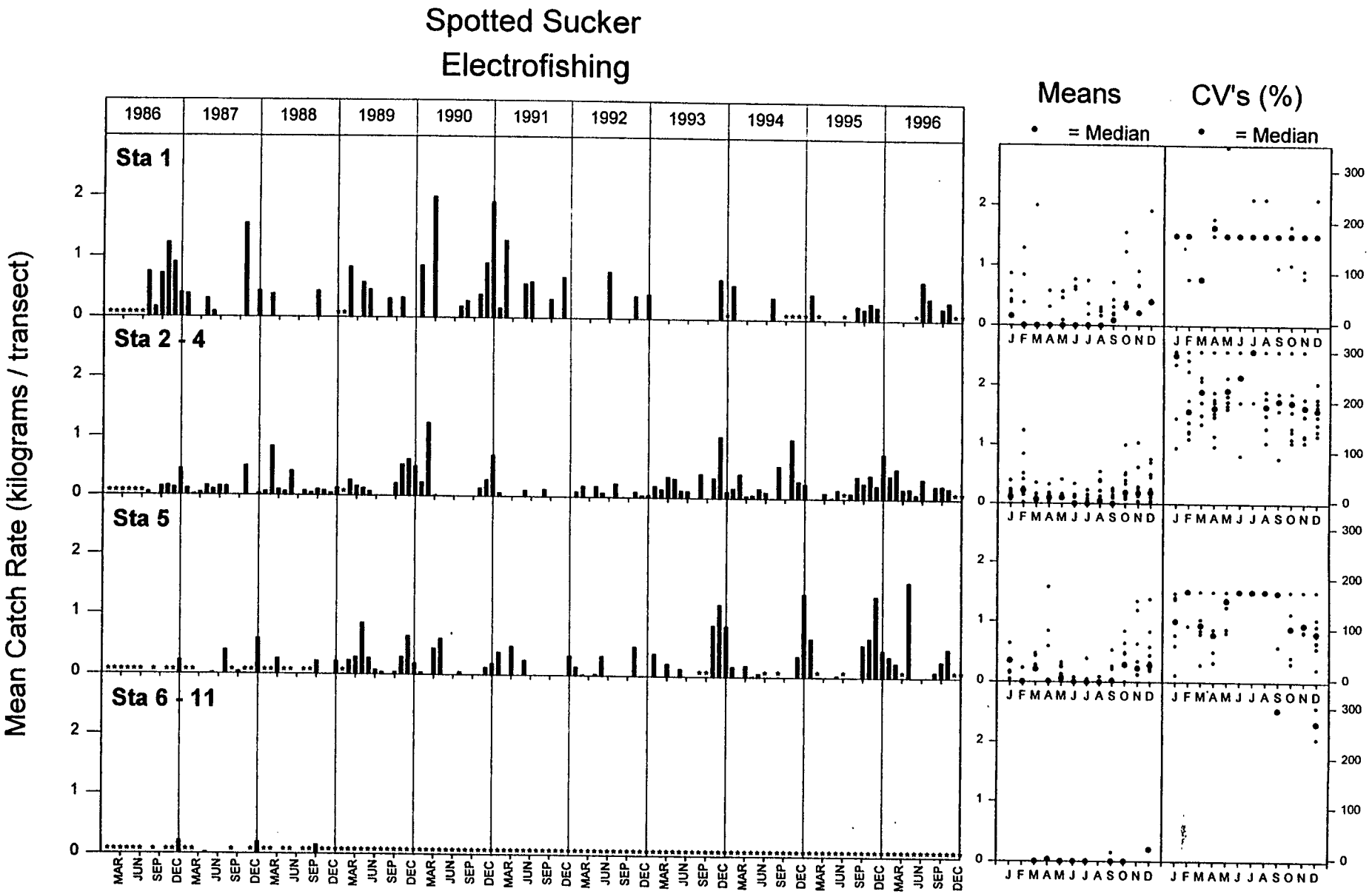


Figure 5-73. Mean catch rate (kilograms/transect) of spotted sucker for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

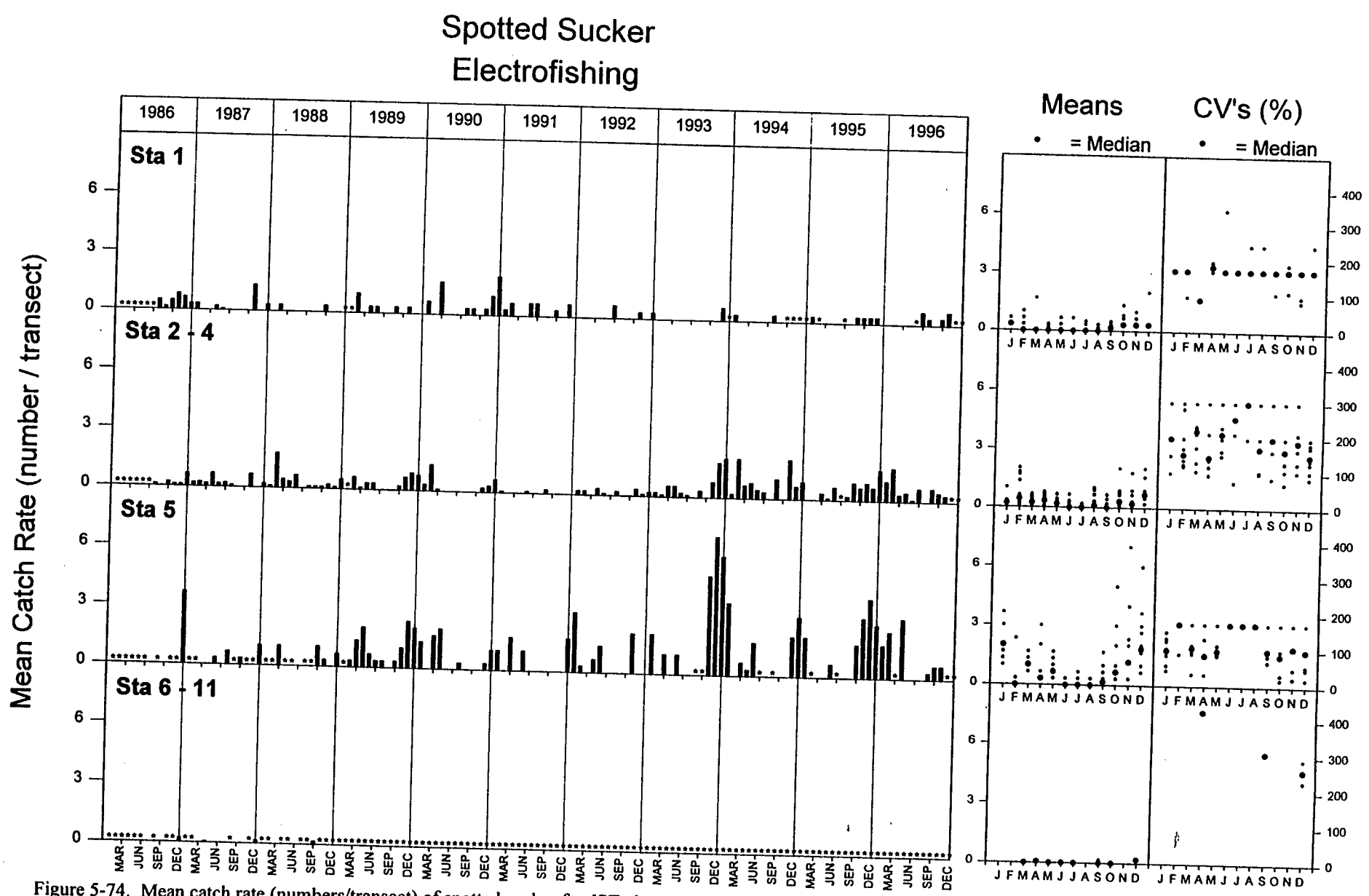


Figure 5-74. Mean catch rate (numbers/transect) of spotted sucker for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

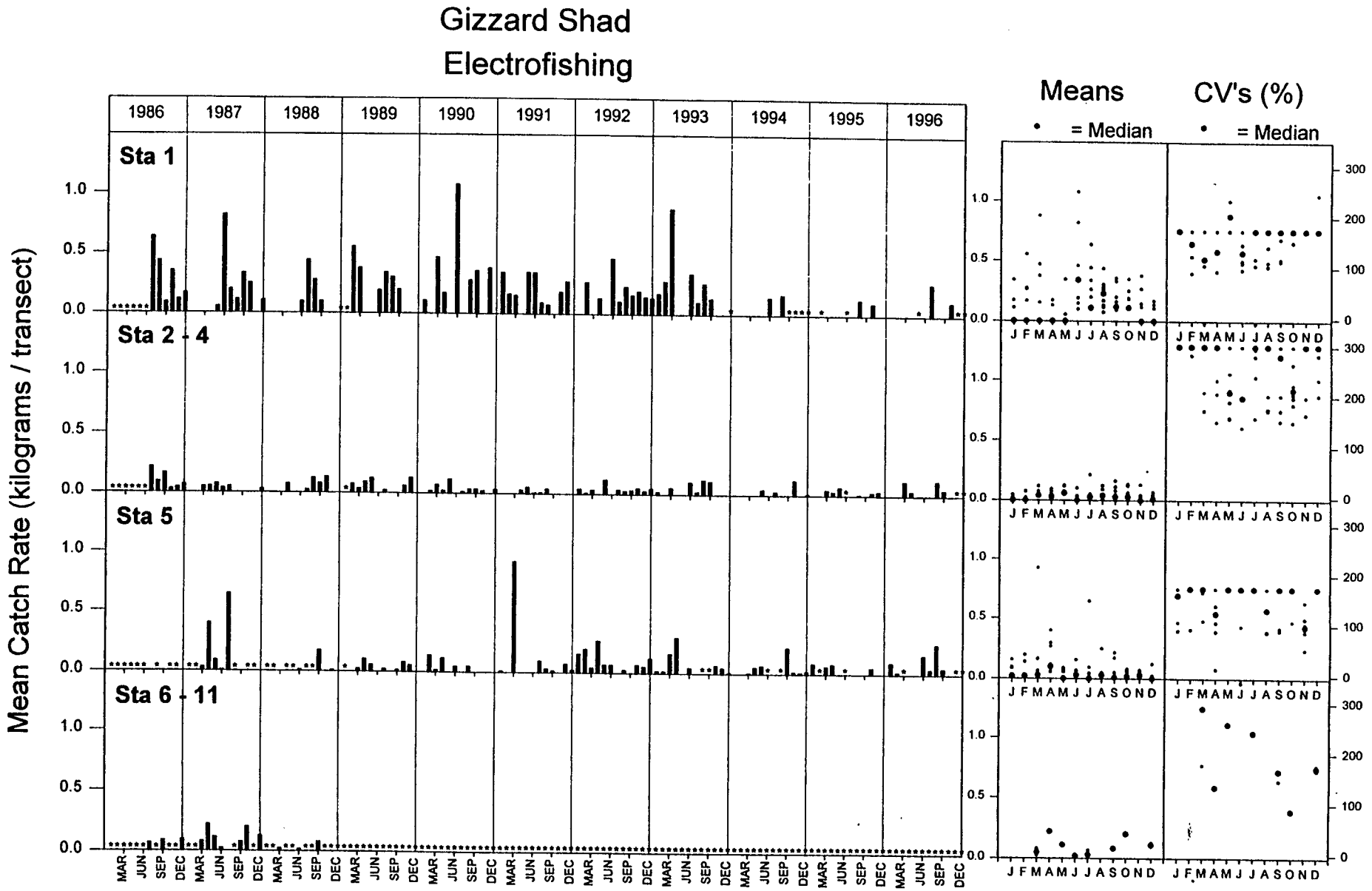


Figure 5-75. Mean catch rate (kilograms/transect) of gizzard shad for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

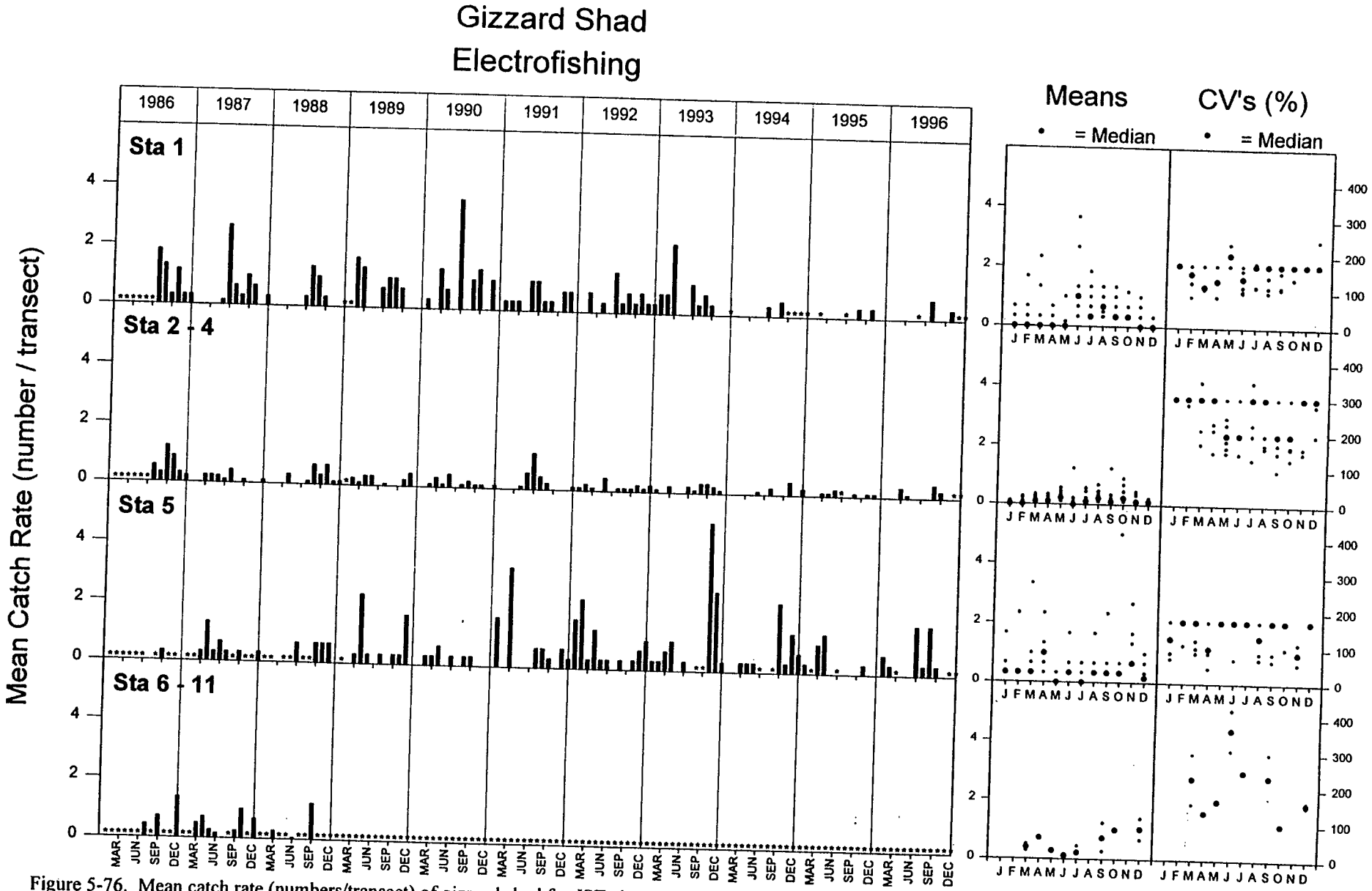


Figure 5-76. Mean catch rate (numbers/transect) of gizzard shad for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

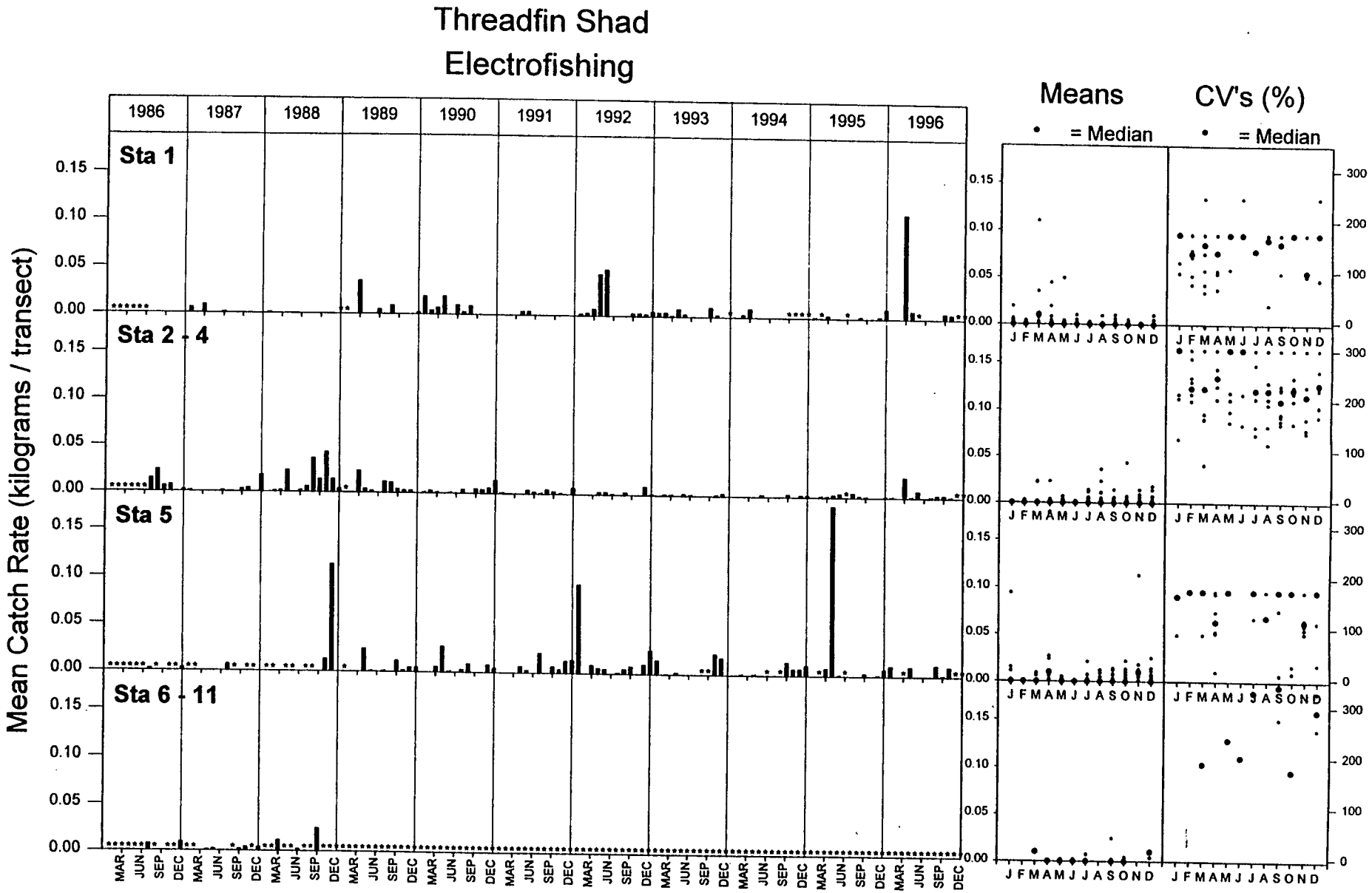


Figure 5-77. Mean catch rate (kilograms/transect) of threadfin shad for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

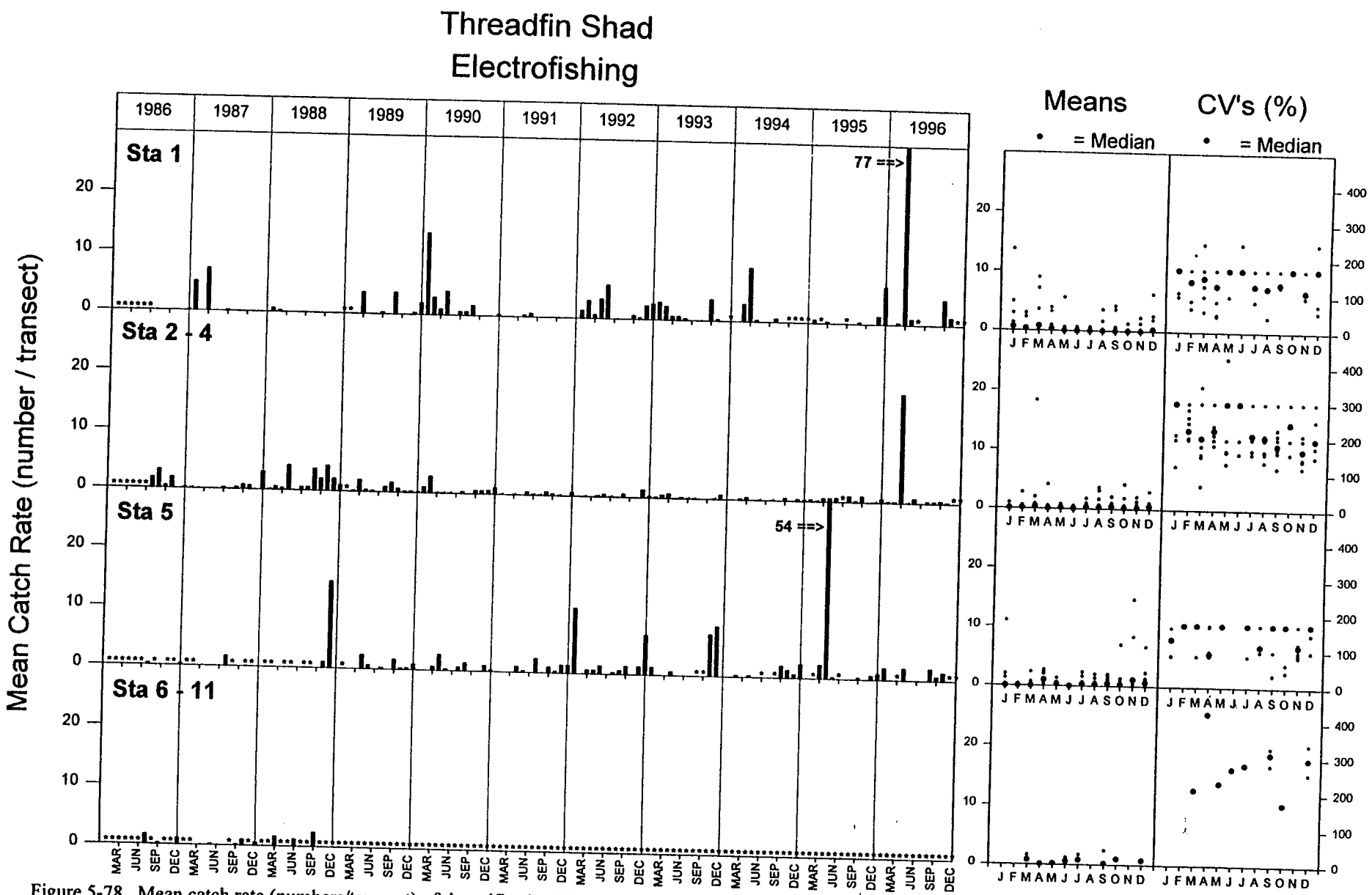


Figure 5-78. Mean catch rate (numbers/transect) of threadfin shad for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

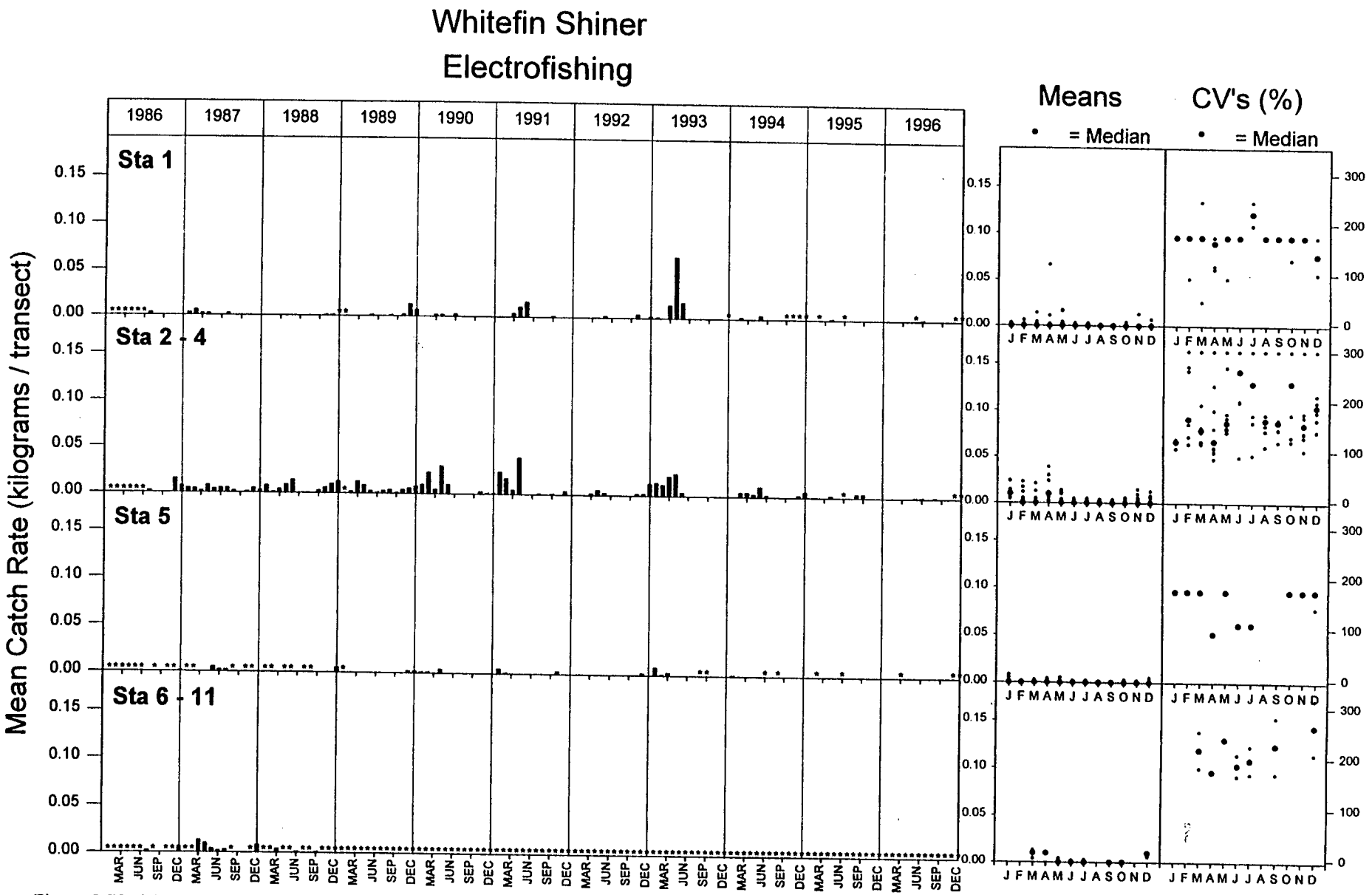


Figure 5-79. Mean catch rate (kilograms/transect) of whitefin shiner for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

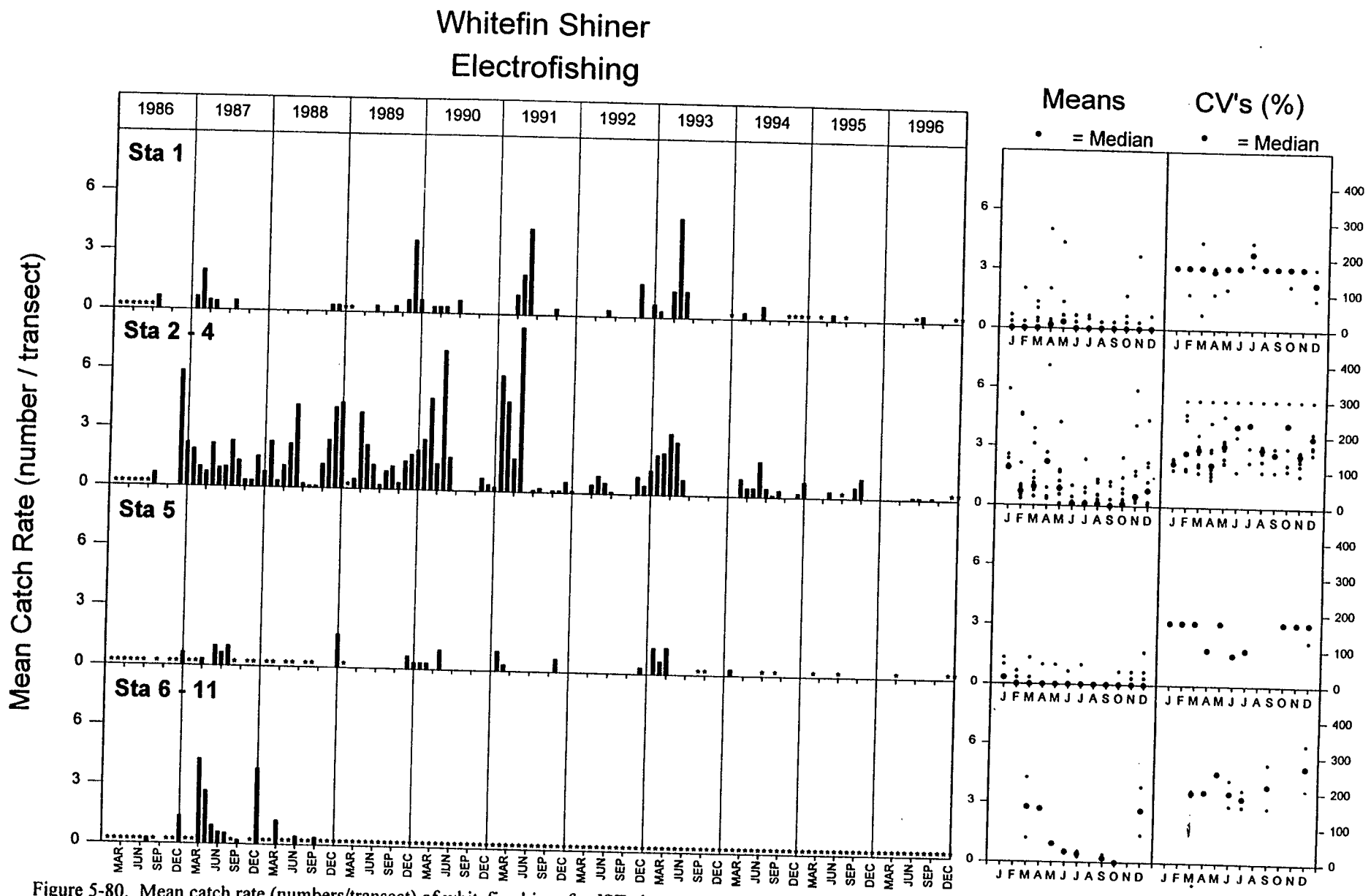


Figure 5-80. Mean catch rate (numbers/transect) of whitefin shiner for JST electrofishing. An asterisk indicates that no sampling was conducted for that month.

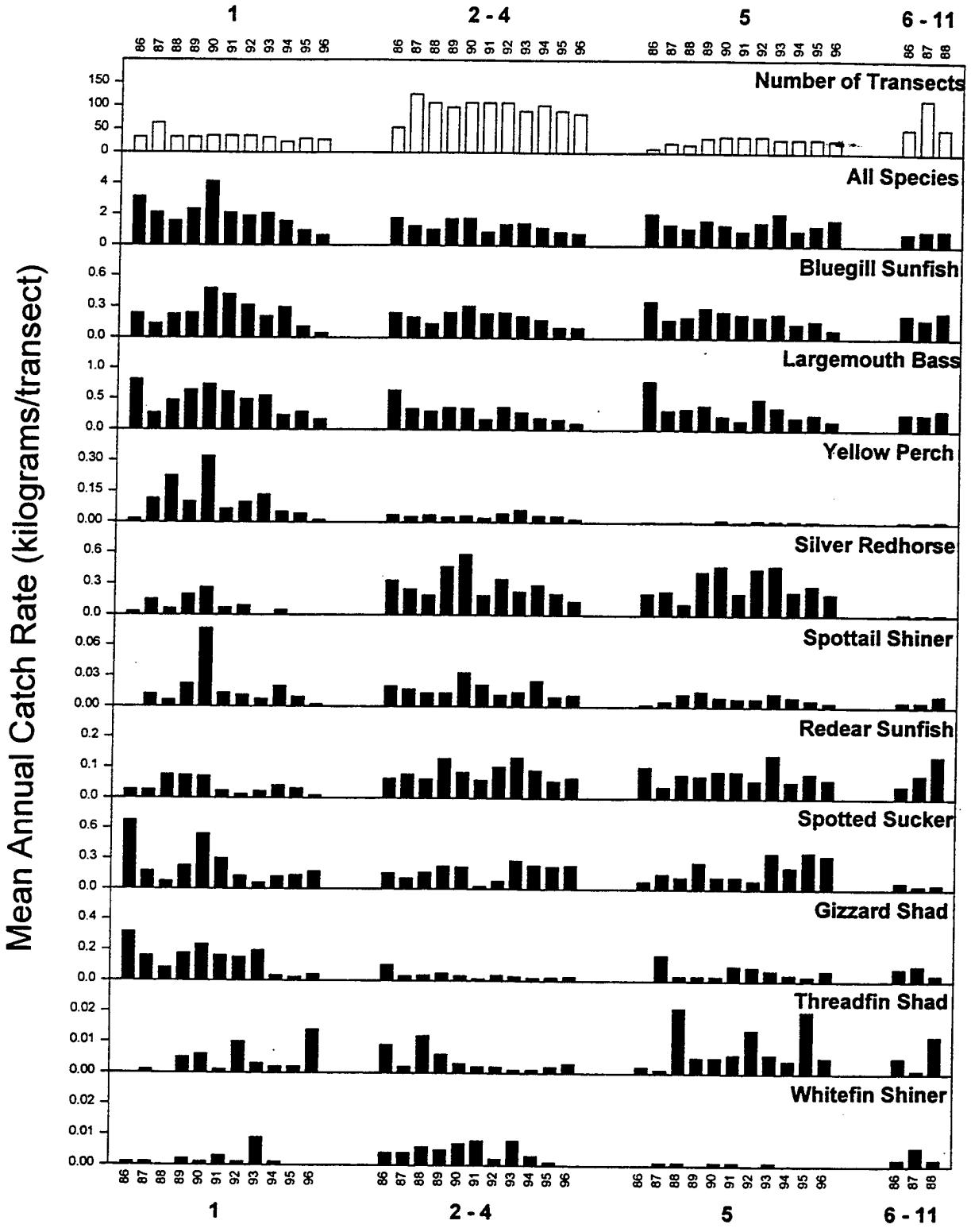


Figure 5-81. Mean annual catch rate (kilograms/transect) by station grouping for the top 10 IRI species and all species pooled for JST electrofishing.

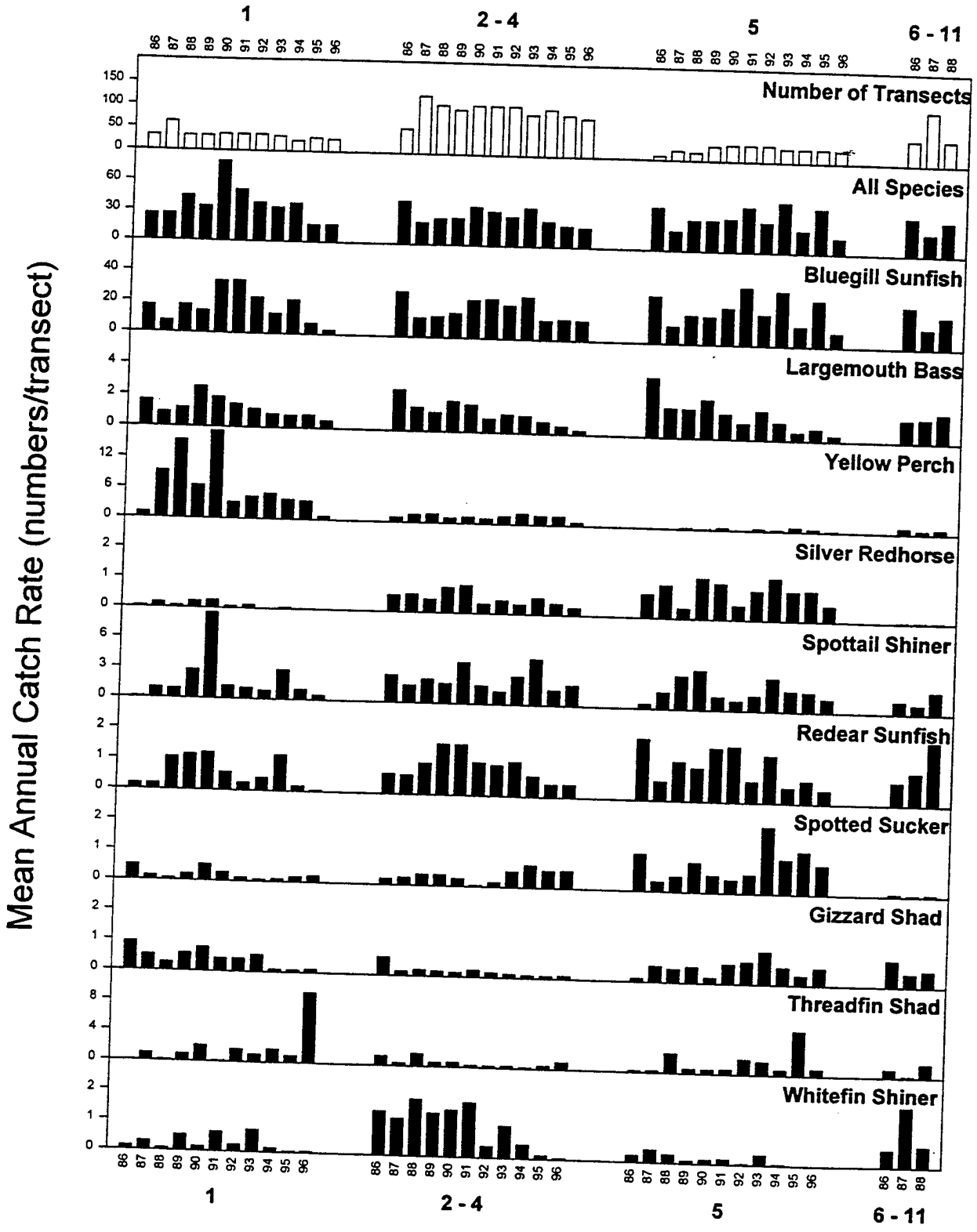


Figure 5-82. Mean annual catch rate (numbers/transect) by station grouping for the top 10 IRI species and all species pooled for JST electrofishing.

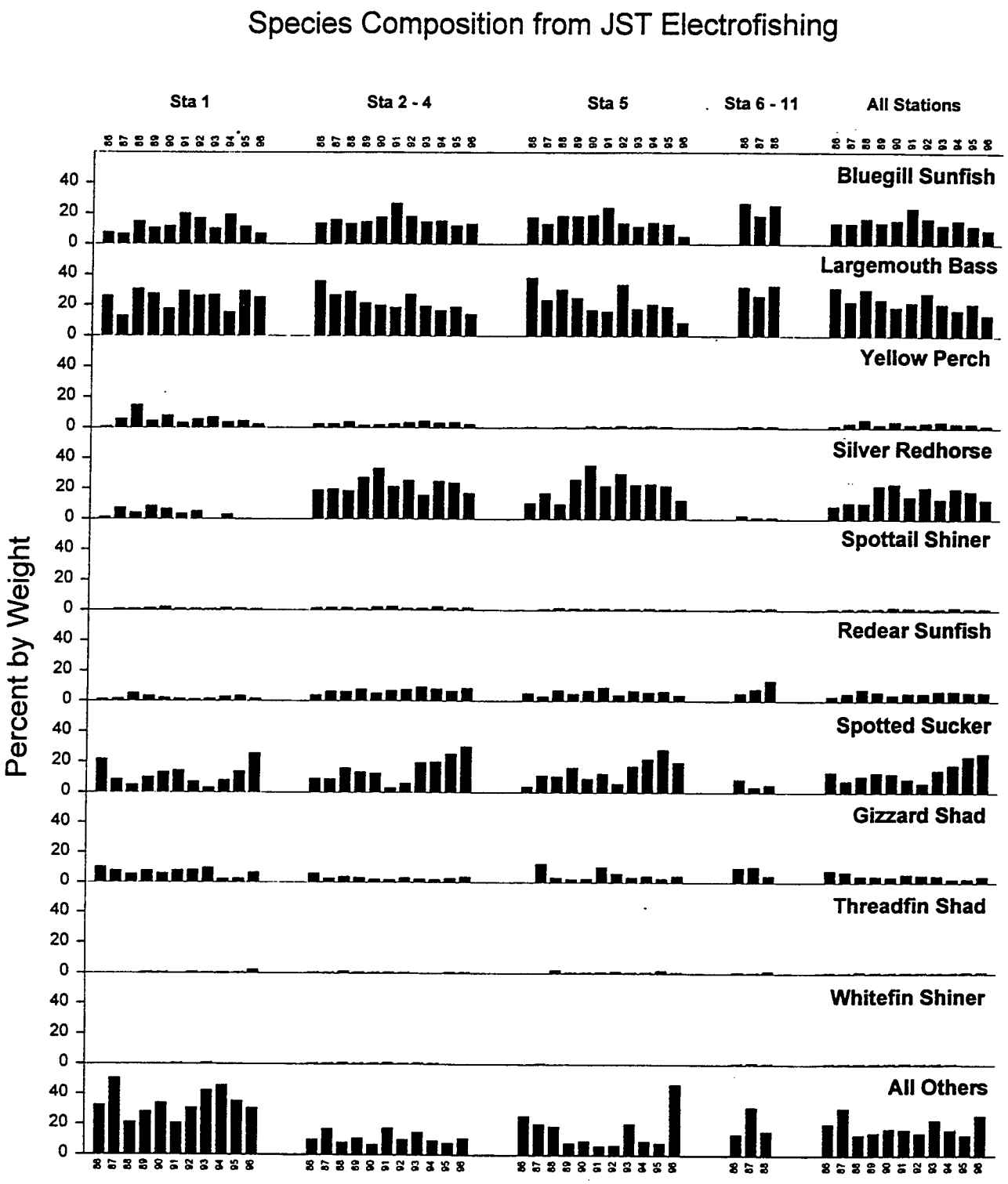


Figure 5-83. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for JST electrofishing.

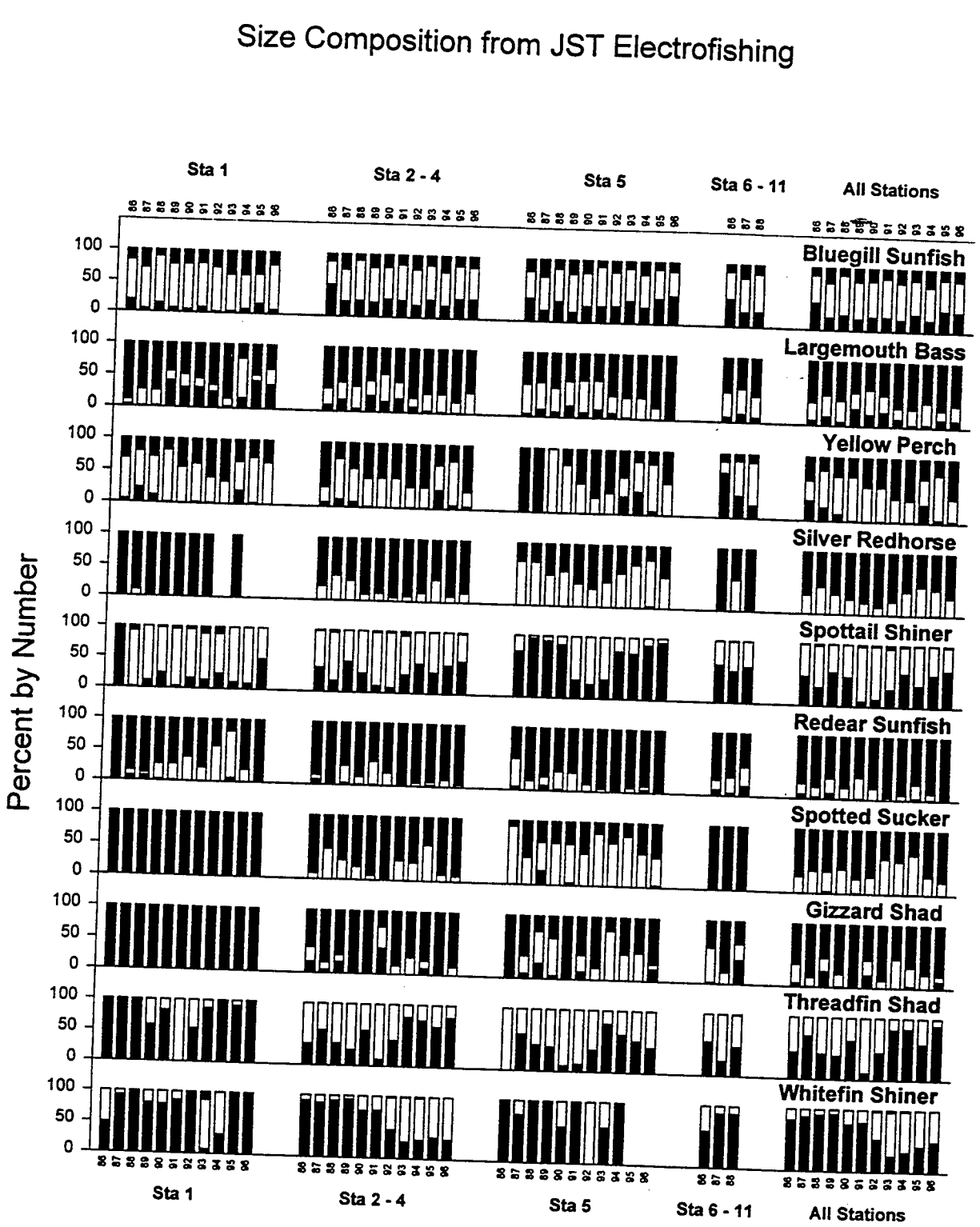


Figure 5-84. Percent (by number) of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for JST electrofishing.

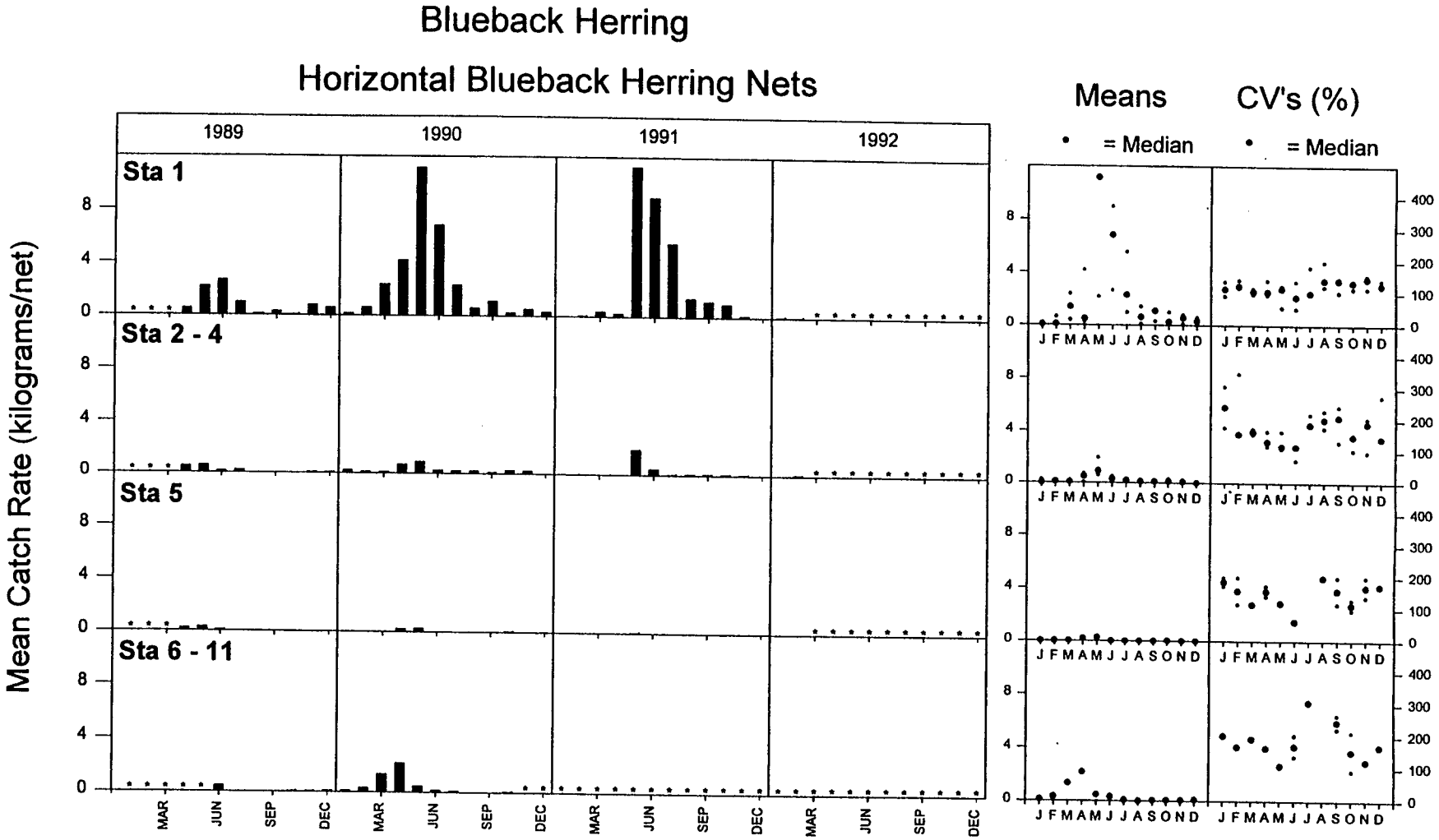


Figure 5-85. Mean catch rate (kilograms/net) of blueback herring for JST horizontal blueback herring gillnets. An asterisk indicates that no sampling was conducted for that month.

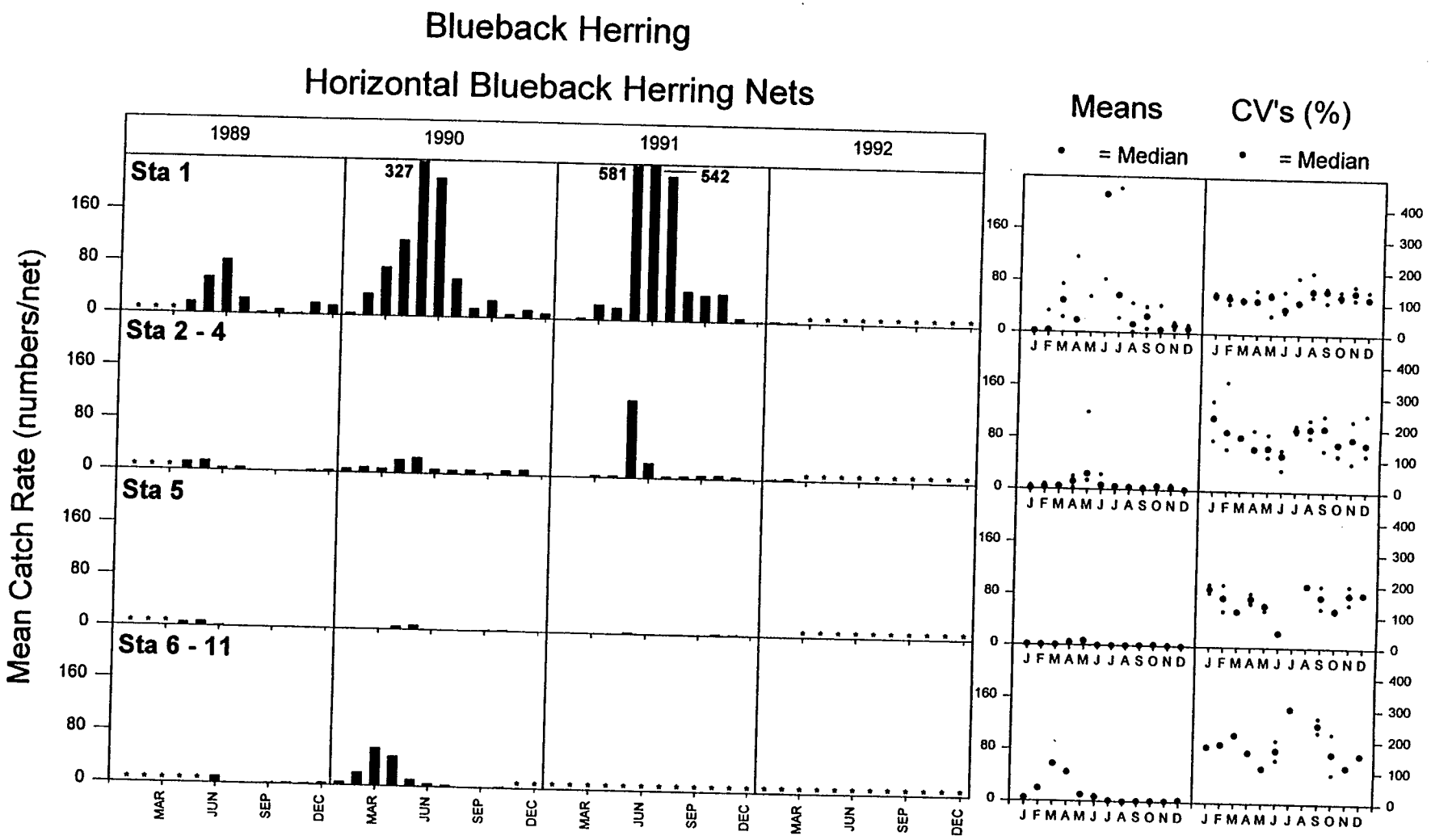


Figure 5-86. Mean catch rate (numbers/net) of blueback herring for JST horizontal blueback herring gillnets. An asterisk indicates that no sampling was conducted for that month.

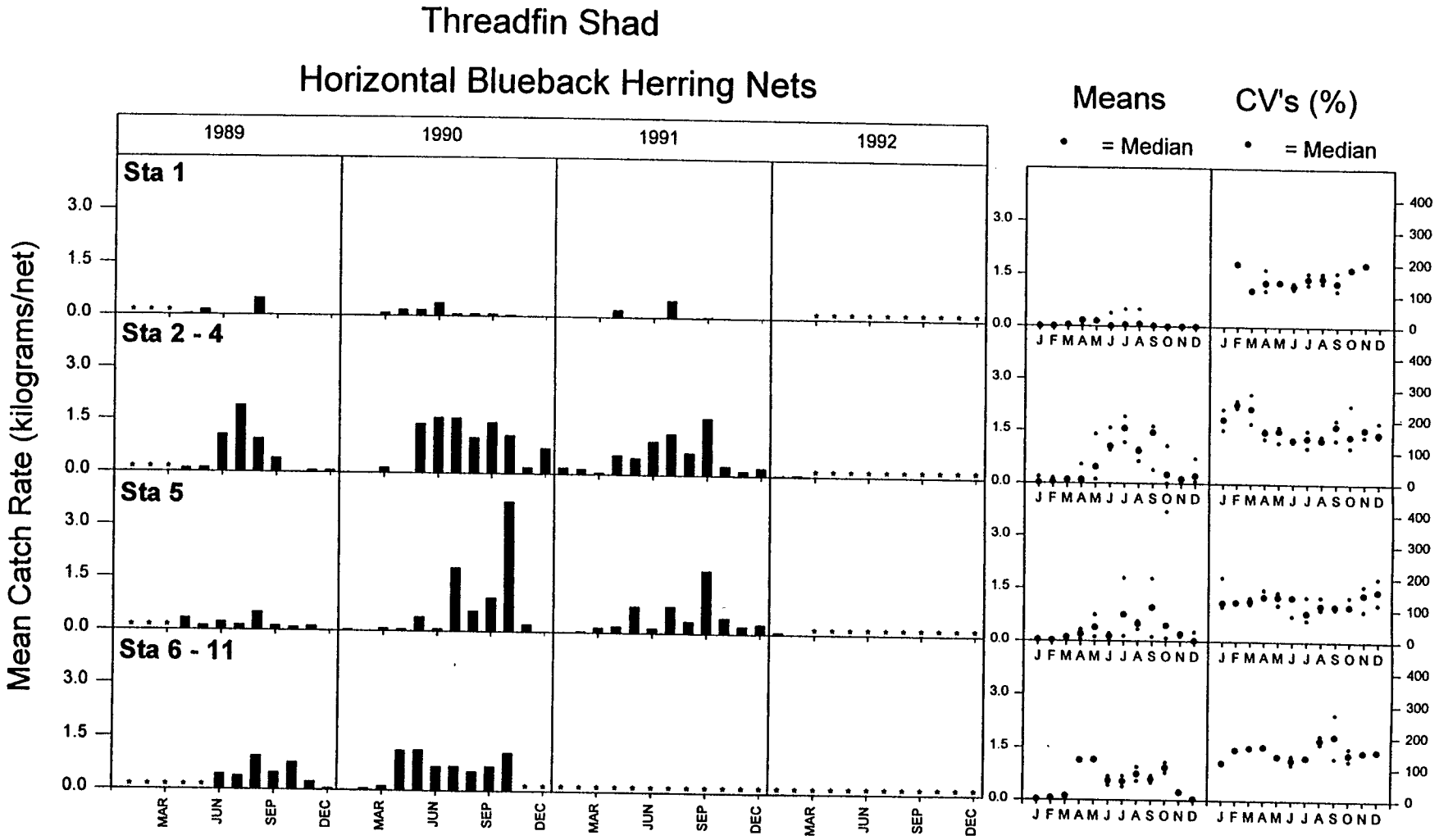


Figure 5-87. Mean catch rate (kilograms/net) of threadfin shad for JST horizontal blueback herring gillnets. An asterisk indicates that no sampling was conducted for that month.

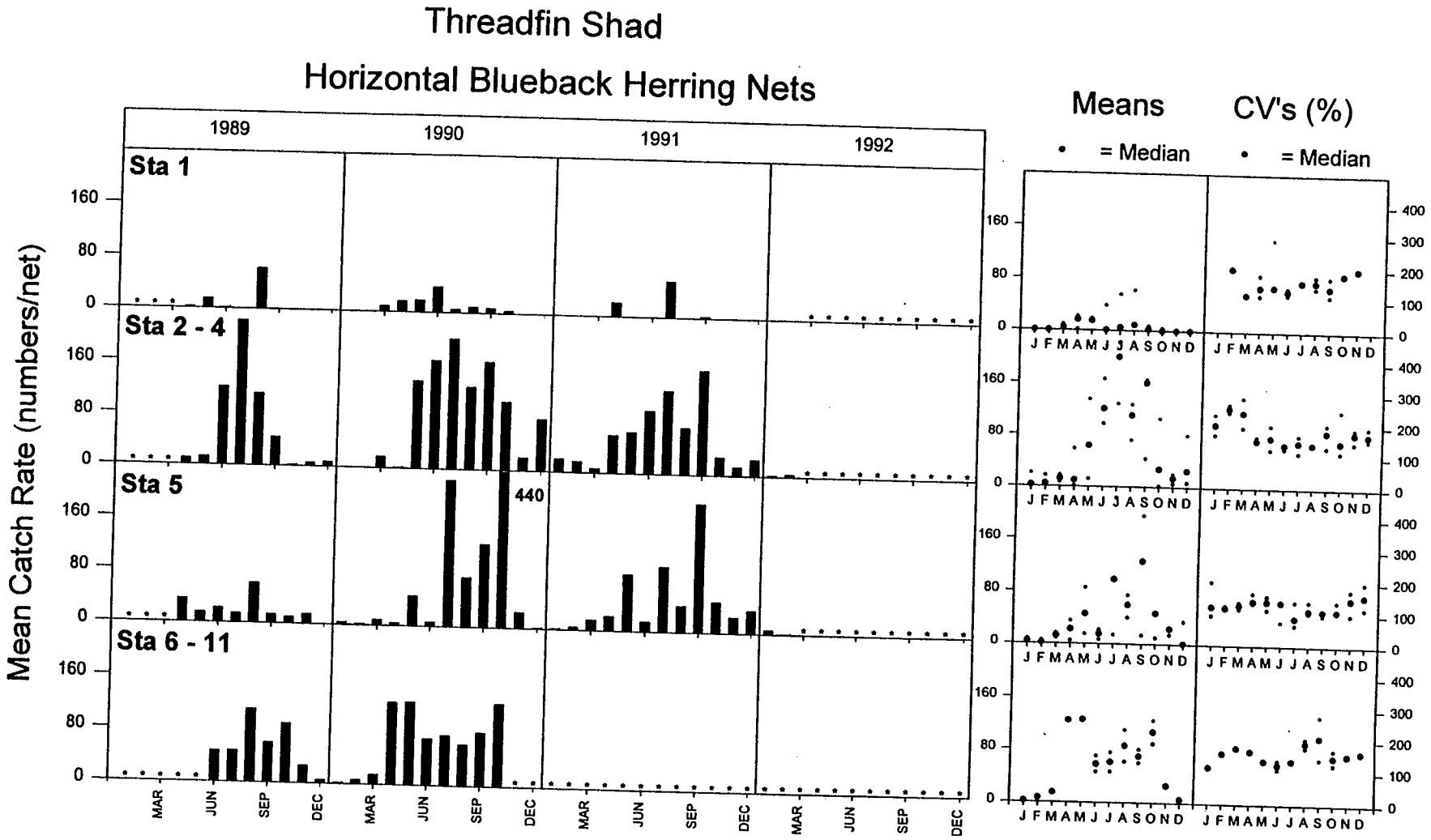


Figure 5-88. Mean catch rate (numbers/net) of threadfin shad for JST horizontal blueback herring gillnets. An asterisk indicates that no sampling was conducted for that month.

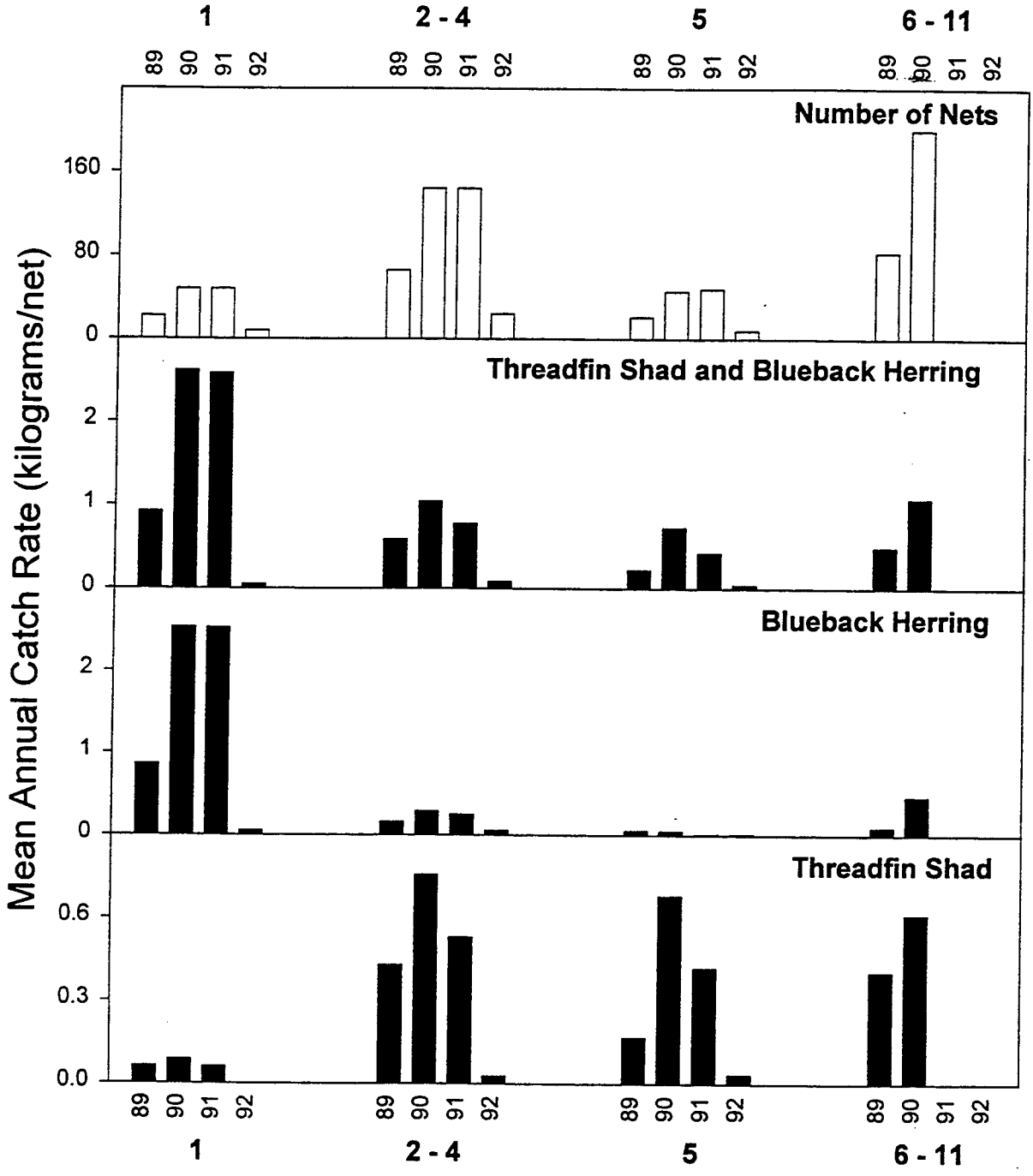


Figure 5-89. Mean annual catch rate (kilograms/net) by station grouping for blueback herring, threadfin shad, and blueback herring and threadfin shad combined for JST horizontal blueback herring gillnets.

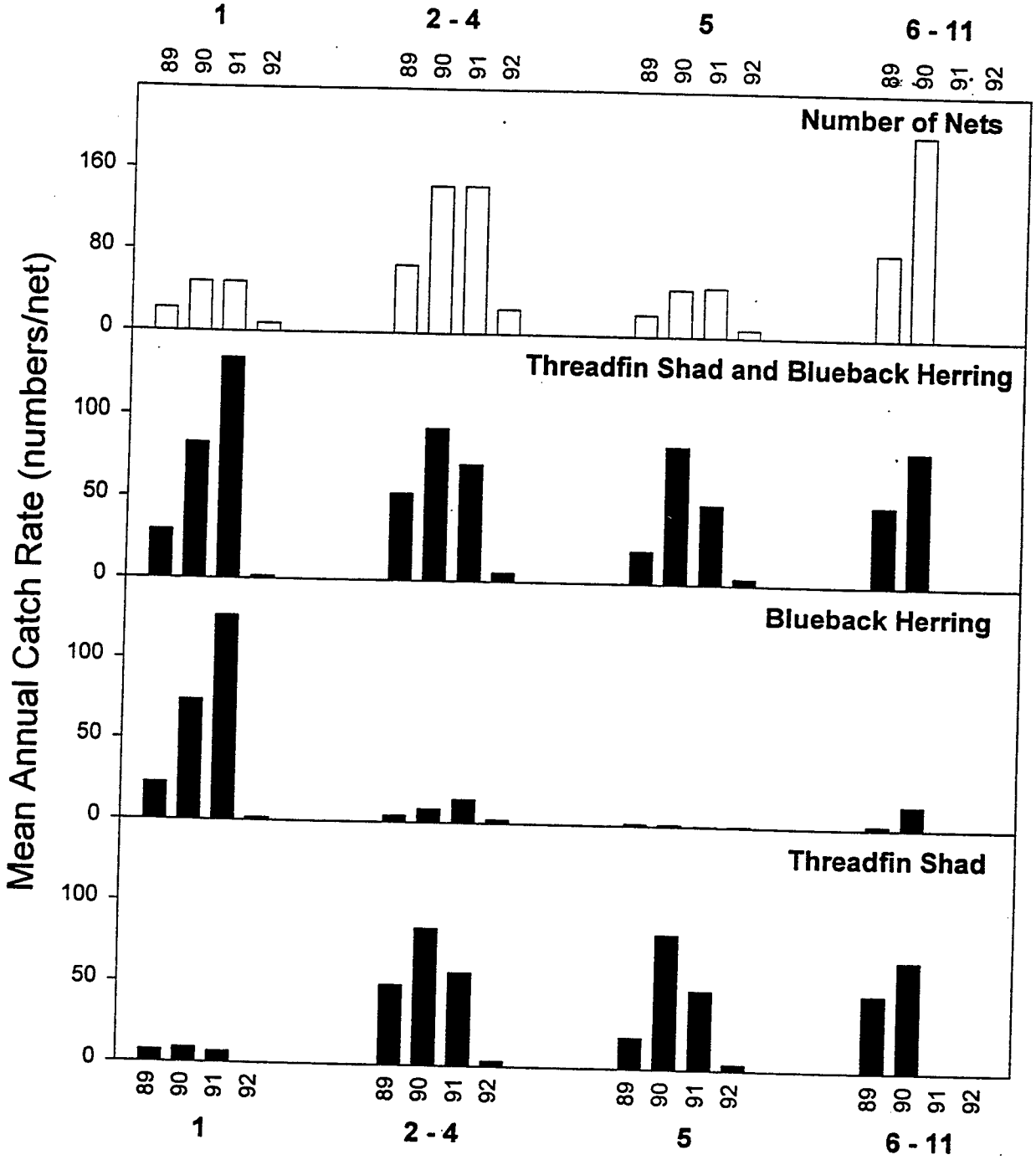


Figure 5-90. Mean annual catch rate (numbers/net) by station grouping for blueback herring, threadfin shad, and blueback herring and threadfin shad combined for JST horizontal blueback herring gillnets.

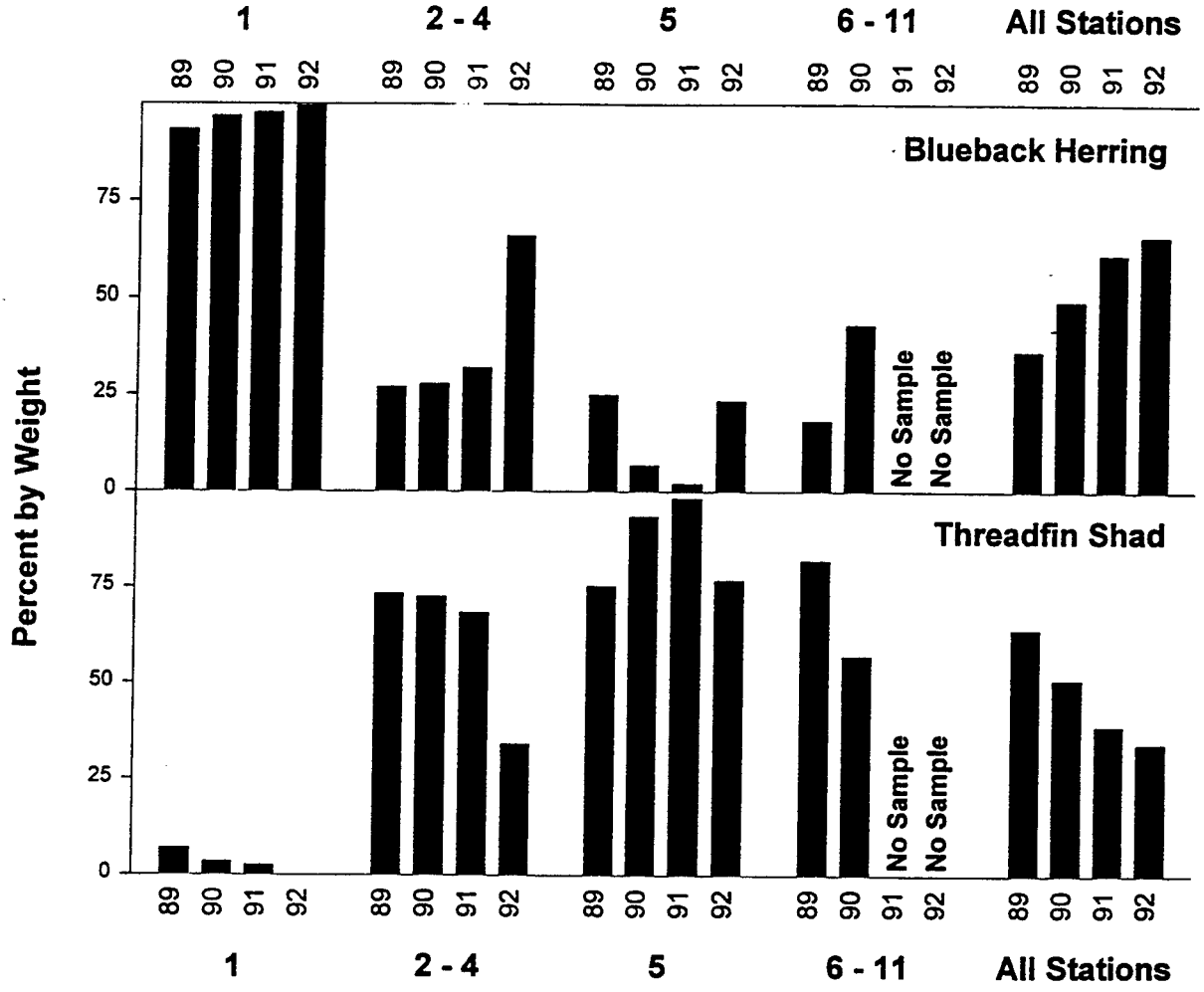


Figure 5-91. Percent species composition (by weight) of blueback herring and threadfin shad by station grouping for JST horizontal blueback herring gillnets.

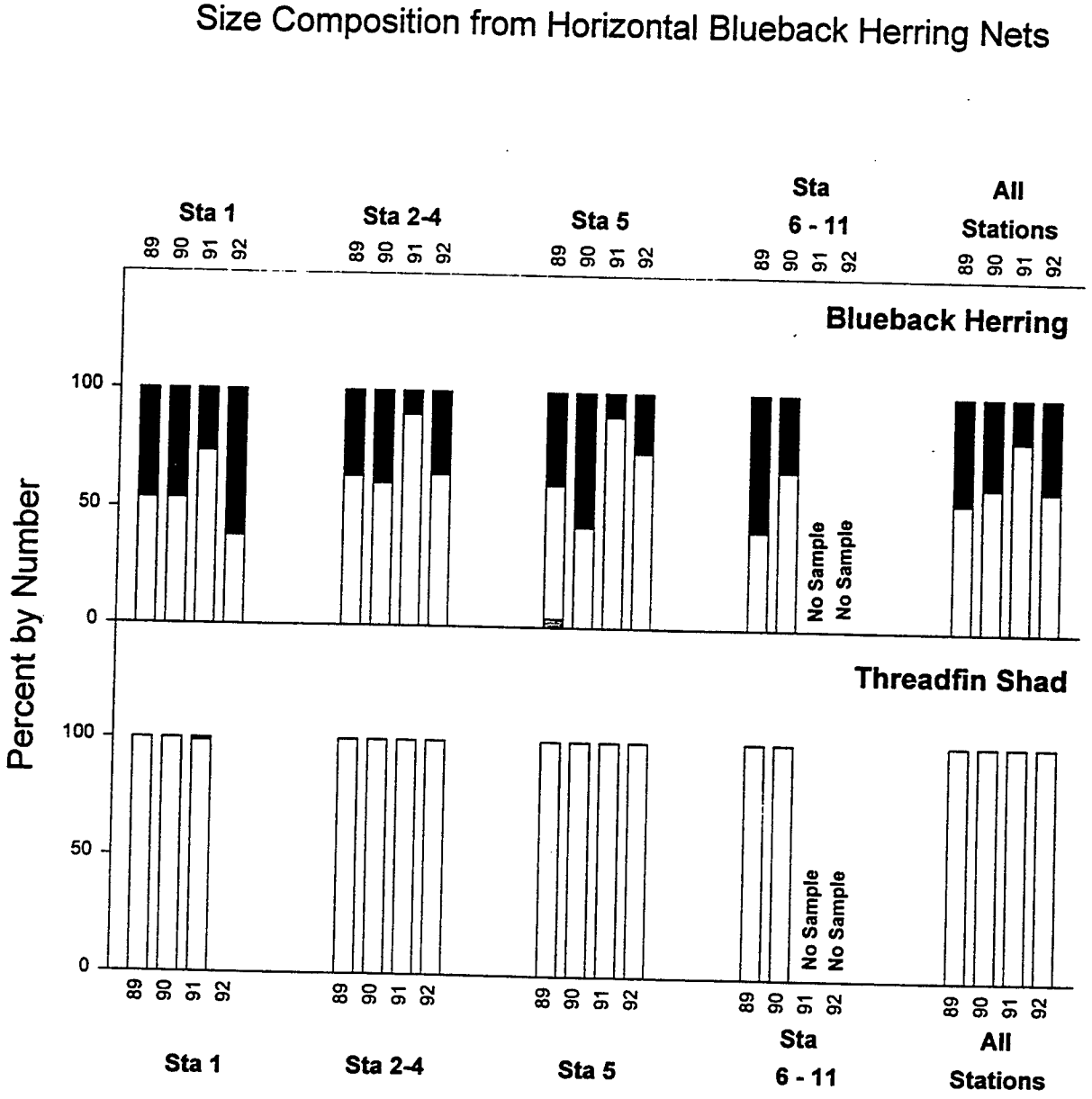


Figure 5-92. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for blueback herring and threadfin shad by station grouping and all stations pooled for JST horizontal blueback herring gillnets.

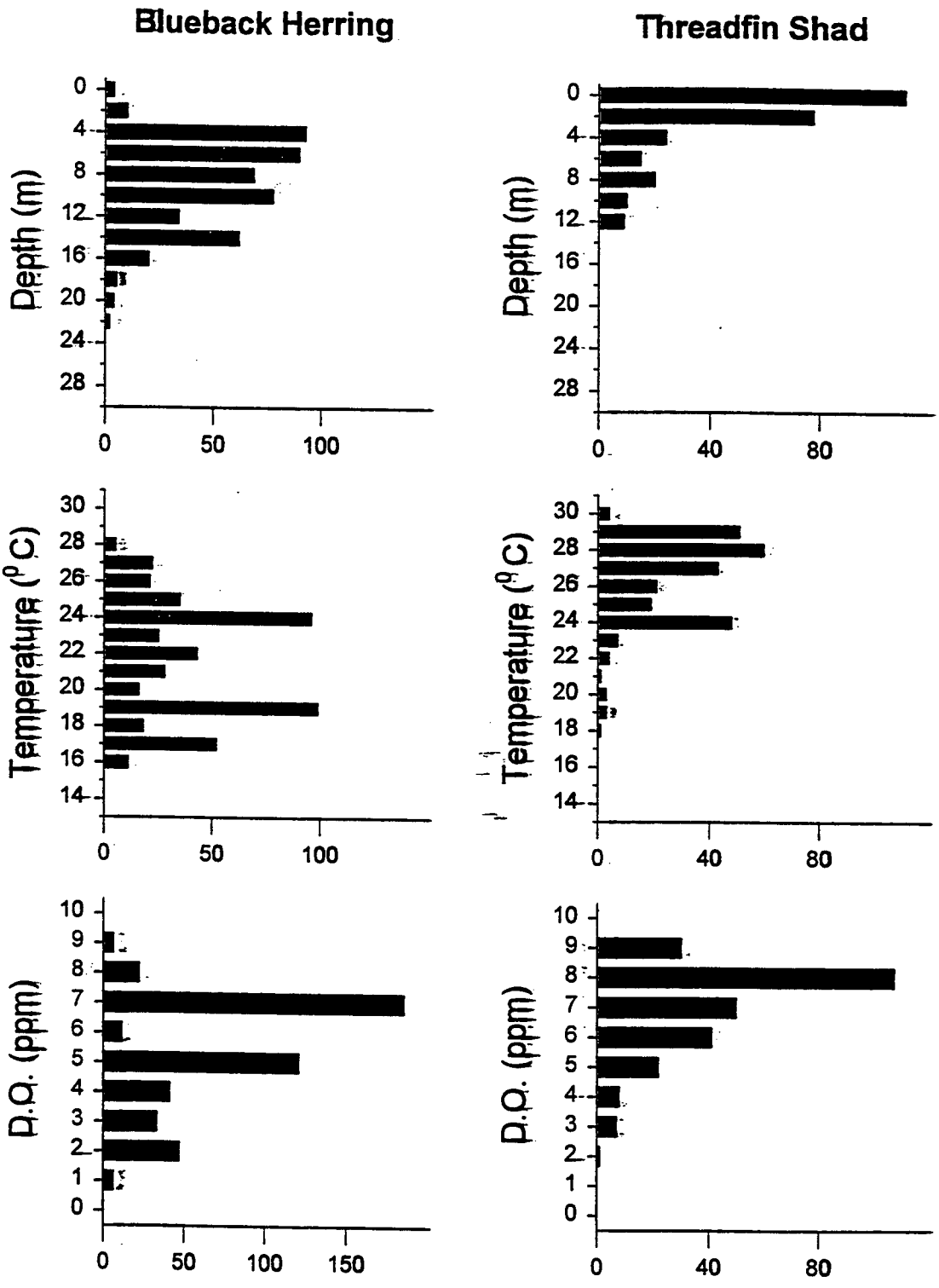


Figure 5-93. The numbers of blueback herring and threadfin shad captured in vertical gillnets at each depth, temperature and dissolved oxygen during the months of July, August and September in the years 1989, 1990 and 1996.

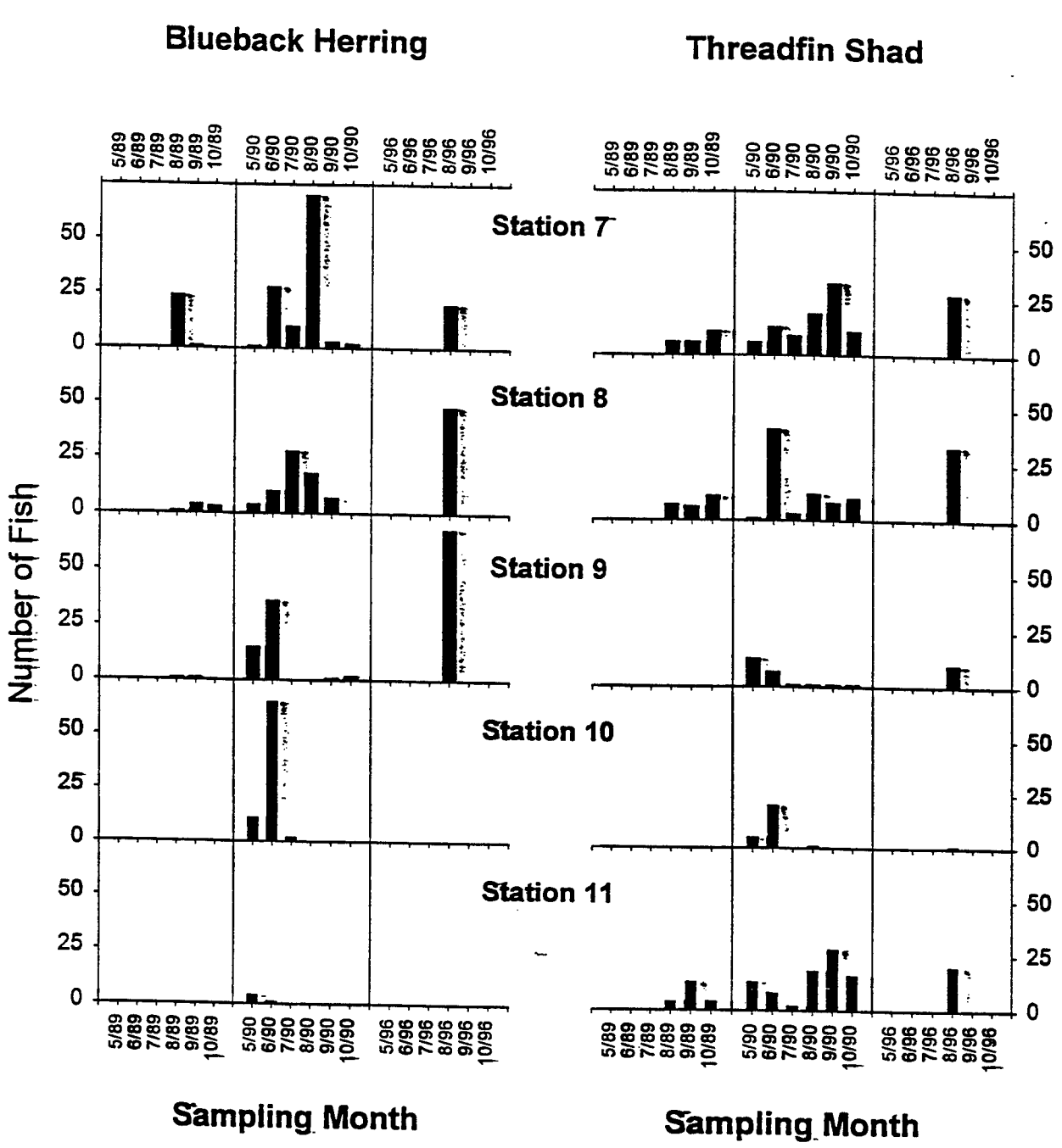


Figure 5-94. The numbers of blueback herring and threadfin shad captured in vertical gillnets at stations 7-11. The graphs include the months of May thru October to illustrate seasonality in catch, but no sampling was conducted for the months of May, June or July in 1989 or any month other than August in 1996.

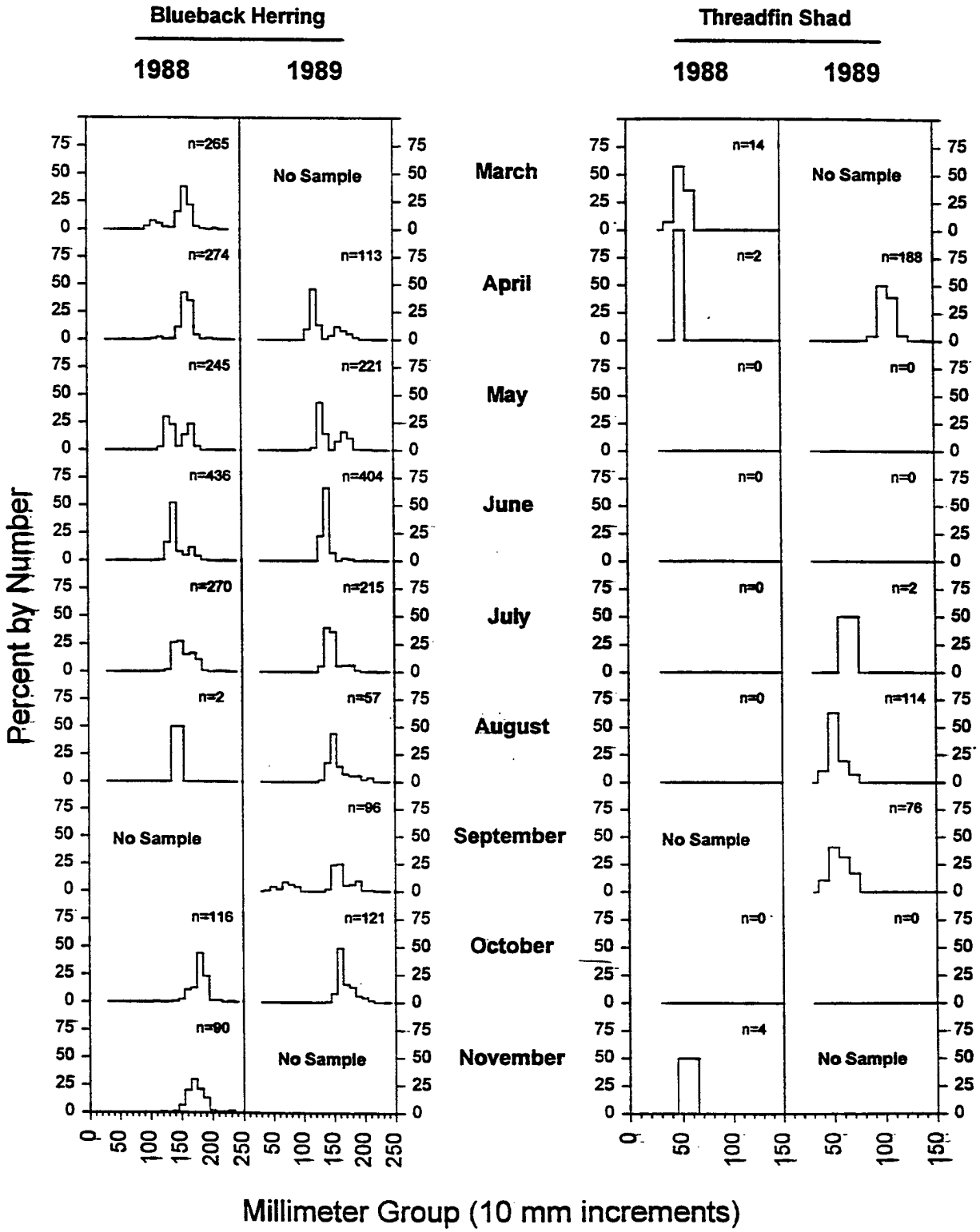


Figure 5-95. Length frequency distributions of blueback herring and threadfin shad from purse seine samples collected at JST station 1 in 1988 and 1989.

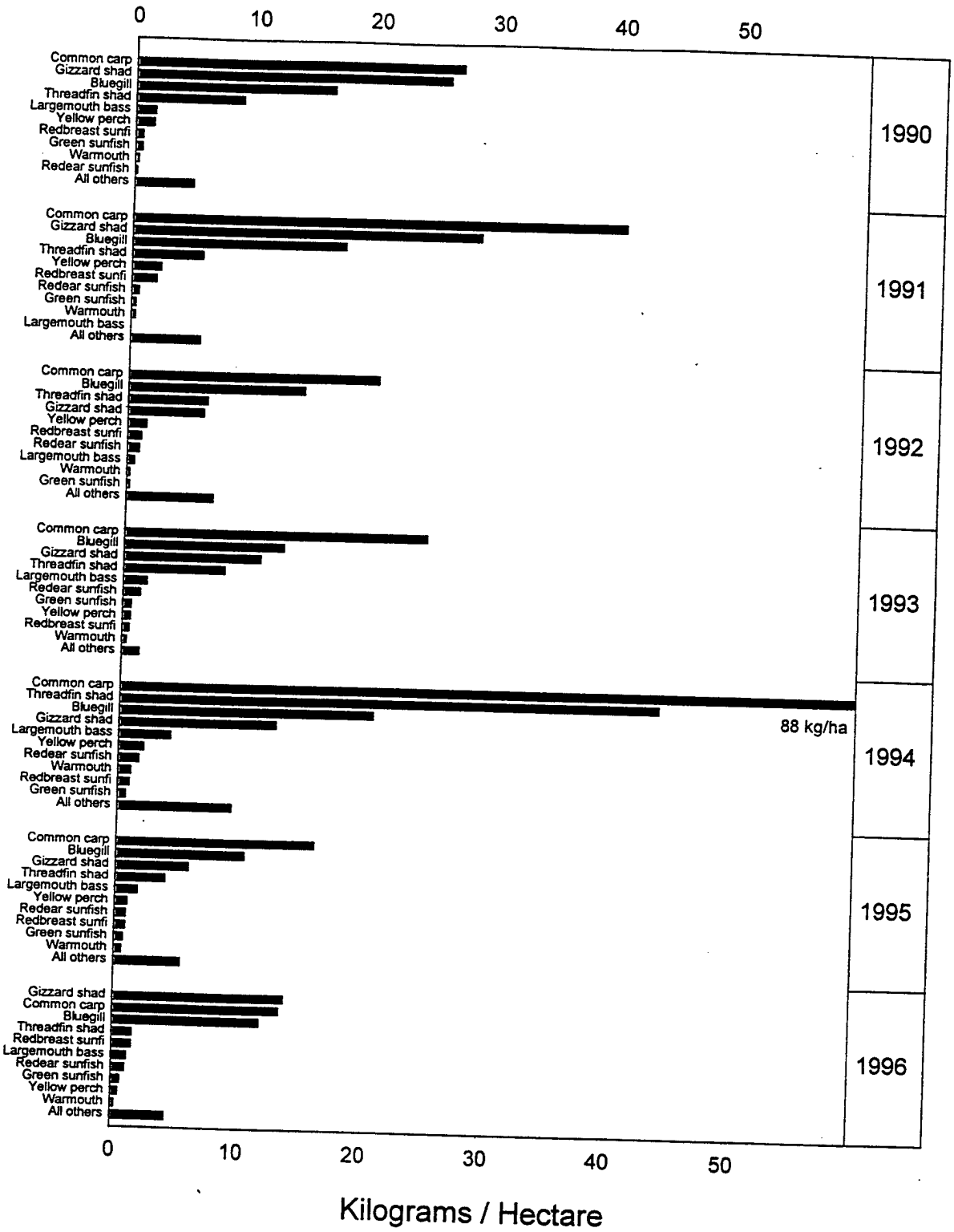


Figure 5-96. The weighted mean kilograms per hectare for the top ten IRI species and all other species combined by year from RBR rotenone sampling.

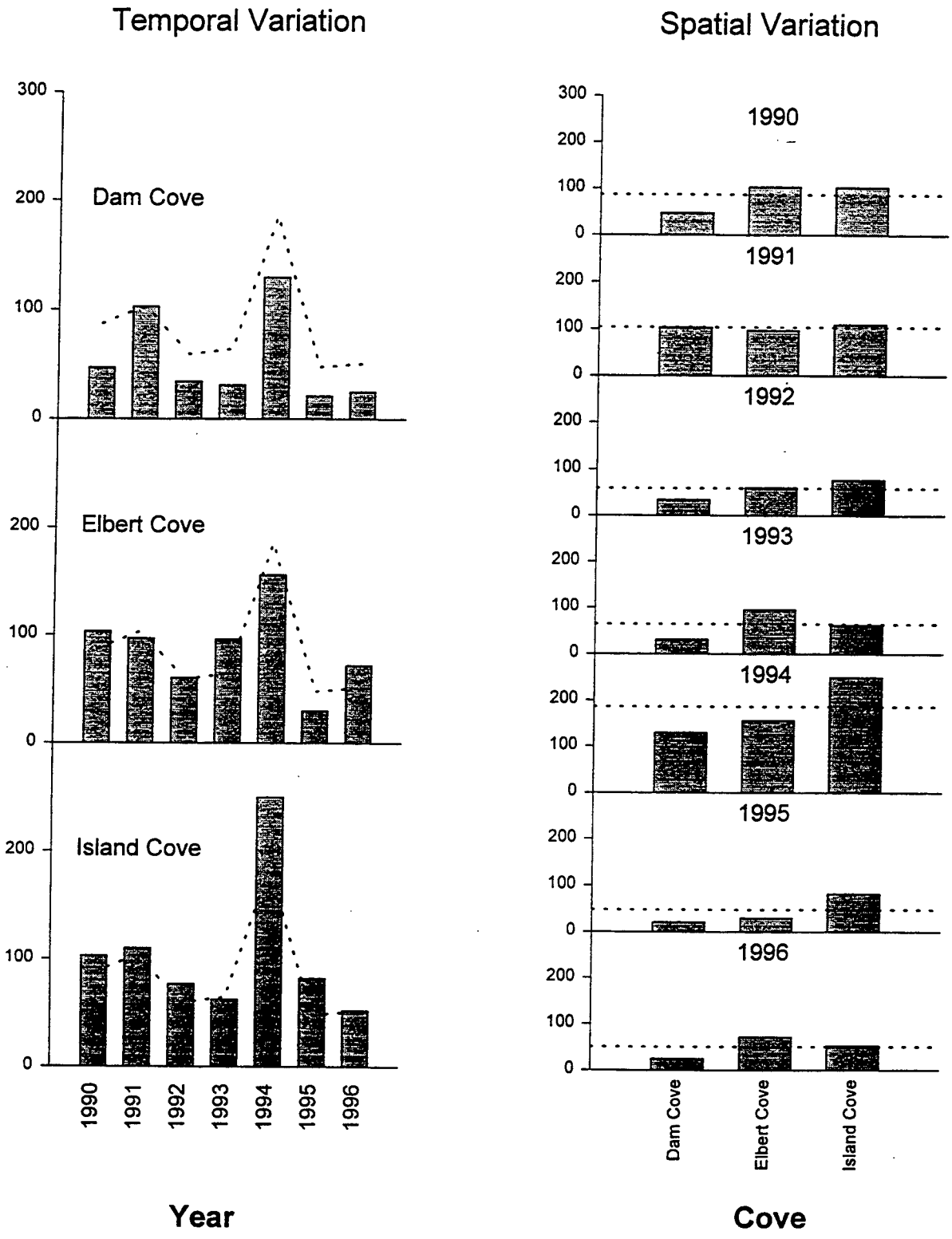


Figure 5-97. Variation in total kilograms per hectare (a) across years by cove and (b) across coves by year from RBR rotenone sampling. The dotted line represents the weighted mean across all coves for each year.

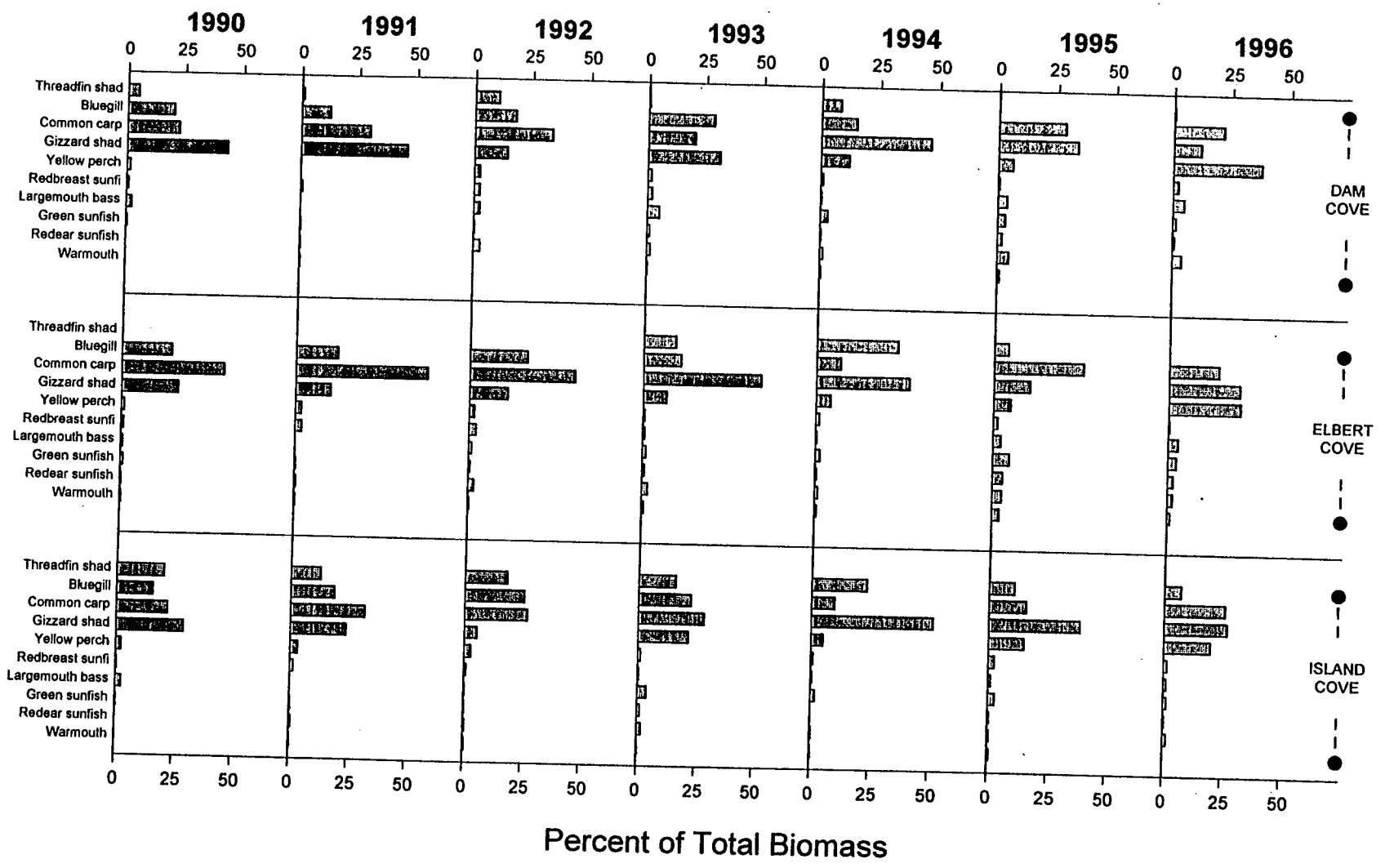


Figure 5-98. Variation in the percent of total biomass for the top ten IRI species by cove and year for RBR rotenone sampling.

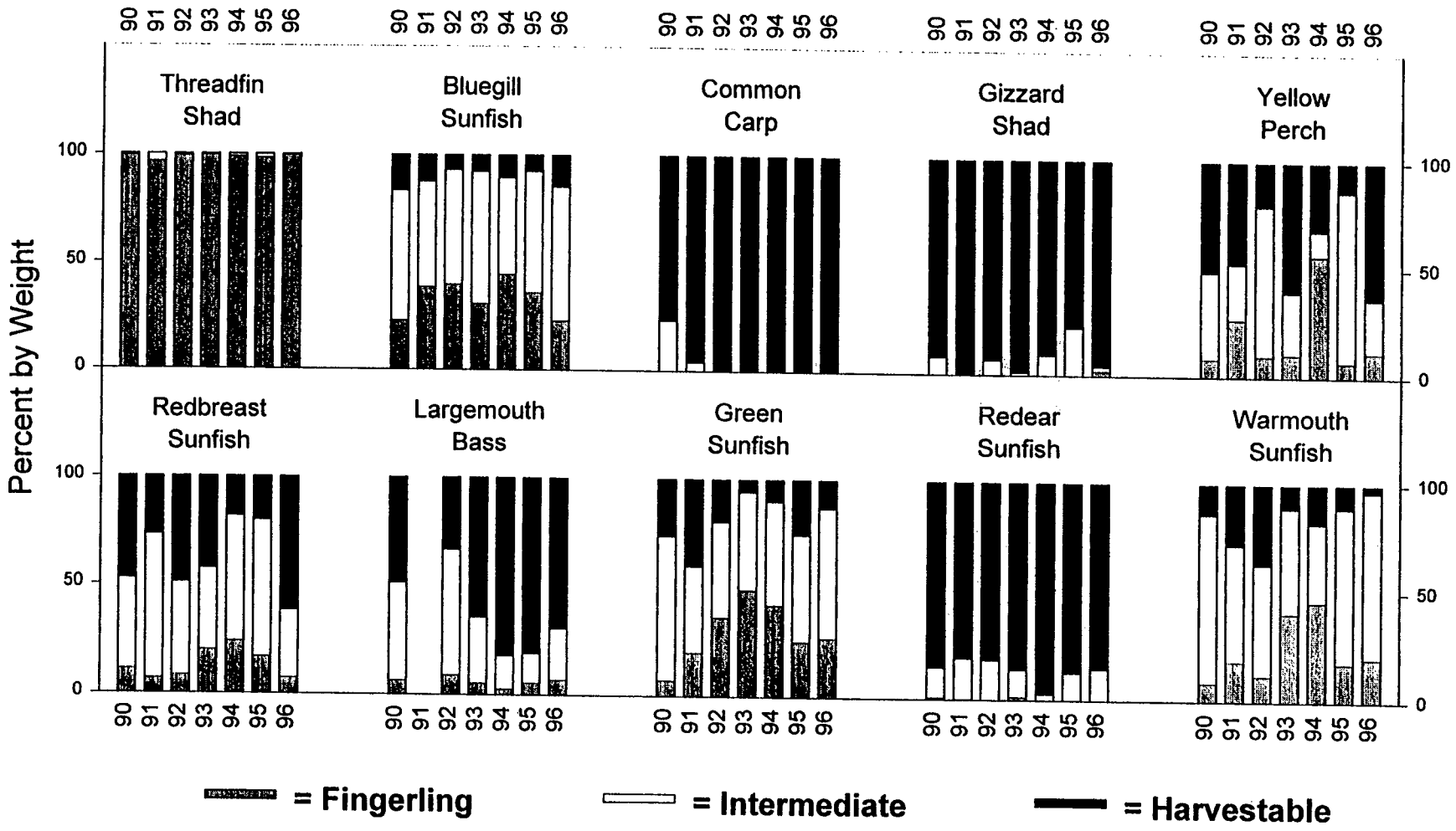


Figure 5-99. Size composition (by weight) of fingerlings (gray portion of bar), intermediates (white portion of bar), and harvestables (black portion of bar) for the top ten IRI species from RBR rotenone sampling.

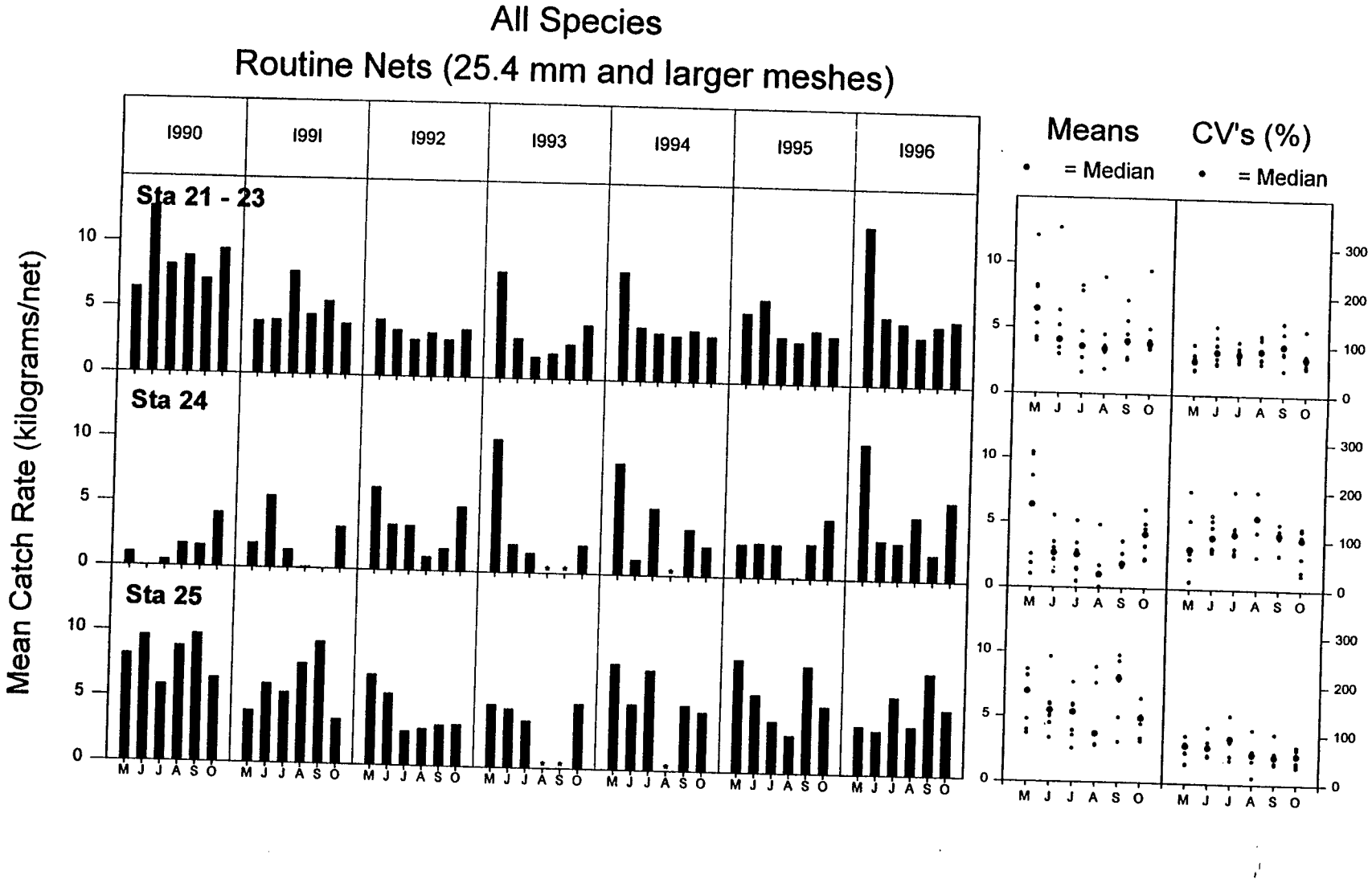


Figure 5-100. Mean catch rate (kilograms/net) of all species pooled for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

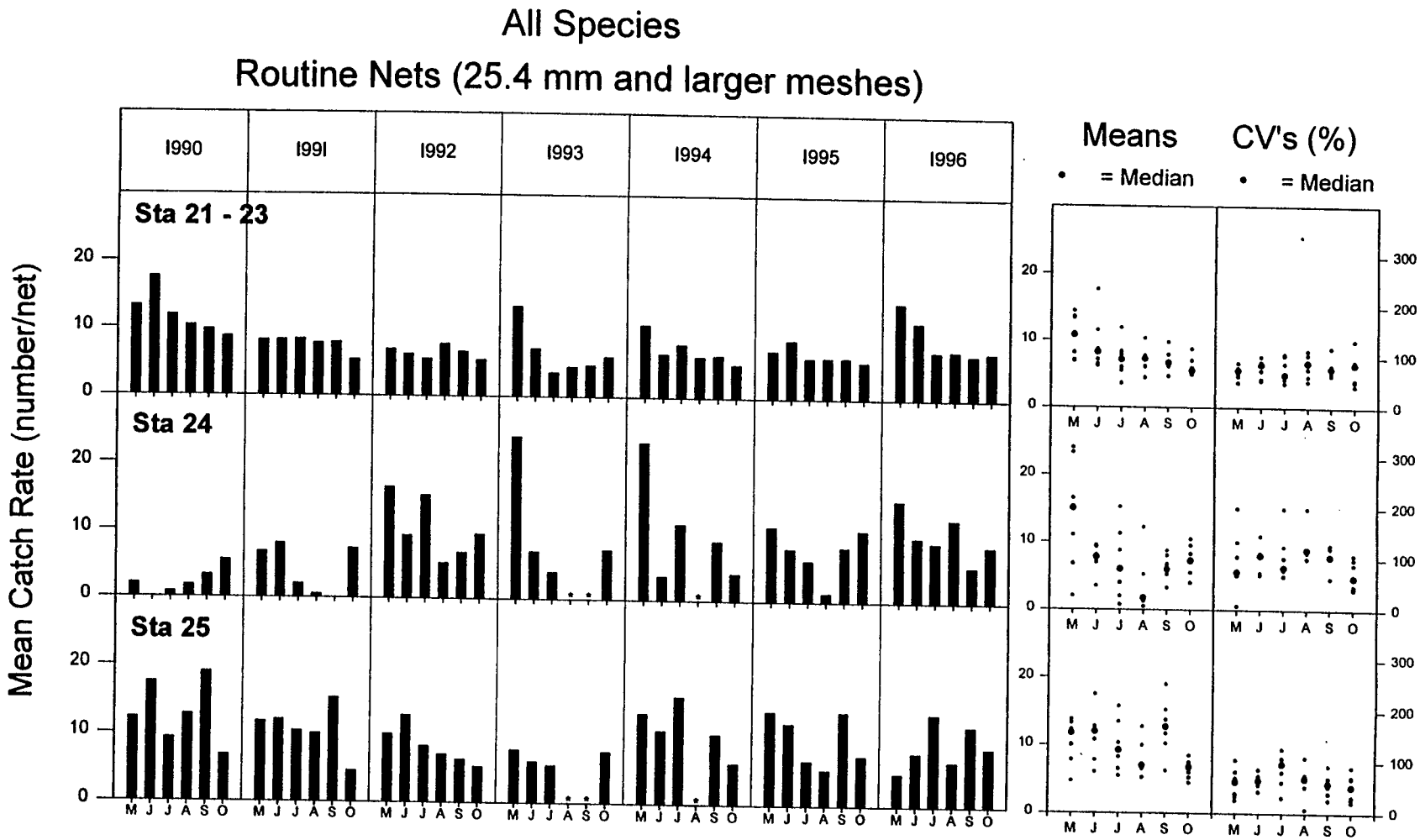


Figure 5-101. Mean catch rate (numbers/net) of all species pooled for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

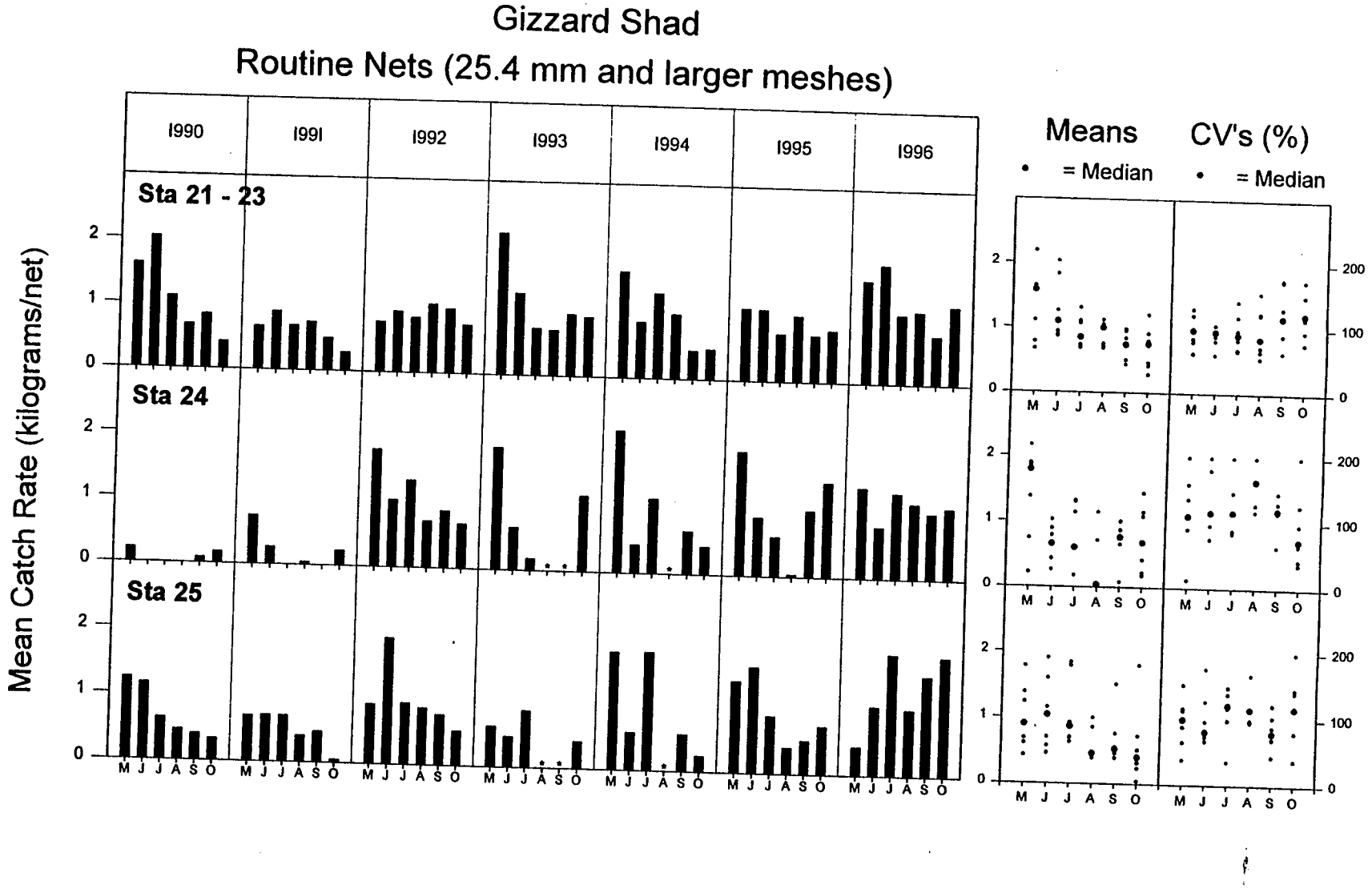


Figure 5-102. Mean catch rate (kilograms/net) of gizzard shad for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

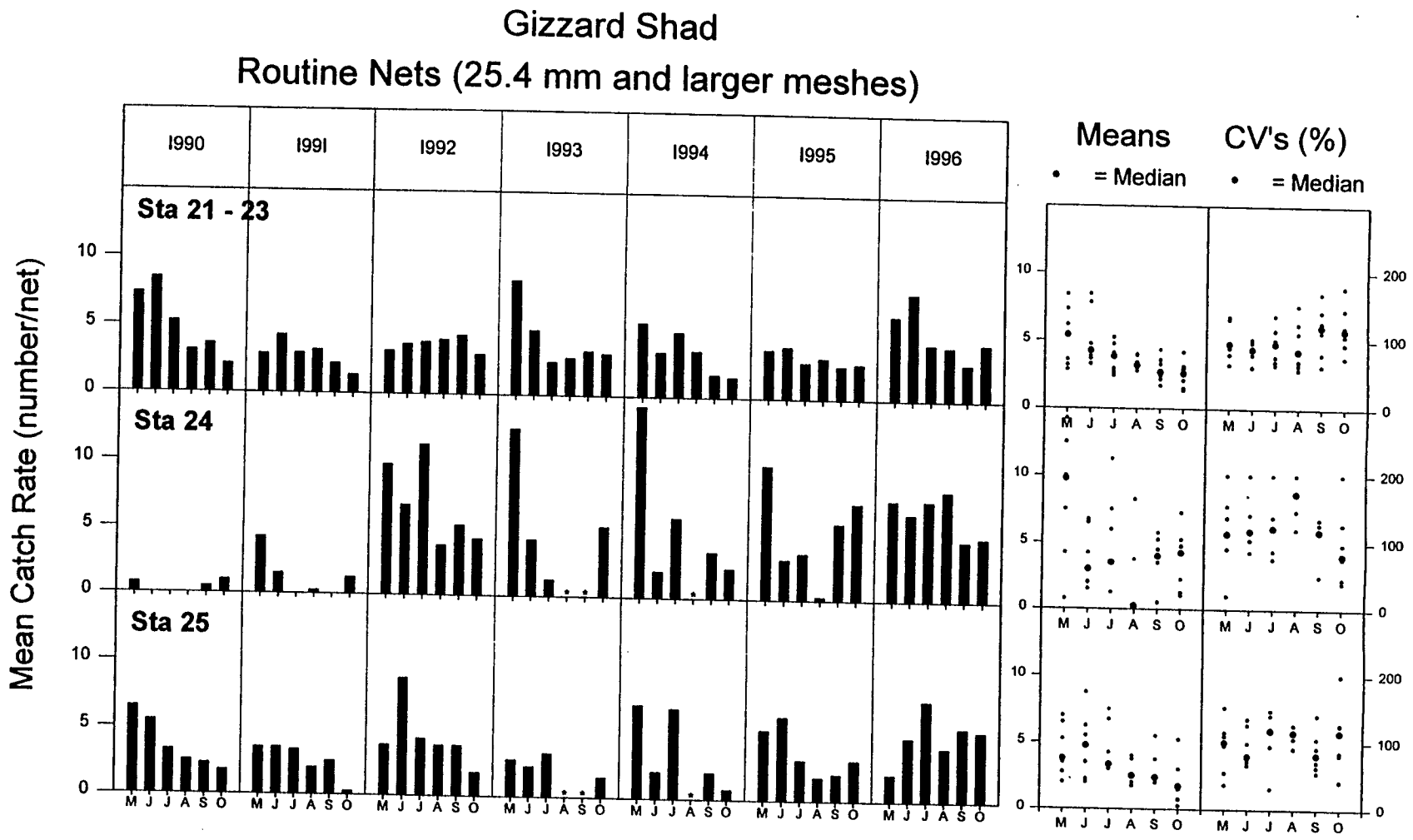


Figure 5-103. Mean catch rate (numbers/net) of gizzard shad for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

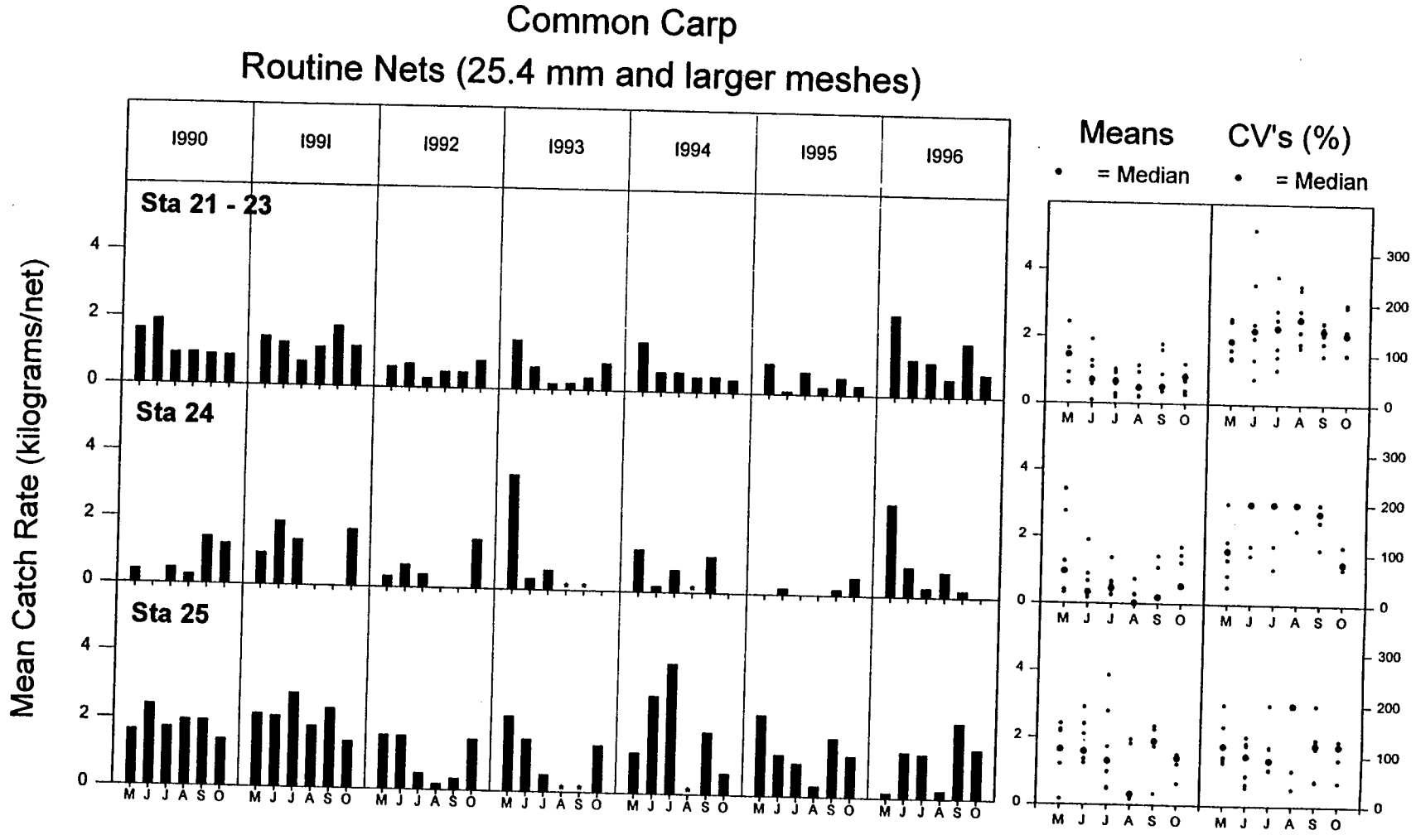


Figure 5-104. Mean catch rate (kilograms/net) of common carp for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

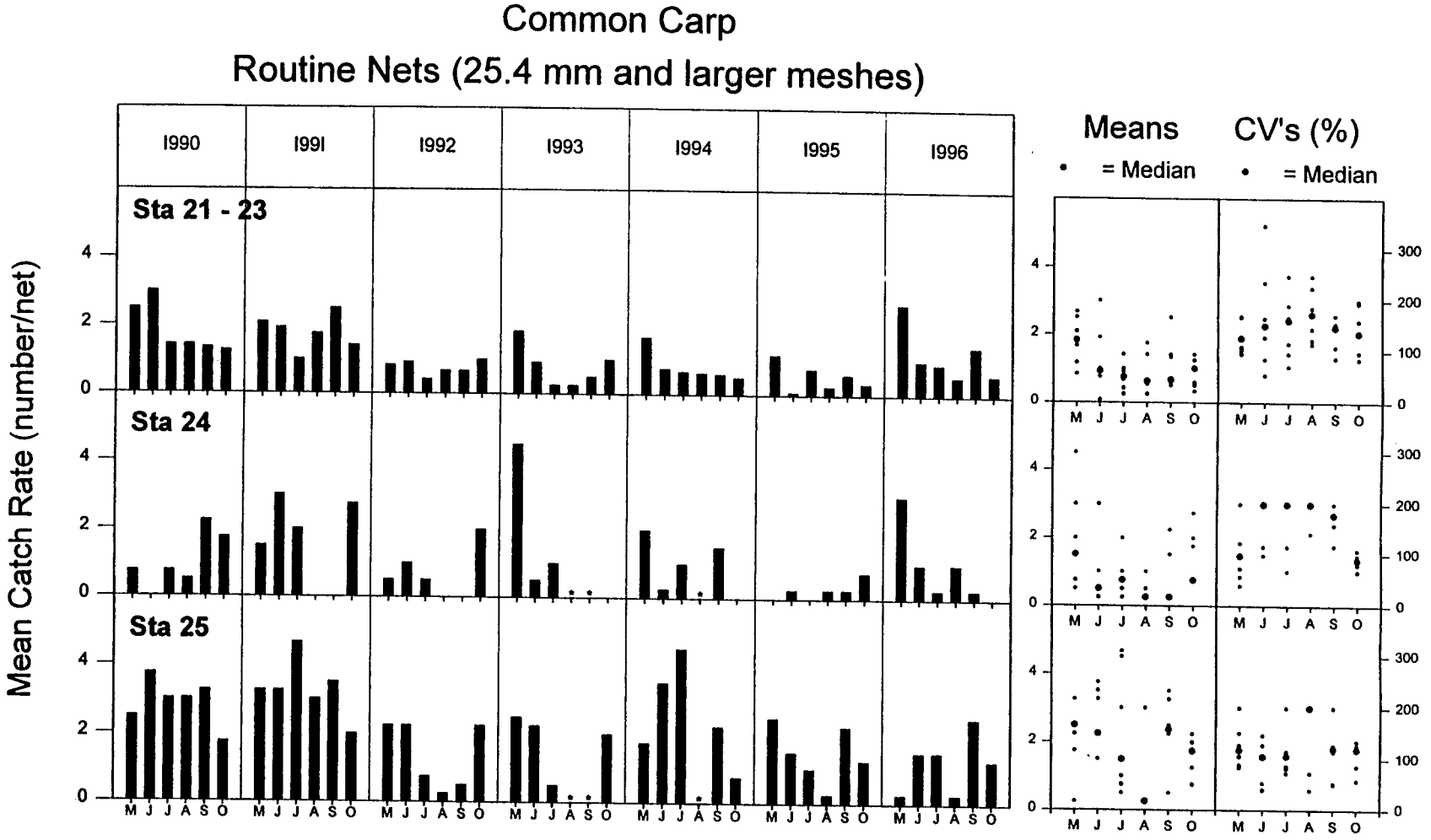


Figure 5-105. Mean catch rate (numbers/net) of common carp for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

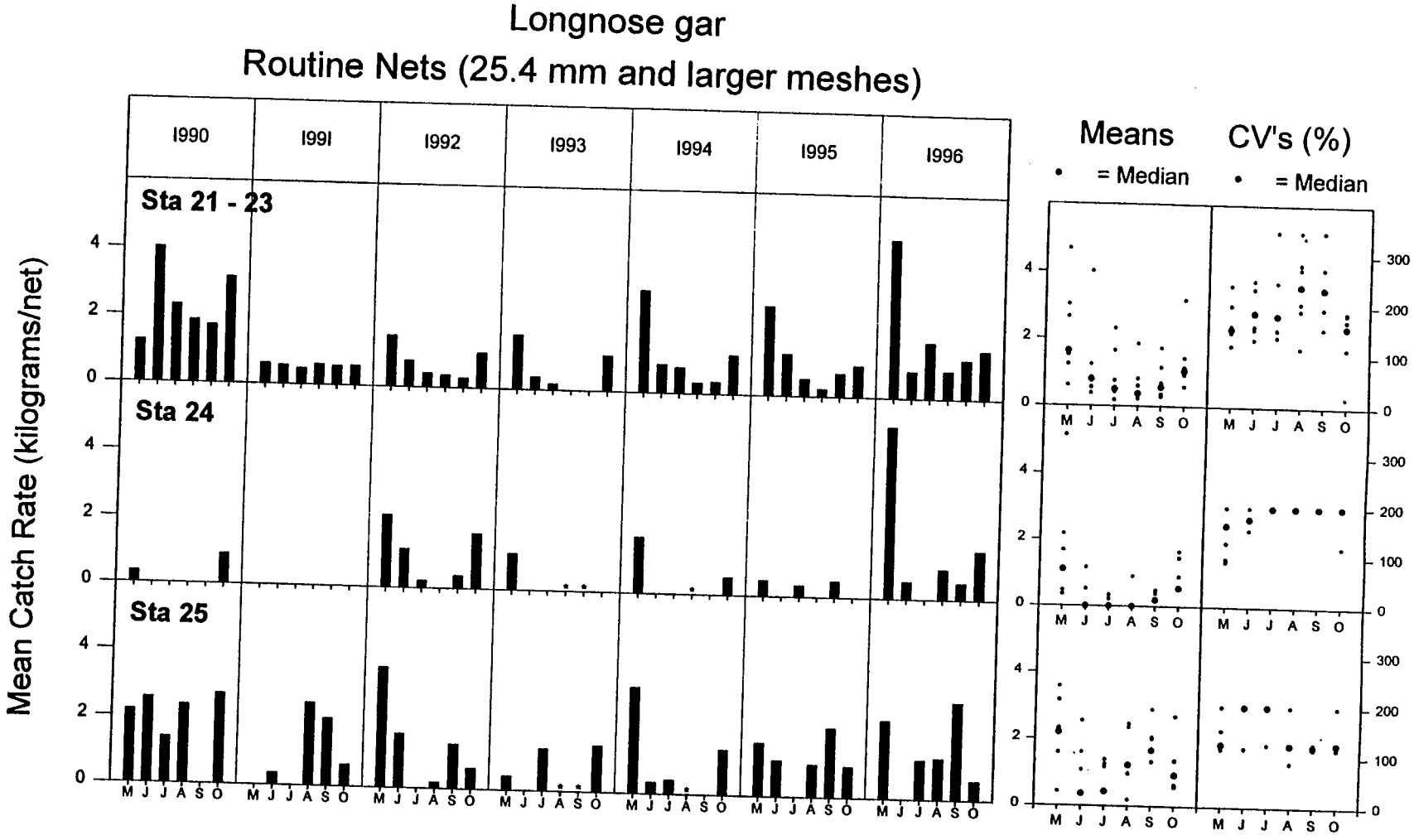


Figure 5-106. Mean catch rate (kilograms/net) of longnose gar for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

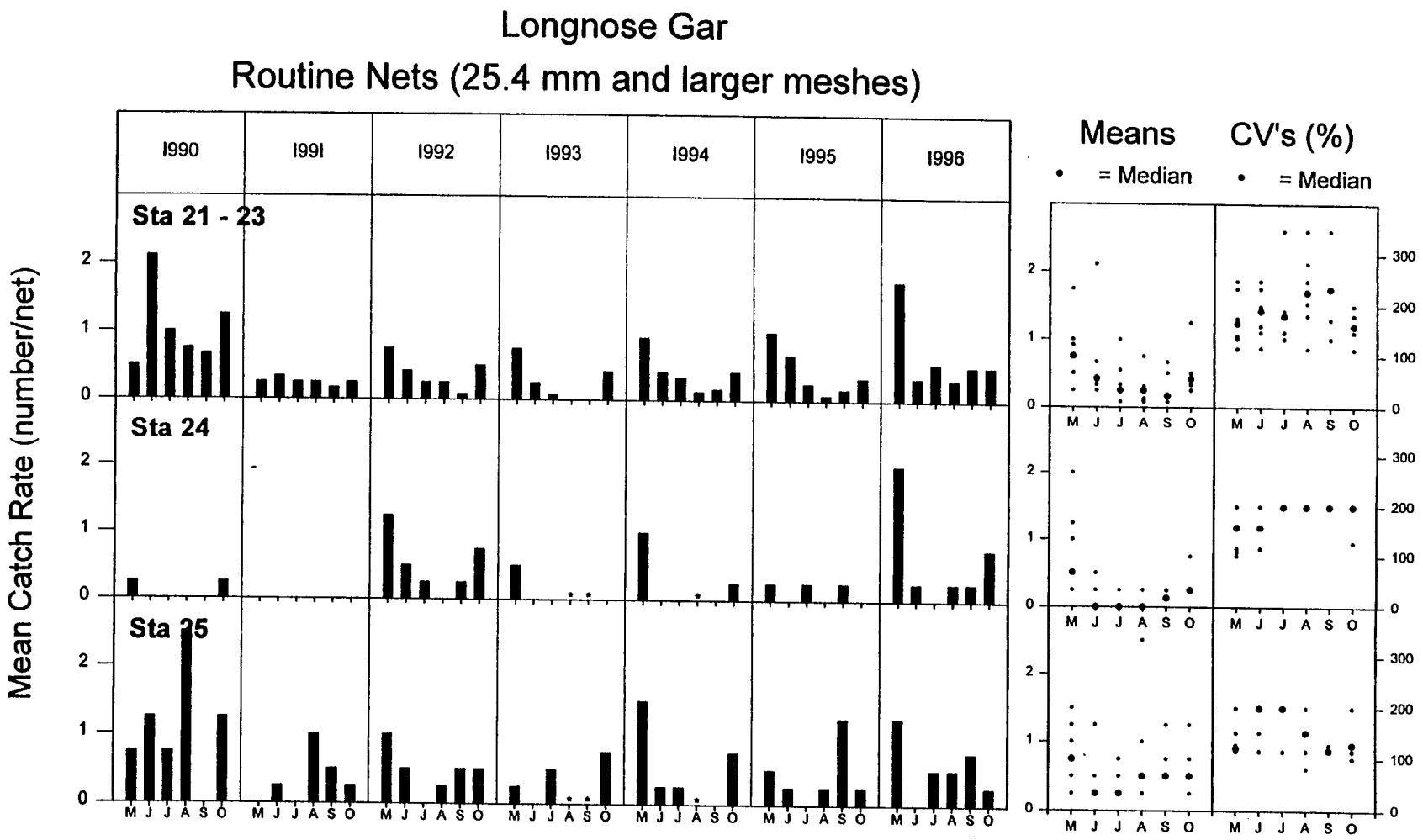


Figure 5-107. Mean catch rate (numbers/net) of longnose gar for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

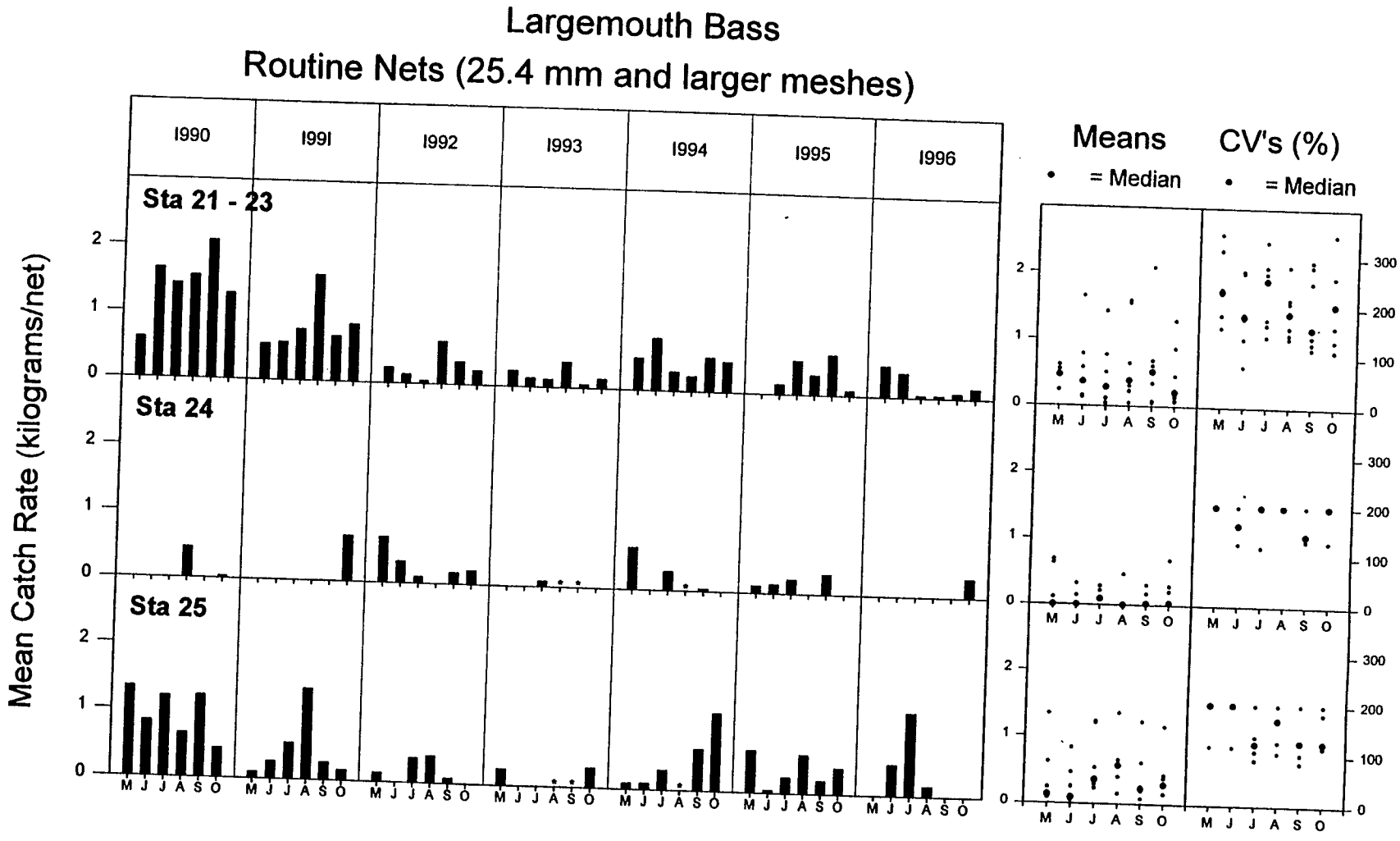


Figure 5-108. Mean catch rate (kilograms/net) of largemouth bass for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

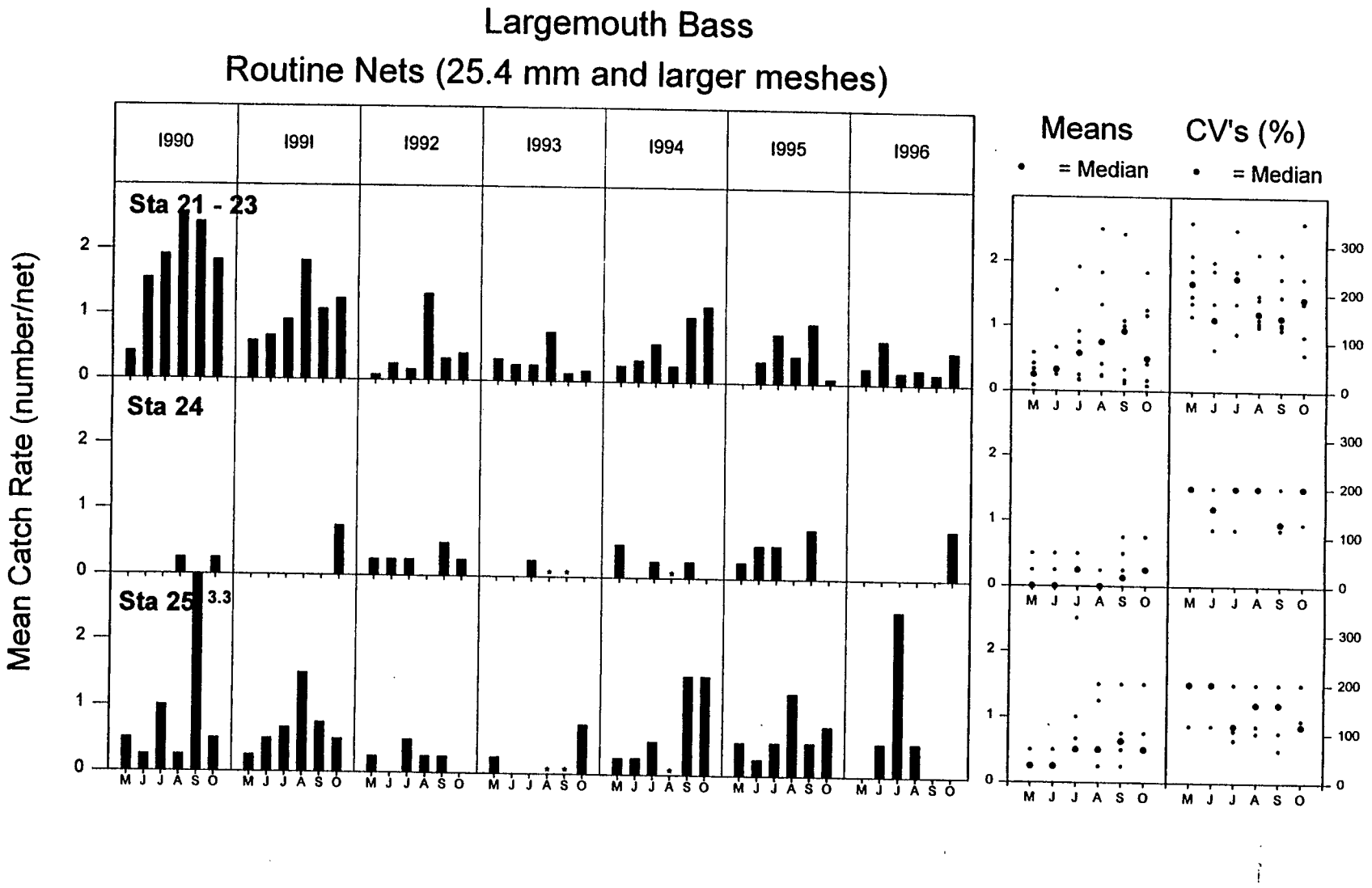


Figure 5-109. Mean catch rate (numbers/net) of largemouth bass for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

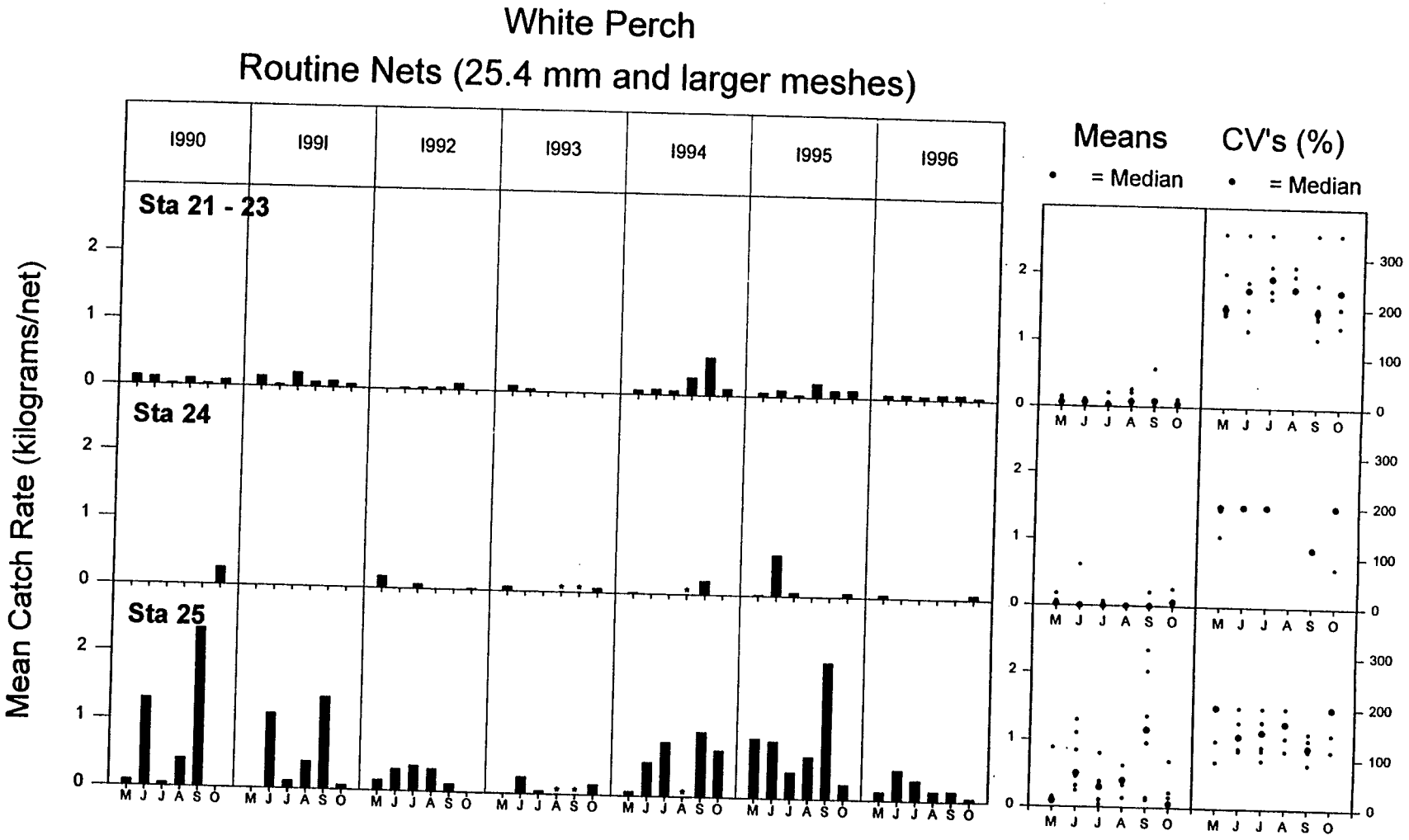


Figure 5-110. Mean catch rate (kilograms/net) of white perch for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

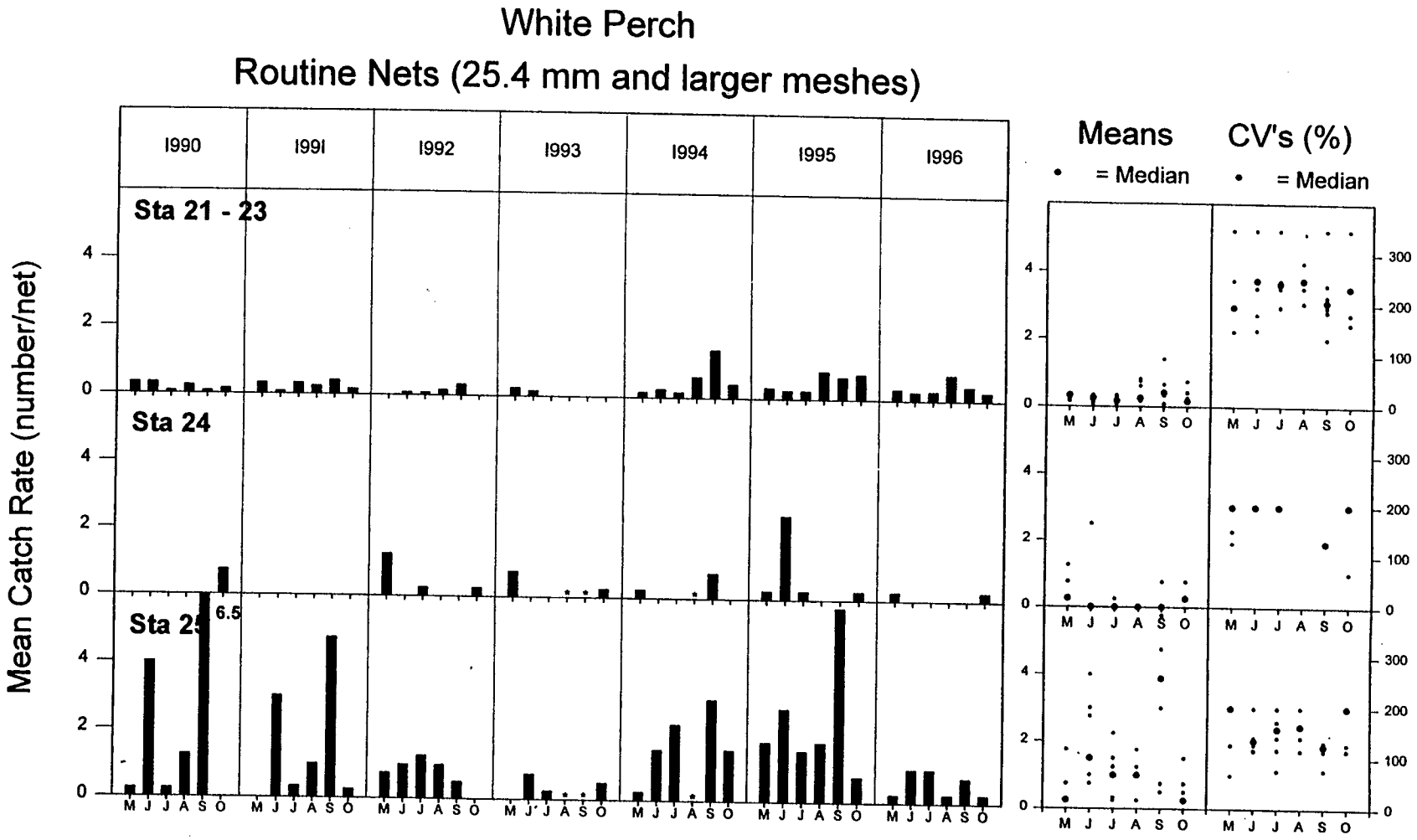


Figure 5-111. Mean catch rate (numbers/net) of white perch for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

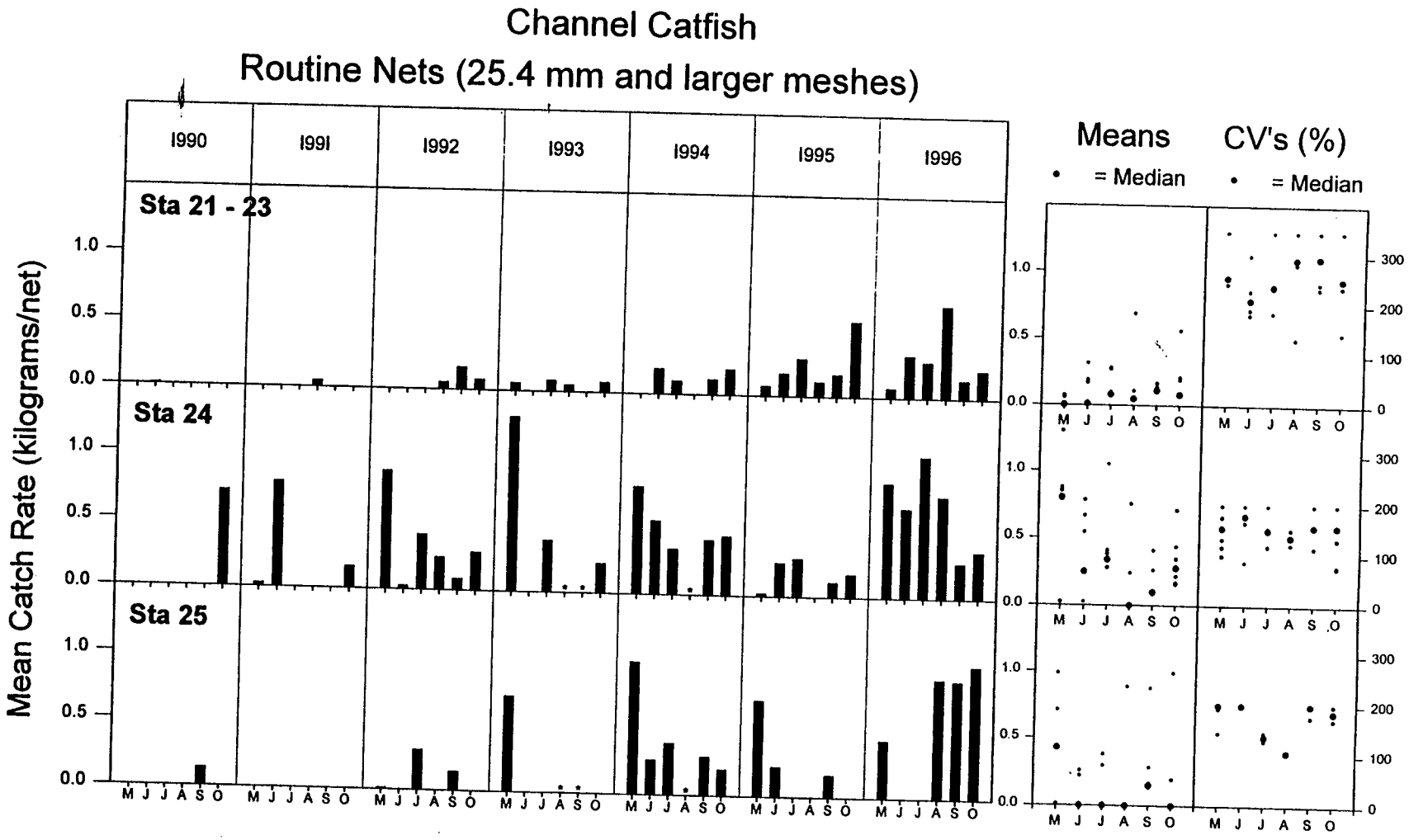


Figure 5-112. Mean catch rate (kilograms/net) of channel catfish for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

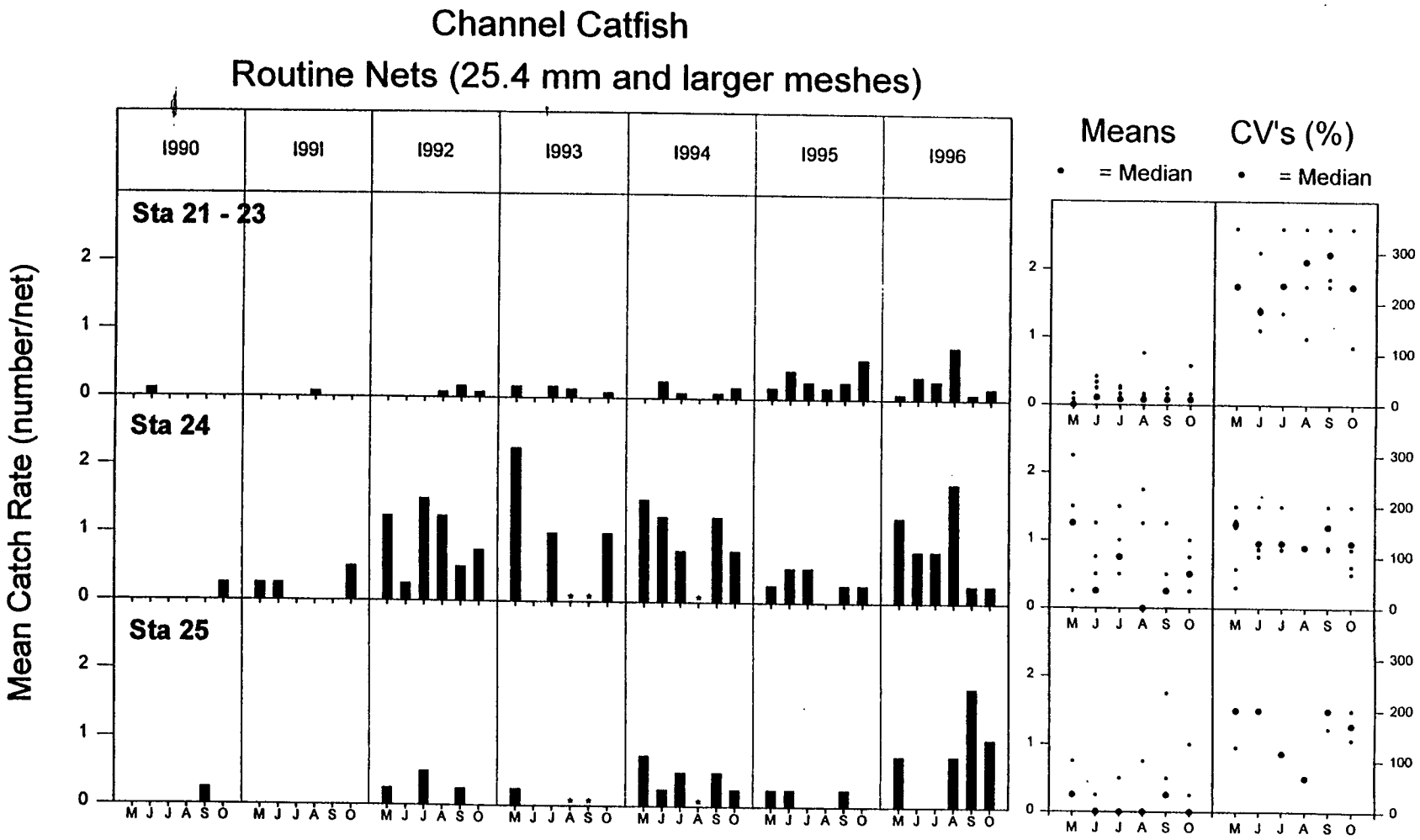


Figure 5-113. Mean catch rate (numbers/net) of channel catfish for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

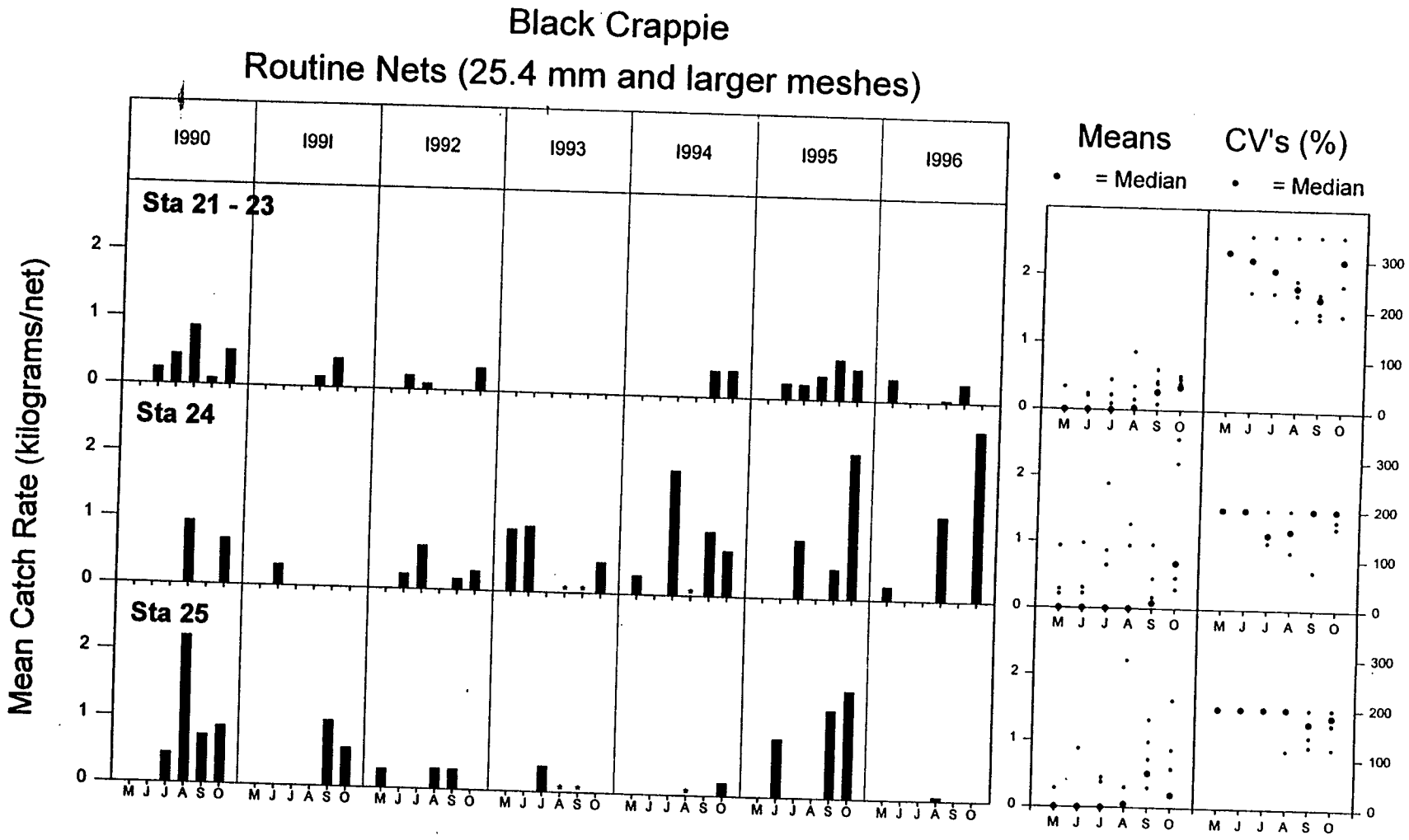


Figure 5-114. Mean catch rate (kilograms/net) of black crappie for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

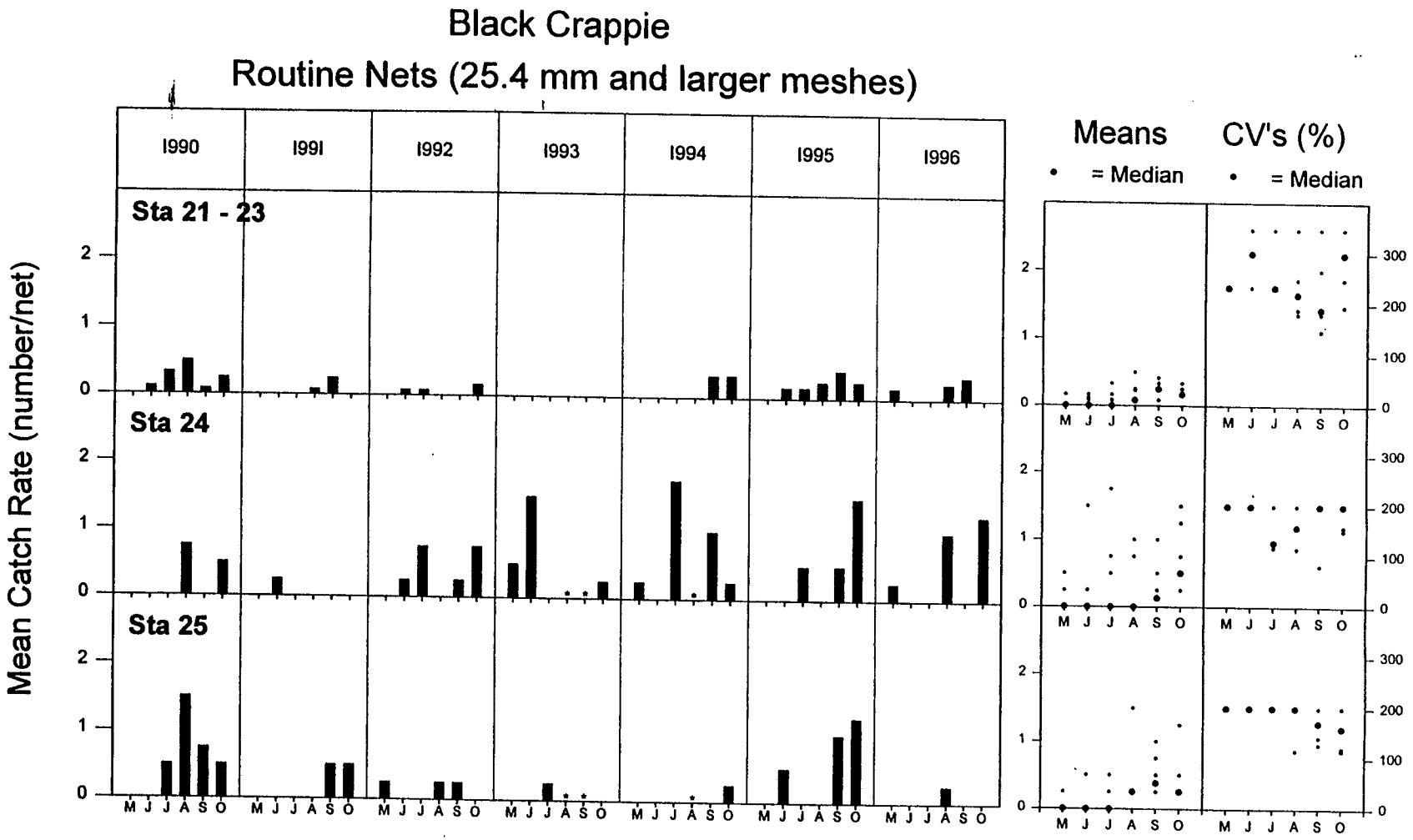


Figure 5-115. Mean catch rate (numbers/net) of black crappie for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

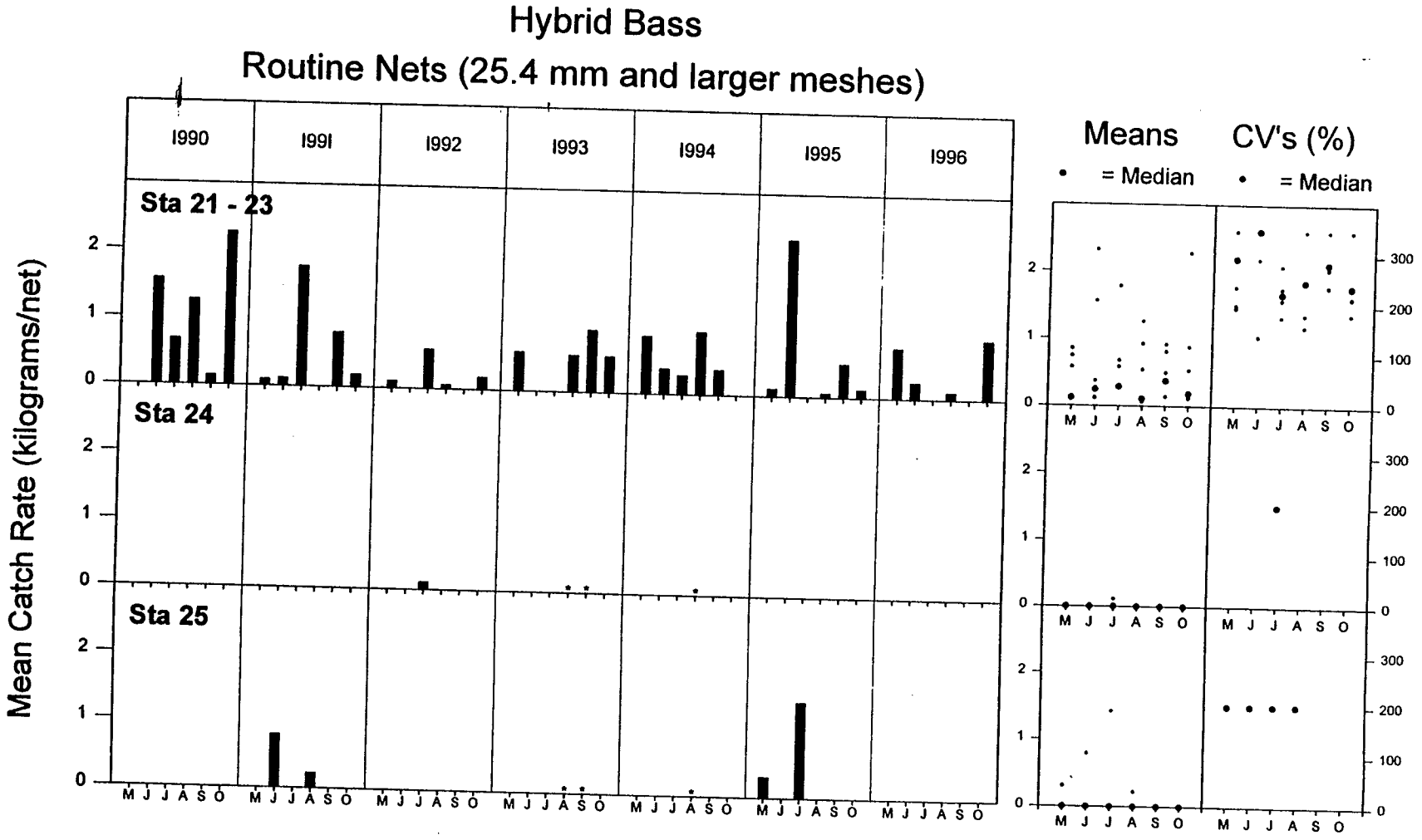


Figure 5-116. Mean catch rate (kilograms/net) of hybrid bass for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

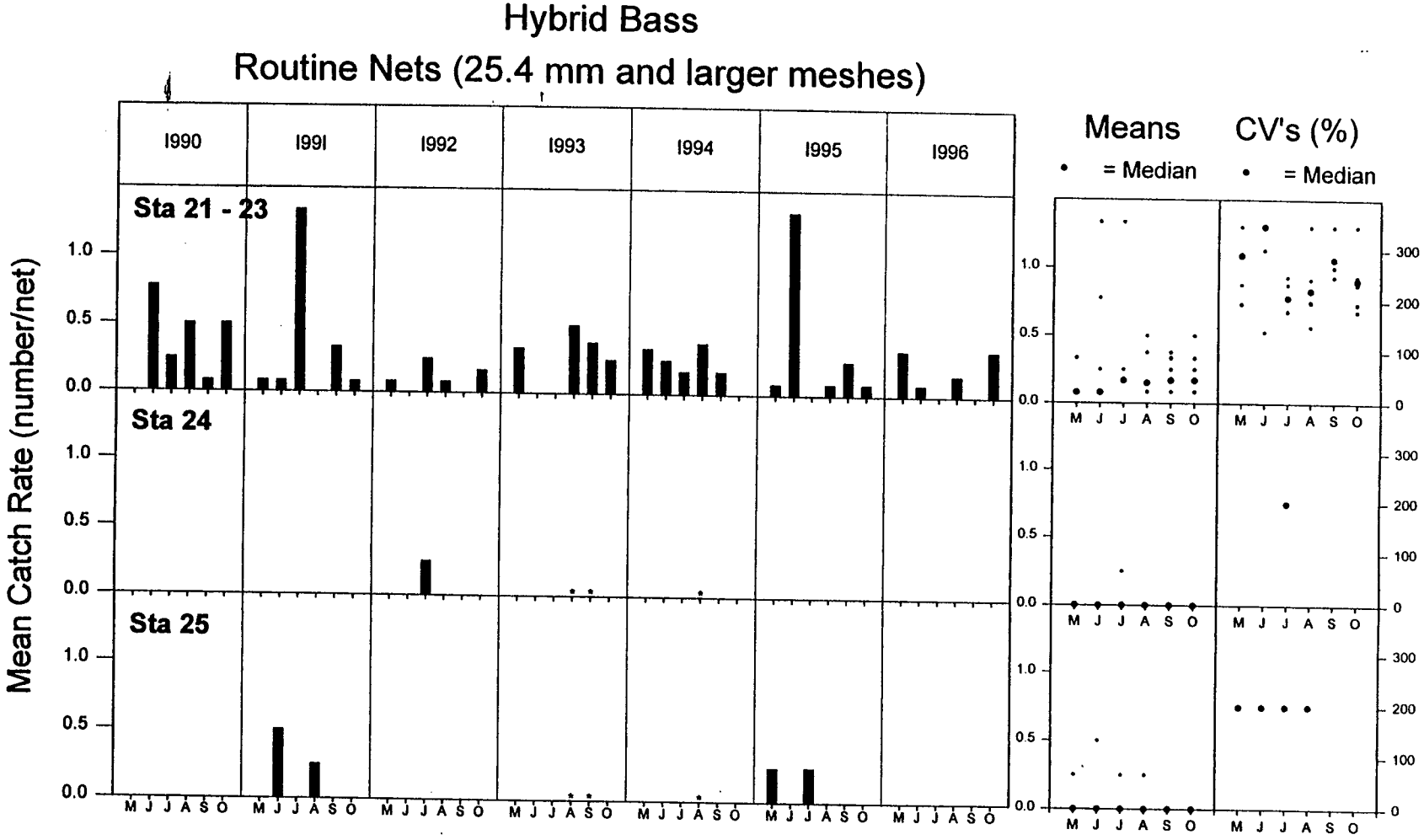


Figure 5-117. Mean catch rate (numbers/net) of hybrid bass for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

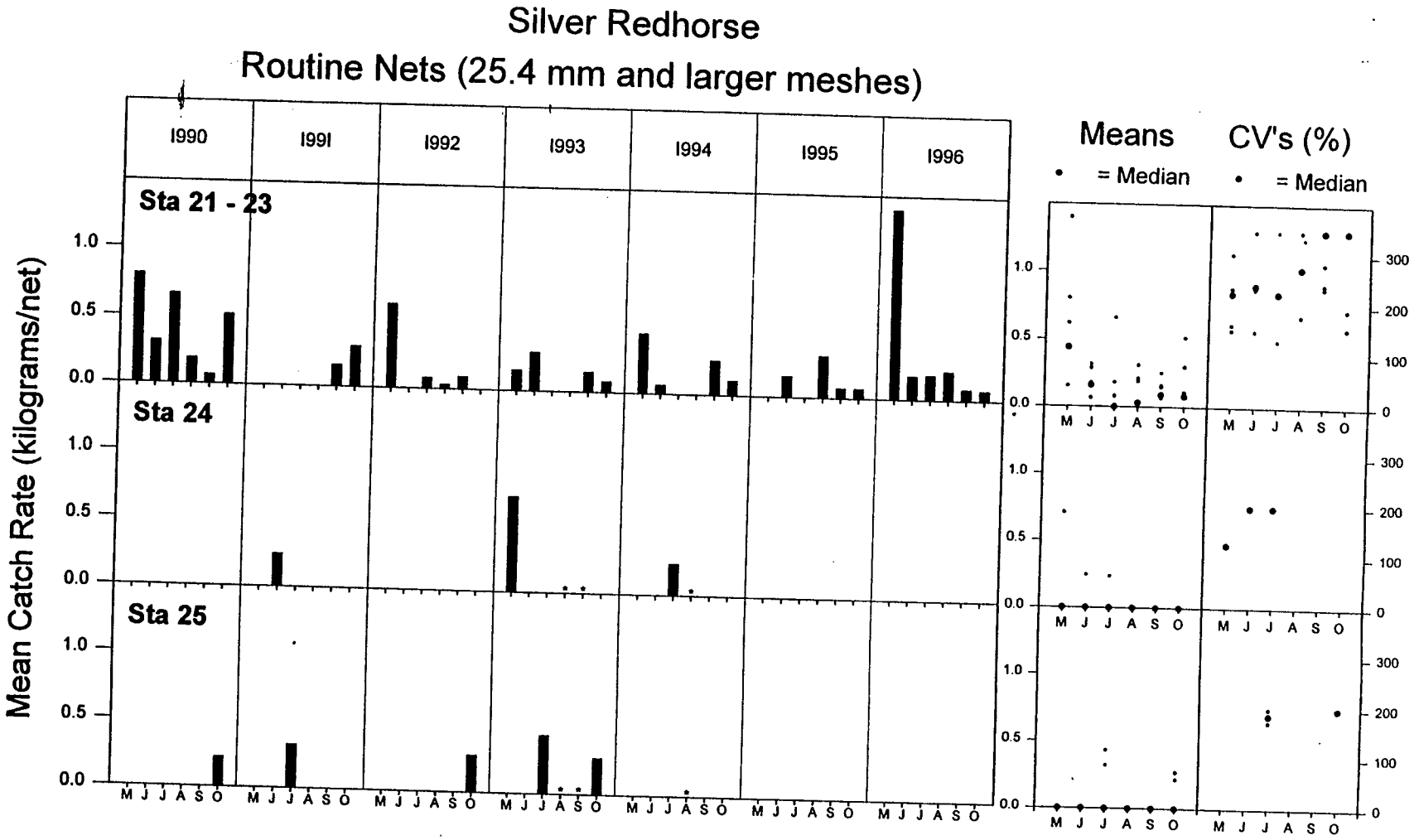


Figure 5-118. Mean catch rate (kilograms/net) of silver redhorse for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

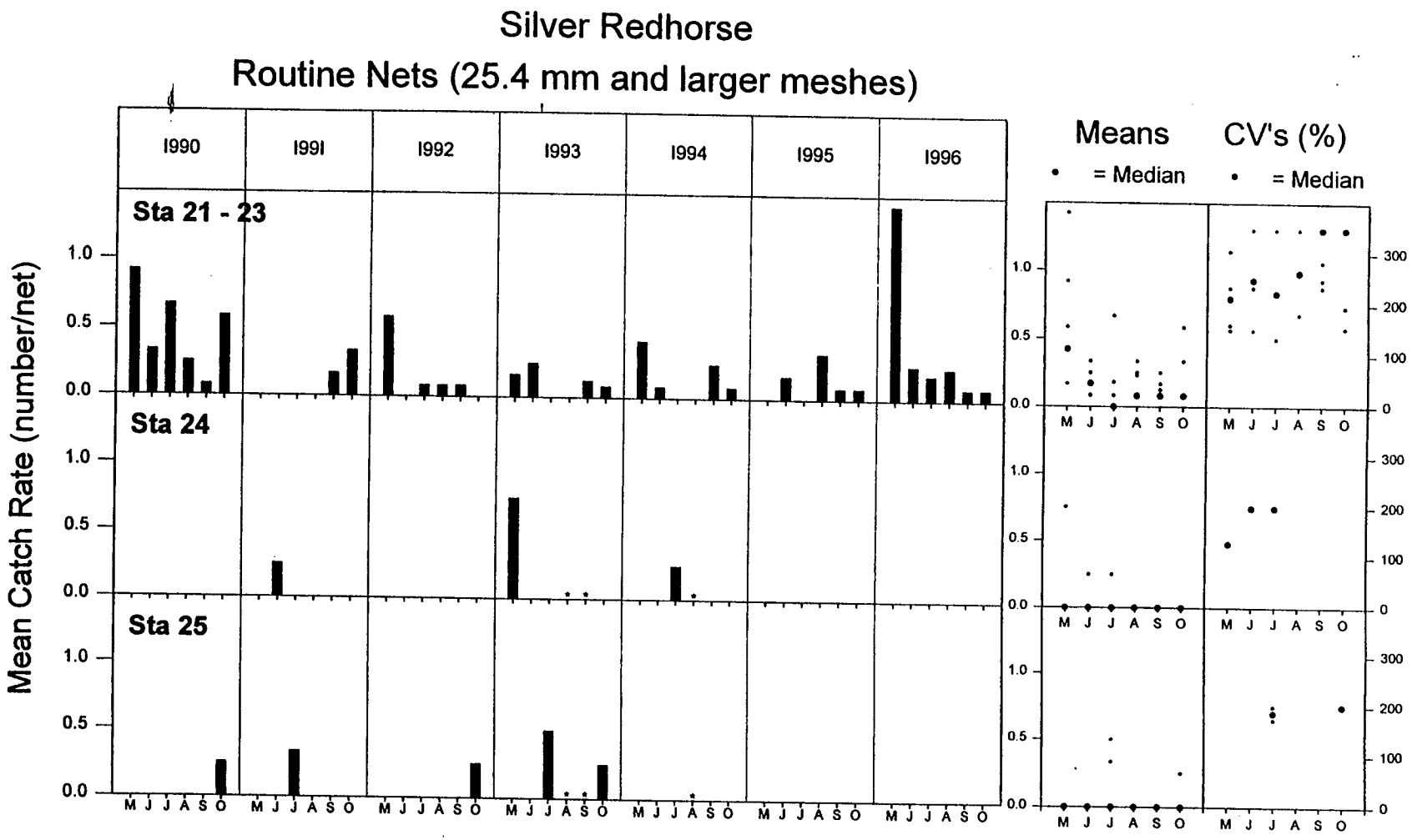


Figure 5-119. Mean catch rate (numbers/net) of silver redhorse for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

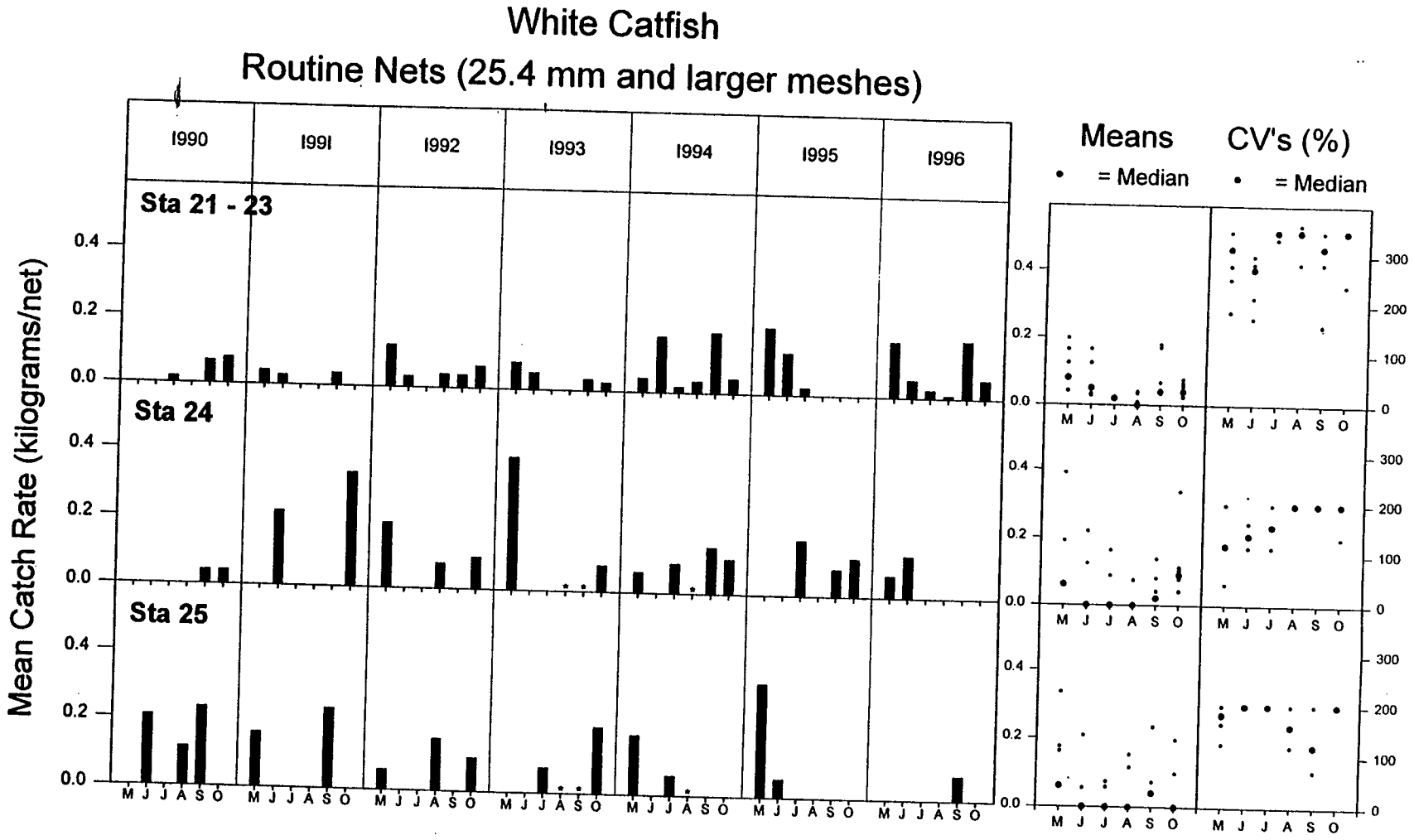


Figure 5-120. Mean catch rate (kilograms/net) of white catfish for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

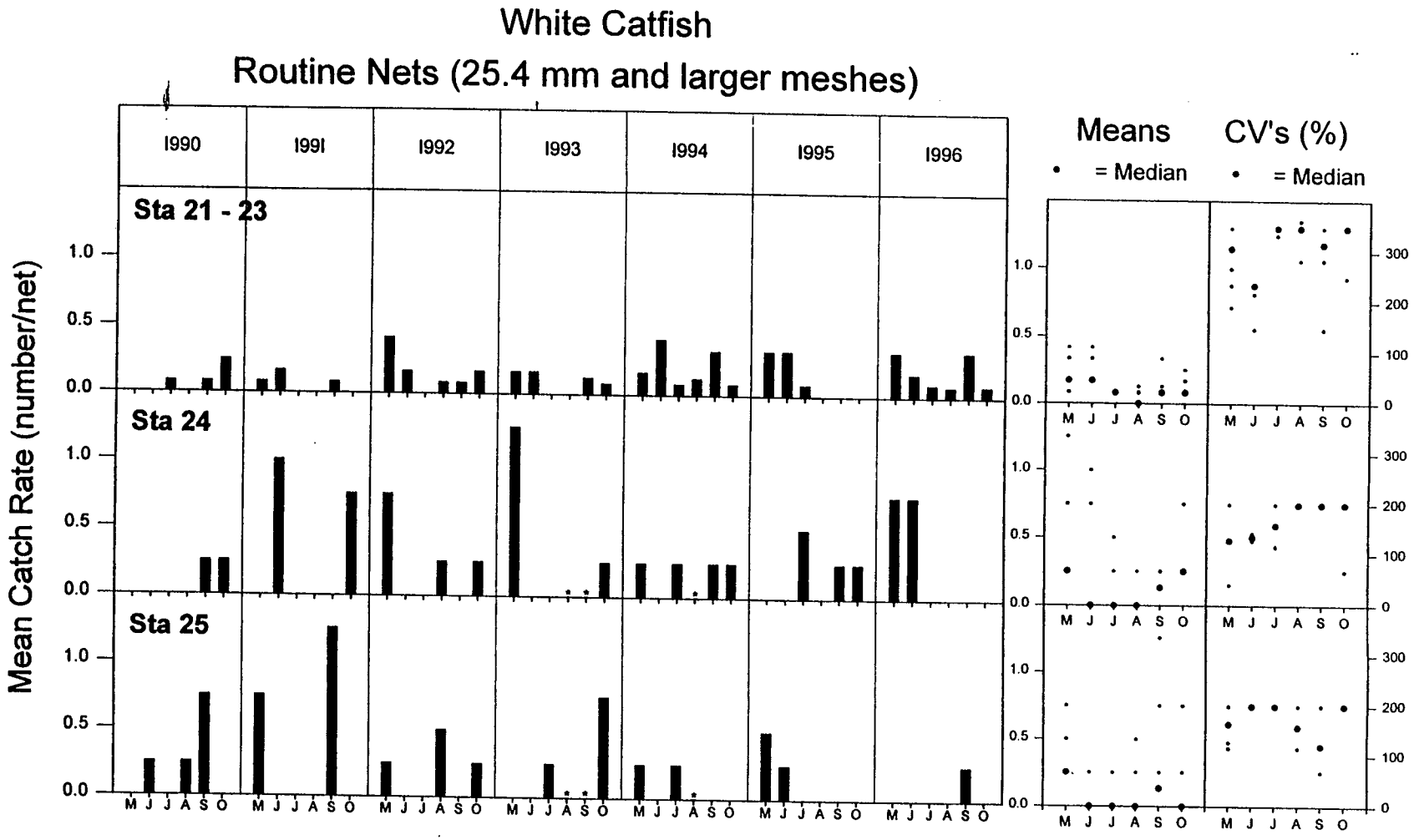


Figure 5-121. Mean catch rate (numbers/net) of white catfish for RBR routine gillnetting (meshes 25.4 mm and larger). An asterisk indicates that no sampling was conducted for that month.

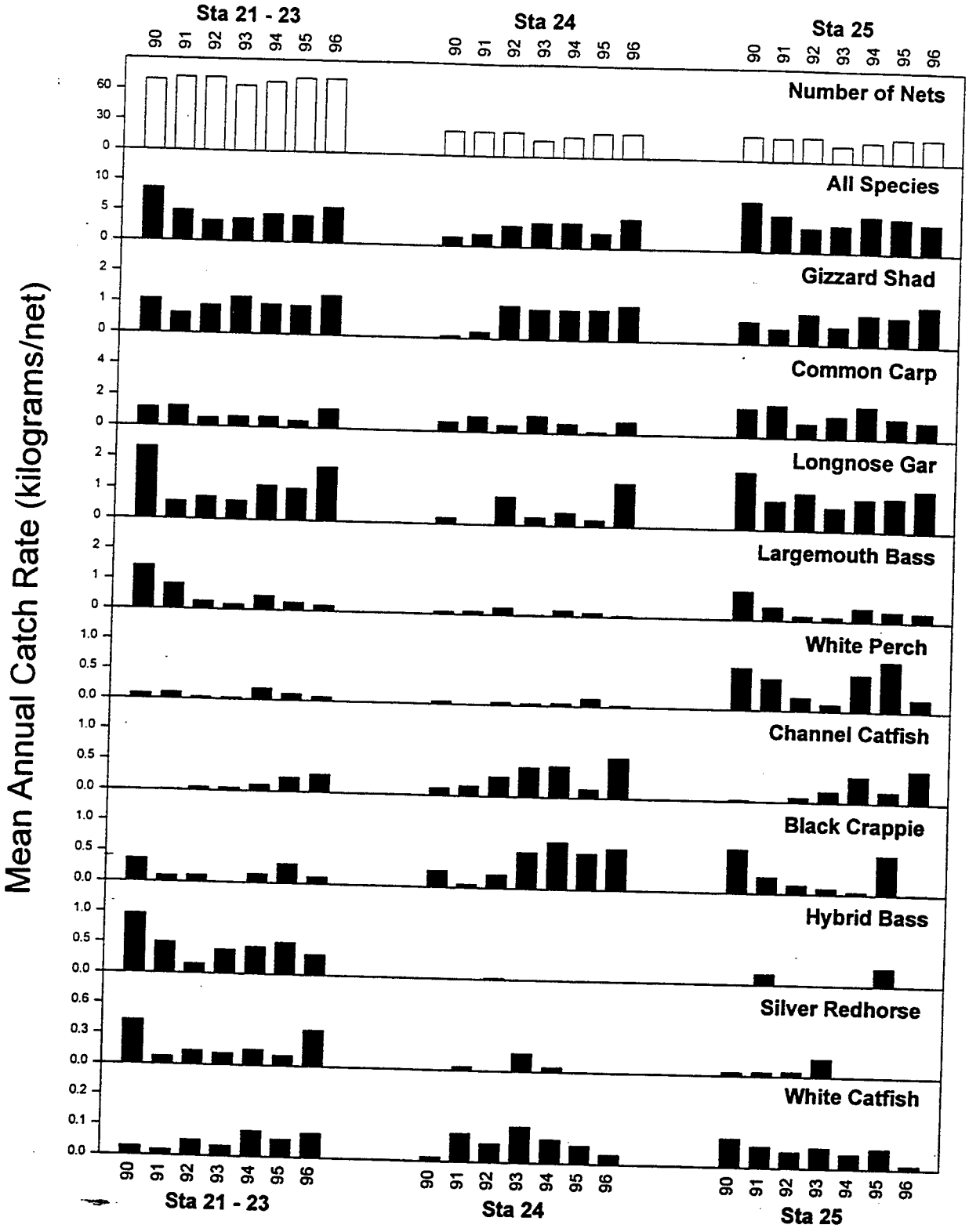


Figure 5-122. Mean annual catch rate (kilograms/net) by station grouping for the top 10 IRI species and all species pooled for RBR routine gillnetting (meshes 25.4 mm and larger).

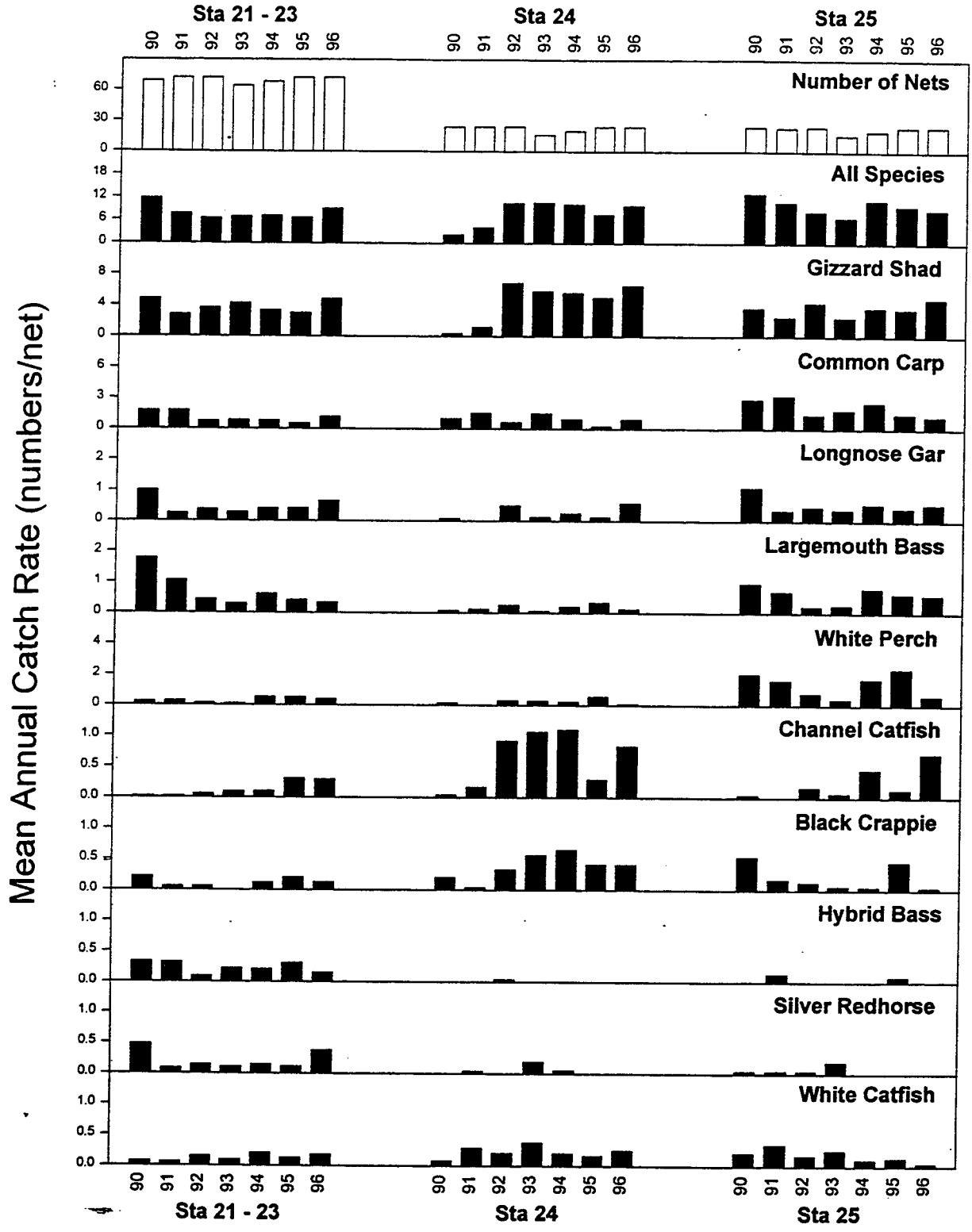


Figure 5-123. Mean annual catch rate (numbers/net) by station grouping for the top 10 IRI species and all species pooled for RBR routine gillnetting (meshes 25.4 mm and larger).

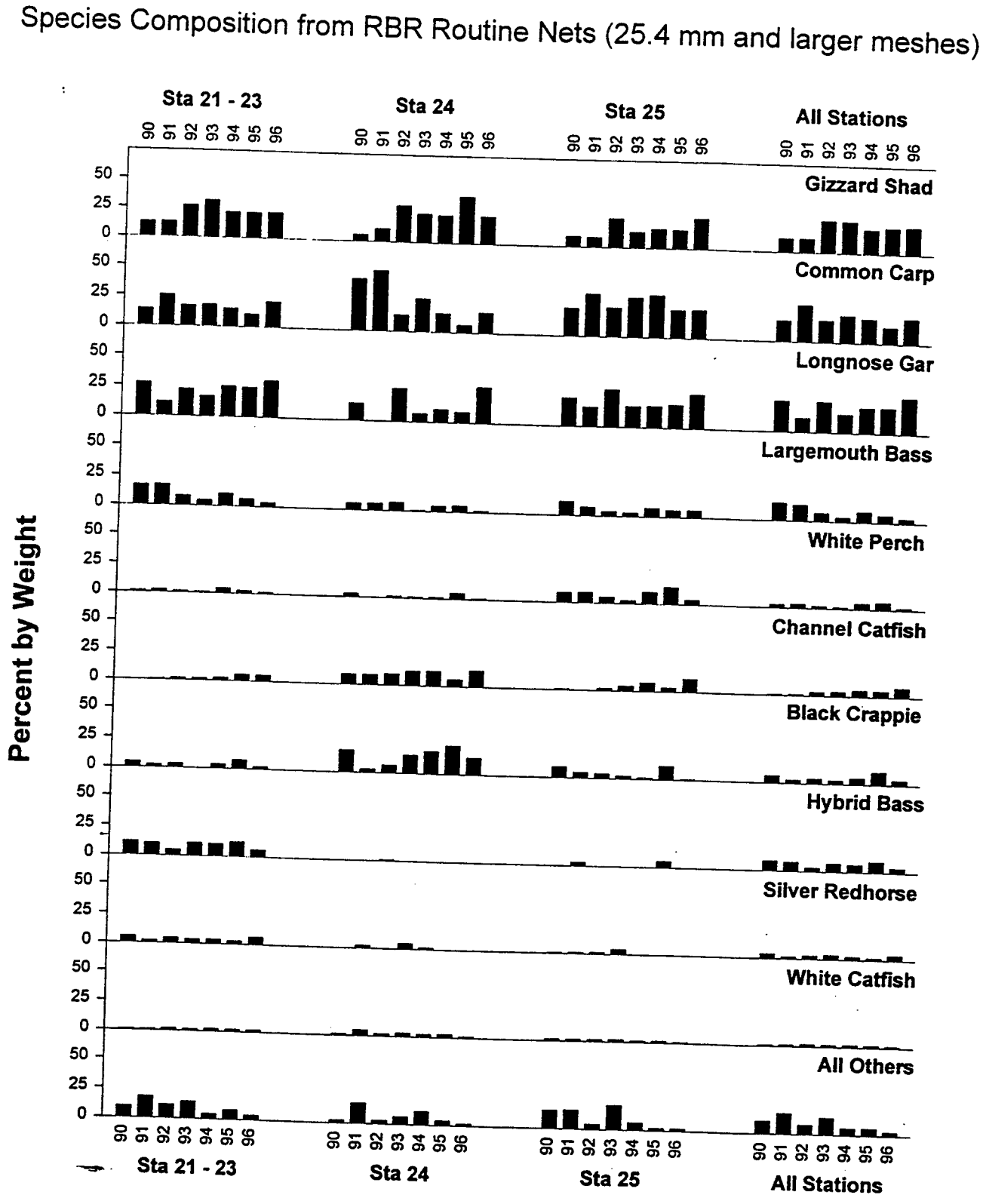


Figure 5-124. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for RBR routine gillnetting (meshes 25.4 mm and larger).

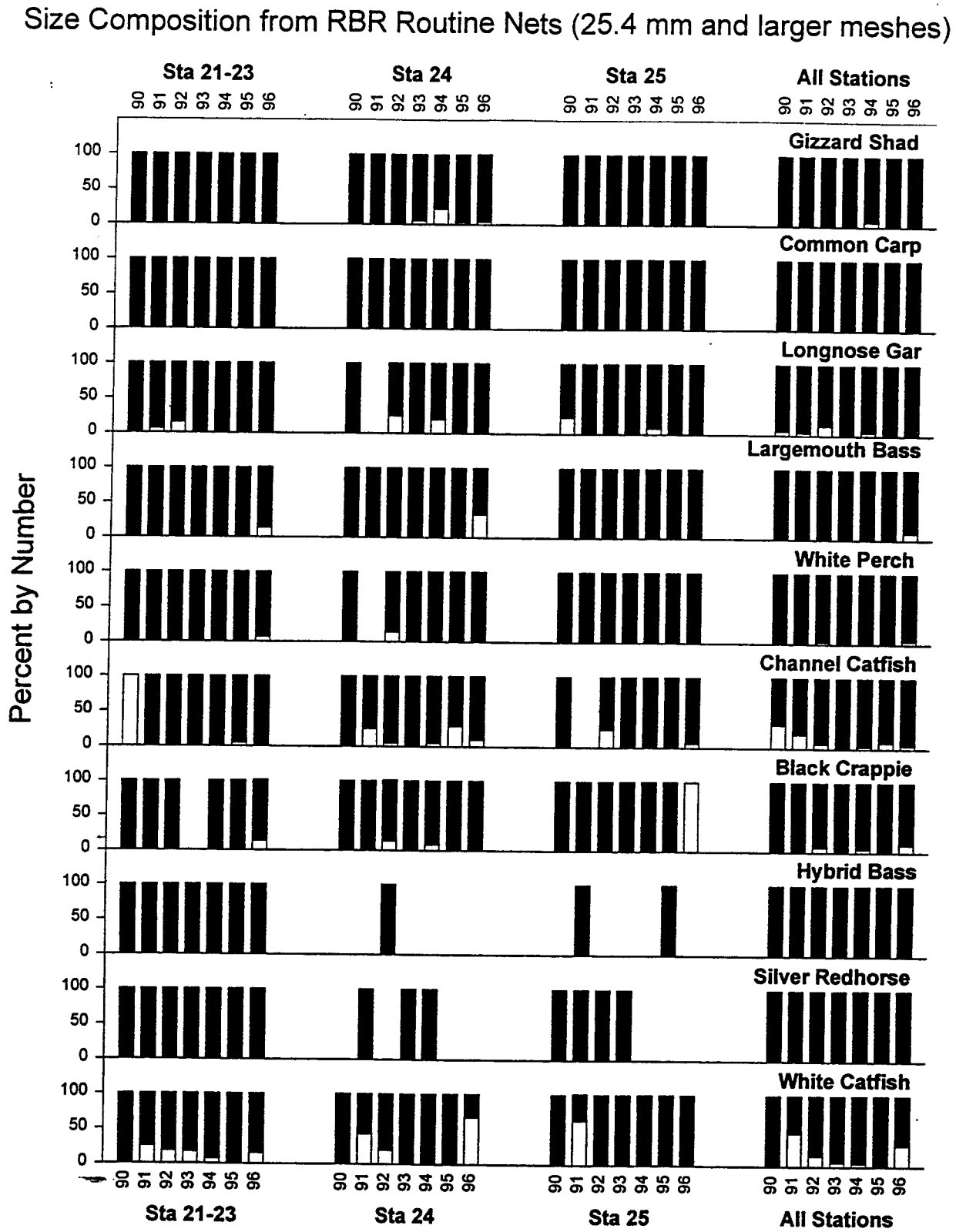


Figure 5-125. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for RBR routine gillnetting (meshes 25.4 mm and larger).

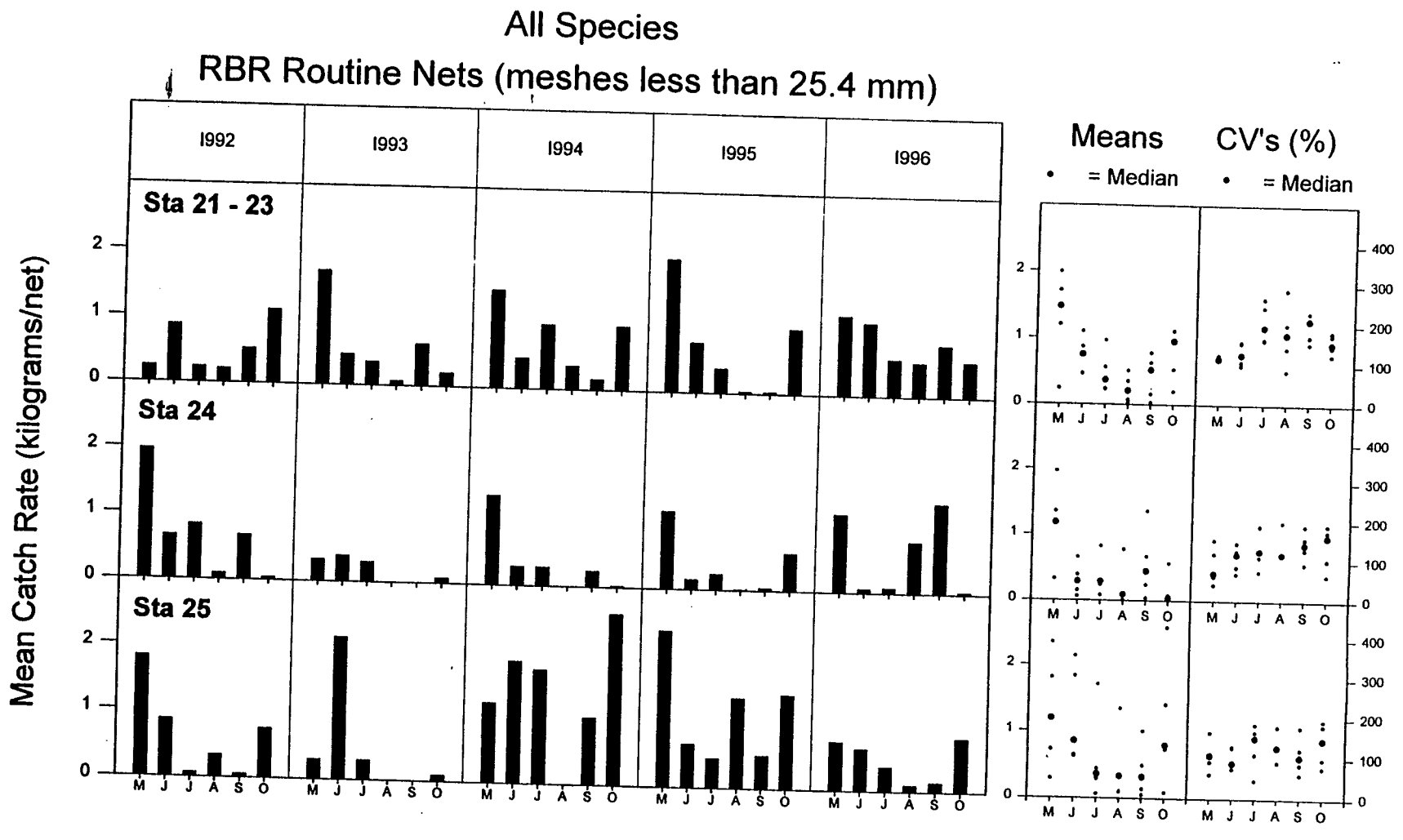


Figure 5-126. Mean catch rate (kilograms/net) of all species pooled for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

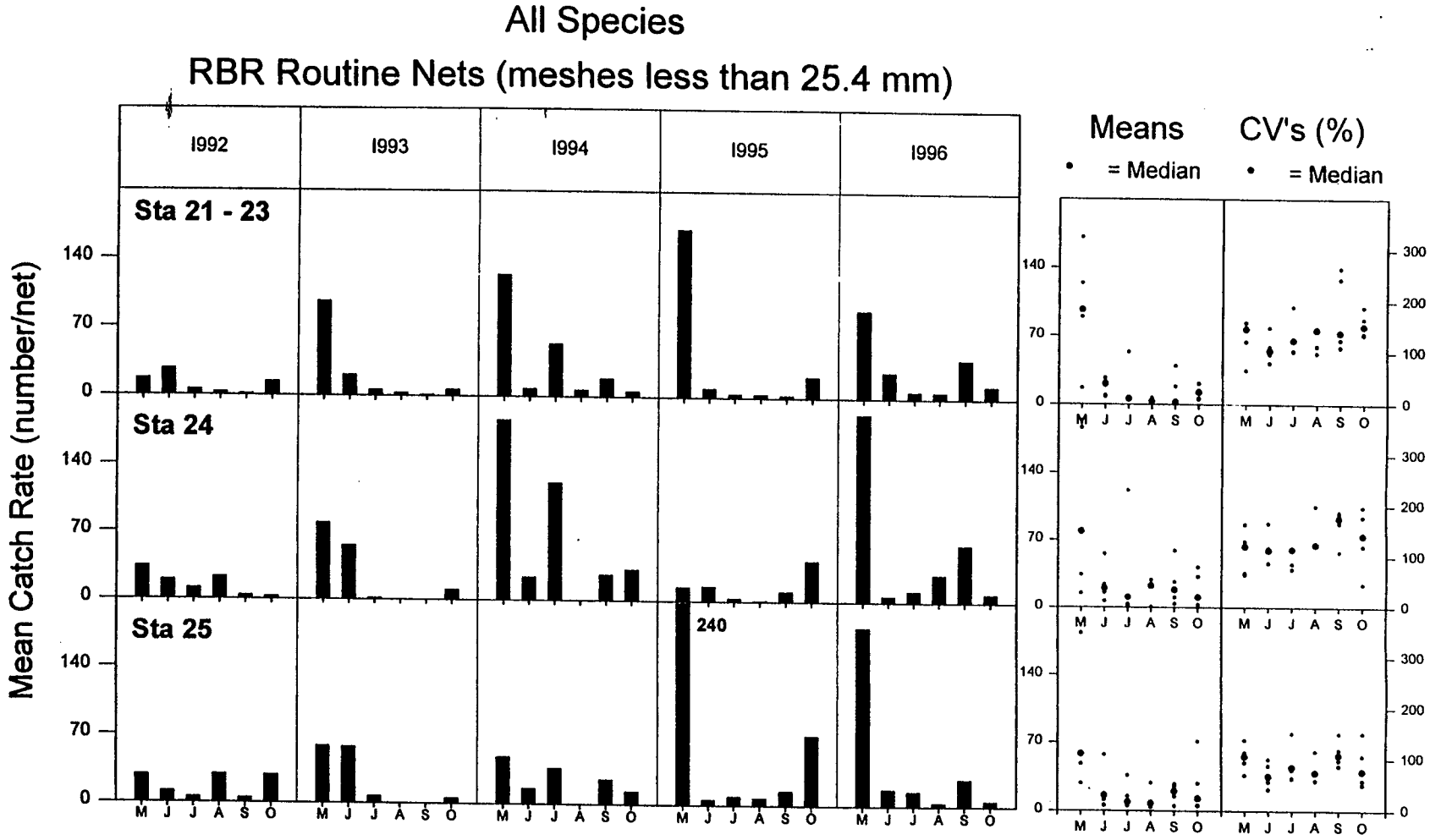


Figure 5-127. Mean catch rate (numbers/net) of all species pooled for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

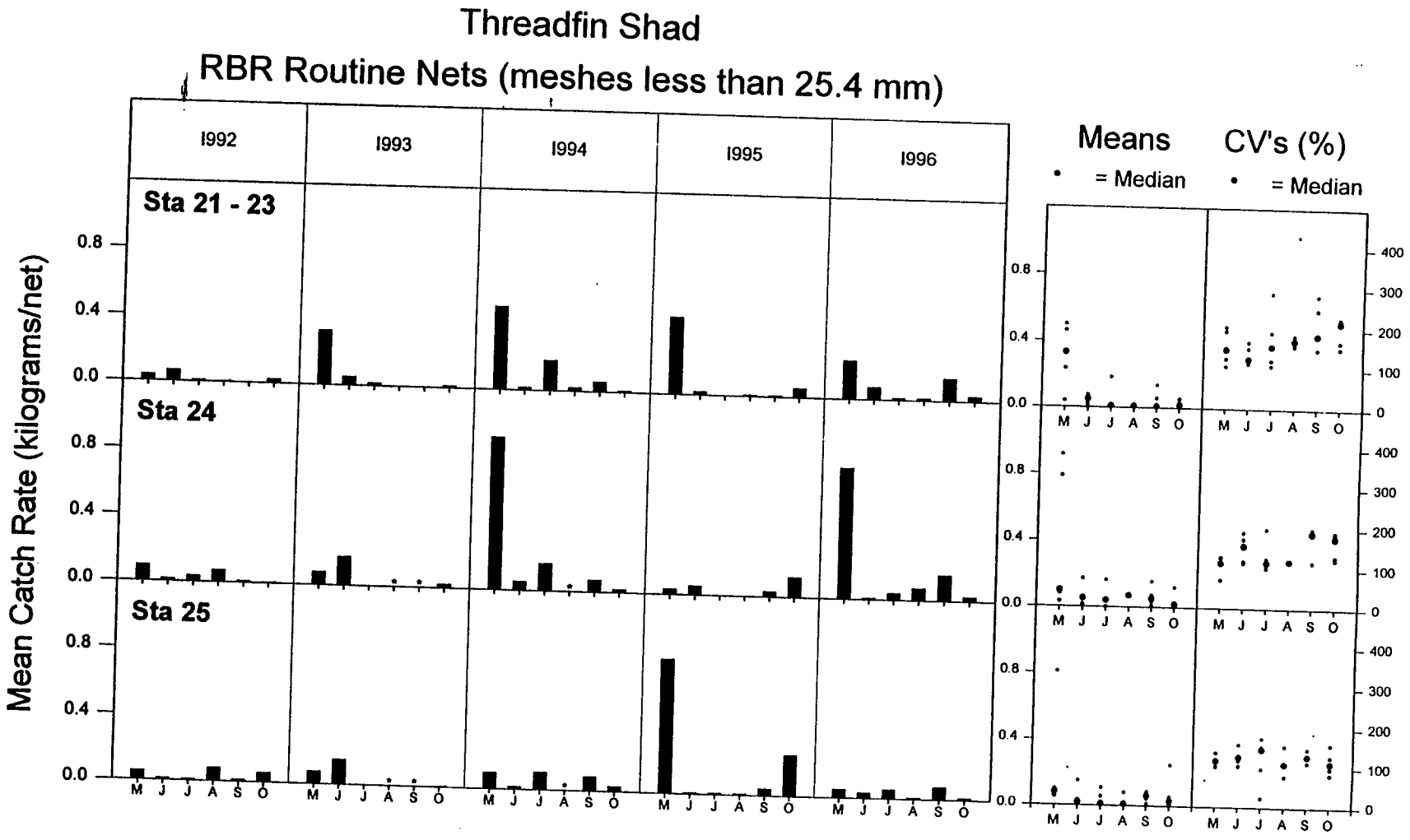


Figure 5-128. Mean catch rate (kilograms/net) of threadfin shad for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

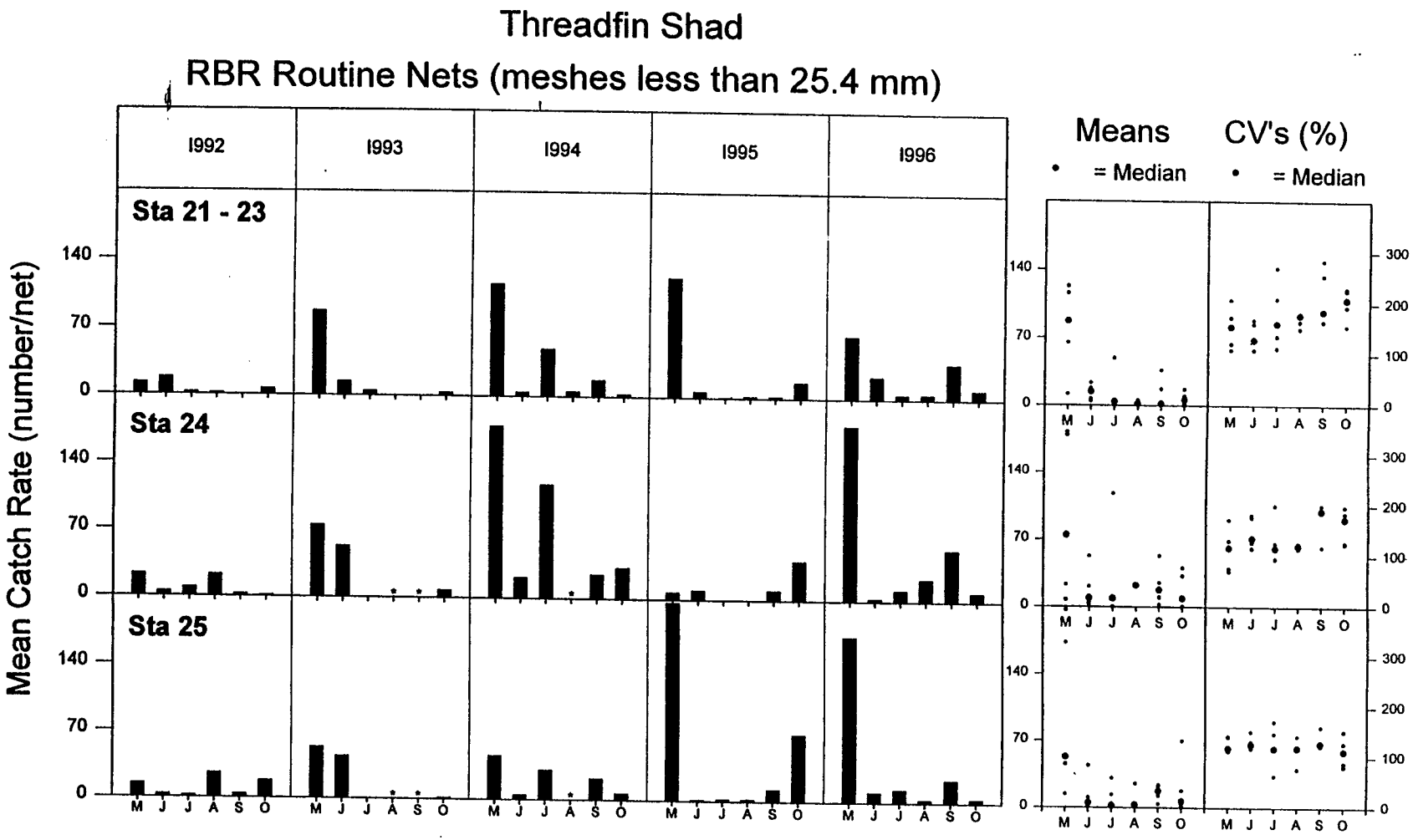


Figure 5-129. Mean catch rate (numbers/net) of threadfin shad for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

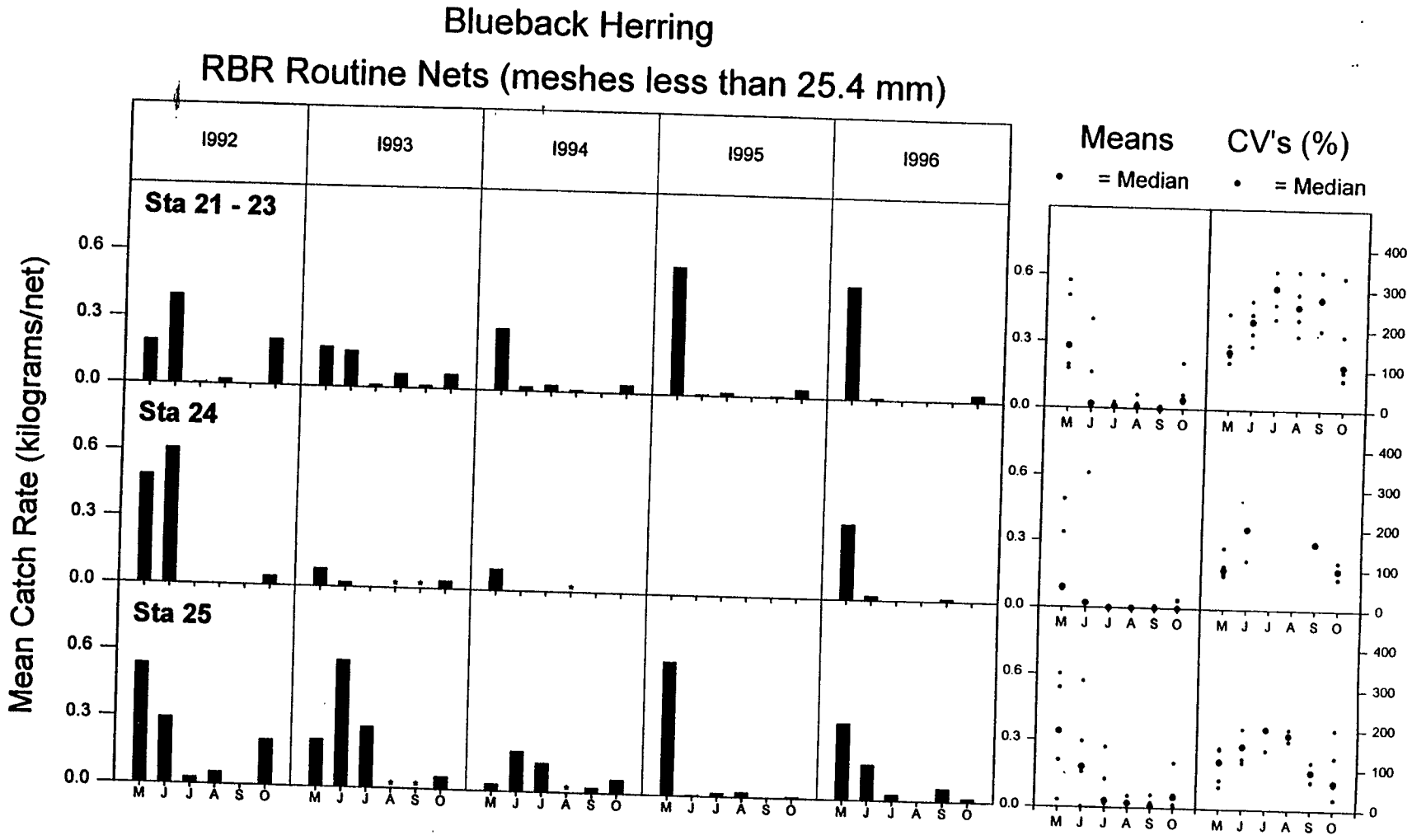


Figure 5-130. Mean catch rate (kilograms/net) of blueback herring for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

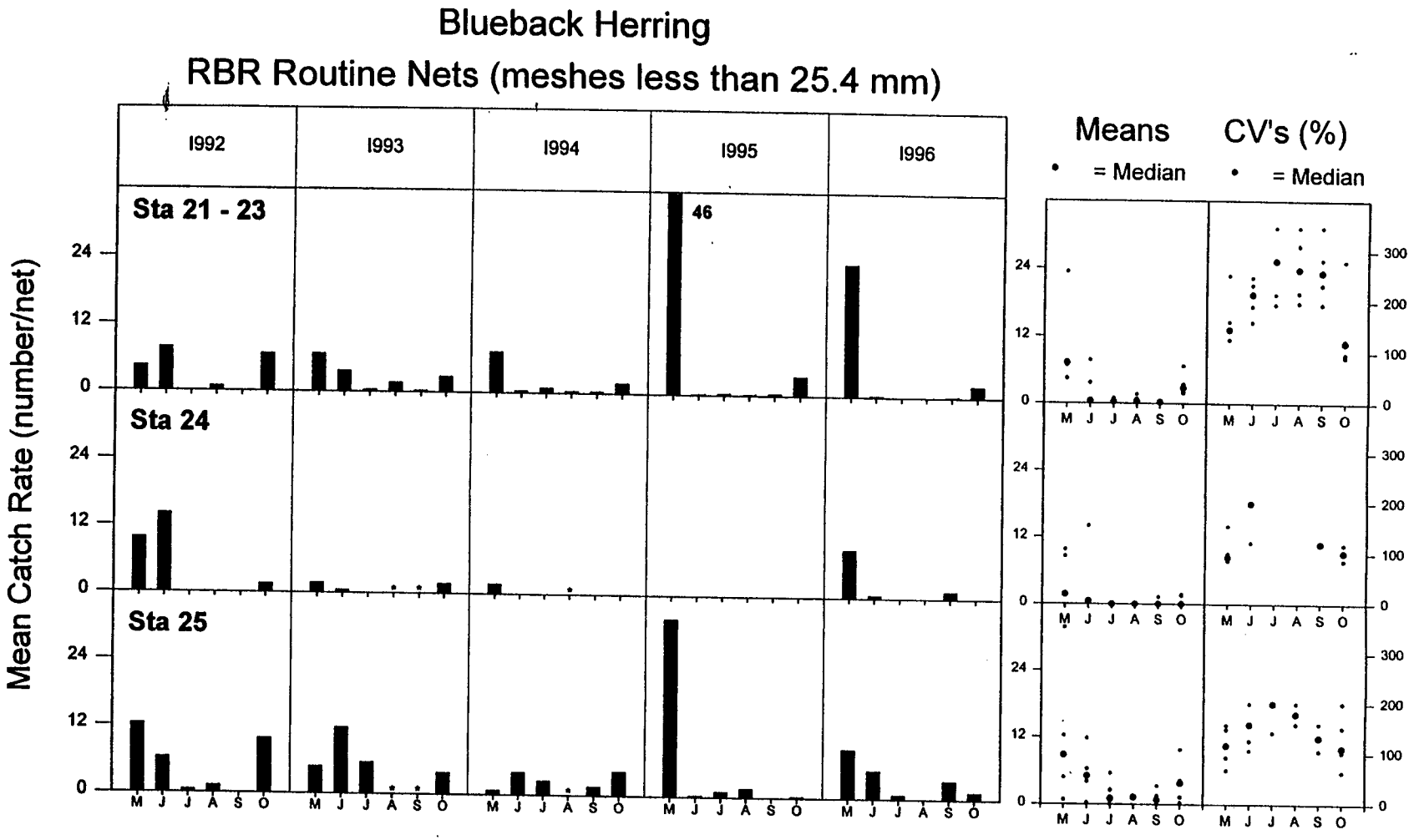


Figure 5-131. Mean catch rate (numbers/net) of blueback herring for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

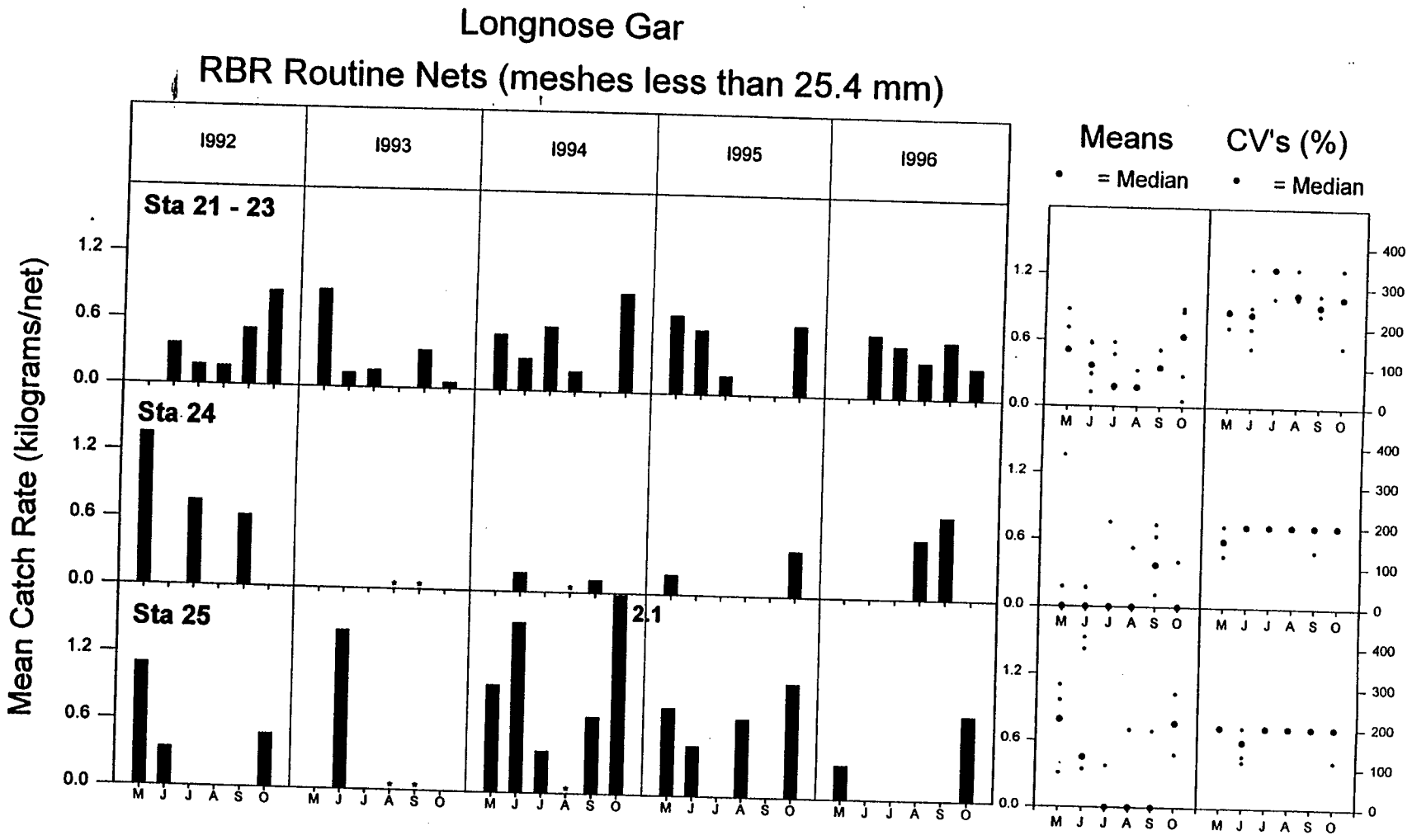


Figure 5-132. Mean catch rate (kilograms/net) of longnose gar for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

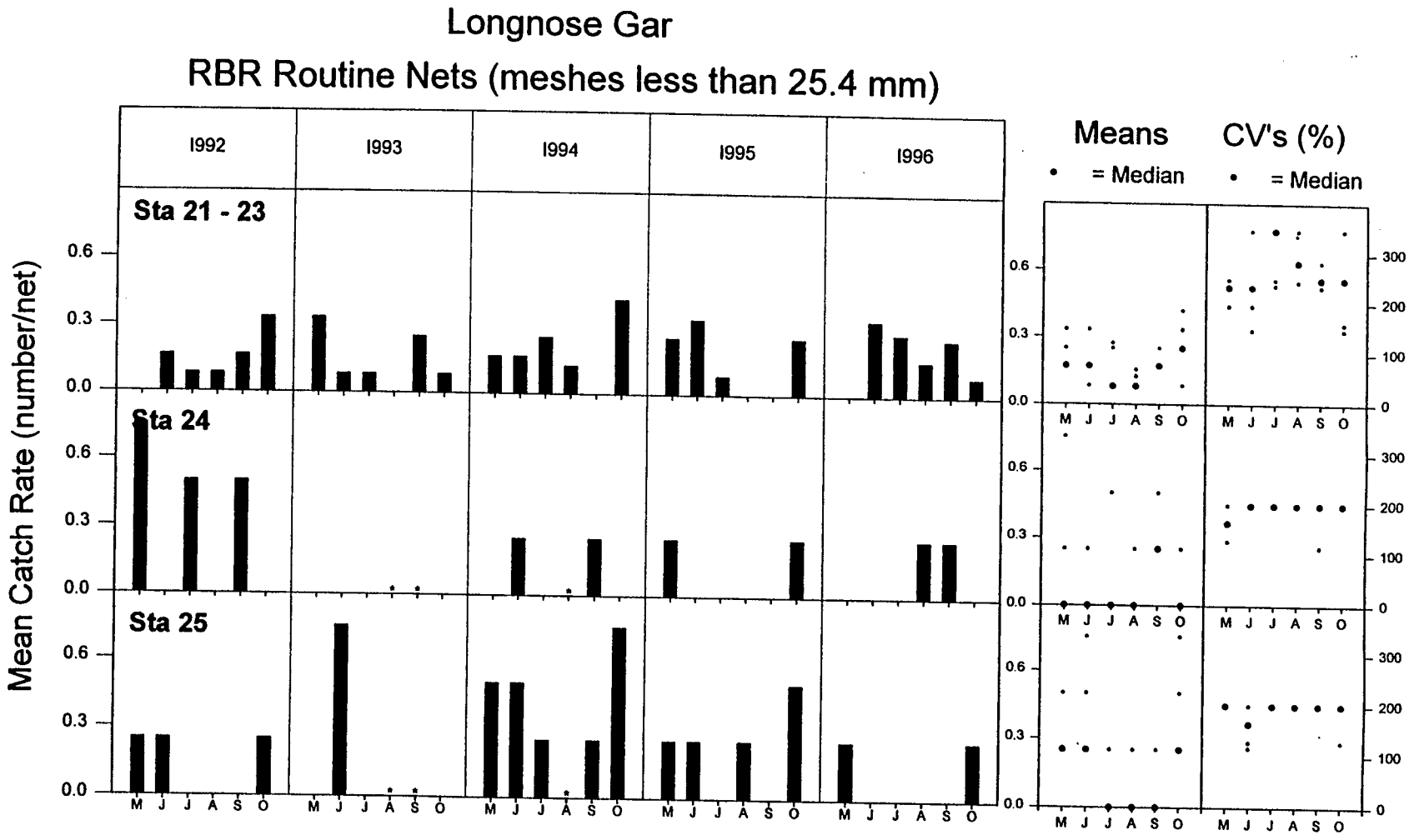


Figure 5-133. Mean catch rate (numbers/net) of longnose gar for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

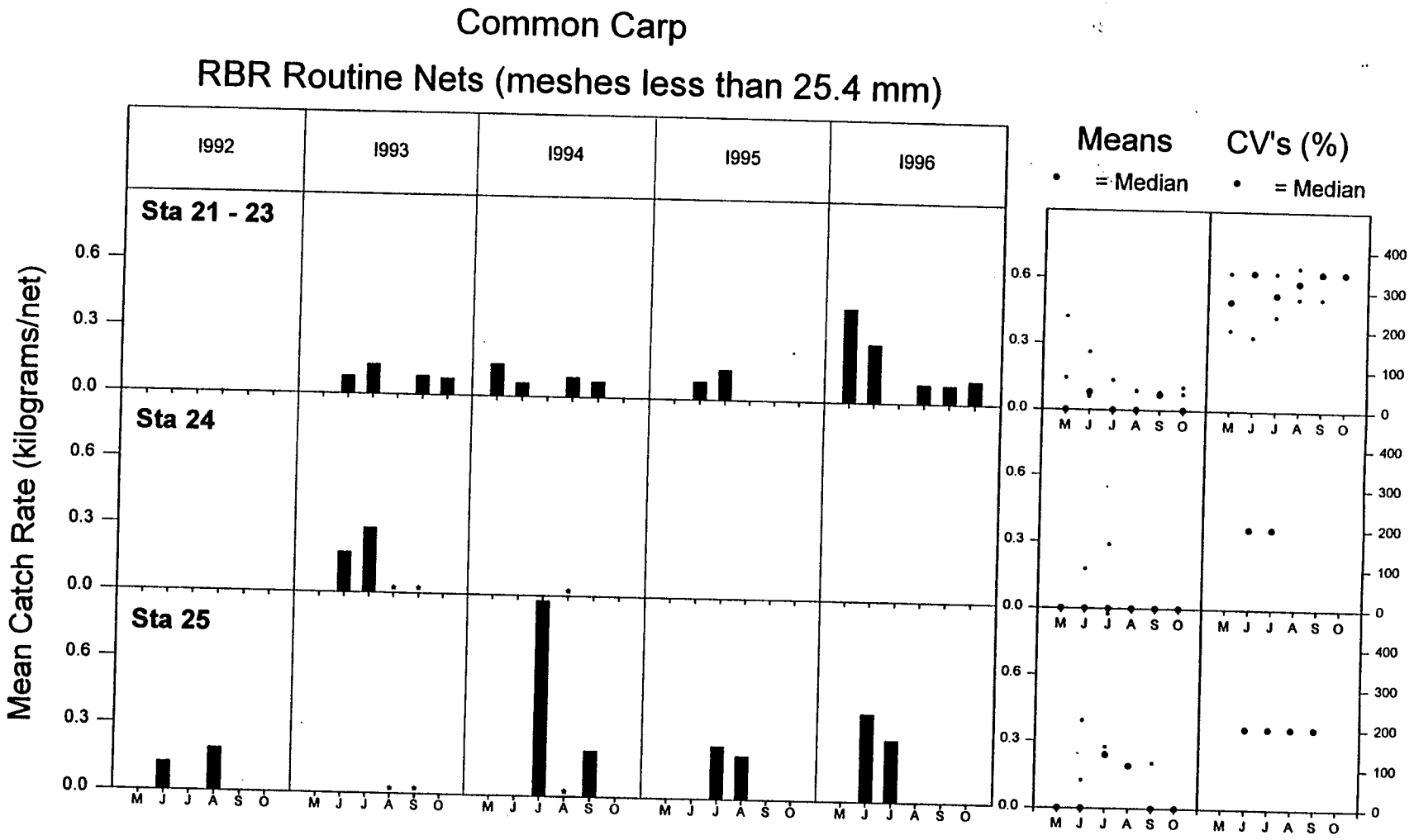


Figure 5-134. Mean catch rate (kilograms/net) of common carp for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

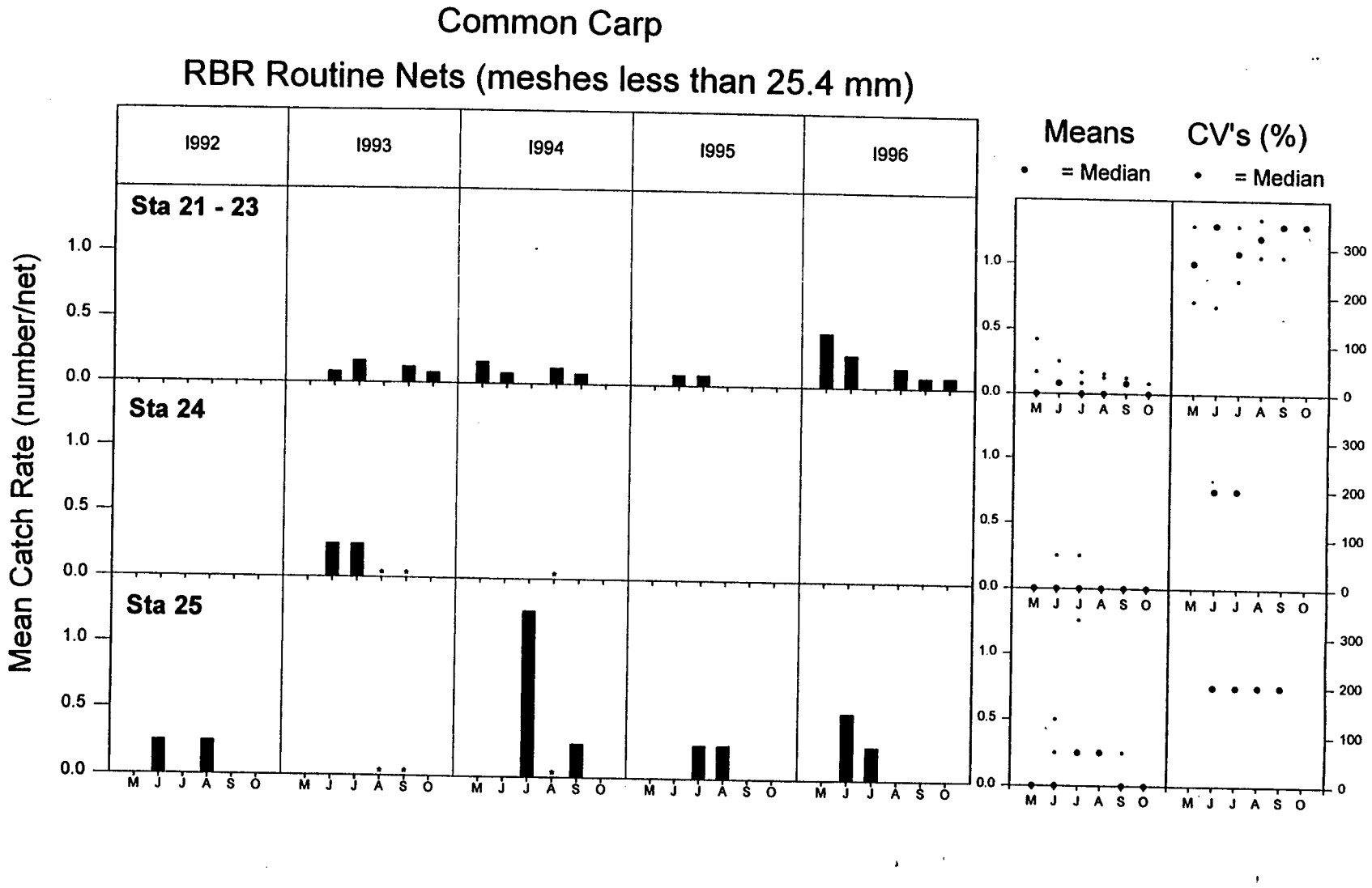


Figure 5-135. Mean catch rate (numbers/net) of common carp for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

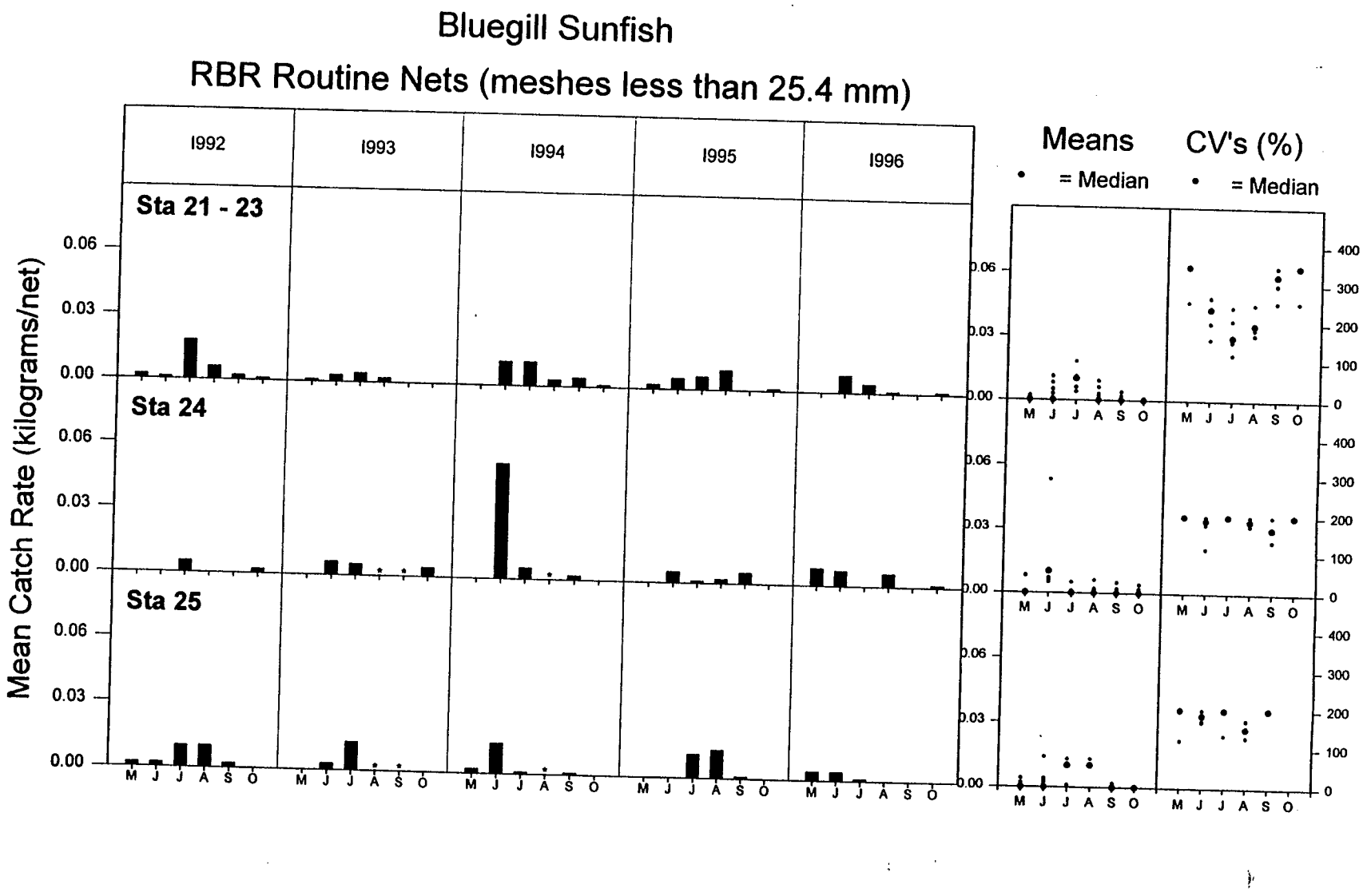


Figure 5-136. Mean catch rate (kilograms/net) of bluegill sunfish for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

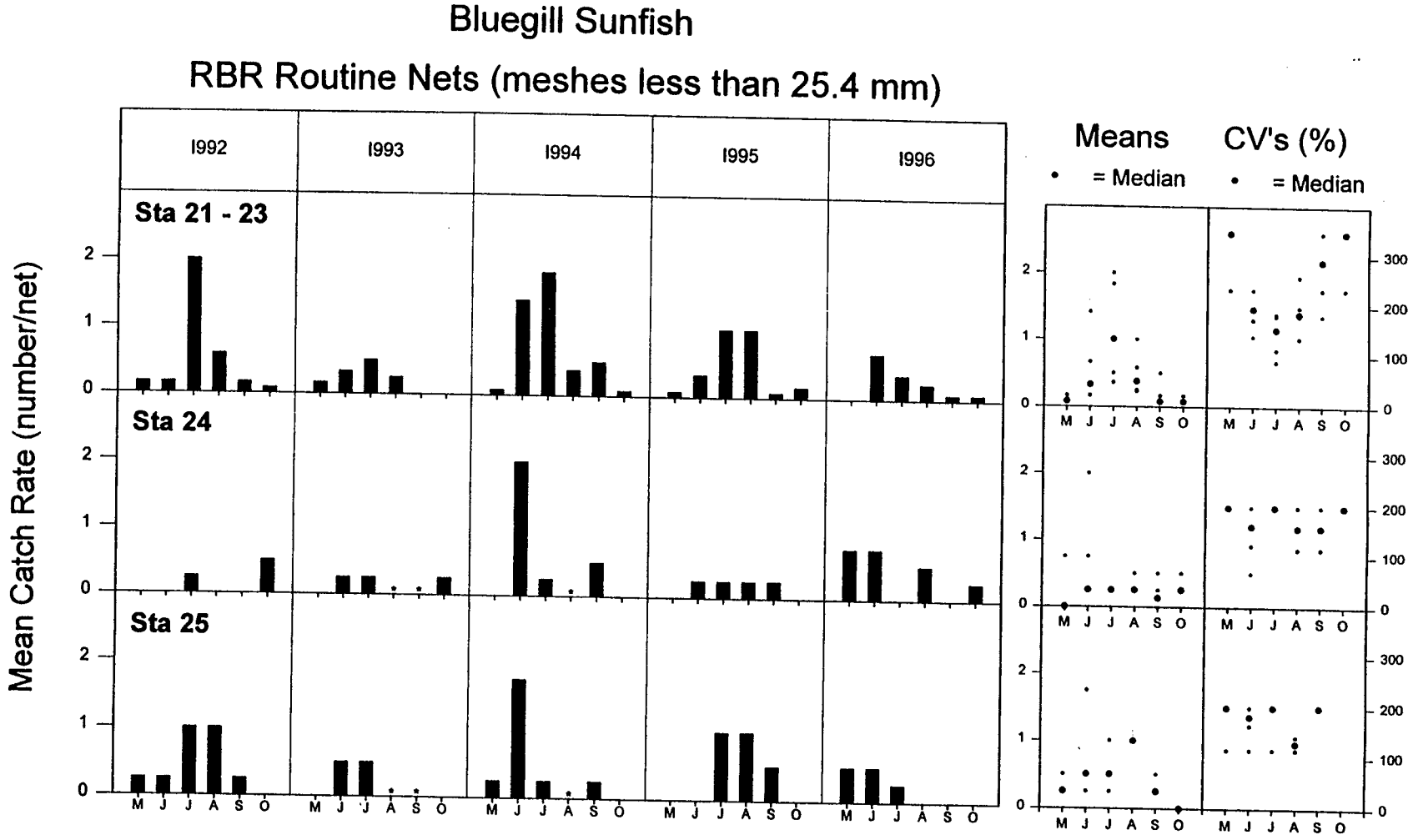


Figure 5-137. Mean catch rate (numbers/net) of bluegill sunfish for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

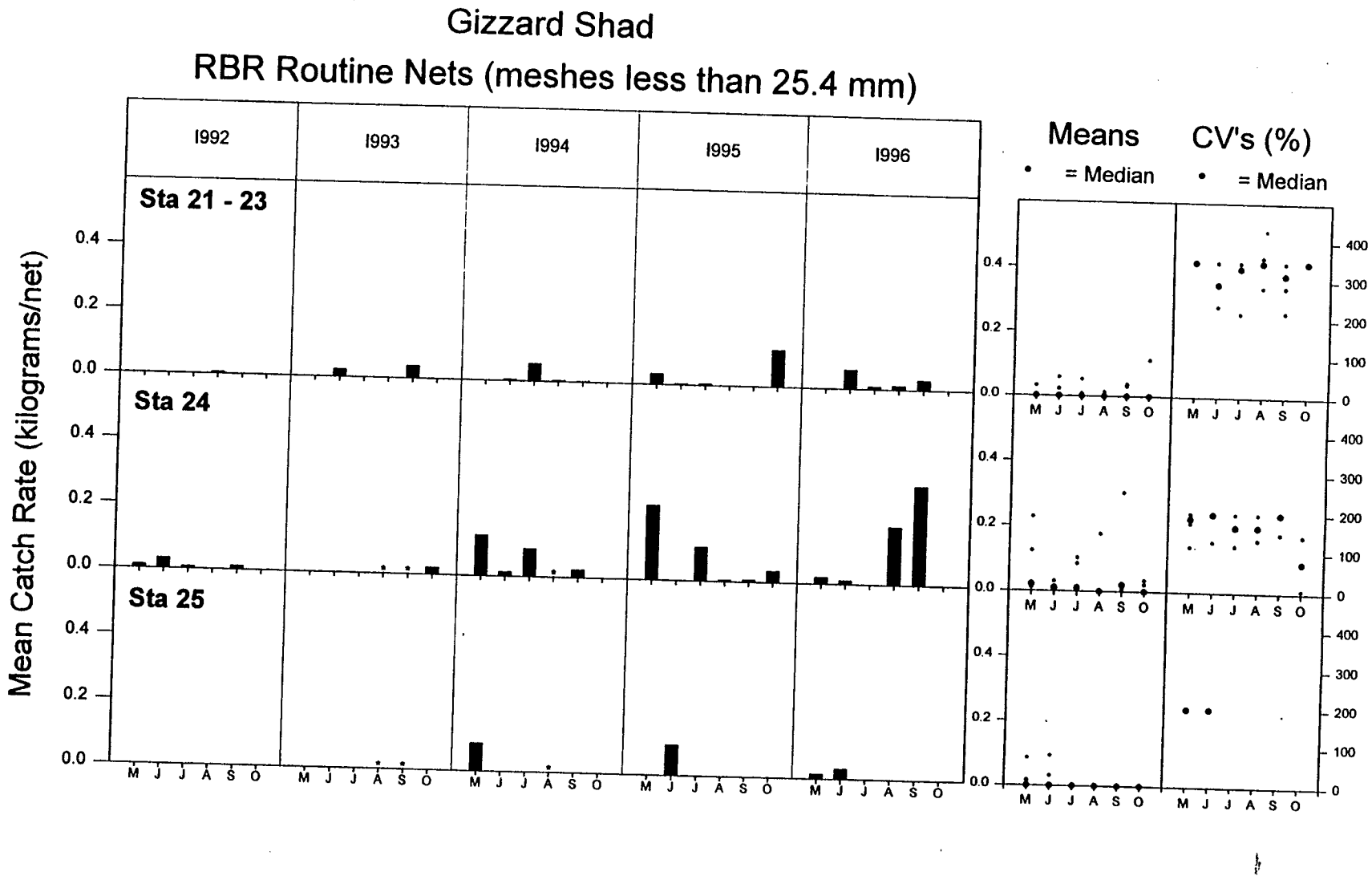


Figure 5-138. Mean catch rate (kilograms/net) of gizzard shad for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

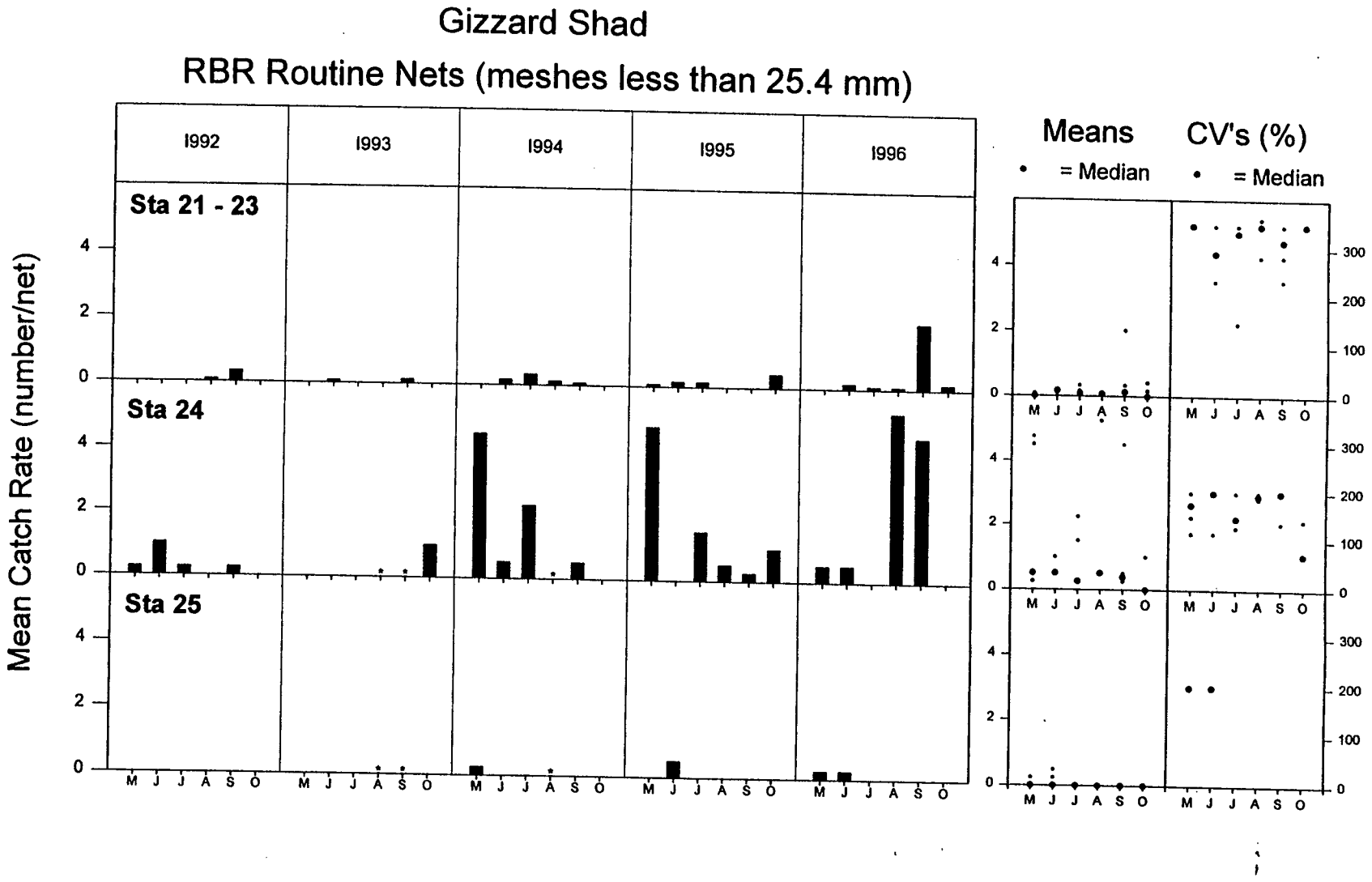


Figure 5-139. Mean catch rate (numbers/net) of gizzard shad for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

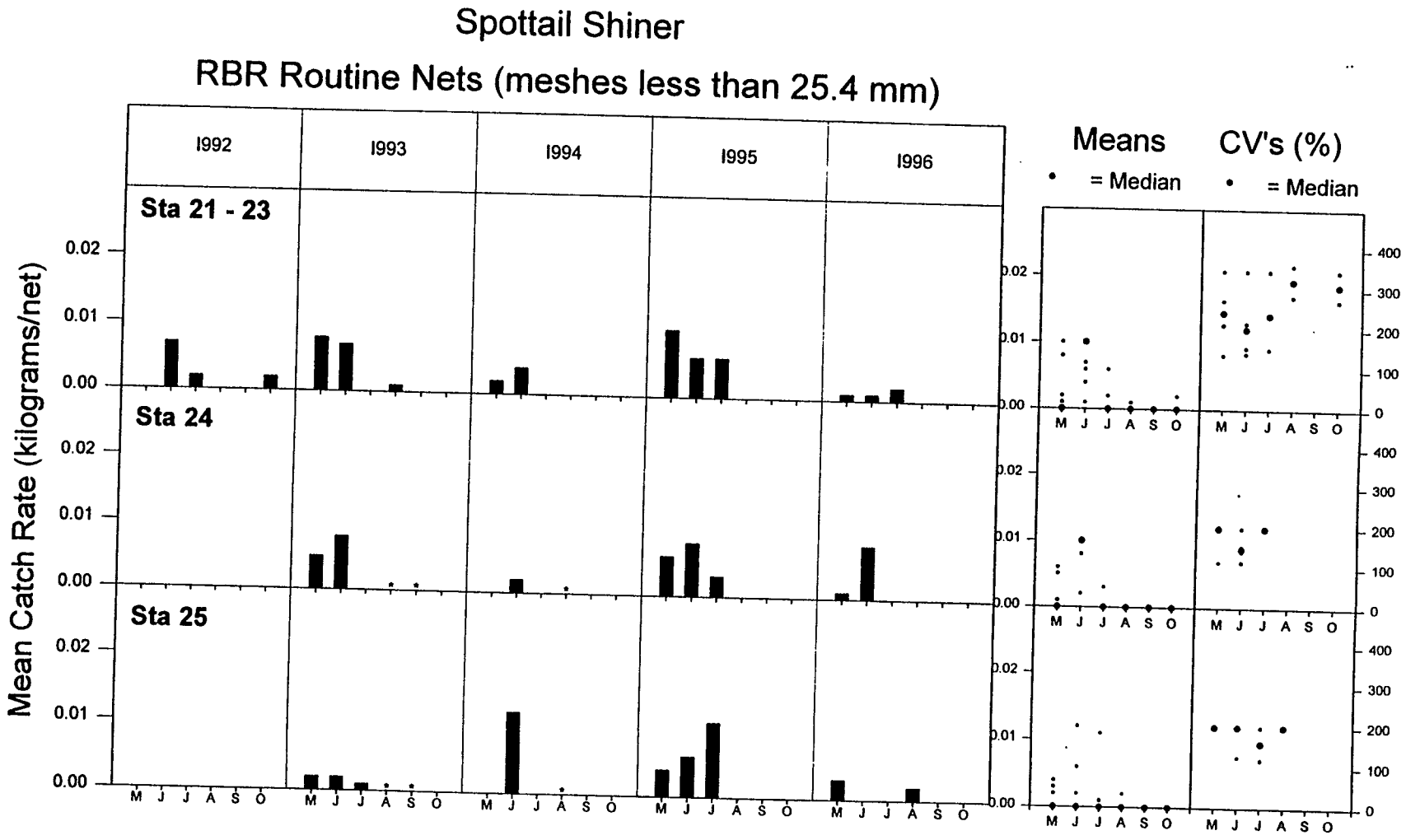


Figure 5-140. Mean catch rate (kilograms/net) of spottail shiner for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

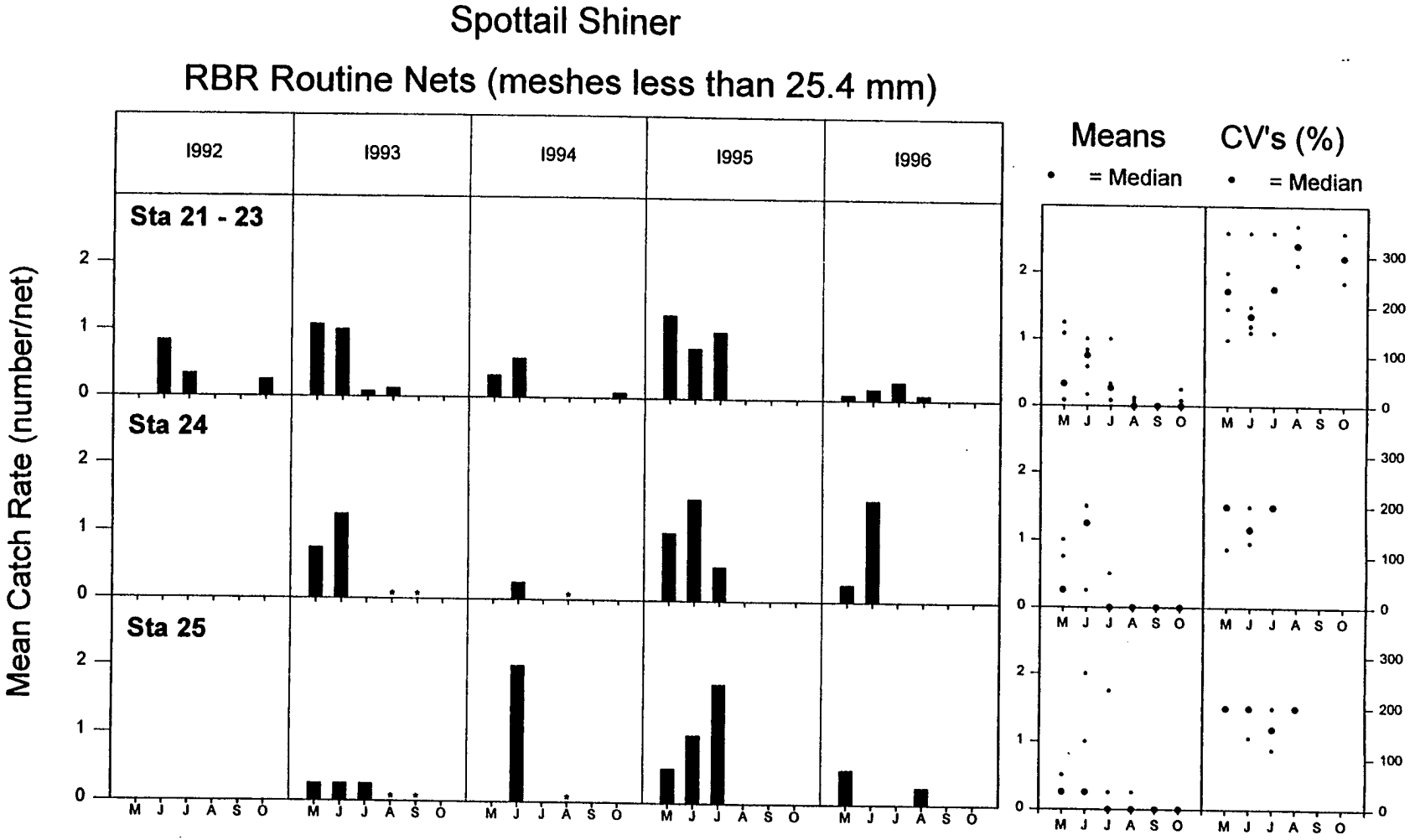


Figure 5-141. Mean catch rate (numbers/net) of spottail shiner for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

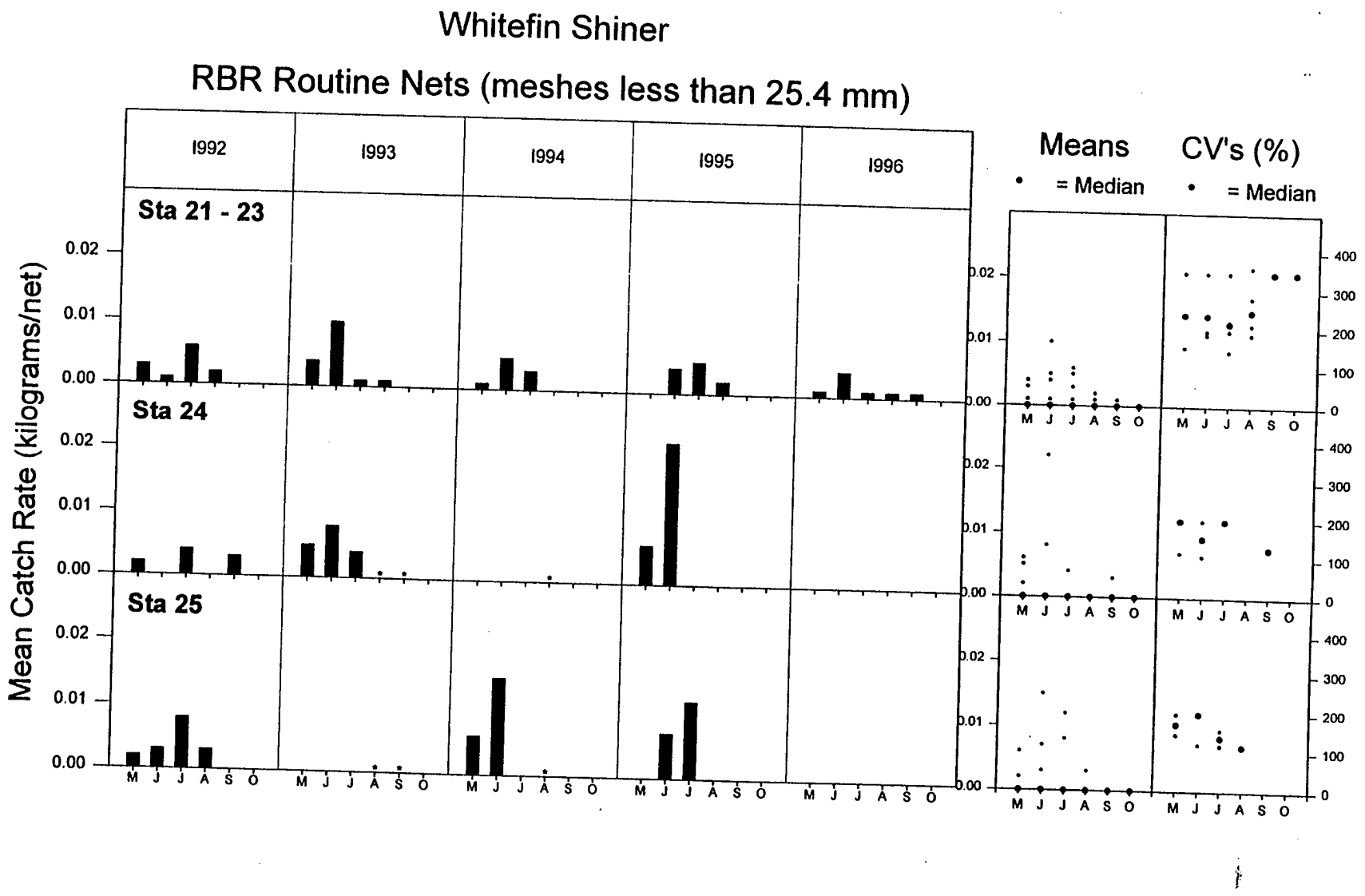


Figure 5-142. Mean catch rate (kilograms/net) of whitefin shiner for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

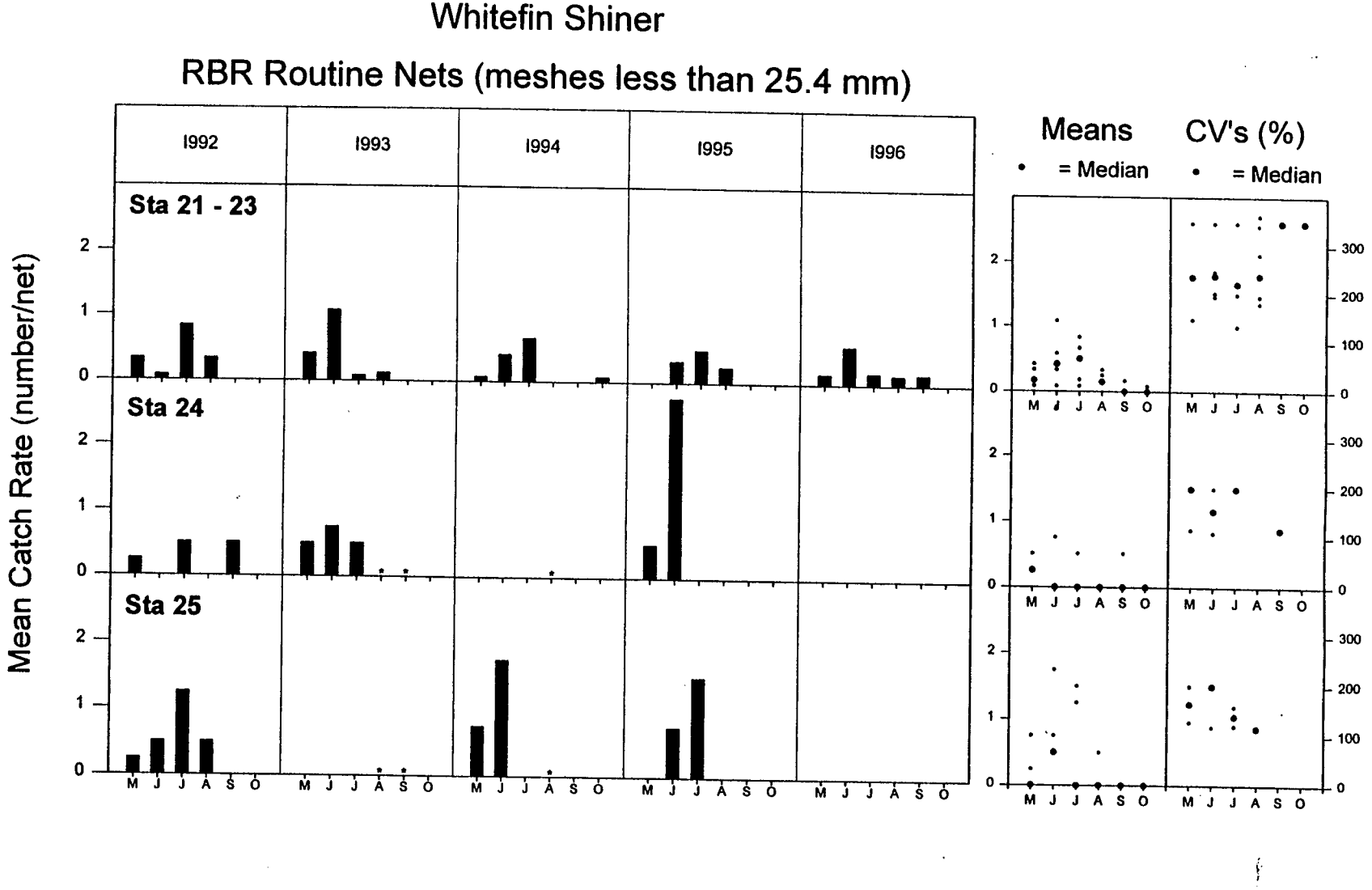


Figure 5-143. Mean catch rate (numbers/net) of whitefin shiner for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

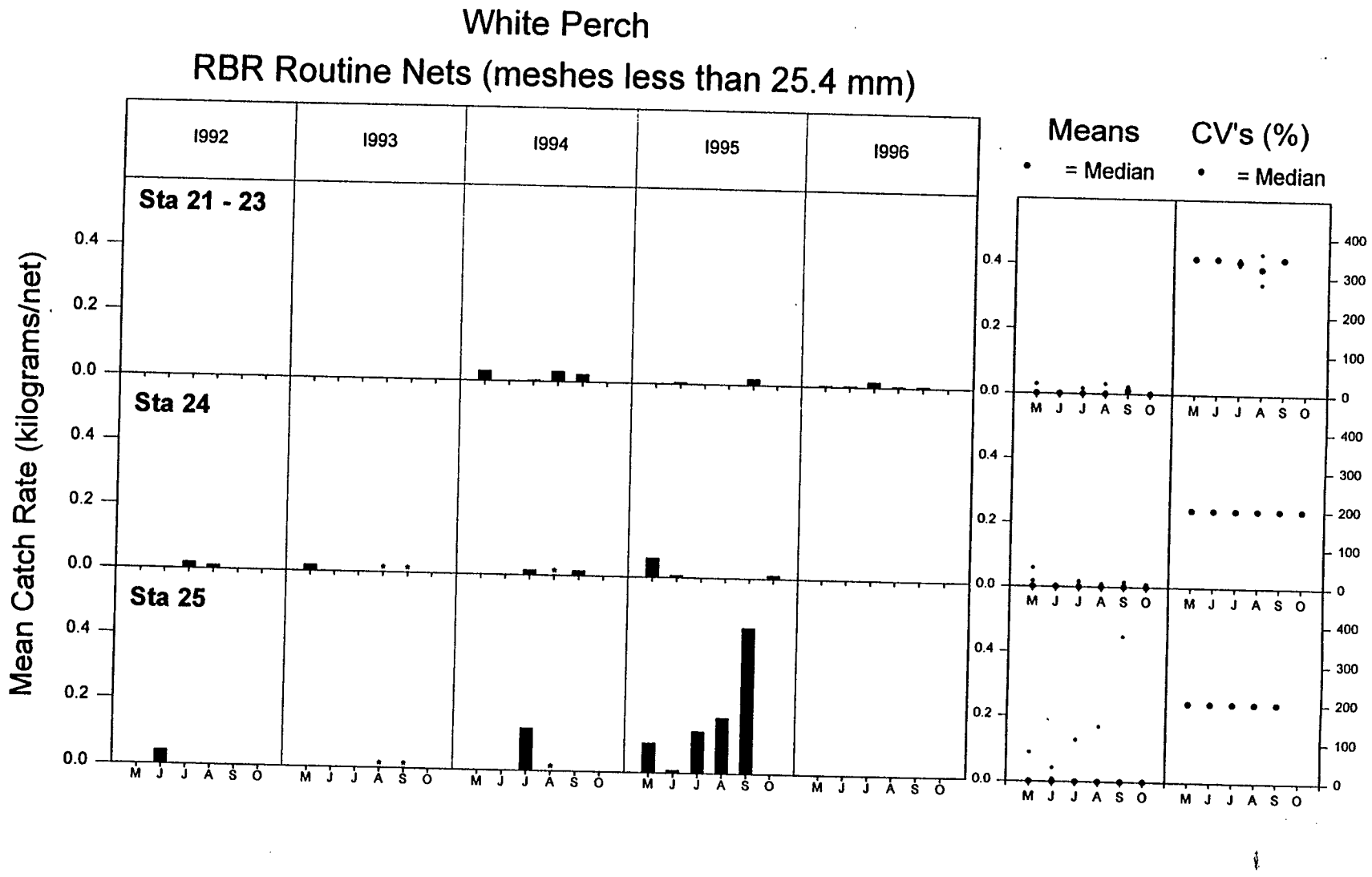


Figure 5-144. Mean catch rate (kilograms/net) of white perch for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

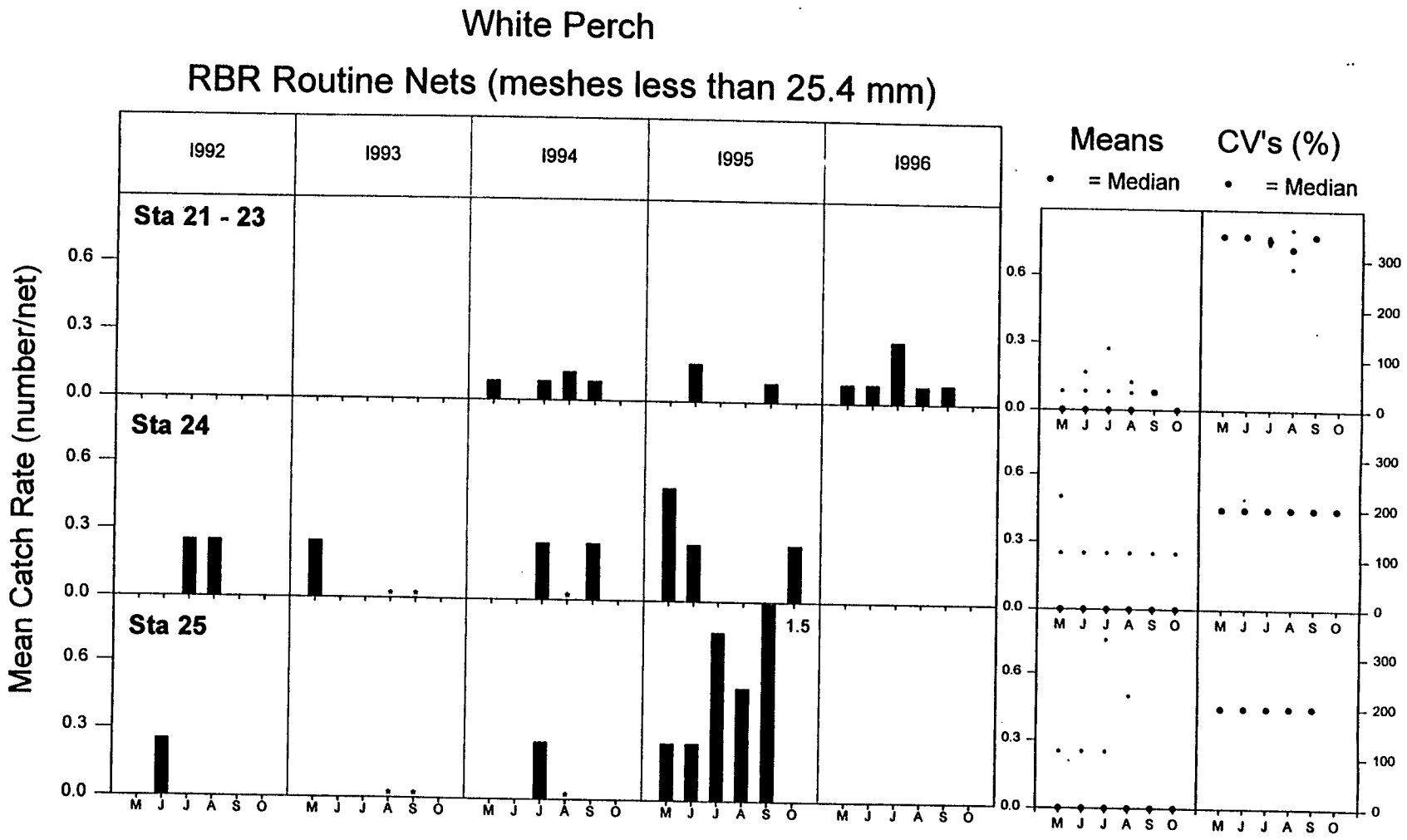


Figure 5-145. Mean catch rate (numbers/net) of white perch for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

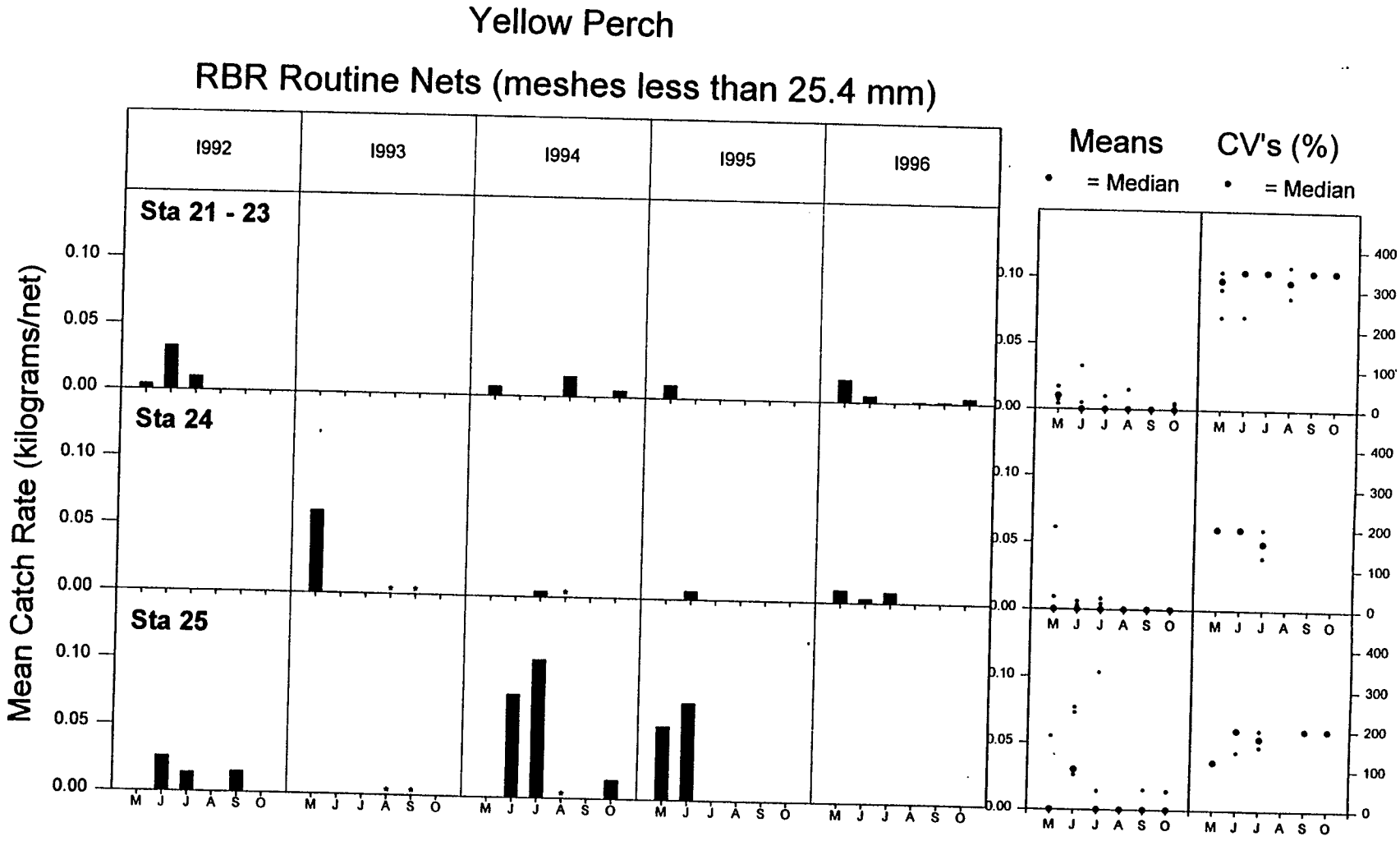


Figure 5-146. Mean catch rate (kilograms/net) of yellow perch for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

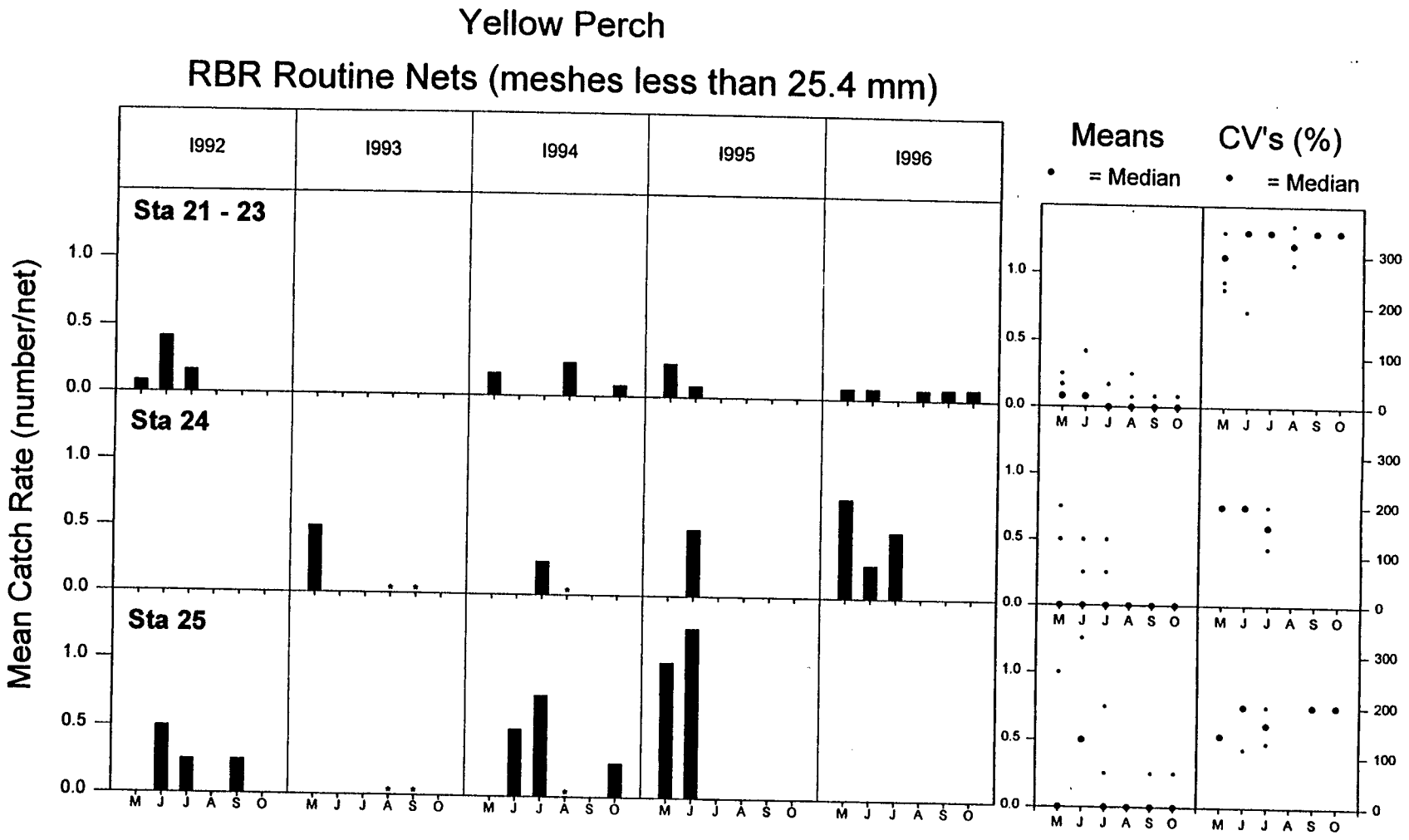


Figure 5-147. Mean catch rate (numbers/net) of yellow perch for RBR routine gillnetting (meshes less than 25.4 mm). An asterisk indicates that no sampling was conducted for that month.

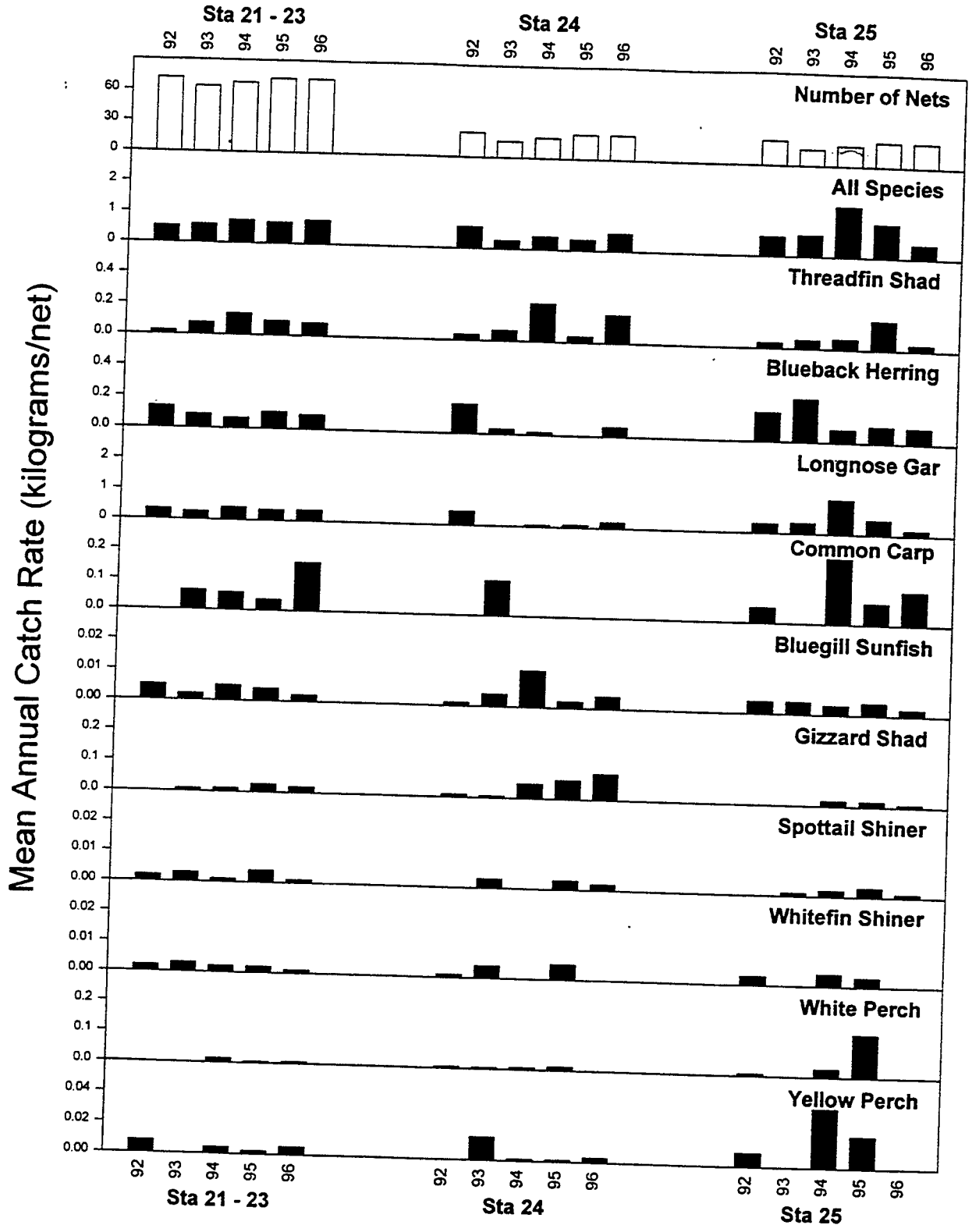


Figure 5-148. Mean annual catch rate (kilograms/net) by station grouping for the top 10 IRI species and all species pooled for RBR routine gillnetting (meshes less than 25.4 mm).

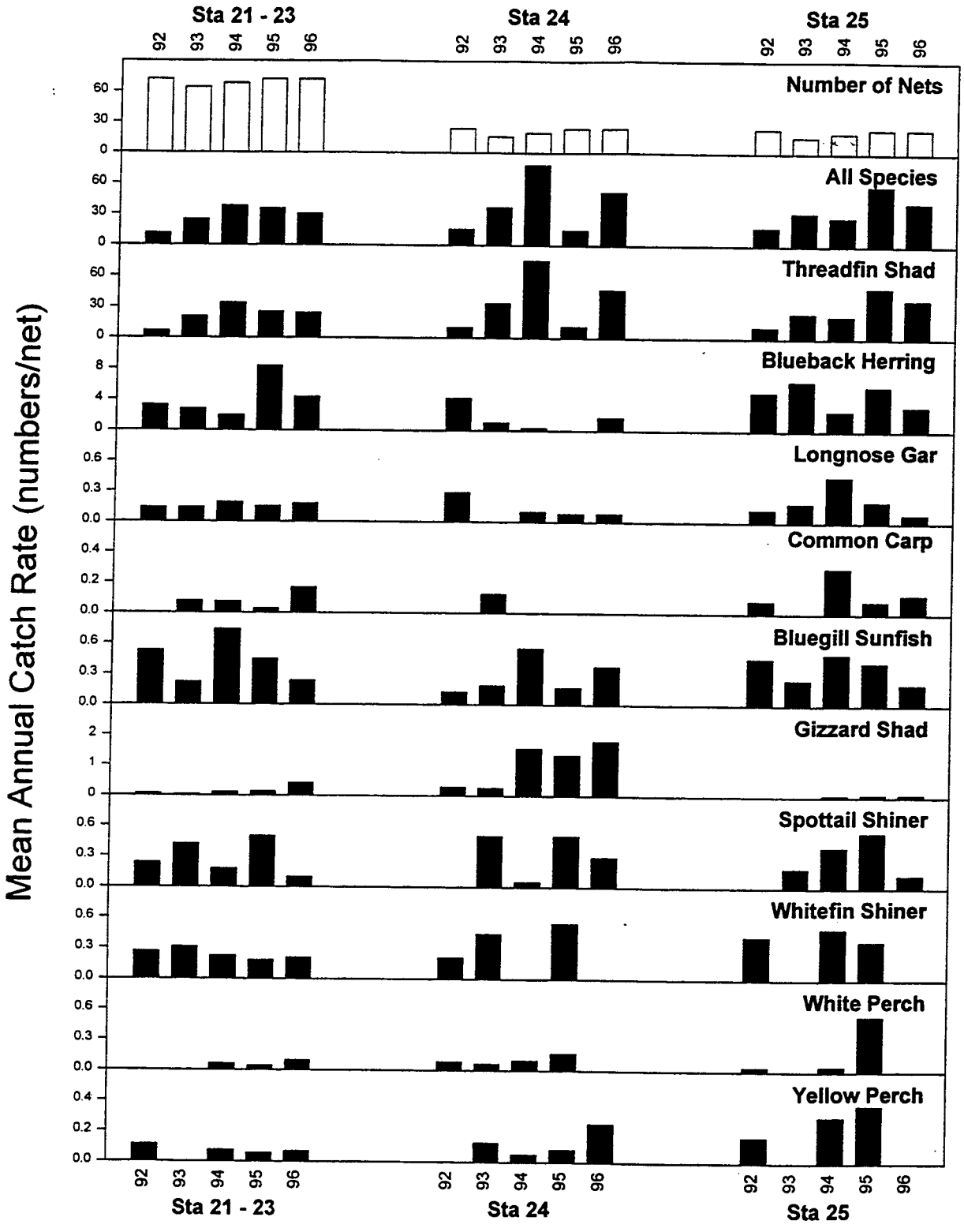


Figure 5-149. Mean annual catch rate (numbers/net) by station grouping for the top 10 IRI species and all species pooled (pooled) for RBR routine gillnetting (meshes less than 25.4 mm).

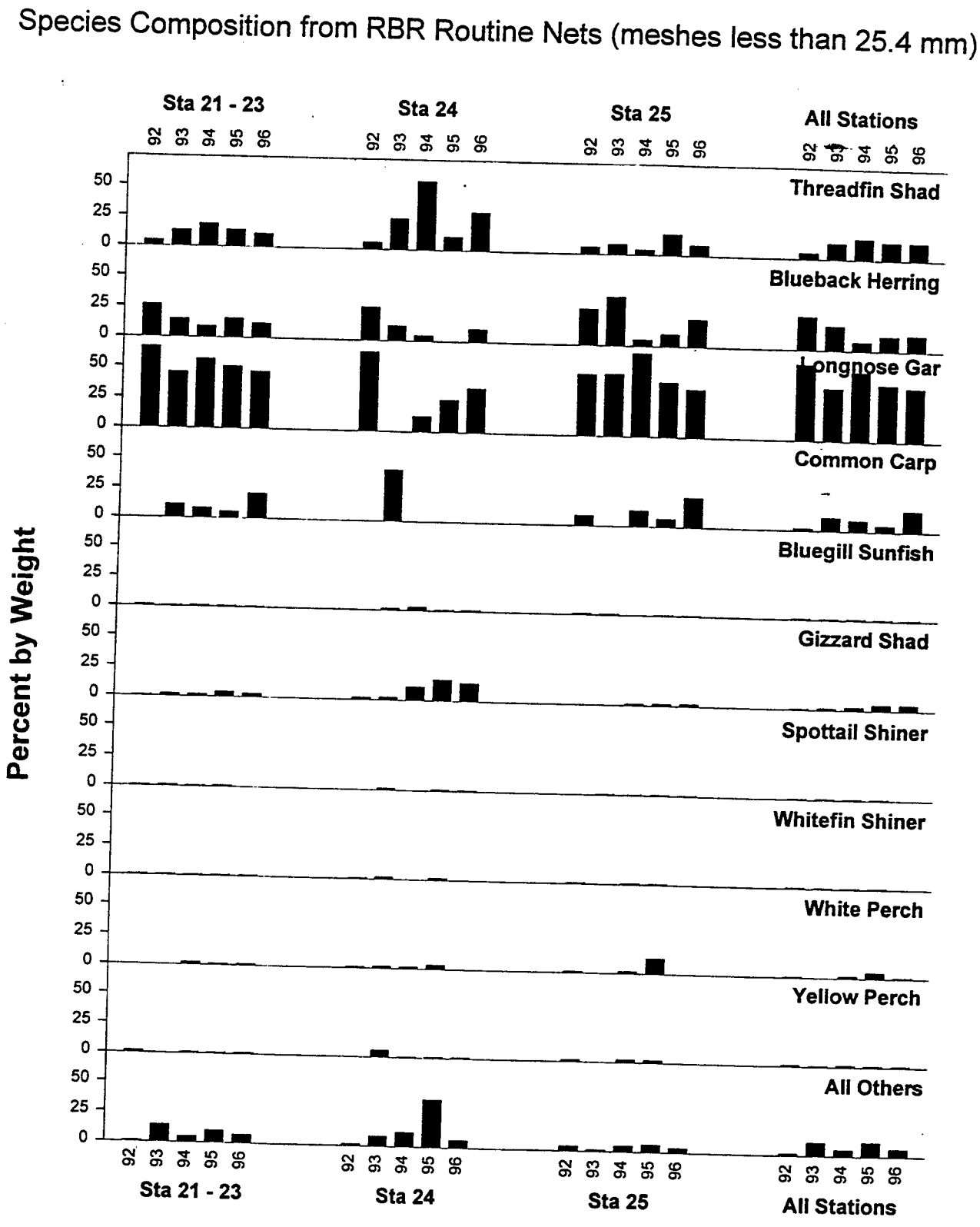


Figure 5-150. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for RBR routine gillnetting (meshes less than 25.4 mm).

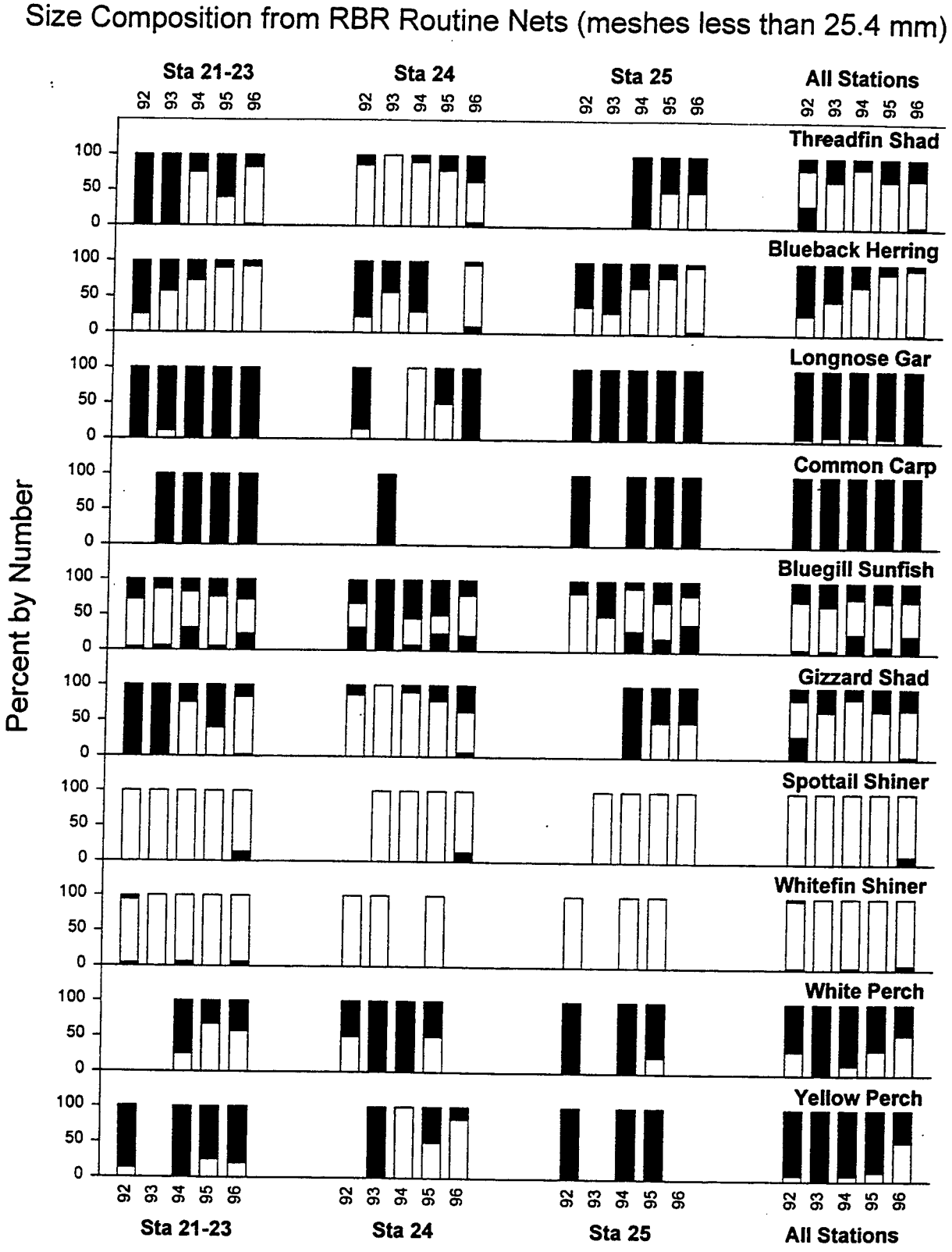


Figure 5-151. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for RBR routine gillnetting (meshes less than 25.4 mm).

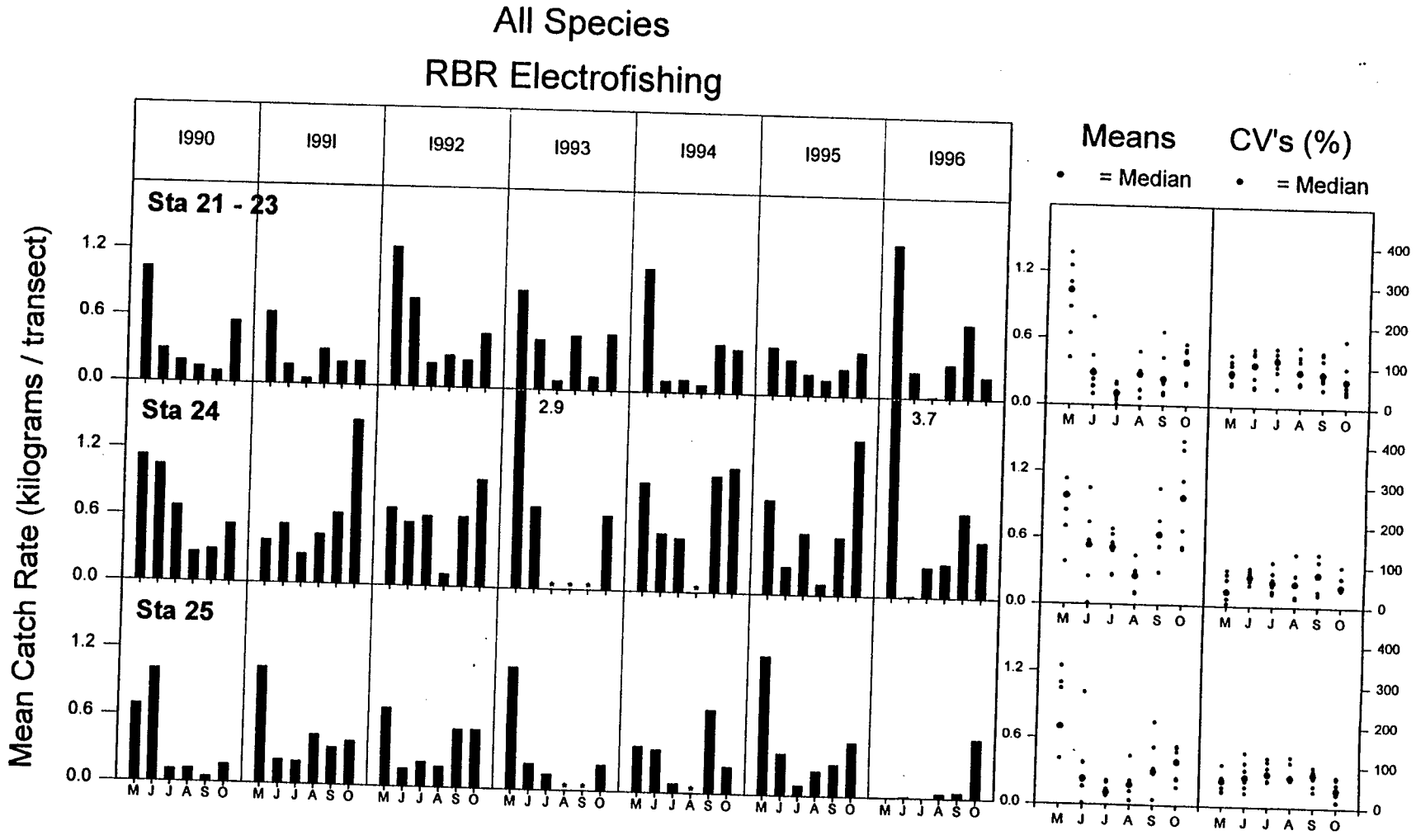


Figure 5-152. Mean catch rate (kilograms/transect) of all species pooled for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

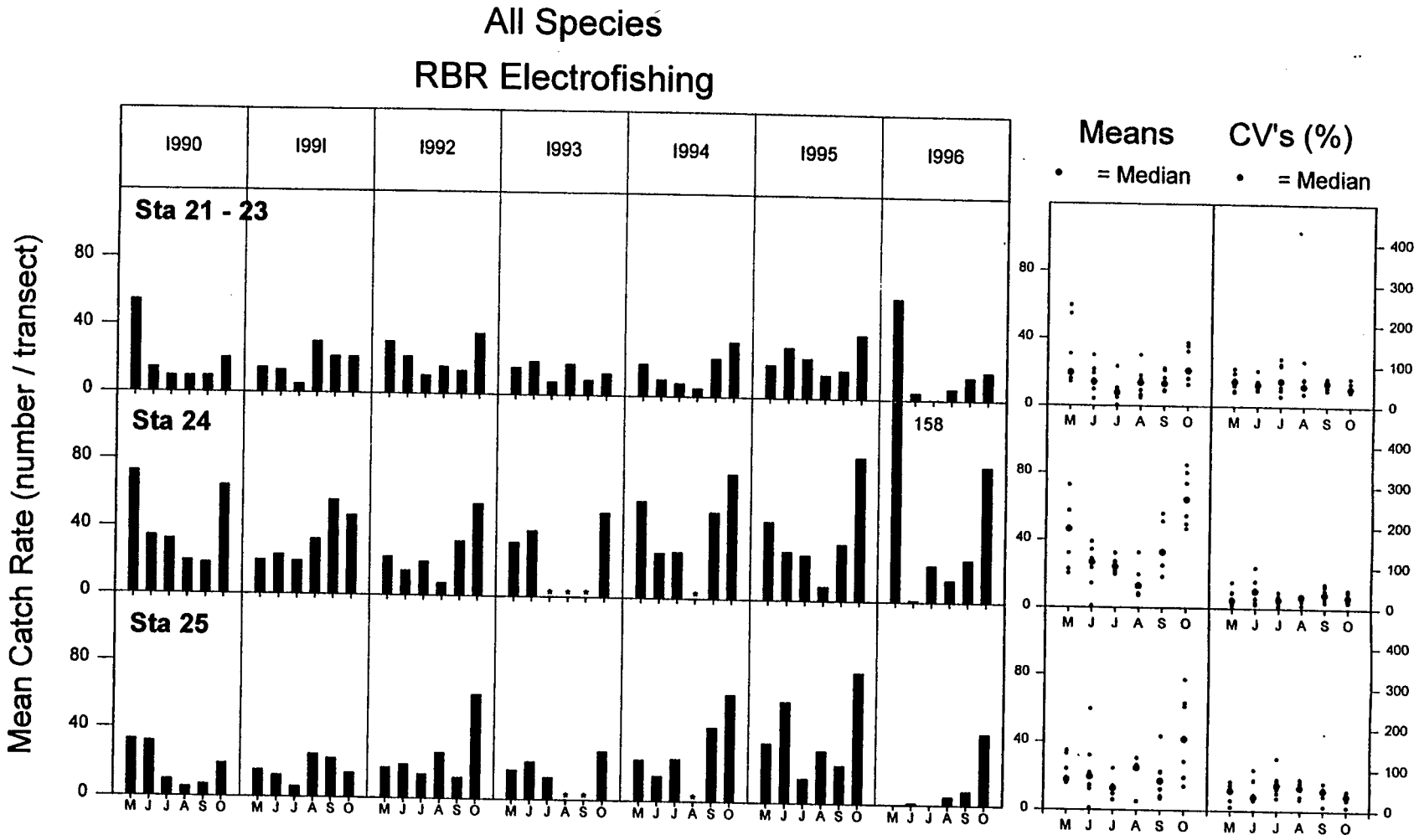


Figure 5-153. Mean catch rate (numbers/transect) of all species pooled for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

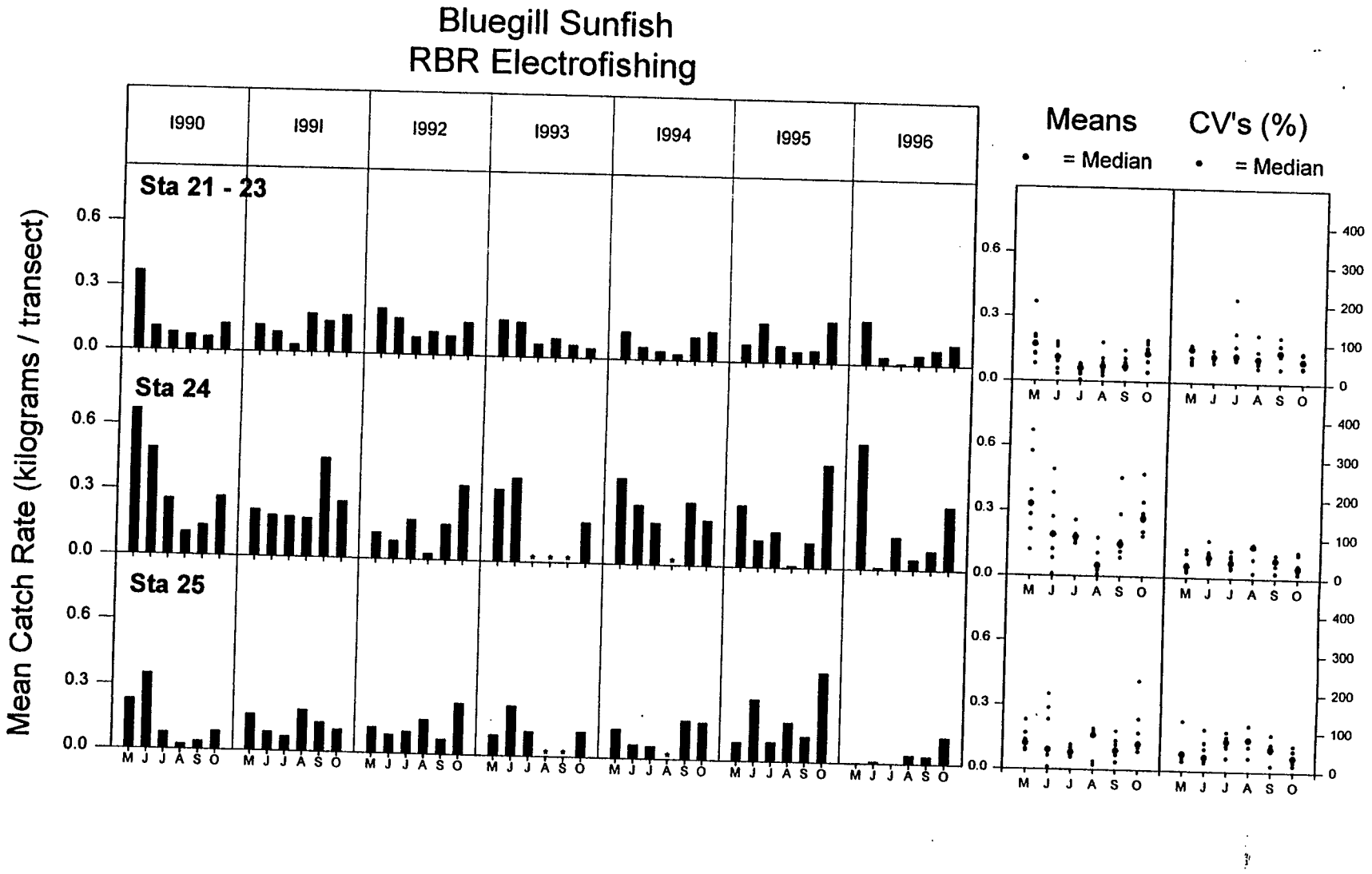


Figure 5-154. Mean catch rate (kilograms/transect) of bluegill sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

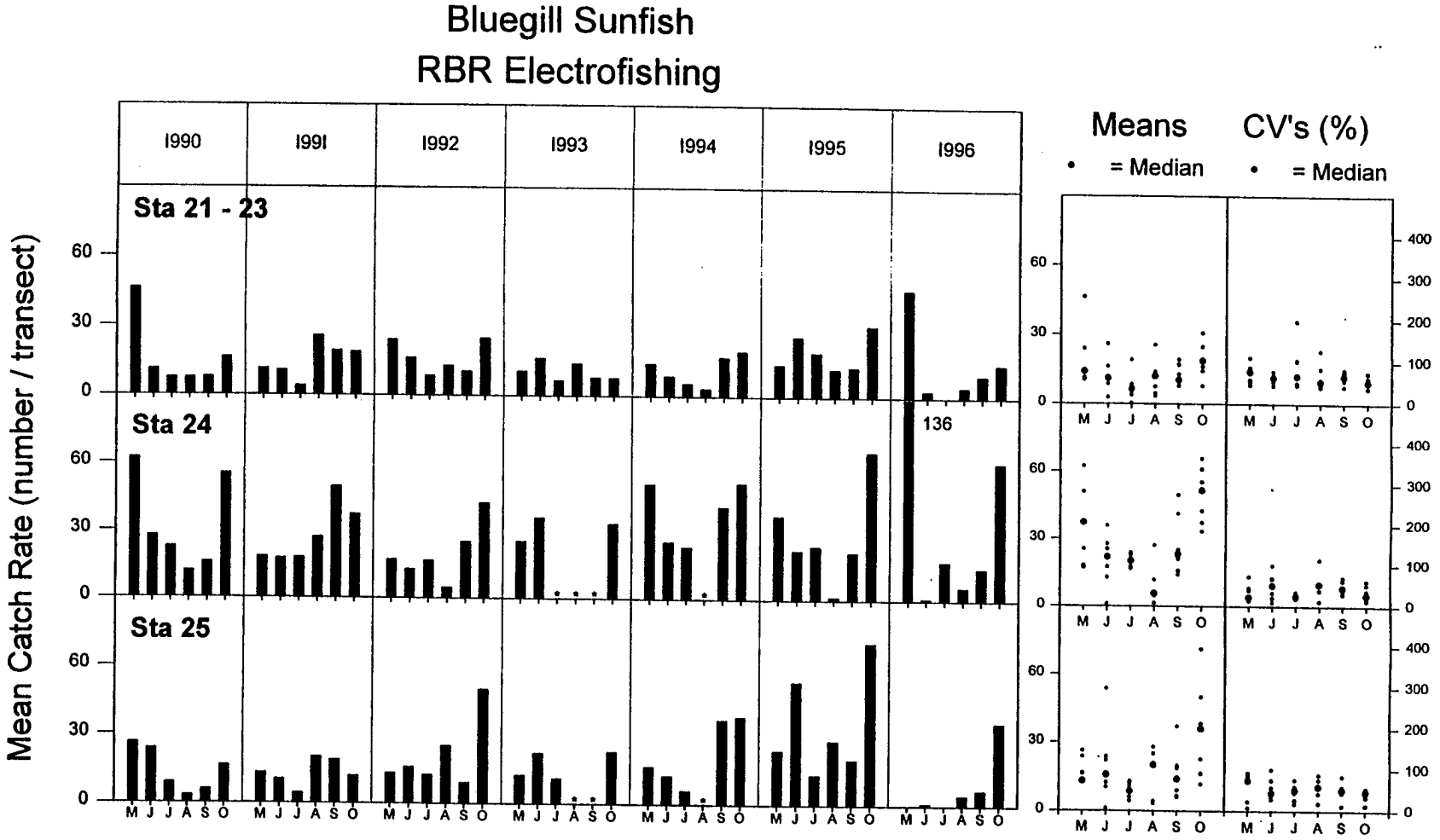


Figure 5-155. Mean catch rate (numbers/transect) of bluegill sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

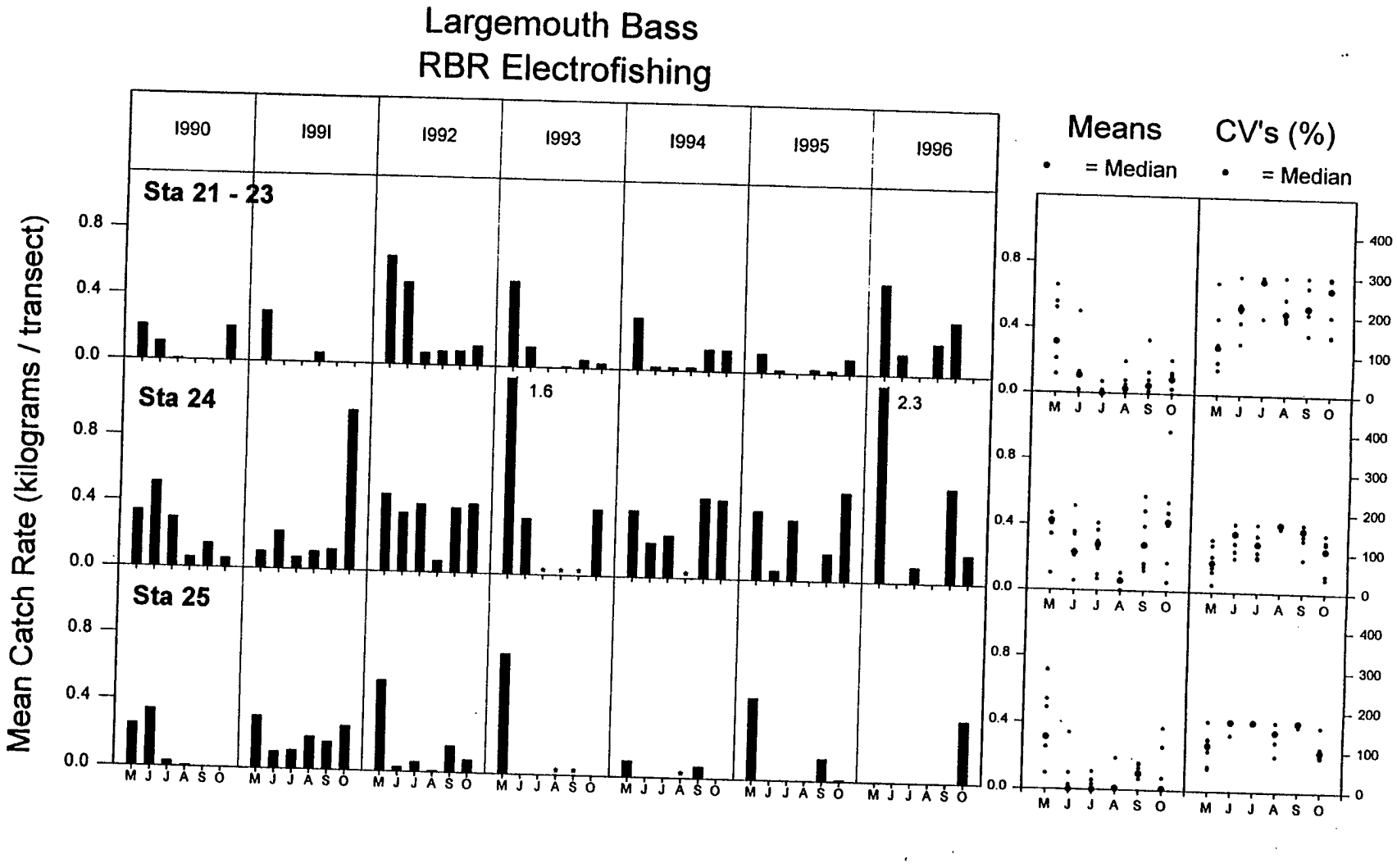


Figure 5-156. Mean catch rate (kilograms/transect) of largemouth bass for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

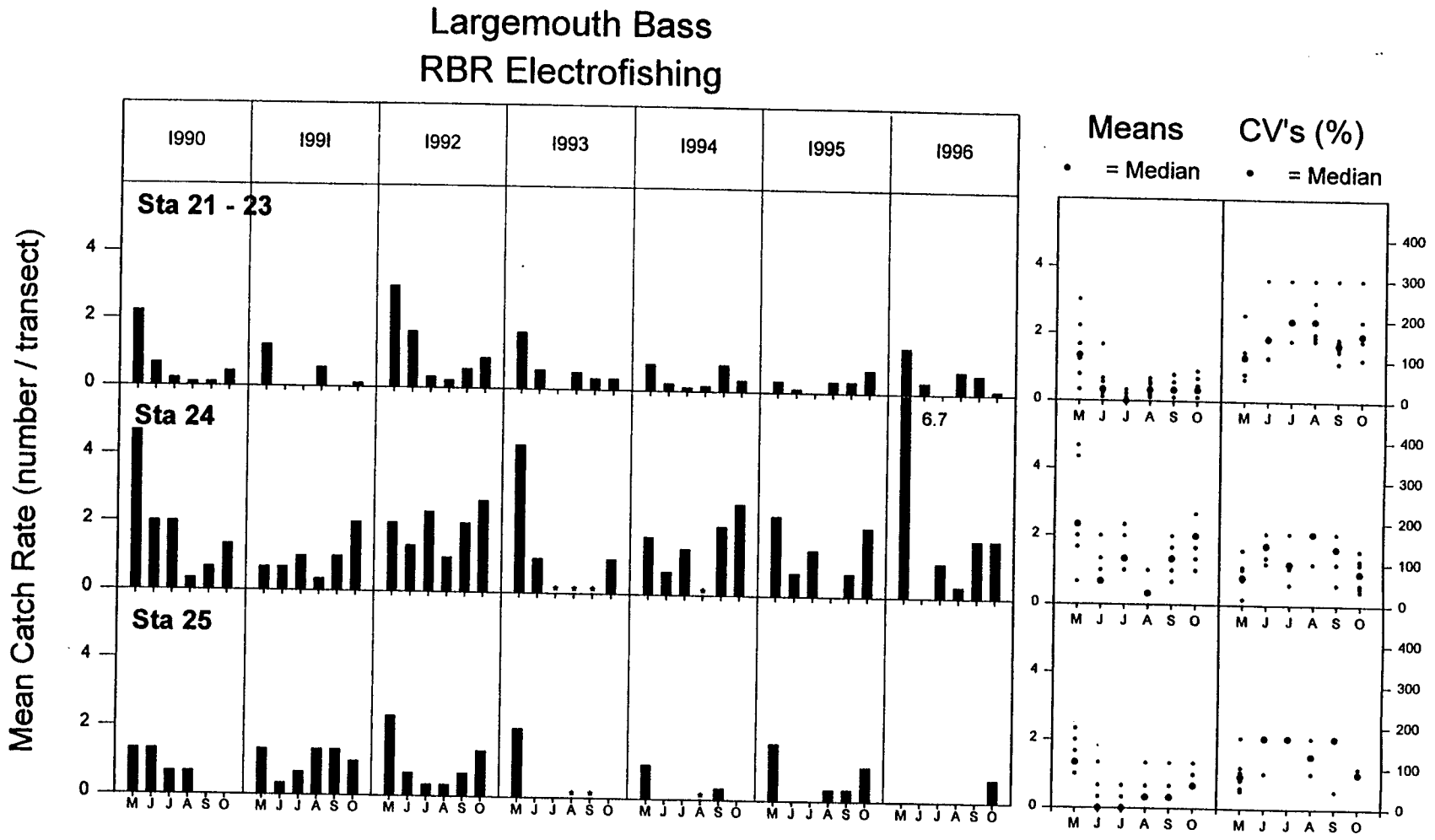


Figure 5-157. Mean catch rate (numbers/transect) of largemouth bass for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

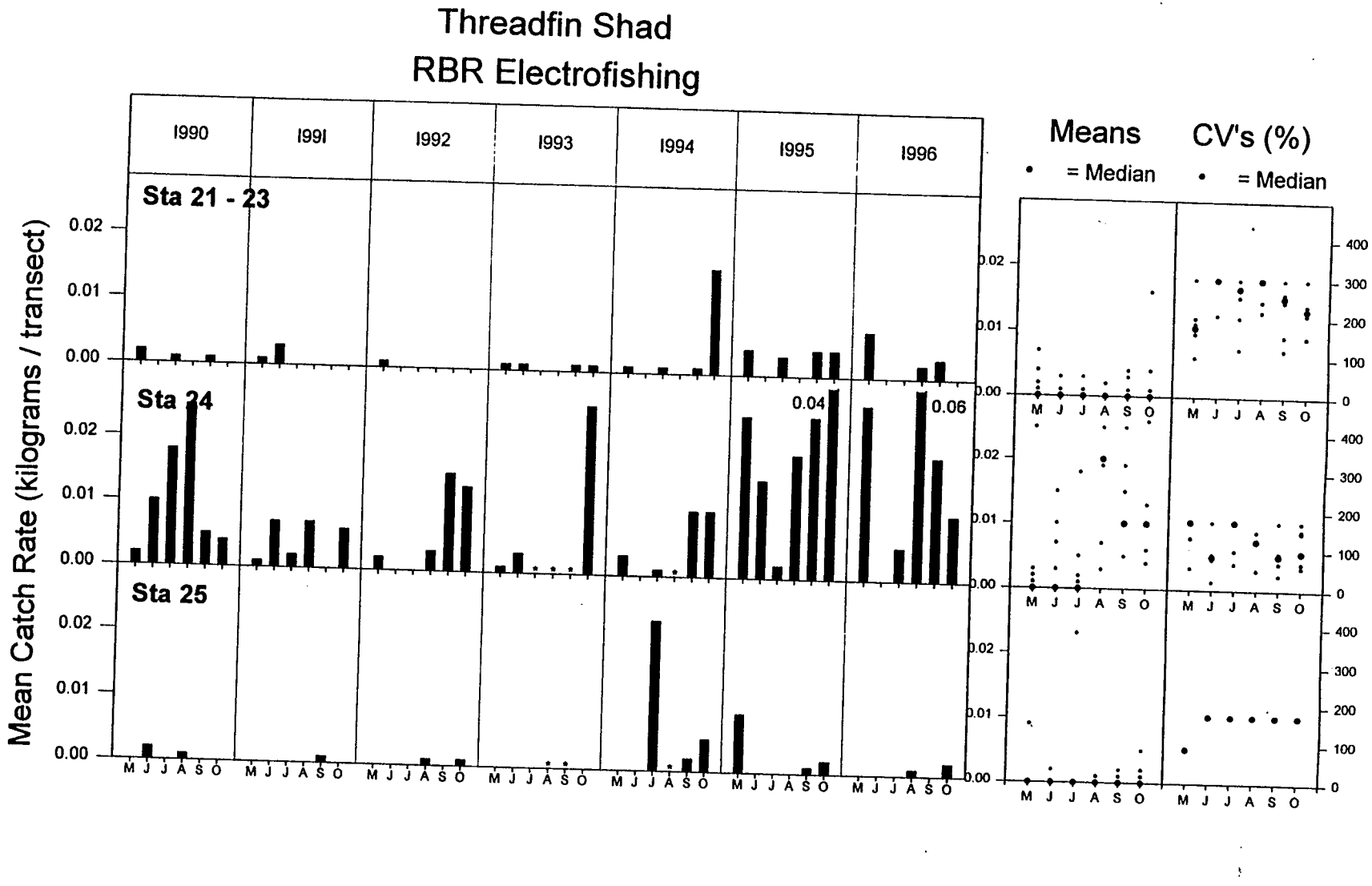


Figure 5-158. Mean catch rate (kilograms/transect) of threadfin shad for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

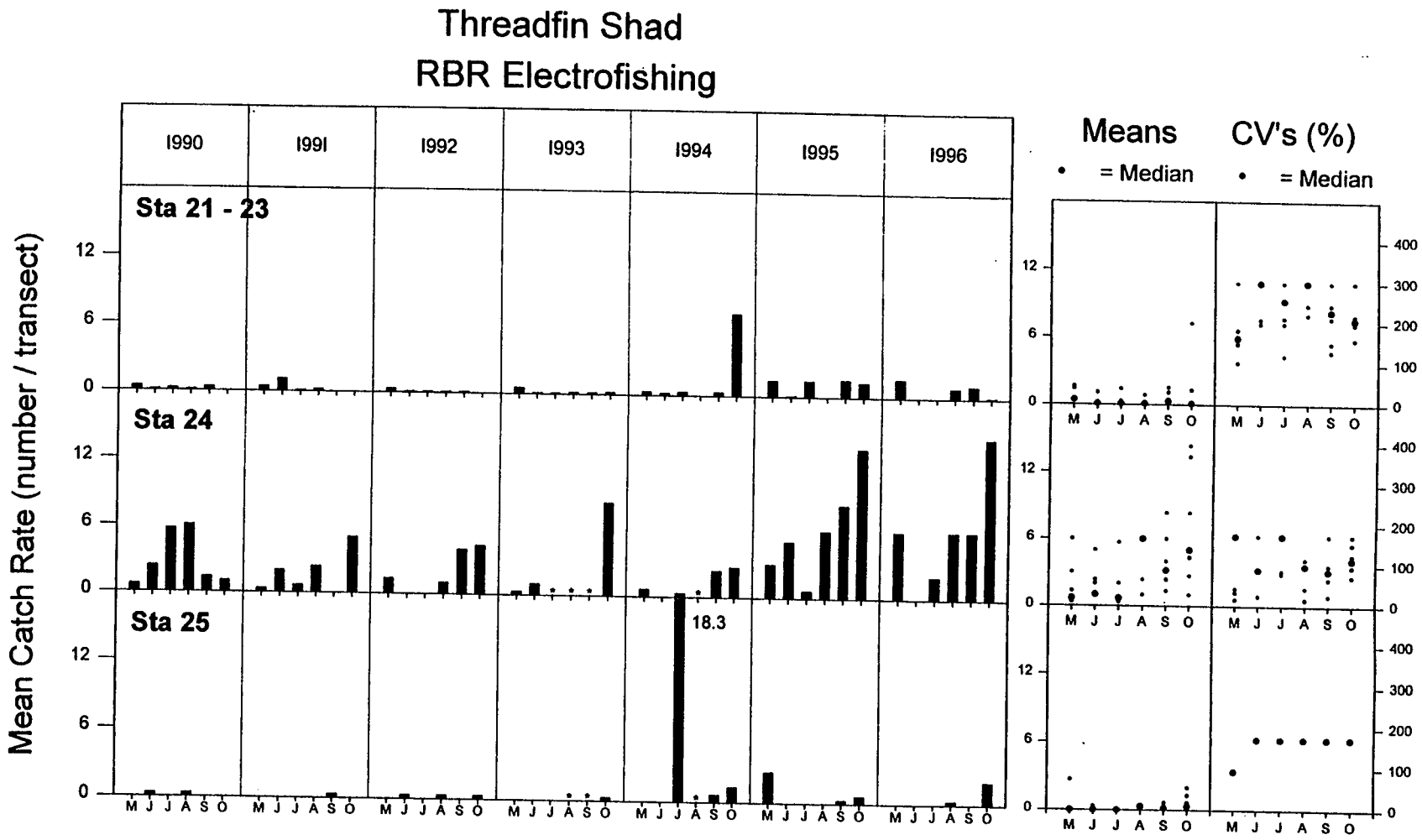


Figure 5-159. Mean catch rate (numbers/transect) of threadfin shad for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

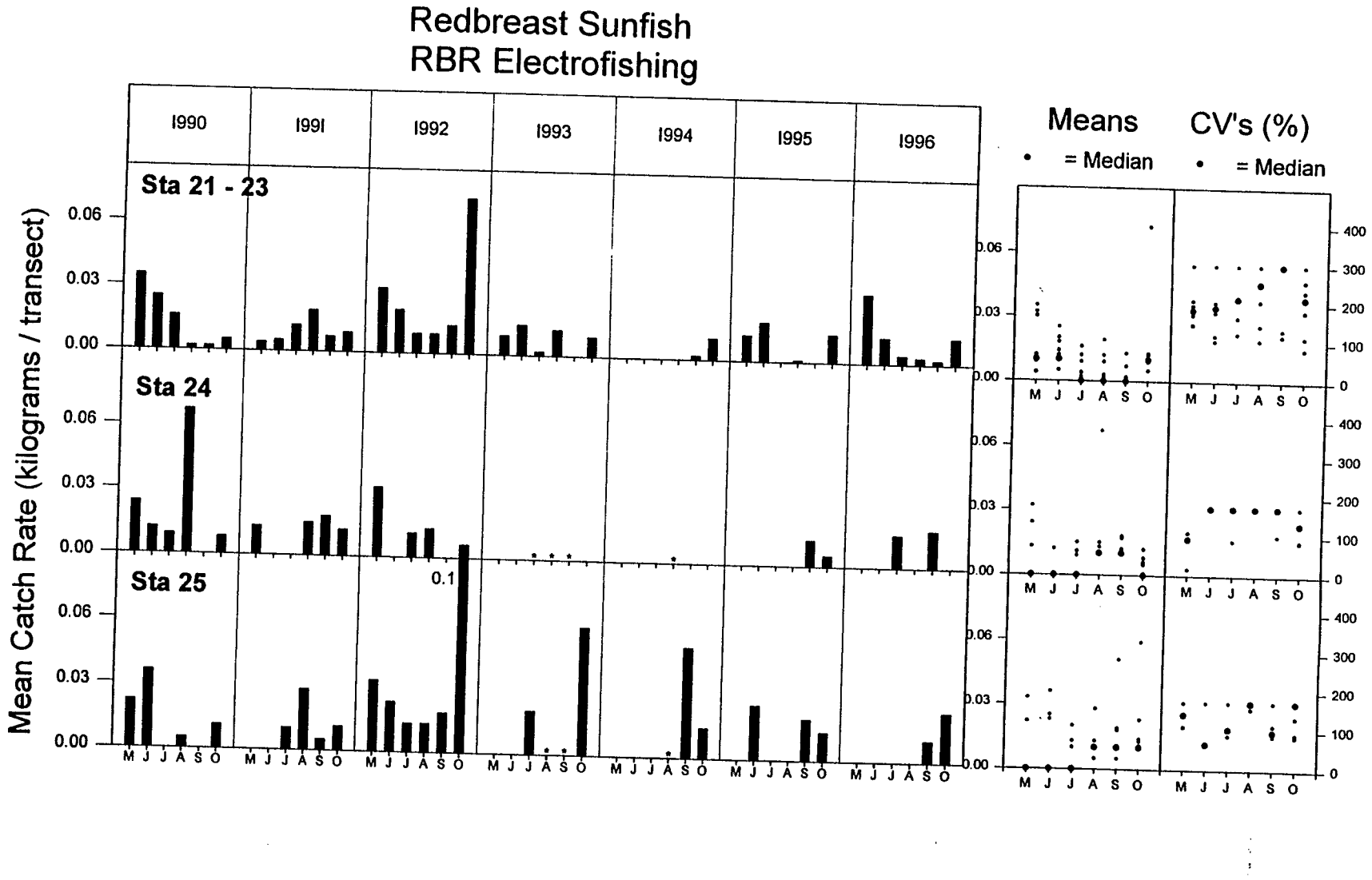


Figure 5-160. Mean catch rate (kilograms/transect) redbreast sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

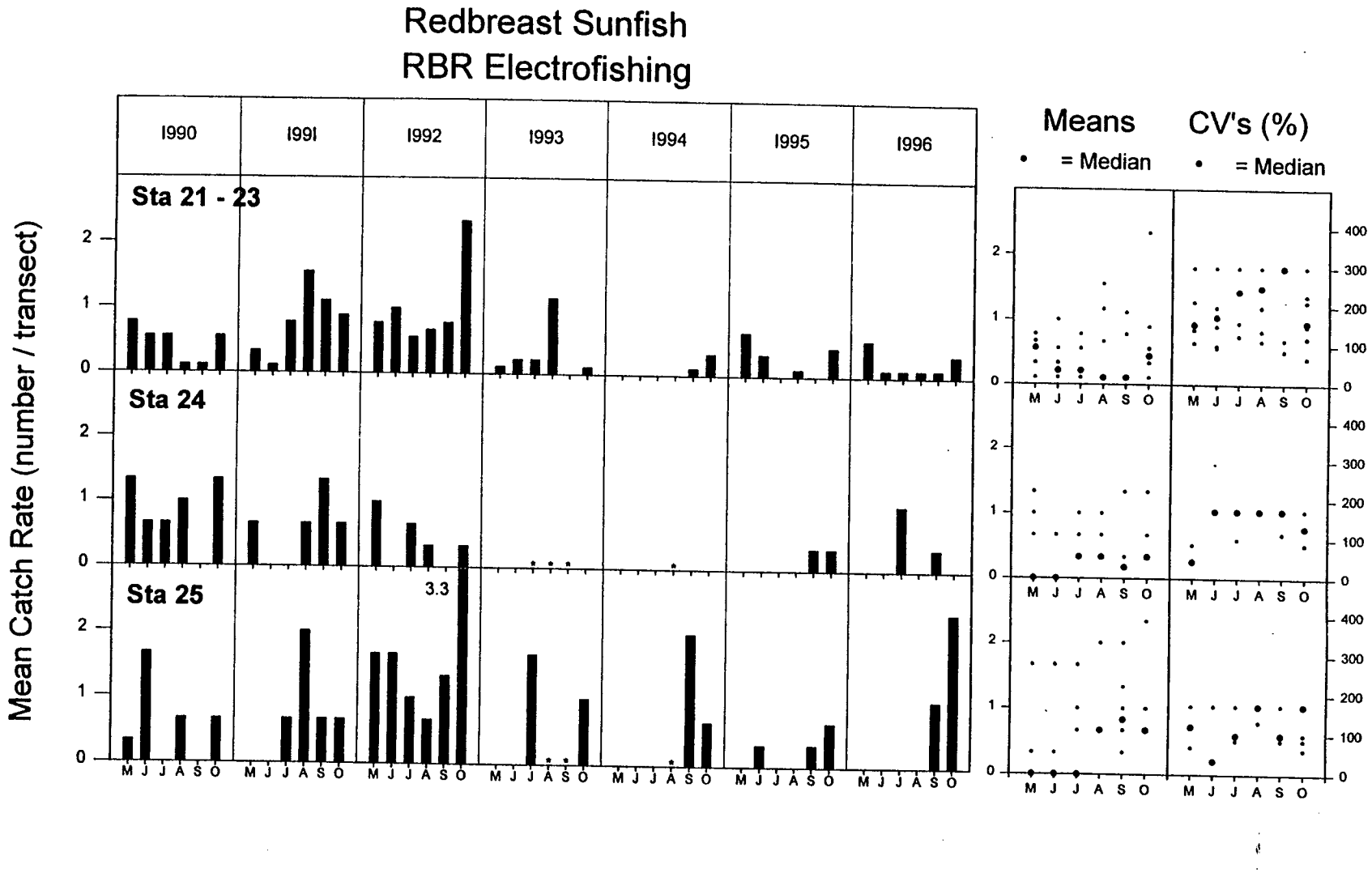


Figure 5-161. Mean catch rate (numbers/transect) of redbreast sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

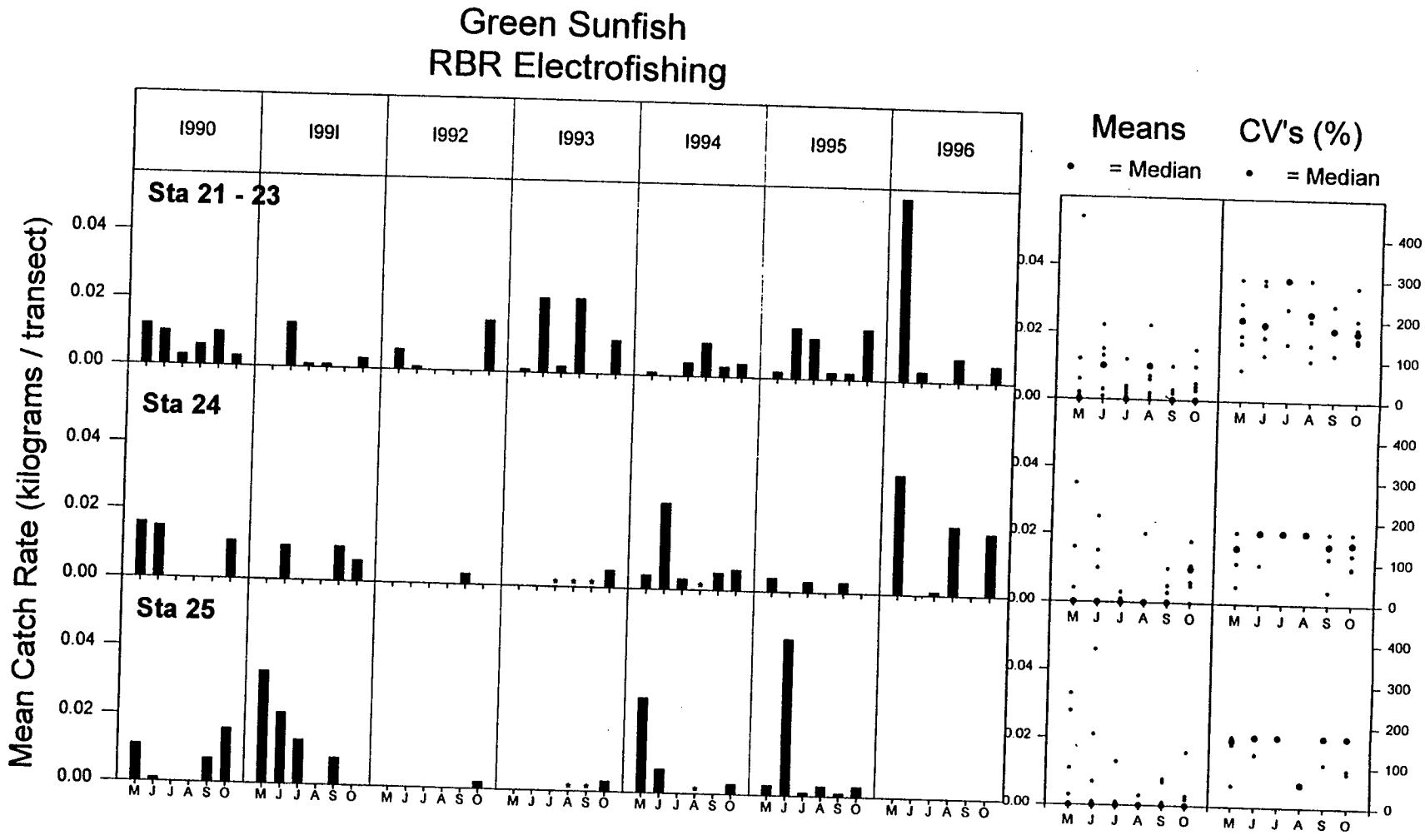


Figure 5-162. Mean catch rate (kilograms/transect) of green sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

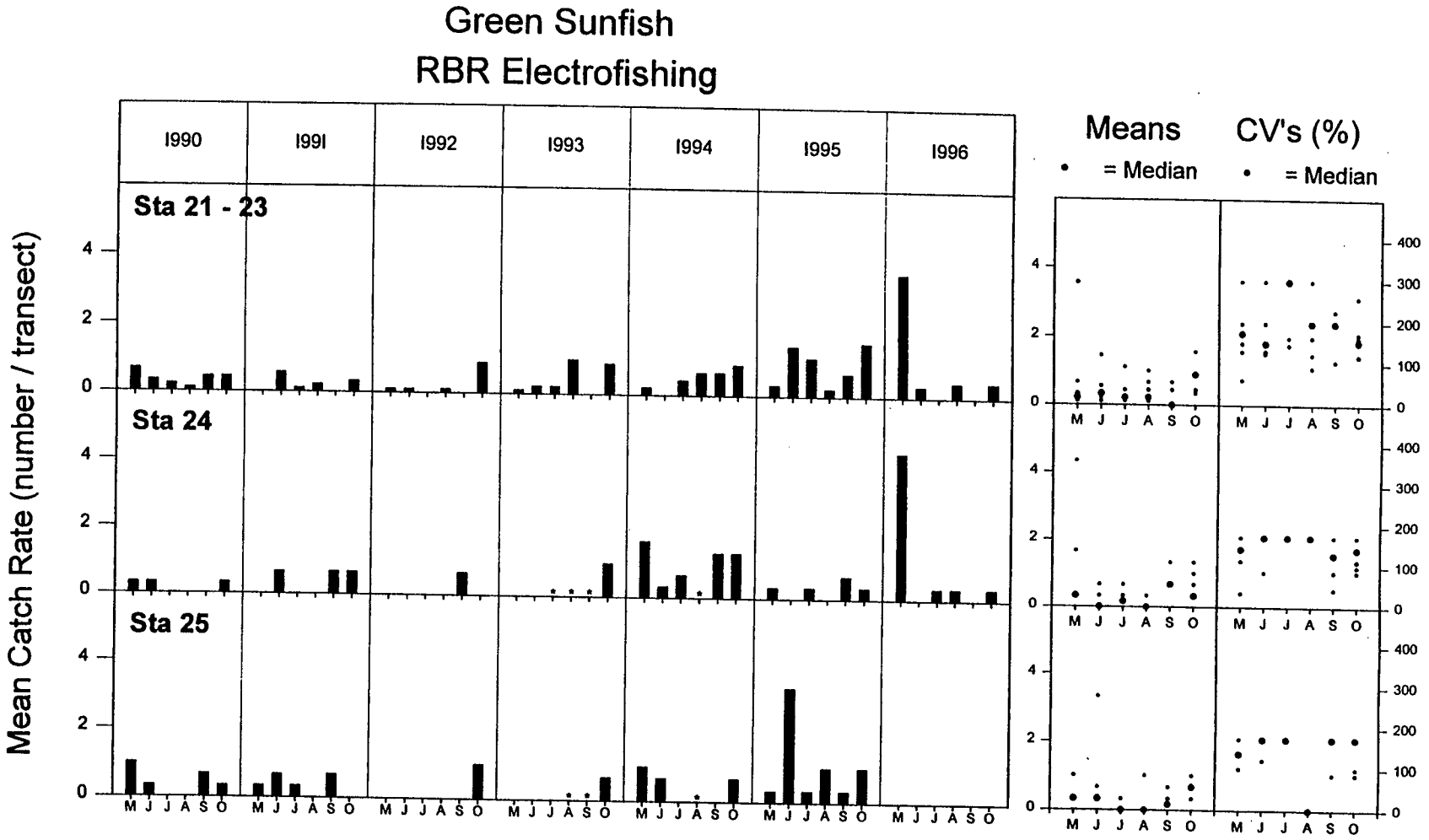


Figure 5-163. Mean catch rate (numbers/transect) of green sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

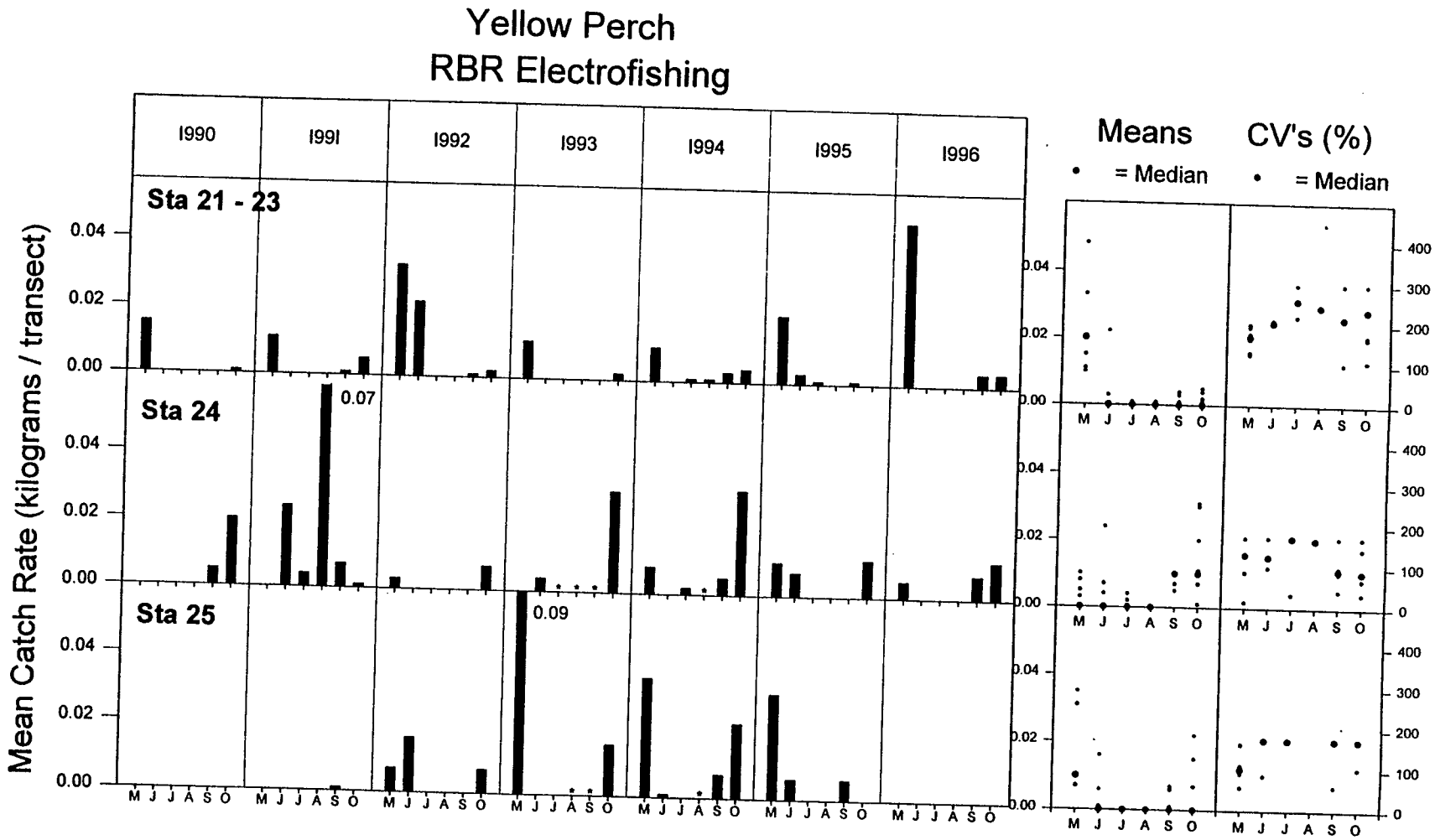


Figure 5-164. Mean catch rate (kilograms/transect) of yellow perch for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

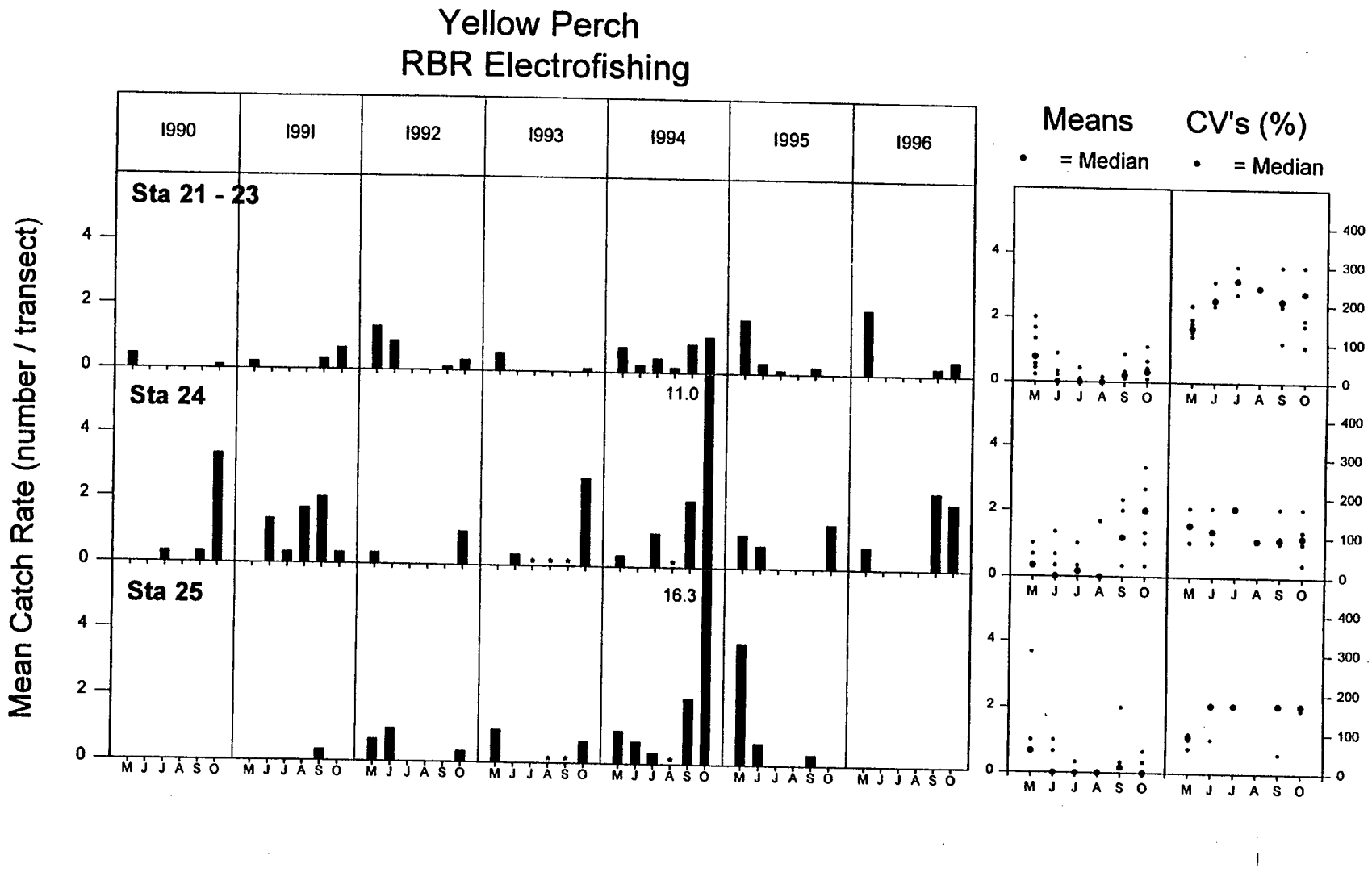


Figure 5-165. Mean catch rate (numbers/transect) of yellow perch for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

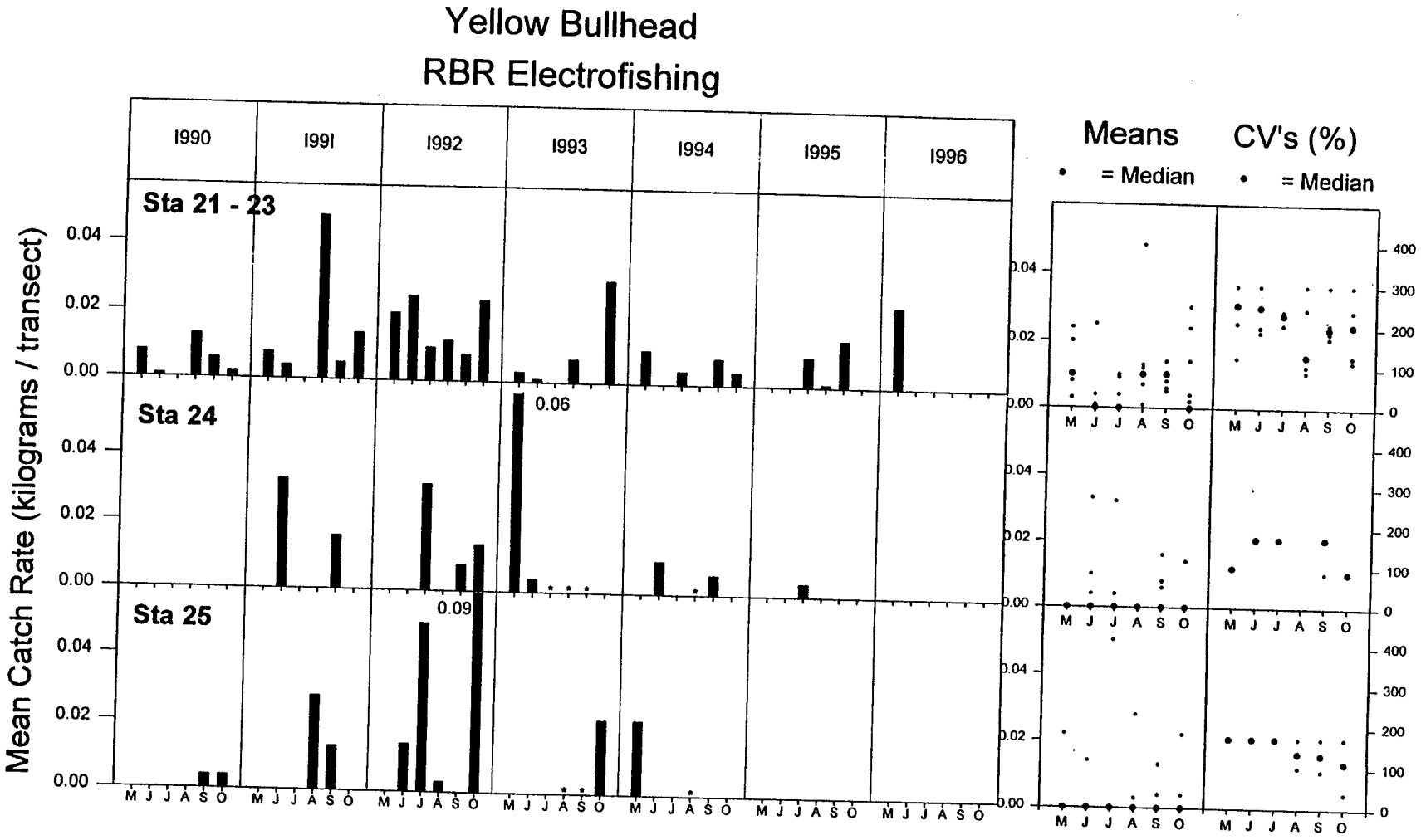


Figure 5-166. Mean catch rate (kilograms/transect) of yellow bullhead for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

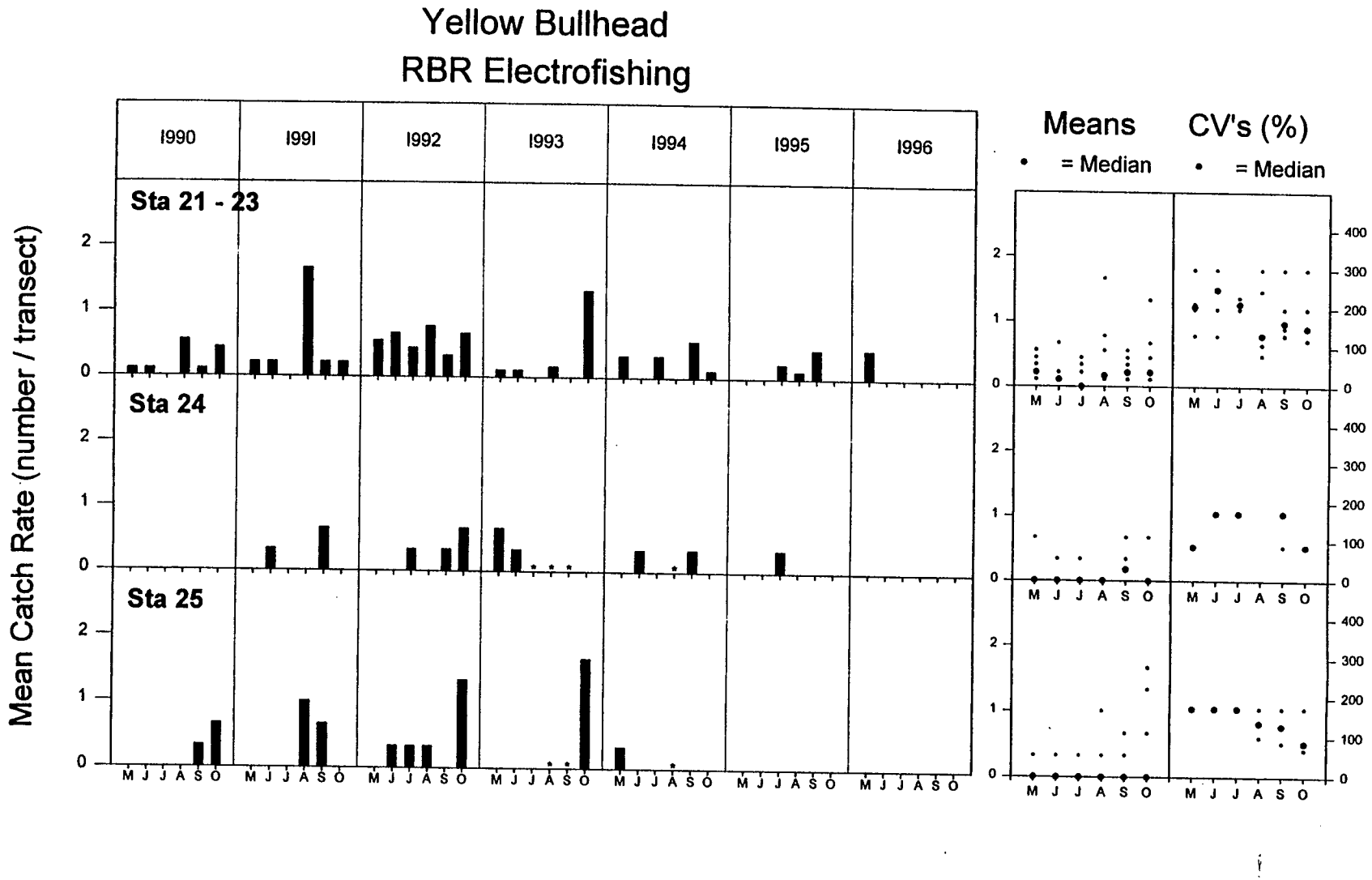


Figure 5-167. Mean catch rate (numbers/transect) of yellow bullhead for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

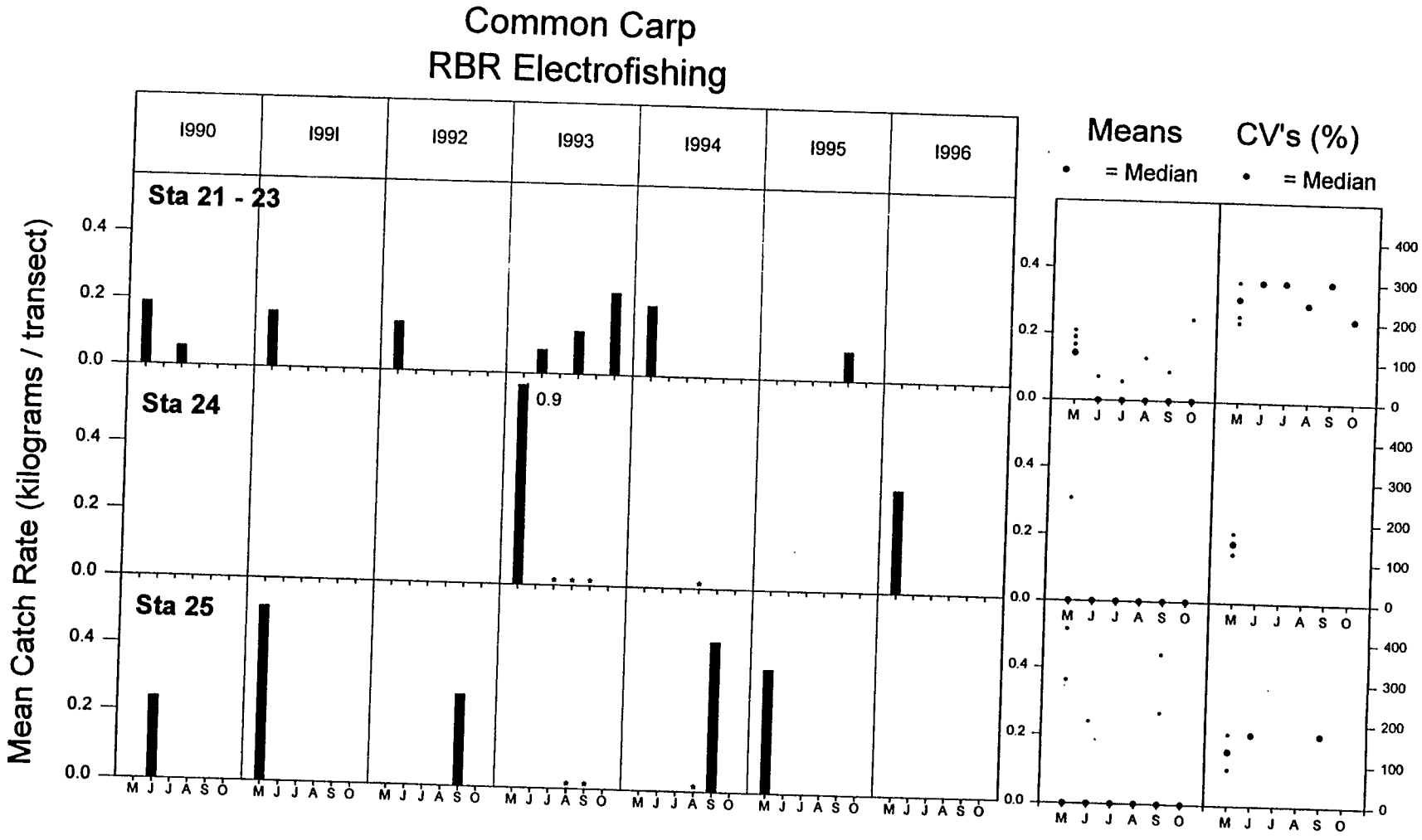


Figure 5-168. Mean catch rate (kilograms/transect) of common carp for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

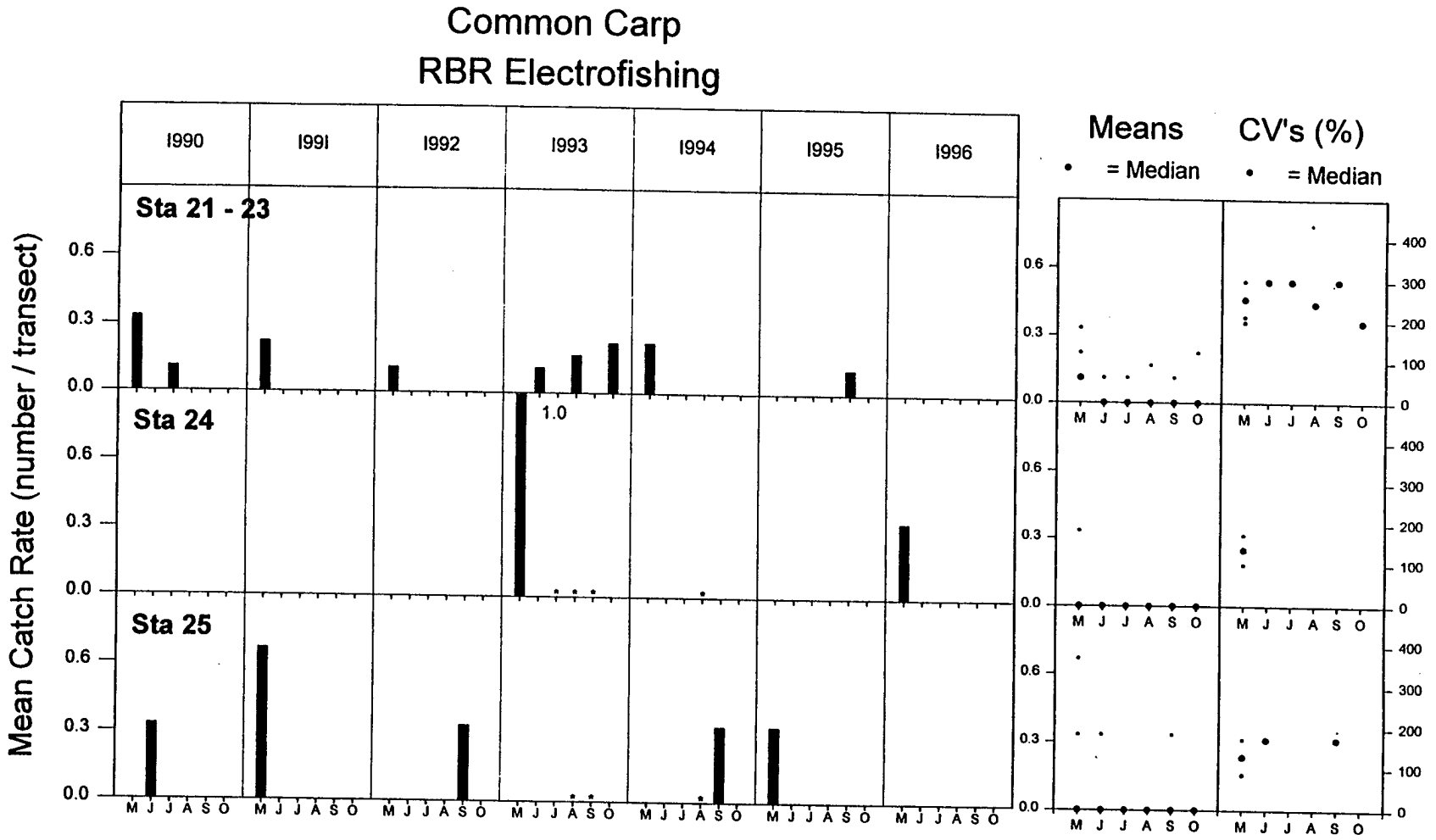


Figure 5-169. Mean catch rate (numbers/transect) of common carp for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

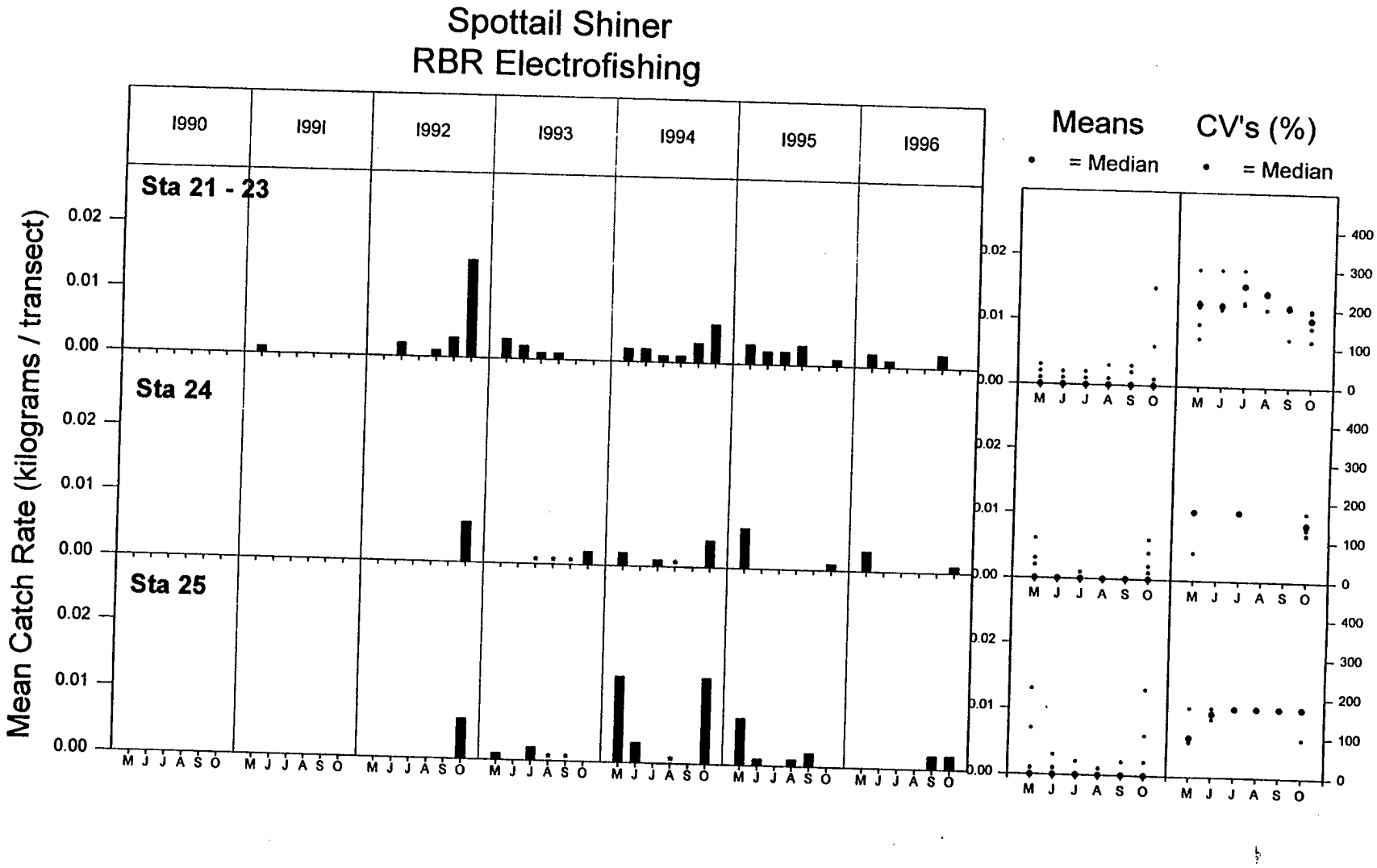


Figure 5-170. Mean catch rate (kilograms/transect) of spottail shiner for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

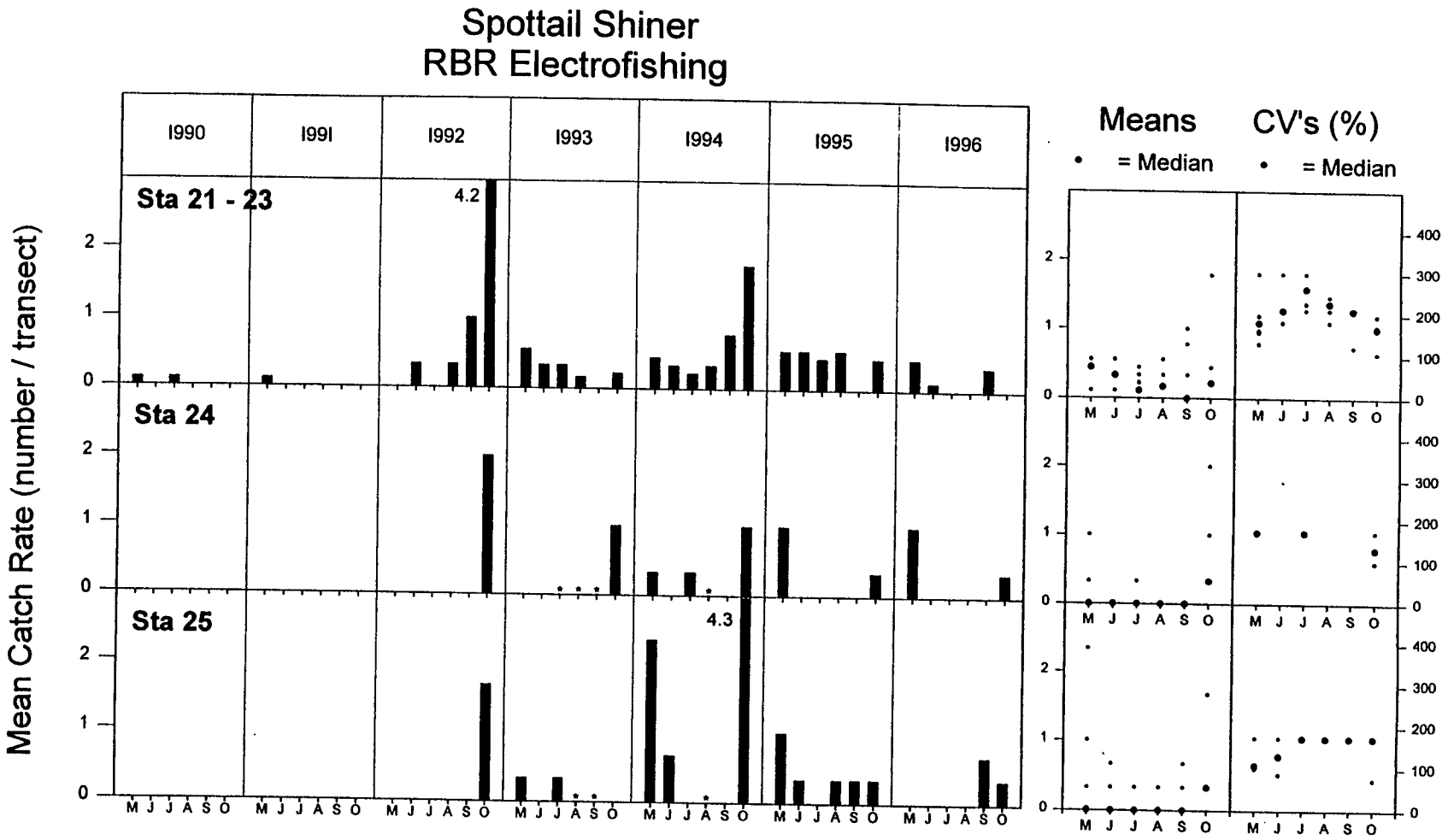


Figure 5-171. Mean catch rate (numbers/transect) of spottail shiner for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

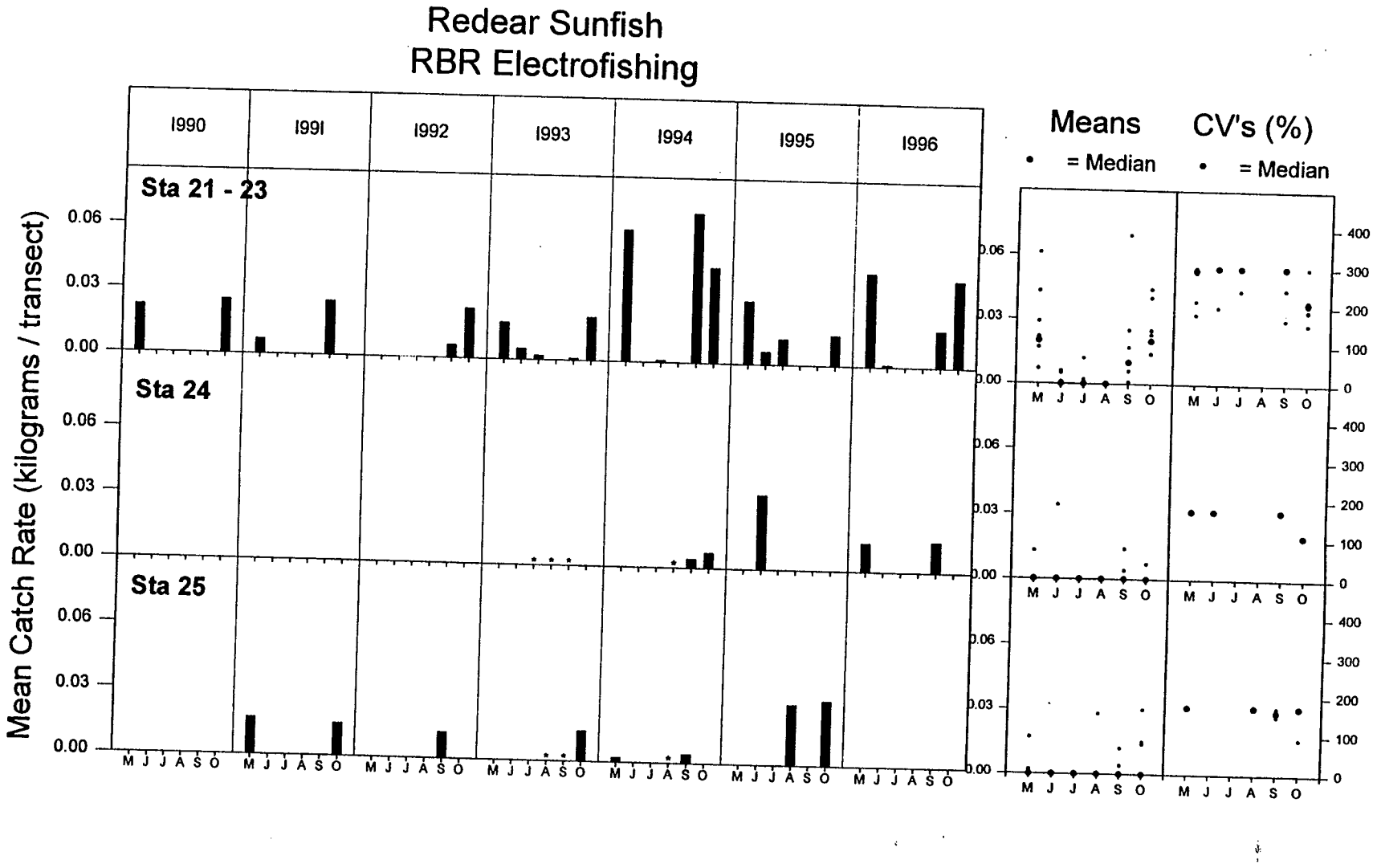


Figure 5-172. Mean catch rate (kilograms/transect) of redear sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

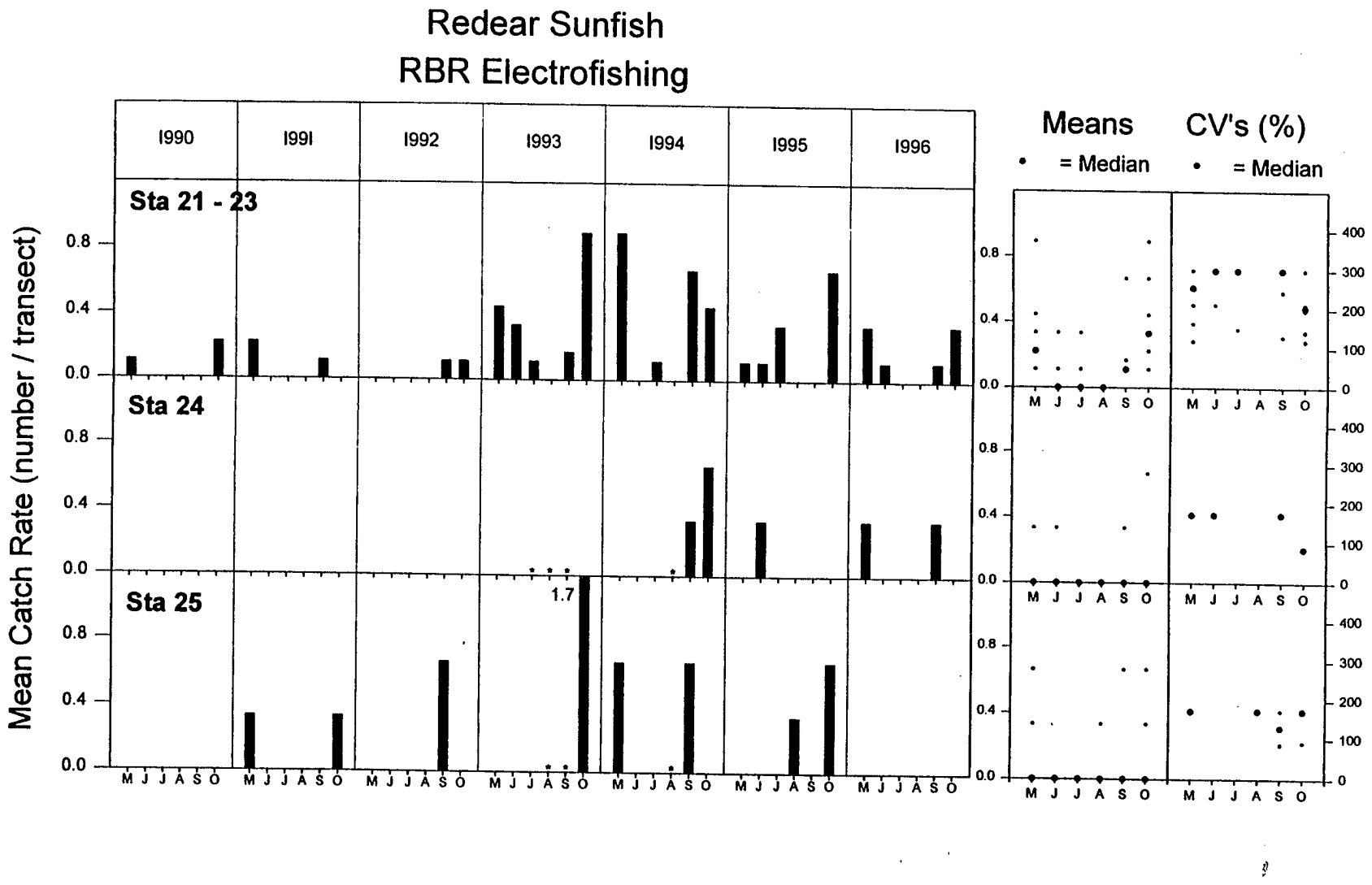


Figure 5-173. Mean catch rate (numbers/transect) of redear sunfish for RBR electrofishing. An asterisk indicates that no sampling was conducted for that month.

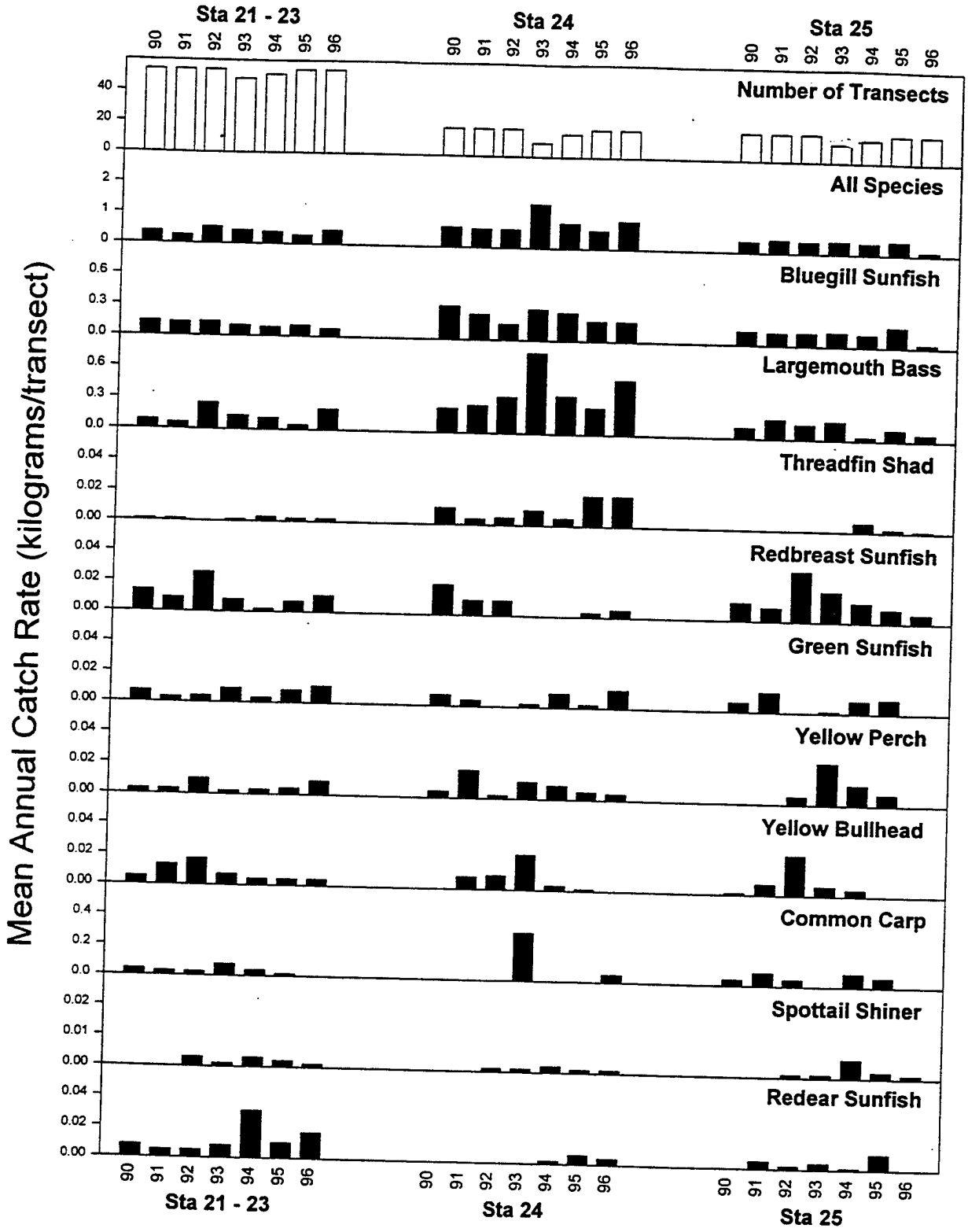


Figure 5-174. Mean annual catch rate (kilograms/transect) by station grouping for the top 10 IRI species and all species pooled for RBR electrofishing.

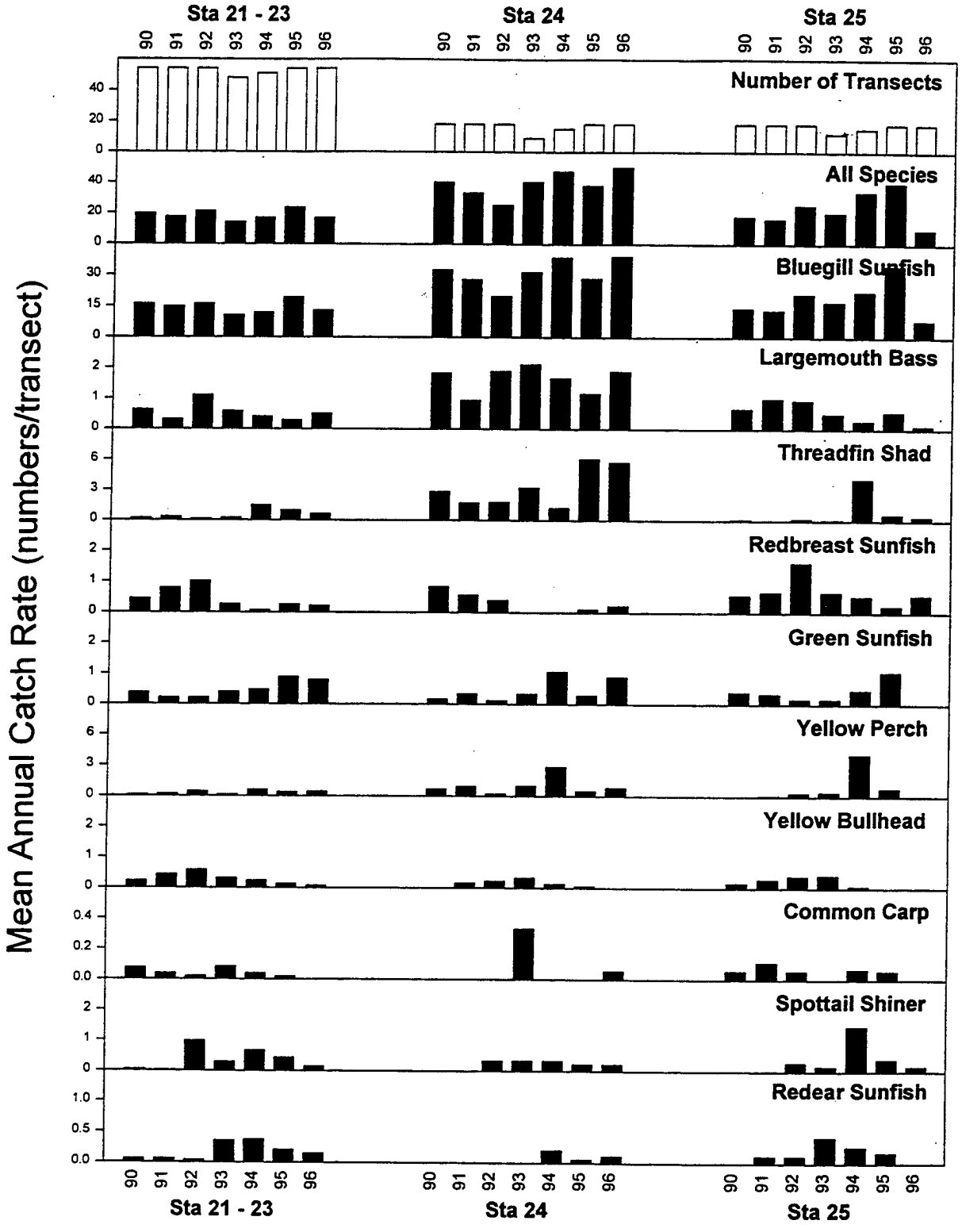


Figure 5-175. Mean annual catch rate (numbers/transect) by station grouping for the top 10 IRI species and all species pooled for RBR electrofishing.

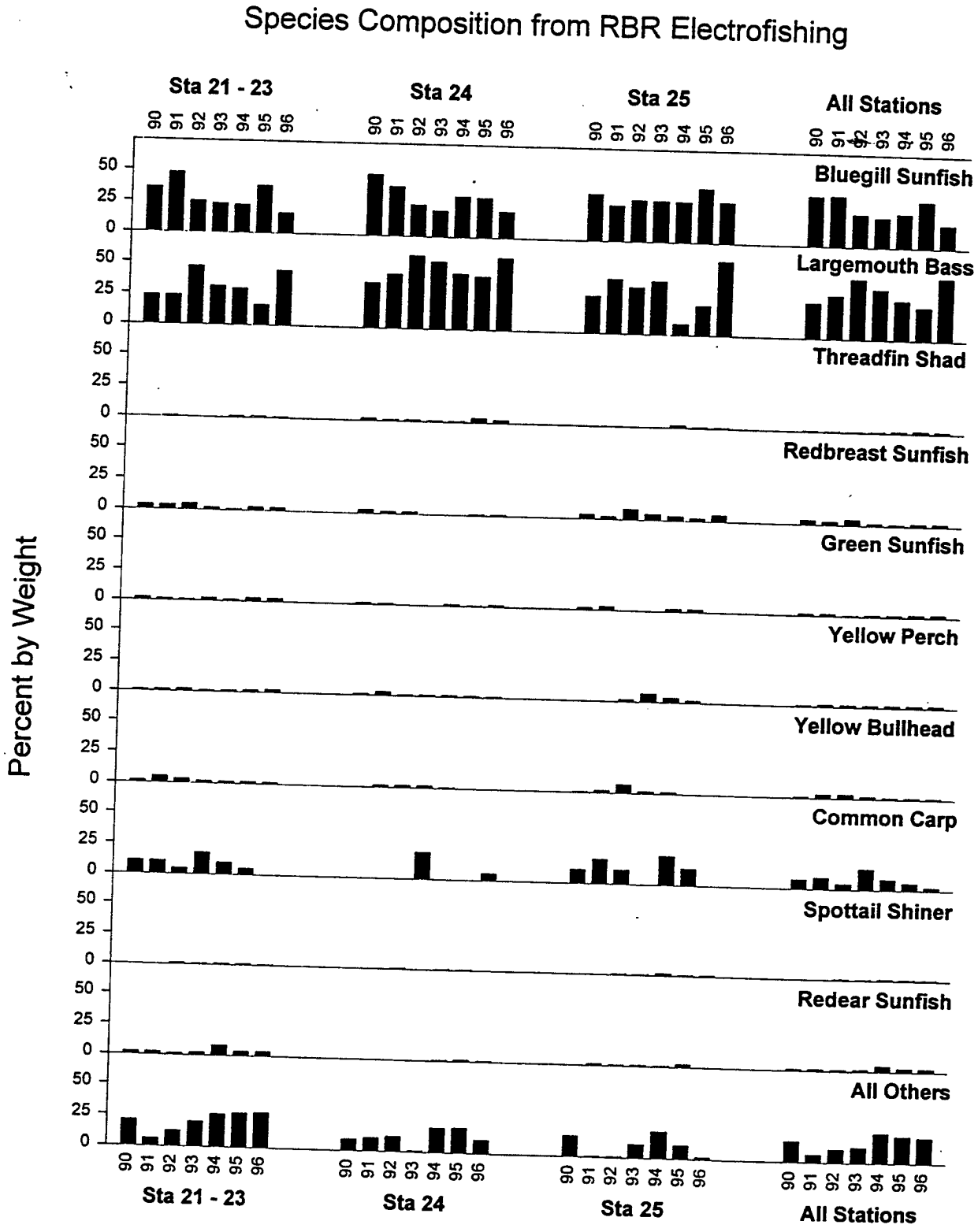


Figure 5-176. Percent species composition (by weight) of the top 10 IRI species and all other species (combined) by station grouping for RBR electrofishing.

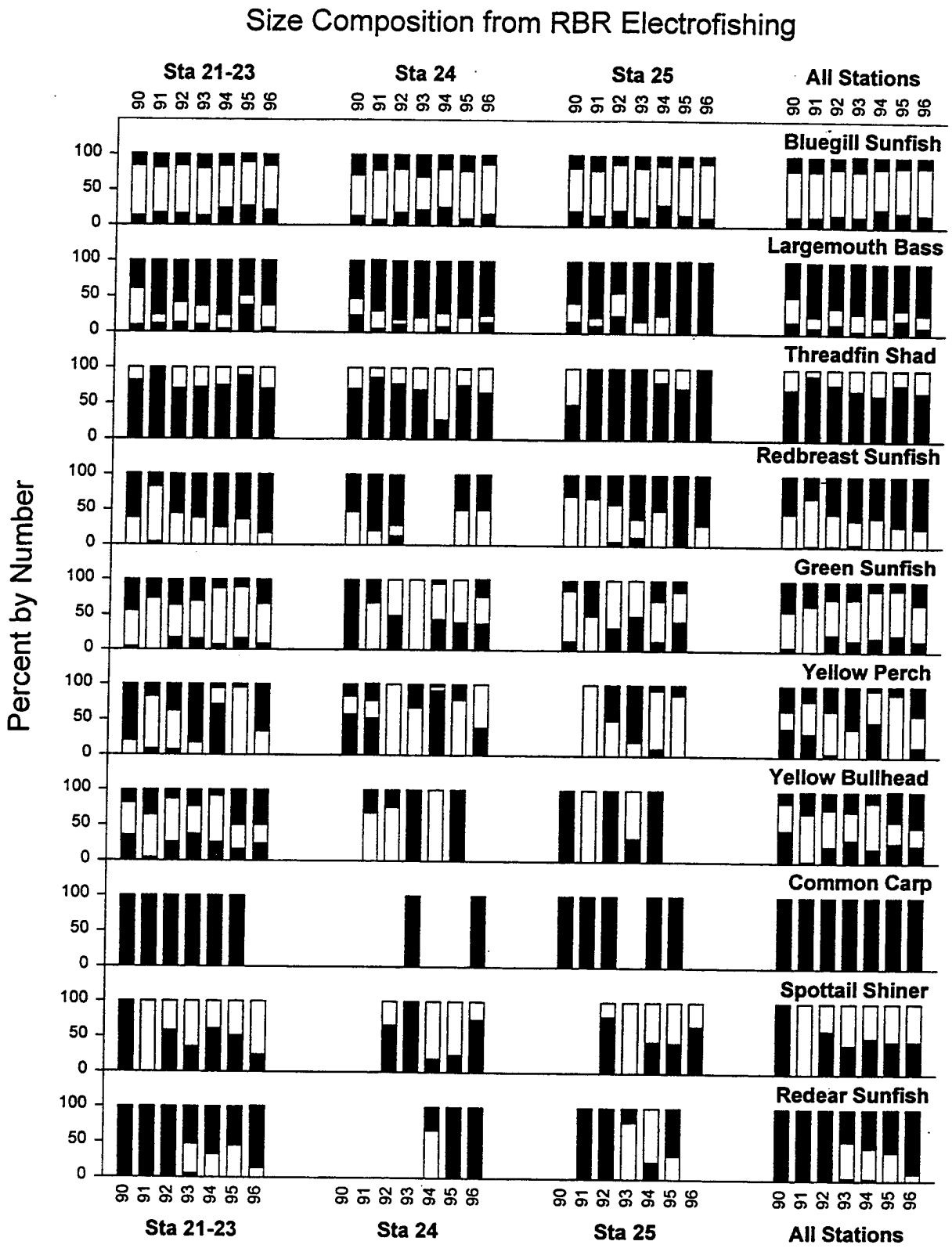


Figure 5-177. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for the top 10 IRI species by station grouping and all stations pooled for RBR electrofishing.

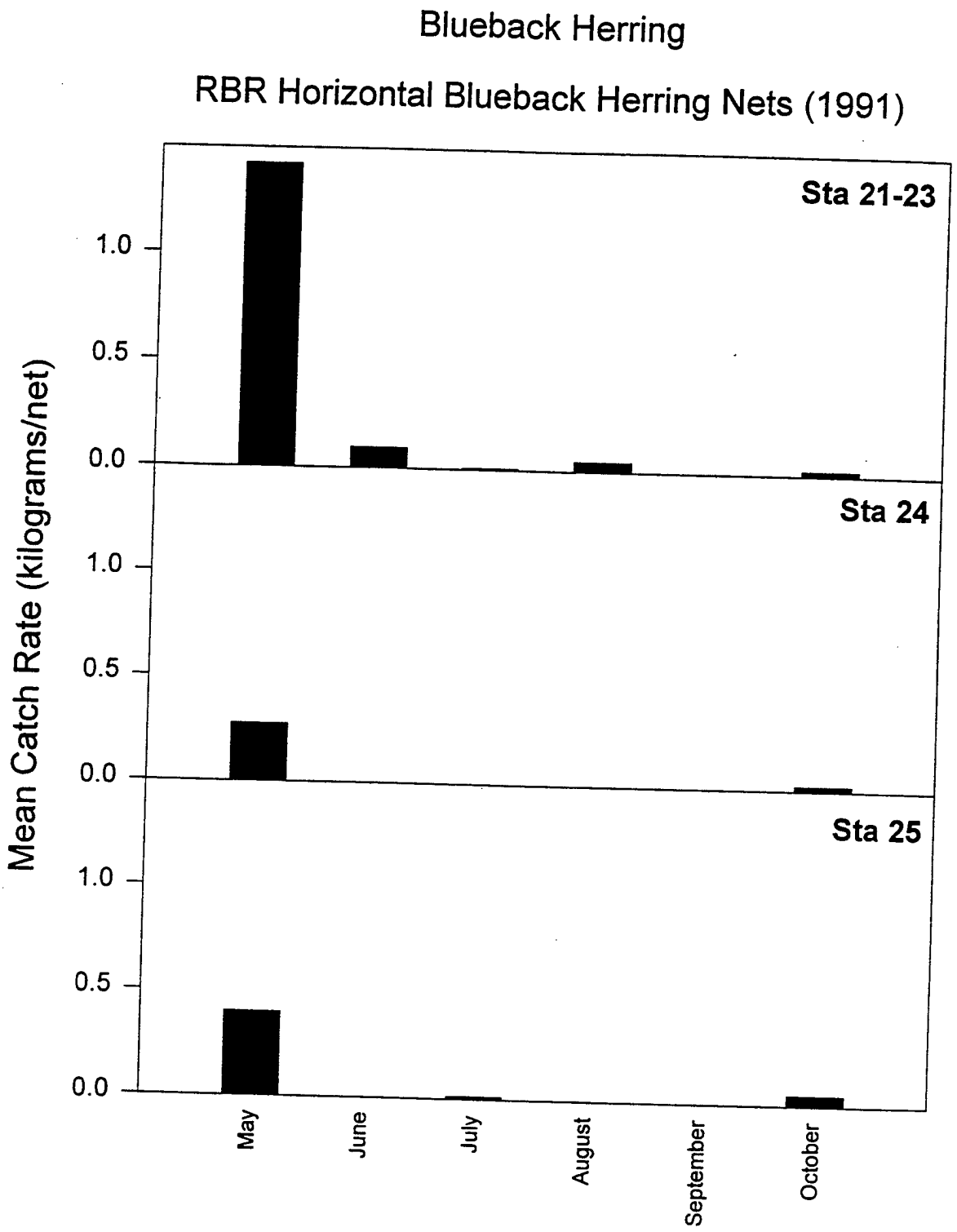


Figure 5-178. Mean catch rate (kilograms/net) of blueback herring for RBR horizontal blueback herring gillnets.

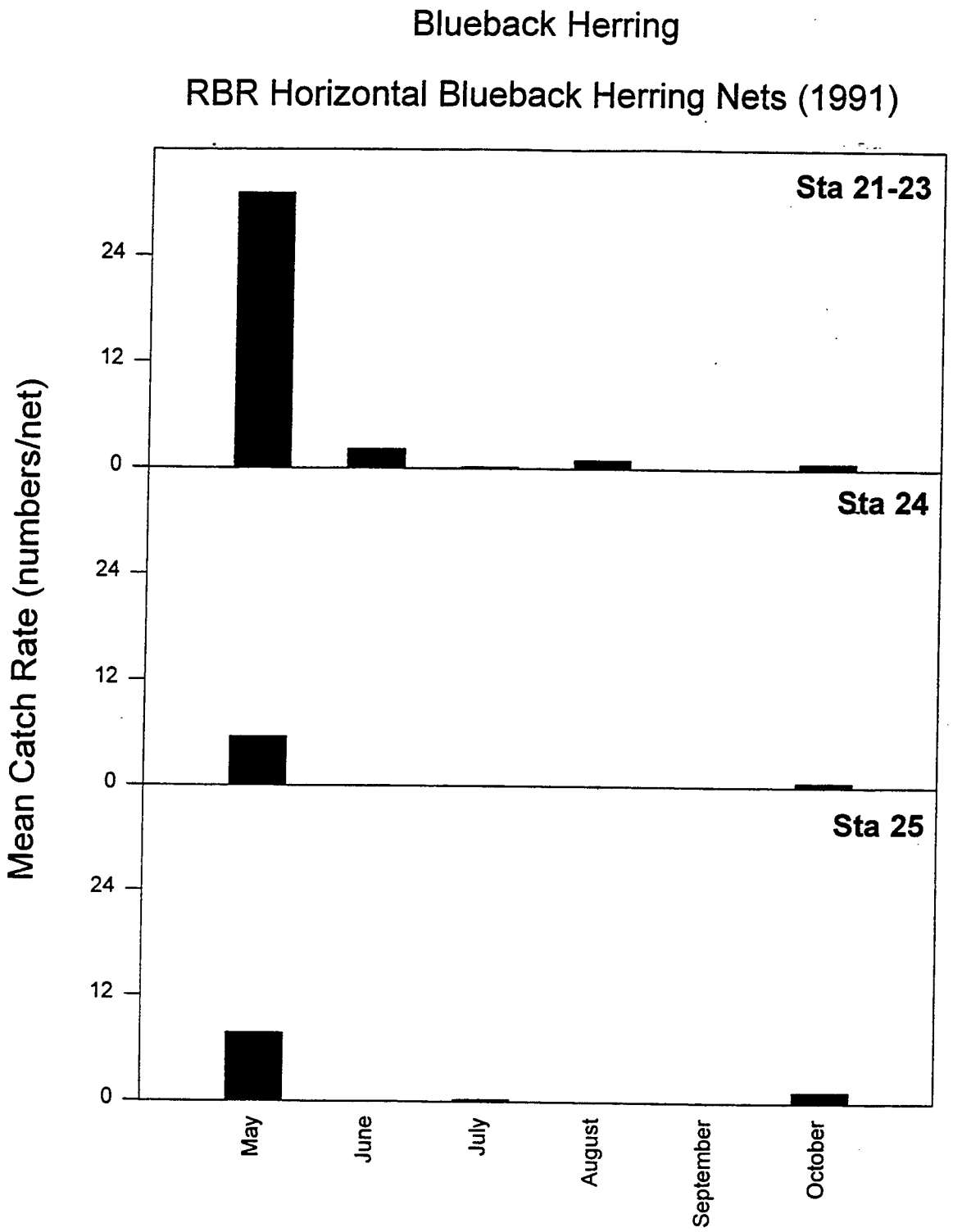


Figure 5-179. Mean catch rate (numbers/net) of blueback herring for RBR horizontal blueback herring gillnets.

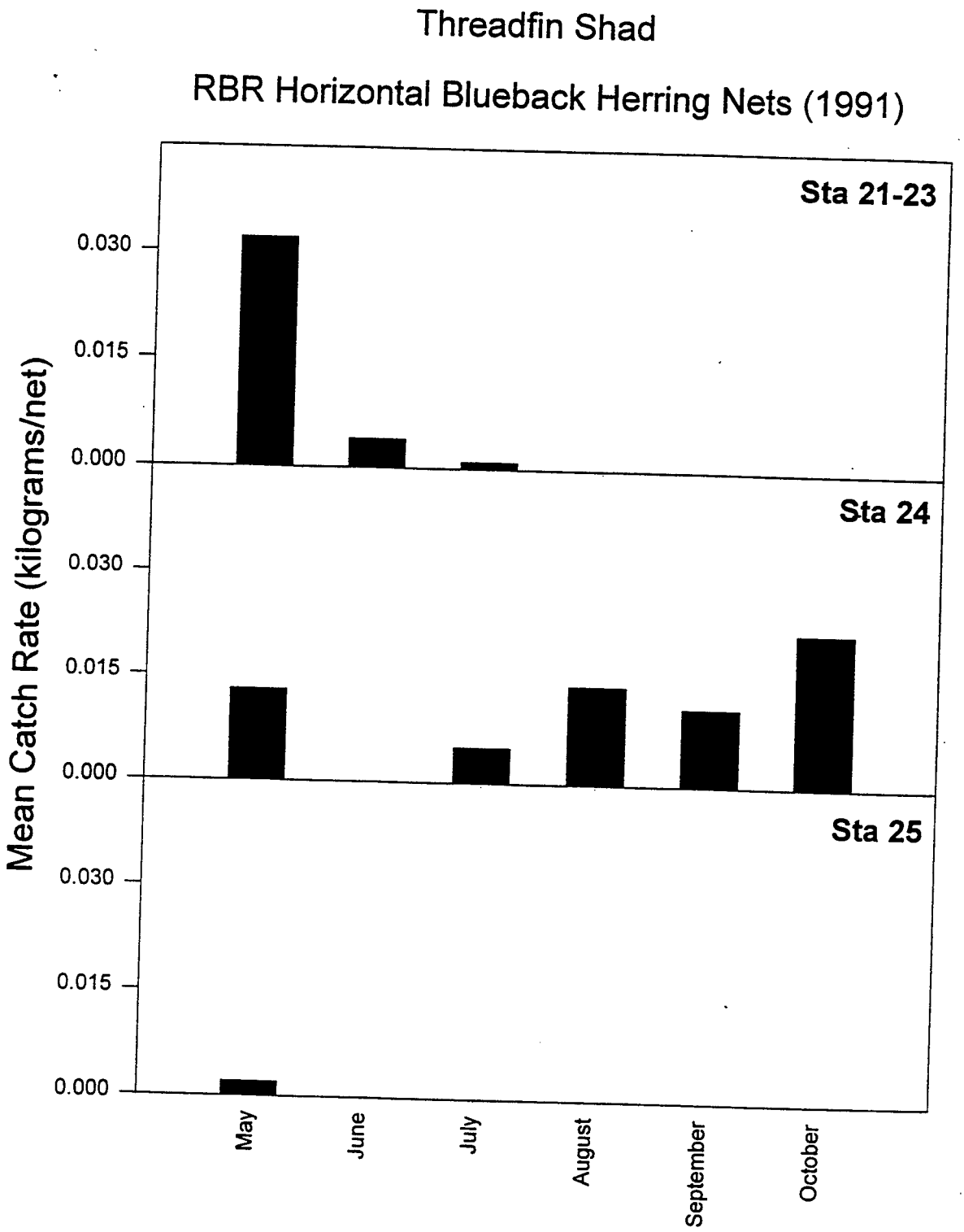


Figure 5-180. Mean catch rate (kilograms/net) of threadfin shad for RBR horizontal blueback herring gillnets.

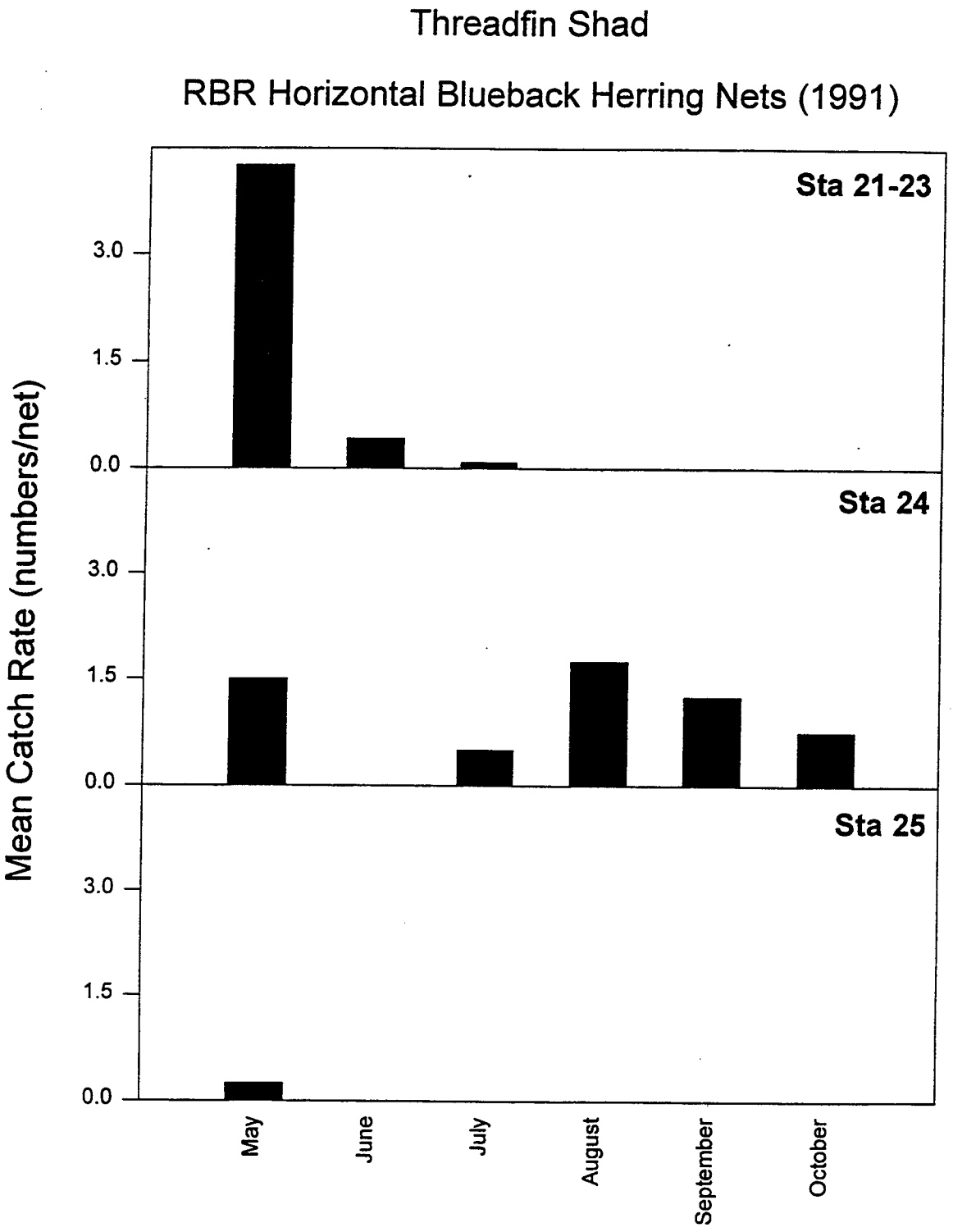


Figure 5-181. Mean catch rate (numbers/net) of threadfin shad for RBR horizontal blueback herring gillnets.

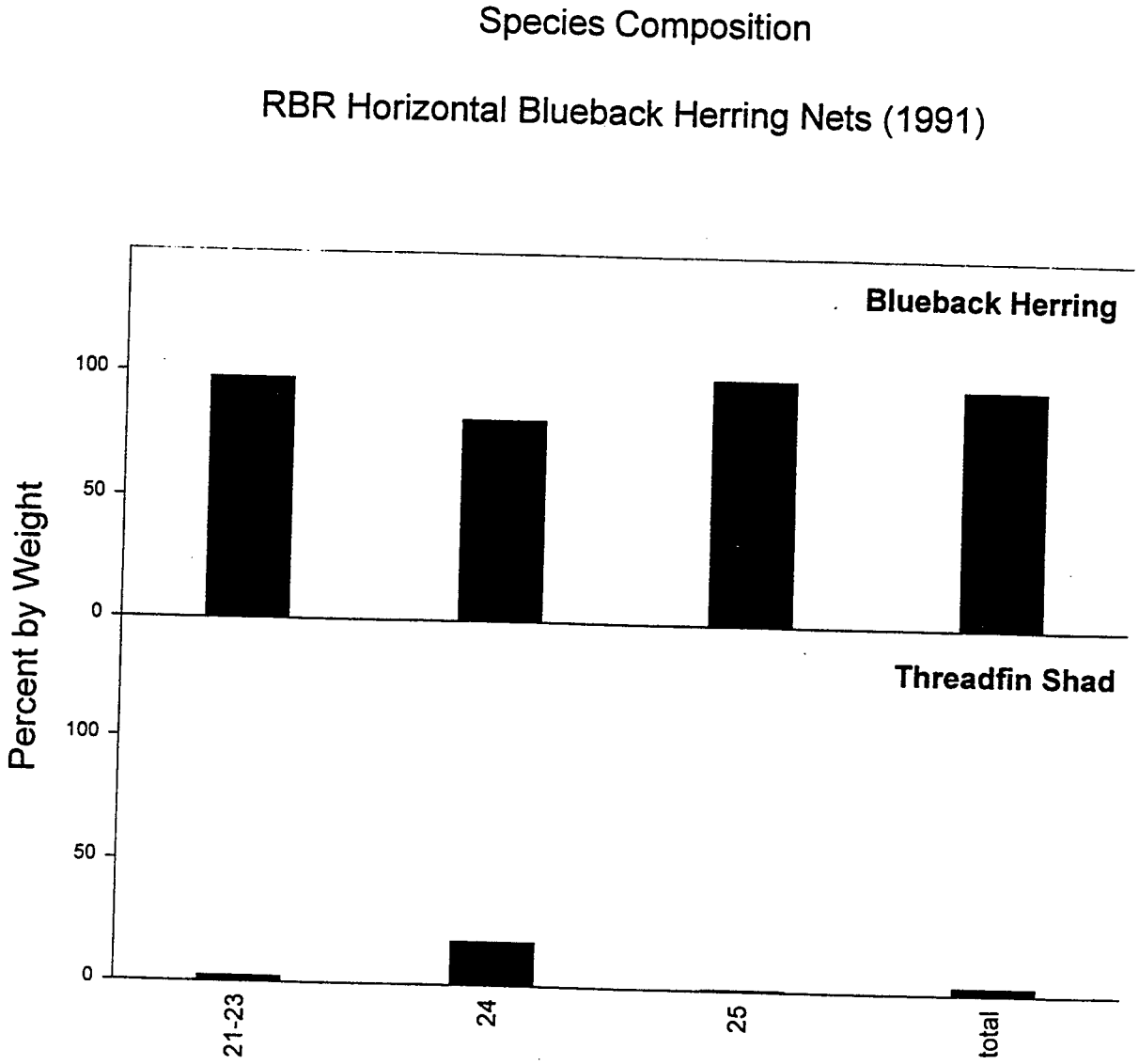


Figure 5-182. Percent species composition (by weight) of blueback herring and threadfin shad by station grouping for RBR horizontal blueback herring gillnets.

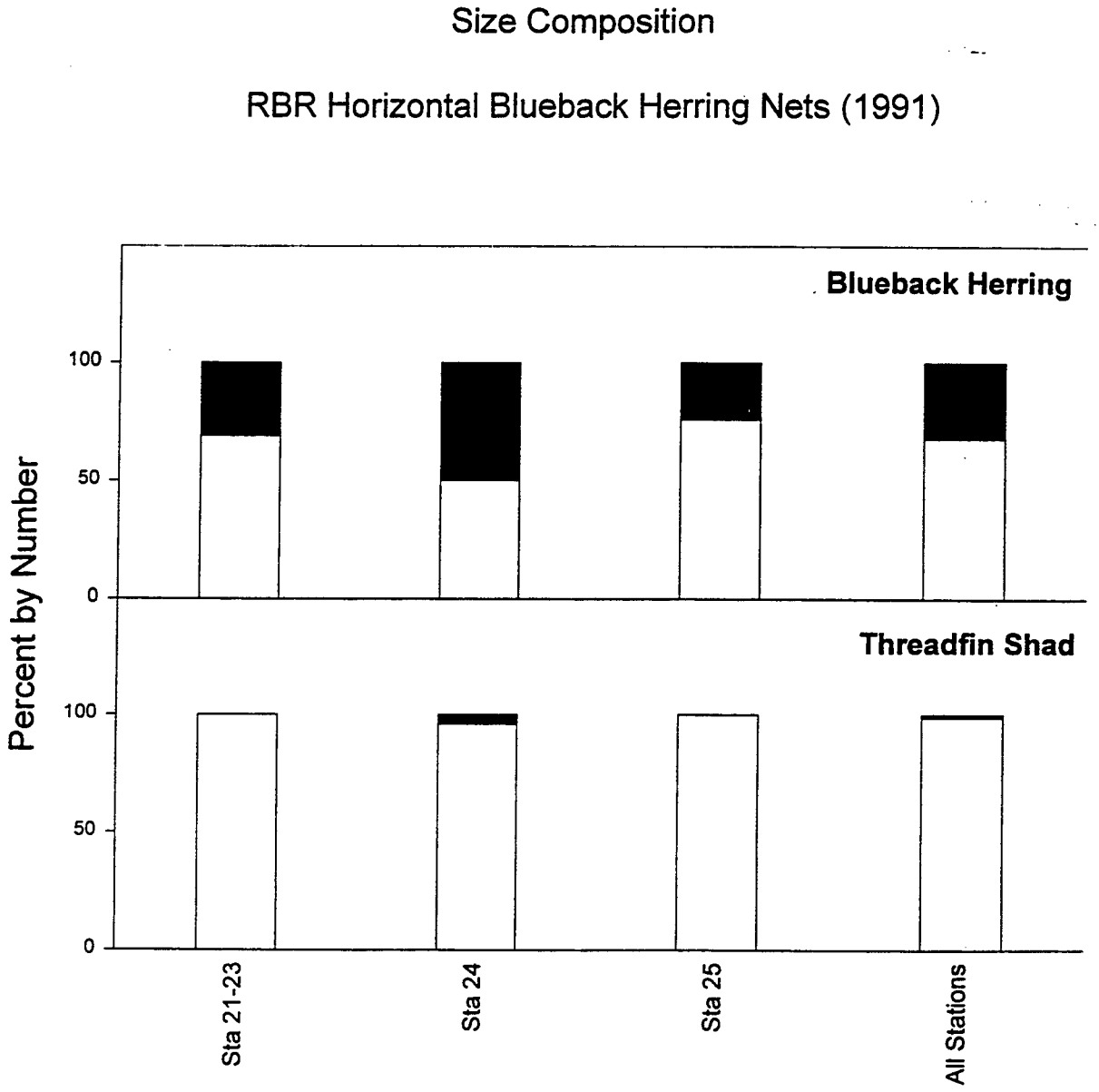


Figure 5-183. Percent of fingerlings (gray portion of bars), intermediates (white portion of bars) and harvestables (black portion of bars) for blueback herring and threadfin shad by station grouping and all stations pooled for RBR horizontal blueback herring gillnets.

6 Fixed-Aspect Hydroacoustics Studies

Summary

Full or partial recovery netting can be used to estimate entrainment through only one or two units during pumpback operation and one unit during conventional generation. Logistical and safety considerations prohibit recovery netting of all units during hydropower operation. Fixed-aspect hydroacoustics sampling is routinely used at hydropower projects to estimate fish entrainment and fish passage characteristics (e.g., timing of passage and depth distribution of entrained fish). The entrainment estimates for the net and hydroacoustic systems should be compared to ensure both are accurately sampling fish passage.

A fixed-aspect hydroacoustics system was used to monitor fish entrainment on all intake bays during pumpback operations at the Richard B. Russell Dam during the Phase III study period. During the Phase III study period the hydroacoustic system sampled five times more unit hours of pumpback operation than the nets, and provided information about fish entrainment unattainable with net sampling. Study objectives for fixed-aspect hydroacoustics sampling during Phase III pumpback operations were; (1) determine if hydroacoustics could be used to monitor entrainment rates, (2) measure entrainment through time, among intakes, and depths sampled, and (3) determine whether the entrainment rate changed with the number of units operating.

Results relating pumpback net entrainment rates to hydroacoustics entrainment rates reveal that hydroacoustics can be used to predict monthly entrainment rates. The predictive equations developed were based on both Phase II and III data because the differences in entrainment rates, species of fish entrained, fish sizes, and fish depths over the two study periods differed, and either study period alone would not adequately predict entrainment.

Entrainment associated with pumpback operations varied during the Phase III study period. The highest entrainment events predicted with hydroacoustics occurred in July, August and early September when threadfin shad were numerically dominant in the net catches. During this same period the fish counted with

hydroacoustics tended to be more surface oriented than other months, and the mean fish size entrained dropped from 6.5 inches to 4 inches. The number of units pumping during a pump event was related to the hydroacoustic entrainment rate during Phase III testing. Comparisons between 1, 2, 3 and 4 unit pump events found entrainment rates were similar when 2, 3, or all 4 units were pumping, but entrainment rates were nearly twice as high when multiple units pumped than when any single unit pumped.

Entrainment rates during Phase III pumpback operations were also compared between pump events that were preceded by conventional generation within a 24-hour period (pregeneration pumps), and pump events that were not directly preceded by conventional generation (non-pregeneration pumps). Entrainment rates for all pumpback units were higher during non pre-generation than pregeneration unit pump events except during the month of June. Although non-pregeneration unit events comprised only 11 percent of the total pump events during the period of highest entrainment (July-August 1996) during Phase III, 67 percent of the events with entrainment rates greater than 10,000 fish/hour were non pre-generation pumps.

A significant regression was not obtained between paired fixed-aspect hydroacoustics and net samples collected during conventional generation operations prior to Phase III operation. Additional sampling conducted during mid-June 1996 to determine directionality of fish in front of Unit 4 showed that two to twenty-five percent of the fish tracked were moving toward the intake opening. The directionality study indicated that a variable and sometimes low percent of tracked fish passing through the acoustic beam were actually entrained.

Phase III Fixed-Aspect Hydroacoustics Studies

Introduction

Fixed-aspect hydroacoustics sampling was conducted on pumpback units 5-8 during the Phase III study period at the Richard B. Russell Dam. Acoustic sampling was designed to provide information on individually tracked fish during low density events, and on schooling fish during high density events. The relationship between the fixed-aspect hydroacoustics and netting provides predicted entrainment for pumping when net data are not available, and supplements the net information with spatial and temporal trends. Acoustic sampling was also conducted on generation unit 4 during June 1996 to determine the feasibility of multiple beam acoustic tracking to determine direction of fish movement and assess the potential for using this technique to better predict fish entrainment during generation at Richard B. Russell Dam.

Methods

Hydroacoustic equipment and calibration methods for the Phase III study period were similar to the Phase II study. Sampling was conducted with a Biosonics ES2000 Echosounder generating five 0.4 ms pulses per second at 420 kHz for each transducer. Elliptical single-beam transducers were replaced with circular dual-beam transducers on all units in June 1996 to reduce noise and obtain target strength information for all units. Source level, receiving sensitivities, receiver gain, and wide beam drop-off for each echosounder and transducer combination were based on the most recent calibration of the equipment by Biosonics, Inc. (Table 6-1). All transducers were also field calibrated on a monthly basis (Table 6-2) and checked for any cable, transducer, or sounder replacement or modification. All field calibration adjustments were reviewed, and jointly agreed upon by WES and Aquacoustics, Inc. Bottom range and any noise or apparent structure on the echogram was recorded for each transducer. These values were compared with previous values for any divergence, indicating system malfunction. The threshold for an acceptable echo was set at -56 dB to avoid echo saturation from large targets, and allow a sufficient signal to noise separation to distinguish background noise scatterers from fish targets. A single transducer was mounted in front of each intake bay (2 transducers per unit) on a pivoting framework attached to the dam and aimed towards the intake bay at approximately 20 and 30 degrees from vertical on units 5-6 and 7-8, respectively.

Biosonics data collection software ESP_DBM and ESP_EIM was used to collect and filter data for tracked fish and multiple targets from schooling fish, respectively. Data was collected from all pumpback units by slow multiplexing between even and odd number transducers every 225 seconds, and fast multiplexing (sequentially switching) among the 4 even or odd transducers. Data collection began prior to unit startup and continued until after unit shutdown for every pump event.

During processing the data were analyzed utilizing either tracking or integration techniques. Tracking identified individual fish based on the pattern of multiple hits from an individual fish as it passed through the acoustic beam. Each file processed by echo tracking was reviewed to ensure that target groups enumerated as fish met mean target size (-30 to -50 dB) and a range weighted number of hits criteria. Real-time tracking data was edited using the ESP_ECHO autotracking option and manual inspection. All data files were edited for structure and pumping times. Integration estimated fish passage by summing total reflected voltage and scaling the summed voltages by the mean voltage returned by a single fish. Echo integration was used to process data during May, and July through October, 1996. Noise caused by the entrainment of silt during 4 unit operation reduced the effectiveness of echo tracking during May, and a large number of small threadfin shad entrained during July through October resulted in a similar problem for echo tracking. Integration data was output using Biosonics software READEIMC.EXE. The average fish size was determined by the average backscattering cross section for all fish tracked during each month. The total number of fish was calculated based on multiplying the relative density (number of

fish/m^3) by the intake width (m), the intake velocity (m/sec), the depth interval (m), and the time interval (sec).

Quality control and assurance guidelines were followed to maintain the integrity of the hydroacoustic database and insure no significant variance between hydroacoustic editors. A one hour data file for a single transducer was randomly selected from each pump event and independently edited by a second editor. A difference between editors of greater than 20% in the total number of fish triggered retracking of the file by both editors. If no consensus was reached the entire pump event was retracked.

Net and acoustic samples collected during Phase III pumpback operation at Richard B. Russell Dam were combined with those paired samples collected from April 1995 through Phase III startup for regression analysis. Pumpback entrainment data collected prior to the Phase III study were used to develop the regression equations reported and were not expanded to predict entrainment rates over that period. Samples collected from April through August 1995 with missing bottom strata were not included in the analysis. PrePhase III and Phase III data were combined to calculate regressions after determining the Phase III regression slopes were not significantly different than data collected previously. The hypothesis for comparison of net and acoustic gear assumes the gear types will perform similarly under varying entrainment rates and species compositions. The regression incorporates these variables when both gear types are effectively sampling the entrained population.

The hydroacoustic entrainment estimates by event were compared with the paired net entrainment estimates by unweighted least squares regression. Data from each unit was regressed separately to provide a regression by unit. The predicted net entrainment rates by unit by month were compared with the Phase III net entrainment rate estimates by GLM/ANOVA to compare the means of the samples.

Fixed-aspect hydroacoustic equipment and methods for generation entrainment sampling were similar to the pumpback study. The data used in this report were collected from April, 1995 through February, 1996. A dual-beam transducer was mounted in front of each unit and data was collected on all units by slow multiplexing between even and odd numbered transducers. Both tracked fish and echo integration data were collected and processed.

A short term research initiative was conducted on conventional generation Unit 4 over a two week period in mid-June, 1996 to determine whether hydroacoustics could determine direction of movement for fish near the generation intakes. Paired single beam transducers were installed by aiming one transducer away from the intake and 10 degrees from vertical, while aiming the second transducer away from the intake and 15 degrees from vertical. This configuration allowed fish targets to be tracked and the direction of fish movement to be determined near the intakes. Fish tracking parameters used in counting fish were similar to the 1995 conventional generation parameters.

Pumpback Results

Regressions between net entrainment rates and hydroacoustic rates were significant for all units (Figures 6-1 to 6-4), although the Unit 7 regression changed in June 1996 and the regression prior to mid June 1996 was significantly different at the 95% level than the regression after June (slope changed from 1.673 to 26.972). These regressions were used to predict monthly mean entrainment rates and the predicted values were compared to the net entrainment rates by unit and month (Table 6-3). The predicted net entrainment rate ($\bar{x}$ = 1,153) based on the regressed hydroacoustic data fell within the confidence limits calculated from the net entrainment rates ($\bar{x}$ = 1,066) during Phase III operations (Table 6-4), and ANOVA determined the means for the net and predicted net values were not different for the Phase III period for the 4 units.

Differences in regressions for unit 7 before and after mid June 1996 occurred when the entrained fish species composition changed to primarily threadfin shad. The transducers on units 7 and 8 are located 17 feet higher in the water column than the transducers on units 5 and 6 because of the vortex hood over half of unit 7 and all of unit 8. Although the threadfin shad were entrained by all units, the depth they passed through the acoustic beam varied due to the placement of the transducer and the vortex hood. A total of 57% of the fish entrained by Units 5 and 6 during the July through October period when threadfin shad entrainment was highest passed through the acoustic beam at an elevation above the depth sampled by transducers on units 7 and 8. Fish entrained by unit 8 may have been drawn below the vortex hood where they were more effectively sampled, however, while only one of the 2 intake bays on Unit 7 is restricted by the vortex hood the transducers on both intakes are placed at the lower elevation. The change in species composition and vertical distribution of fish during entrainment defined the 2 different regressions for unit 7 when the hydroacoustic sampling efficiency became dependent on the depth of fish in the water column.

Separate regressions for only Phase III data were not constructed. Although the data collected during Phase III was able to predict net entrainment values similar to the net values obtained during this period, the regression lines were poor predictors for pre-Phase III net data. The short time period with small variances in entrainment rates, compared with 1995, proved to be a poor predictor over the conditions observed over the longer time period sampled. The correlation coefficients were also higher for units 7 and 8 by including the pre-Phase III data, although the coefficients for units 5 and 6 were less when including all available data. Inclusion of pre-Phase III data provides additional information relative to high passage events not sampled during Phase III, a complete annual period, as well as, between year variability that existed due to differences in operation and changes in entrainment species composition.

Temporal changes in entrainment were evident during the Phase III study period. The highest entrainment events occurred from mid July through September for all units (Figures 6-5 to 6-8). A single pump event for Unit 5 on September 3 entrained nearly 12% of the total entrainment for that unit over the

Phase III sample period. Similar high entrainment events occurred for Unit 6 on July 28 and August 4 when nearly 40% and 17% of the total fish on Unit 6 were entrained, respectively, and also for Unit 7 on July 21 when nearly 27% of the total for that unit were entrained. Entrainment on Unit 8 did not fluctuate as much as the other units. When based on the number of hours of operation by month, the highest entrainment occurred during the months of July, August, and September (Table 6-5). Entrainment was highest during September on Unit 5 and August on Unit 6. The highest entrainment months for Unit 7 were July and August, while July and September were highest for Unit 8. Entrainment was lowest in April and June for all units.

Entrainment also varied among units during Phase III testing. All units operated nearly the same amount over the Phase III period (Table 6-6), however, operation was not equal across units during each month of testing. Units 5 and 6 operated more than units 7 and 8 during April and units 5 and 8 operated less while Unit 7 operated more in August. Entrainment totals by Unit 8 were always less than expected based solely on hours of operation. For example, Unit 5 contributed 29.2 percent of the total pumpback operations during the month of April but entrained 40.9 percent of the monthly total (Table 6-6). Conversely, entrainment total was approximately 1.9 times higher for Unit 5 during September and 2.3 times higher for Unit 6 during August than expected based solely on the proportion of pumping that each unit contributed to the power plant. Over the Phase III test period entrainment by Unit 6 was nearly 1.6 times the expected entrainment, based on hours of operation.

Net sampling, because of logistic considerations, was restricted to 16 days per month at one unit or one bay of one unit whereas hydroacoustics could sample all bays and all events. We compared hydroacoustic estimates of entrainment with net estimates of entrainment for those days in which netting was performed (Table 6-7). Net expansions were calculated by multiplying the number of hours of pumping times the overall mean of the mean passage rates for each event. Unit-by-unit passage using net data was estimated by taking the number of hours of operation that a particular unit was operating with concurrent netting (even though the netting may have been at a different unit). This estimate of unit specific net entrainment was paired to direct estimates of passage obtained from the hydroacoustics monitoring system. This comparison indicates that when netting samles a significant proportion of total pumping time then consistency with hydroacoustic estimates is high. For example, in April, net sampling was conducted 85.2 percent of the total time that unit 5 was in operation. Total unit 5 net entrainment is calculated as: APRIL MEAN NETTING ENTRAINMENT RATE * NUMBER OF HOURS OF OPERATION FOR THE POWER PLANT * .852. Total concurrence in passage estimation between hydroacoustics and netting is indicated when the two percentages are identical. For April on unit 5, the estimated relative passage of 82.7 percent based on hydroacoustics is close to the net based estimate of 85.2 percent indicating concurrence between the two gears. Conversely, in July, Units 6 and 7 did not have concurrence between hydroacoustics and netting. This deviation in occurrence is likely attributed to two reasons. First, pumpback operation is considerably less in April than July, therefore increasing the

proportion of net sampling to total operation. Secondly, the entrainment of threadfin shad in July is variable with occasional high events which increases the likelihood that passage estimates based on netting will decrease in accuracy (Figure 6-7). Subsampling with nets predicts entrainment well when variability is low and the percentage of events sampled is high.

The number of units pumping during a pump event was related to the hydroacoustic entrainment rate during the April through June period of Phase III testing. Comparisons between 1,2,3 and 4 unit pump operations by ANOVA of the mean entrainment rates (number of fish/hour) indicate significantly lower entrainment rates for single unit pumps over multiple unit pumps at the 95% level (Table 6-8). Net data show similar trends, although the sample size is insufficient to test 3 unit pumps. Sample comparisons were restricted to the April - June 1996 period due to the lack of single unit pumps after June. The entrainment rate was significantly higher after June so all data could not be combined. Mean entrainment rates during 2, 3, and 4 unit pumps were not significantly different.

Entrainment rates were compared between pre-generation and non pre-generation pump events to determine if Richard B. Russell conventional generation affected pumpback entrainment rates. When conventional generation operations preceded pumpback operation within a 24-hour period the pump event was classified as a pre-generation pump event. Pump events where there was no generation during the previous 24-hour period were classified as non pre-generation pump events. Data used in this analysis are unweighted by unit operation and therefore restricted to the months May-August 1996 when the number of hours of pumpback operation were similar among units. Comparisons were made among units by combining 2, 3 and 4 unit pump events to calculate a mean entrainment rate by month (Table 7). Entrainment rates for all pumpback units were higher during non pre-generation than pre-generation unit pump events except during the month of June. Although non pre-generational unit events comprised only 13% of the total unit pump events during the period of highest entrainment (July-August 1996) for Phase III, 78% of the events with entrainment rates >10,000 fish per hour were non pre-generation pumps.

Vertical distribution of entrained fish sampled by hydroacoustics changed through the Phase III testing period. Entrained fish were distributed through the water column sampled (308 - 269 feet on units 5 and 6 and 297 - 266 feet on units 7 and 8) in April, May, and June, were near the surface in July and August, and were again distributed throughout the water column in September and October (Figures 6-9 to 6-12). A total of 92% of the fish entrained from July through October by units 5 and 6 entered the acoustic beam above the intake opening while 57% of the fish entrained by units 7 and 8 were above the intake opening. The pumpback intakes at RBR occupy depths from 266 to 286 feet elevation. Units 5 and 6 were sampled 21 feet above the top of the intake to near bottom, while units 7 and 8 were sampled 1 foot above the top of the intake to near bottom from April through June and 9 feet above the top of the intake to near bottom from July through October.

Conventional Generation Results

Fixed-aspect hydroacoustic entrainment sampling during conventional generation showed no relationship between numbers of fish counted with acoustics and numbers of fish caught in the nets (Table 6-10) (Figure 6-13). Expansion of the data using the tracked fish regression for April through December 1995 and the net entrainment rates for January through March 1996 would predict 4,147,350 fish entrained during this period, however, most of this entrainment is likely moribund threadfin shad.

The entrainment estimates for single unit vs.multi-unit operation are based on 12 single unit events, and 56 multi-unit events involving either 5, 6 or 7 unit operations, from April through September, 1995. Results indicate that the entrainment rates for single unit events are 3.4 times higher than multi-unit events. However, the sample size for single unit events is small and the data are not collected uniformly over the entire six month period, so the rates may be indicative of the short term trends in entrainment that occurred when seven of the 12 samples were collected during a single week in May. Further interpretation of the data is not warranted due to the non-random sample design and the poor interpretation of the hydroacoustic data without directional fish tracking.

Conventional generation data collected over a two week period in mid-June 1996 during the Phase III study period was analyzed to determine direction of fish movement in front of unit 4. Results showed that two to twenty-five percent of the fish tracked were moving toward the direction of the intake. These results indicate that a variable and sometimes low percent of fish tracked during the 1995 conventional generation data collection were actually entrained.

Discussion and Recommendations

Hydroacoustics has proven to be a viable sampling tool to measure fish entrainment at Richard B. Russell Dam during pumpback operations. Results from the Phase III study period showed that the fixed-aspect system accurately predicted monthly entrainment within the 75% confidence intervals required, sampled approximately five times the number of unit hours, provided information on vertical distribution of fish in the forebay, and cost less to operate than netting. The following recommendations are made to optimize future sampling needs using hydroacoustics at the Richard B. Russell Project:

- Conduct further analysis on data collected during the Phase III study period to determine what percent of the data needs to be processed each month to accurately predict entrainment.

- Monitor pumpback entrainment for two years to evaluate trends.

- Conduct monthly gillnet sampling and purse seine sampling from March-September in the immediate tailrace area to collect species composition information during entrainment sampling.

- Perform annual system calibrations on all hydroacoustic equipment used.

Table 6-1. Beginning and ending hydroacoustic system calibrations used during the Phase III study.

4/1/96 - 6/18/96
(Sounder 10)

Transducer serial #	Intake Bay	Beginning Calibrations					Ending Calibrations					Difference in dB		
		Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	40LogR G_1	40LogR G_2	Simult. 20LogR G_3
09-420-0615-023	1	NA	NA	NA	NA	NA	500	218.3	-166.17	-168.95	-155.556	NA	NA	NA
12-420-0612-063	2	650	215.855	-170.47	NA	-159.257	500	215.828	-167.832	NA	-156.585	1.711	NA	1.745
32-420-0612-073	3	425	216.513	-167.492	NA	-156.499	500	217.218	-166.562	NA	-155.514	2.085	NA	2.14
12-420-0612-064	4	650	215.127	-169.83	NA	-158.766	500	215.97	-167.491	NA	-156.402	2.282	NA	2.307
32-420-0612-074	5	425	216.647	-167.539	NA	-156.439	500	217.339	-166.294	NA	-155.243	2.387	NA	2.338
12-420-0612-067	6	650	216.604	-169.131	NA	-158.07	500	215.756	-167.594	NA	-156.55	-0.211	NA	-0.228
09-420-0615-022	7	NA	NA	NA	NA	NA	500	217.459	-166.617	-166.723	-155.556	NA	NA	NA
12-420-0612-068	8	650	216.268	-169.334	NA	-158.327	500	215.61	-167.979	NA	-156.924	-0.203	NA	-0.155

4/1/96 - 6/18/96
(Sounder 7)

Transducer serial #	Intake Bay	Beginning Calibrations					Ending Calibrations					Difference in dB		
		Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	40LogR G_1	40LogR G_2	Simult. 20LogR G_3
09-420-0615-023	1	500	218.327	-166.168	-167.954	-153.901	500	218.574	-167.036	-169.575	-154.497	-0.621	-1.374	-0.349
12-420-0612-063	2	650	215.651	-172.125	NA	-159.304	500	215.61	-169.01	NA	-156.934	2.174	NA	1.429
32-420-0612-073	3	425	216.234	-168.913	NA	-156.422	500	217.095	-167.62	NA	-155.521	2.604	NA	2.212
12-420-0612-064	4	650	215.197	-171.696	NA	-158.866	500	215.654	-168.749	NA	-156.652	2.504	NA	1.771
32-420-0612-074	5	425	216.307	-168.891	NA	-156.356	500	217.339	-167.589	NA	-155.447	2.784	NA	2.391
12-420-0612-067	6	650	216.339	-170.572	NA	-158.007	500	215.61	-168.95	NA	-156.835	-0.007	NA	-0.457
09-420-0615-022	7	NA	NA	NA	NA	NA	500	217.577	-167.484	-167.437	-155.548	NA	NA	NA
12-420-0612-068	8	650	215.996	-170.762	NA	-158.337	500	215.31	-169.101	NA	-156.947	0.075	NA	-0.196

Table 6-1 (continued).

6/19/96 - 10/31/96

(Sounder 10)		Beginning Calibrations					Ending Calibrations					Difference in dB		
Transducer serial #	Intake Bay	Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	Cable Length	SL dBuPa @ 1m	40LogR G_1	40LogR G_2	Simult. 20LogR G_3	40LogR G_1	40LogR G_2	Simult. 20LogR G_3
09-420-0615-023	1	500	218.327	-166.168	-167.954	-153.901	500	218.3	-165.911	-168.589	-155.556	0.23	-0.662	-1.682
33-420-0615-059	2	500	219.35	-163.78	-163.3	-152.758	500	219.838	-163.096	-163.019	-152.116	1.172	0.769	1.13
33-420-0615-060	3	500	219.35	-164.4	-164.32	-153.294	500	219.468	-164.23	-164.399	-153.226	0.288	0.039	0.186
32-420-0615-064	4	500	219.681	-163.37	-165.38	-152.236	500	219.562	-163.756	-164.813	-152.689	-0.505	0.448	-0.572
32-420-0615-067	5	500	219.446	-163.4	-165.05	-152.603	500	219.421	-163.977	-164.2	-153.145	-0.602	0.825	-0.567
32-420-0615-068	6	500	220.308	-163.92	-165.14	-152.838	500	220.105	-163.046	-163.771	-152.108	0.671	1.166	0.527
09-420-0615-022	7	NA	NA	NA	NA	NA	500	217.459	-166.617	-166.723	-155.556	NA	NA	NA
32-420-0615-069	8	500	219.955	-163.52	-165.42	-152.42	500	220.017	-163.343	-164.849	-152.333	0.239	0.633	0.149
32-420-0615-066	7	500	219.195	-164.261	-166.234	-153.256	500	219.838	-163.31	-163.013	-152.375	1.594	3.864	1.524

Table 6-2. Hydroacoustic field calibration settings during the Phase III study period.

Sounder	Port	Xducer	START	END	SRCLEV	RG140	RG240	RG320	RS140	RS240	RS320	WBDROP	Sys Res140	Sys Res240	Sys Res320
10	X2	12-420-6X12-063	4/1/96	4/2/96	215.86	-0.38	0.00	-0.60	-170.47	-170.00	-159.26	1.00	45.01	N/A	56.00
10	X7	09-420-615-022	4/1/96	4/2/96	219.70	-4.94	-4.81	NA	-169.76	-169.89	NA	1.22	45.00	45.00	NA
10	X3	32-420-6X12-073	4/1/96	4/3/96	216.50	-4.01	0.00	-4.00	-167.49	-170.00	-156.50	1.00	45.00	N/A	56.00
10	X4	12-420-6X12-064	4/1/96	4/3/96	215.13	-0.31	0.00	-0.36	-169.83	-170.00	-158.77	1.00	44.99	N/A	56.00
10	X5	32-420-6X12-074	4/1/96	4/3/96	216.30	-2.41	0.00	-4.94	-168.89	-170.00	-155.36	1.00	45.00	N/A	56.00
10	X6	12-420-6X12-067	4/1/96	4/3/96	216.54	-2.41	0.00	-2.47	-169.13	-170.00	-158.07	1.00	45.00	N/A	56.00
10	X8	12-420-6X12-069	4/1/96	4/3/96	216.22	-1.89	0.00	-1.89	-169.33	-170.00	-158.33	1.00	45.00	N/A	56.00
10	X1	09-420-615-023	4/1/96	4/4/96	218.30	-7.16	-5.37	-8.40	-166.16	-167.95	-153.89	1.23	44.98	44.98	56.01
10	X2	12-420-6X12-063	4/3/96	4/3/96	215.86	-0.38	0.00	-0.35	-170.47	-170.00	-159.26	1.00	45.01	N/A	56.25
10	X7	09-420-615-022	4/3/96	4/3/96	219.70	-6.00	-4.81	-5.01	-168.70	-169.89	-158.69	1.22	45.00	45.00	56.00
7	X1	09-420-615-023	4/4/96	4/4/96	218.30	-7.16	-5.37	-8.40	-166.16	-167.95	-153.89	1.00	44.98	44.98	56.01
7	X3	32-420-6X12-073	4/4/96	5/31/96	216.19	-2.29	0.00	-3.78	-168.91	-170.00	-156.41	1.00	44.99	N/A	56.00
7	X4	12-420-6X12-064	4/4/96	5/31/96	215.19	1.50	0.00	-0.33	-171.70	-170.00	-158.87	1.00	44.99	N/A	55.99
7	X8	12-420-6X12-069	4/4/96	5/31/96	215.97	-0.21	0.00	-1.63	-170.75	-170.00	-158.33	1.00	45.01	N/A	56.01
7	X2	12-420-6X12-063	4/4/96	6/5/96	215.65	1.47	0.00	-0.35	-172.12	-170.00	-159.30	1.00	45.00	N/A	56.00
7	X5	32-420-6X12-074	4/4/96	6/5/96	216.59	-4.05	0.00	-4.15	-167.53	-170.00	-156.44	1.00	45.01	N/A	56.00
7	X6	12-420-6X12-067	4/4/96	6/5/96	216.30	-0.74	0.00	-2.31	-170.57	-170.00	-158.00	1.00	44.99	N/A	55.99
7	X7	09-420-615-022	4/4/96	6/5/96	219.69	-5.44	-4.81	-7.20	-169.25	-169.88	-156.50	1.21	45.00	45.00	55.99
7	X1	09-420-615-023	4/5/96	5/31/96	218.30	-7.16	-4.38	-8.40	-166.16	-168.94	-153.89	1.22	44.98	44.98	56.01
10	X3	33-420-615-060	6/5/96	6/5/96	219.35	-9.95	10.02	-10.06	-164.39	-164.32	-153.28	1.28	45.01	65.05	56.01
10	X1	09-420-615-023	6/5/96	7/19/96	218.30	-7.16	-5.37	-8.43	-166.16	-168.94	-153.89	1.22	44.98	43.99	55.98
10	X4	12-420-615-064	6/5/96	10/31/96	219.68	-11.30	-9.29	-11.45	-163.36	-165.38	-152.22	1.29	45.02	N/A	56.02
10	X8	32-420-615-068	6/5/96	10/31/96	219.95	-11.43	-9.53	-11.54	-163.52	-165.41	-152.41	1.30	45.00	45.01	56.01
10	X7	09-420-615-022	6/6/96	7/13/96	219.69	-5.44	-4.81	-11.58	-169.25	-169.88	-152.42	1.21	45.00	45.00	55.69
10	X3	33-420-615-060	6/6/96	9/10/96	219.35	-9.95	-10.02	-10.06	-164.39	-164.32	-153.28	1.28	45.01	45.01	56.01
10	X2	33-420-615-059	6/6/96	10/31/96	219.35	-10.57	-11.04	-10.59	-163.77	-163.30	-152.75	1.43	45.01	45.01	56.01
10	X5	32-420-615-067	6/6/96	10/31/96	219.44	-11.04	-9.39	-10.84	-163.39	-165.05	-152.60	1.28	45.01	45.00	56.00
10	X6	32-420-615-068	6/6/96	10/31/96	220.30	-11.39	-10.16	-11.47	-163.91	-165.13	-152.83	1.28	45.00	45.01	56.00
10	X7	09-420-615-022	7/14/96	7/17/96	219.69	-7.44	-4.81	-11.58	-167.25	-169.88	-152.42	1.21	45.00	45.00	55.69
10	X7	09-420-615-022	7/18/96	7/19/96	219.19	-11.93	-4.81	-11.58	-162.25	-169.88	-152.42	1.21	45.01	44.50	55.19
10	X1	09-420-615-023	7/20/96	10/31/96	218.30	-12.13	-9.35	-8.43	-161.16	-163.94	-153.89	1.22	45.01	45.01	55.98
10	X7	09-420-615-022	7/20/96	10/31/96	219.19	-13.93	-10.96	-11.58	-160.25	-163.22	-152.42	1.21	45.01	45.01	55.19
10	X3	33-420-615-060	9/11/96	10/31/96	219.35	-9.95	-10.02	-10.06	-164.39	-164.32	-153.28	1.28	45.01	45.01	56.01

Table 6-3. Mean net entrainment rates for the Phase III period and predicted net entrainment from hydroacoustic data expanded by the acoustic:net regression formula for each unit and month, and the un-weighted mean rates by unit for the Phase III period.

Month	Unit 5		Unit 6		Unit 7		Unit 8	
	Net	Predicted	Net	Predicted	Net	Predicted	Net	Predicted
April	1050	759	455	680	565	688	495	1,124
May	501	981	881	1,483	1215	826	126	1,198
June	415	812	109	610	200	740	219	1,164
July	1,144	1,109	1,282	836	1,339	1,516	1,280	1,662
August	1,756	1,354	3,736	3,426	1,691	1,675	2,755	1,689
September	1,462	1,271	1,082	784	1,404	881	1,583	1,167
October	568	987	844	690	799	868	906	1,306
Un-weighted mean	985	992	1,198	1,471	1,030	948	1,052	977

Table 6-4. Mean net (NET) and predicted net (PNET) entrainment rates and confidence limits for the Phase III sampling period at R B Russell Dam.

NET		
Mean=1066.53	Lower CI	Upper CI
2 * Std. Error	772	1361
3 * Std. Error	625	1508
PNET		
Mean=1153.07	Lower CI	Upper CI
2 * Std. Error	948	1358
3 * Std. Error	845	1461

Table 6-5. Hydroacoustic estimates of fish entrained (percent of total entrainment for Phase III within each unit) and hours sampled by unit (percent of total for Phase III within each unit) by month for R. B. Russell Dam during Phase III.

	Unit 5		Unit 6		Unit 7		Unit 8	
Month	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled
April	3.4	6.1	1.1	6.4	0.3	4.2	3.0	4.3
May	11.4	12.7	4.8	10.9	2.7	10.9	10.2	12.6
June	4.7	8.7	1.2	8.7	3.0	8.0	6.5	8.2
July	19.0	19.4	22.2	19.4	40.9	19.7	20.3	20.1
August	15.1	15.7	62.5	18.3	35.8	20.9	18.9	15.7
September	34.2	20.8	5.6	20.7	8.5	20.5	26.7	22.5
October	12.2	16.6	2.7	15.6	8.4	15.8	14.3	16.6
Total for Phase III	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6-6. Hydroacoustic estimates of fish entrained by unit (percent of total entrainment for all units) and hours sampled by unit (percent of total number of hours sampled for all units) by month for R. B. Russell Dam during Phase III.

	Unit 5		Unit 6		Unit 7		Unit 8		All Units	
Month	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled
April	40.9	29.2	25.2	30.7	13.7	20.4	20.3	19.7	100.0	100.0
May	37.0	27.1	30.2	23.4	14.3	23.6	18.5	25.9	100.0	100.0
June	30.1	26.1	15.1	26.1	31.4	24.1	23.5	23.7	100.0	100.0
July	13.6	24.8	30.9	24.9	47.4	25.5	8.2	24.8	100.0	100.0
August	7.3	22.3	59.2	26.2	28.3	30.0	5.2	21.5	100.0	100.0
September	46.3	24.7	14.6	24.8	18.7	24.7	20.4	25.8	100.0	100.0
October	31.2	25.8	13.3	24.4	34.8	24.8	20.7	25.0	100.0	100.0
Mean for Phase III	19.5	25.1	37.9	25.3	31.6	25.4	11.0	24.2	100.0	100.0

Table 6-7. Hydroacoustic estimates of fish entrained during netted events by unit (percent of total entrainment for each unit) and hours sampled by unit (percent of total number of hours sampled for each unit) by month for R. B. Russell Dam during Phase III. The number of hours sampled for each unit is also the percent of total entrainment sampled by net entrainment by unit and month.

	Unit 5		Unit 6		Unit 7		Unit 8	
Month	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled	% entrained	% Hrs sampled
April	82.7	85.2	82.3	87.0	90.9	90.9	87.8	87.5
May	66.2	72.8	64.9	74.4	63.6	62.1	59.4	56.6
June	69.2	69.5	74.5	79.0	74.3	64.4	67.2	63.9
July	54.6	53.7	13.9	56.4	9.8	49.6	54.1	51.9
August	66.2	68.8	25.9	60.6	37.6	58.4	48.4	45.1
September	38.8	55.7	56.3	55.7	52.1	51.4	64.9	53.7
October	68.0	64.9	57.4	61.3	58.2	62.4	63.6	63.1

Table 6-8. Hydroacoustic estimates of fish entrainment with the number of units pumping, the sample size (N), mean entrainment rate (number/hour), and the P value from ANOVA. Samples with P values greater than 0.05 are not considered different. Sample comparisons were restricted to the April - June 1996 period due to the lack of single unit pumps after June. The entrainment rate was significantly higher after June so all months sampled during Phase III could not be combined.

			1 Unit	2 Unit	3 Unit	4 Unit
	N	Mean	P value			
1 Unit	19	465	---			
2 Unit	24	664	0.0032	---		
3 Unit	34	866	0.0079	0.1358	---	
4 Unit	88	761	0.0060	0.3174	0.3027	---

Table 6-9. Un-weighted mean entrainment rates (No. fish/ hr.) among units by month for pump events preceded by generation (Pregen) and pump events not preceded by generation (Nonpregen).Analysis was performed on 2,3 and 4 unit pump events during May through August, 1996.(N) represents the number of samples used in calculating the mean entrainment rate.

	Unit 5				Unit 6				Unit 7				Unit 8				All Units			
Month	NonPregen	(N)	Pregen	(N)	NonPregen	(N)	Pregen	(N)	NonPregen	(N)	Pregen	(N)	NonPregen	(N)	Pregen	(N)	NonPregen	(N)	Pregen	(N)
May	2,116	2	1,191	15	3,194	2	868	15	1,633	1	475	15	667	2	654	16	1,905	7	800	61
June	729	1	750	12	0	0	389	12	355	1	981	10	578	1	662	10	552	3	689	44
July	2,846	2	1,243	24	32,998	2	746	26	11,018	2	4,212	28	851	2	819	27	11,714	8	1,779	105
August	3,326	3	1,101	18	41,315	5	2,173	19	7,210	6	3,026	22	1,467	4	878	15	15,243	18	1,896	74

Table 6-10. Net and hydroacoustic entrainment rates (number/hour) collected during generation at R.B. Russell dam during April 1995 through February 1996. The TRK_LT5 is tracked fish less than 5 inches, the TRK_LT10 is tracked fish less than 10 inches, and TRK_ALL is all tracked fish. Fish were tracked from a range of 10 m to bottom. The EI>10m and EI>15 m correspond to echo integration of data from 10 m to bottom and 15 m to bottom, respectively.

Date	Duration	# of Units	Net_rate	Track_LT5	Track_LT10	Track_all	EI>10M	EI>15M
4/10/95	5.28	6	206	77	289	503		
4/11/95	5.38	6	189	26	85	176	3,940	3
4/30/95	2	3	287	78	157	206	5,056	0
5/8/95	3.92	1	103	61	112	166	32,733	0
5/9/95	4.00	1	97	8	15	24	729	266
5/10/95	4.03	1	91	16	39	63	7,933	366
5/11/95	4.00	1	102	200	464	1043	218,926	28,563
5/12/95	4.12	1	103	179	535	952	148,913	4,975
5/15/95	4.33	1	384	122	202	330	38,601	754
5/16/95	4.33	1	220	89	196	364	58,969	9,747
6/19/95	2.00	1	115	92	101	120		
6/20/95	4.00	1	66	105	373	939		
8/28/95	3.58	1	268	783	821	823		
8/29/95	3.88	1	77	249	277	281		
1/29/96	1.50	1	586	0	2	2		
1/30/96	2.98	1	470	4	5	5		
1/31/96	2.98	1	130	1	2	2		
2/1/96	2.98	1	293	0	2	2		
2/12/96	3.08	1	1,044	17	23	23	852	650
2/14/96	3.08	1	4,528	4	5	6	1,445	934
2/15/96	3.13	1	1,482	1	2	4		
2/16/96	3.08	1	1,994	106	153	162	723	502

Figure 6-1. Unit 5 pumpback regression for predicted net entrainment rates from hydroacoustic data.

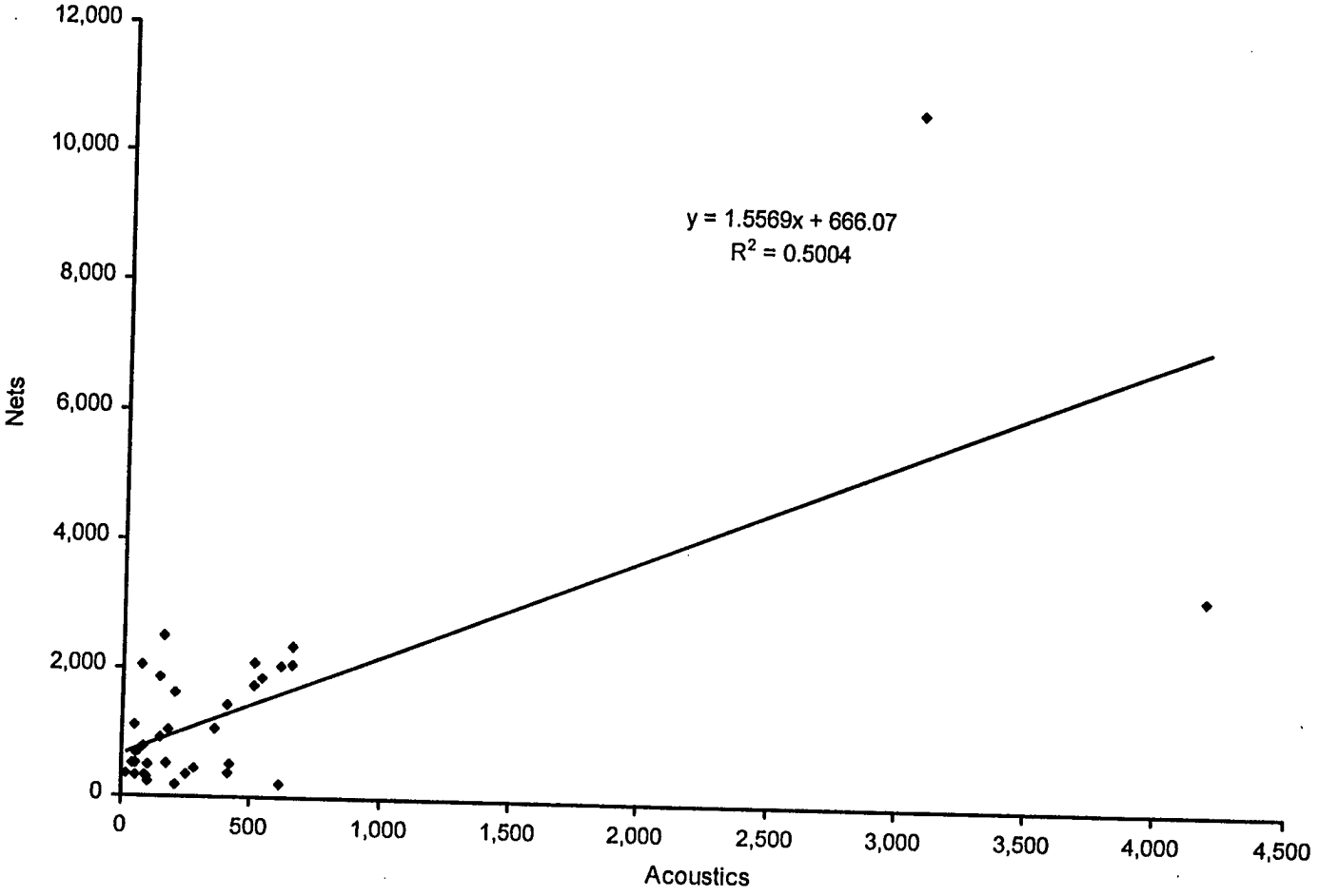


Figure 6-2. Unit 6 pumpback regression for predicted net entrainment rates from hydroacoustic data.

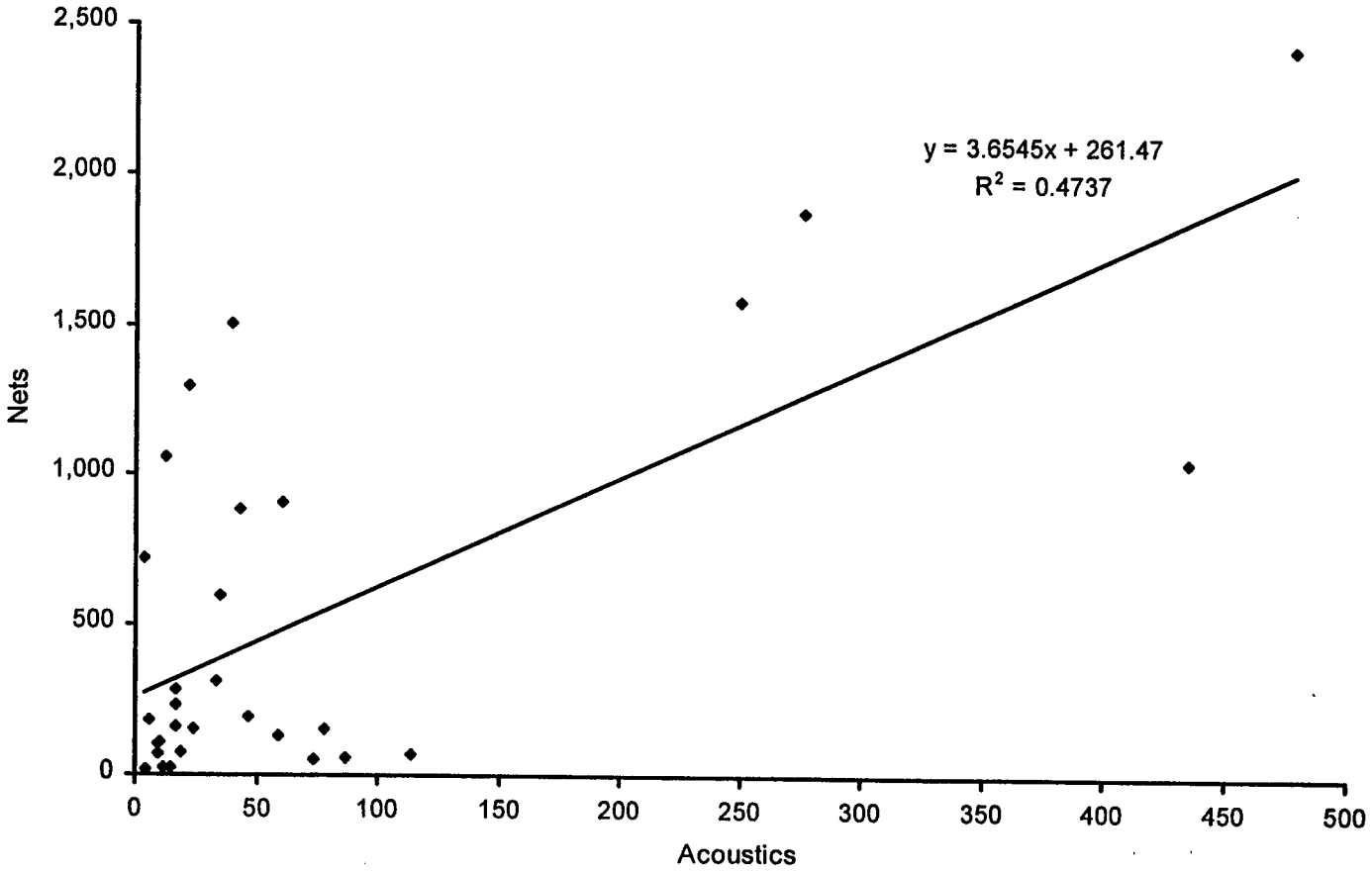
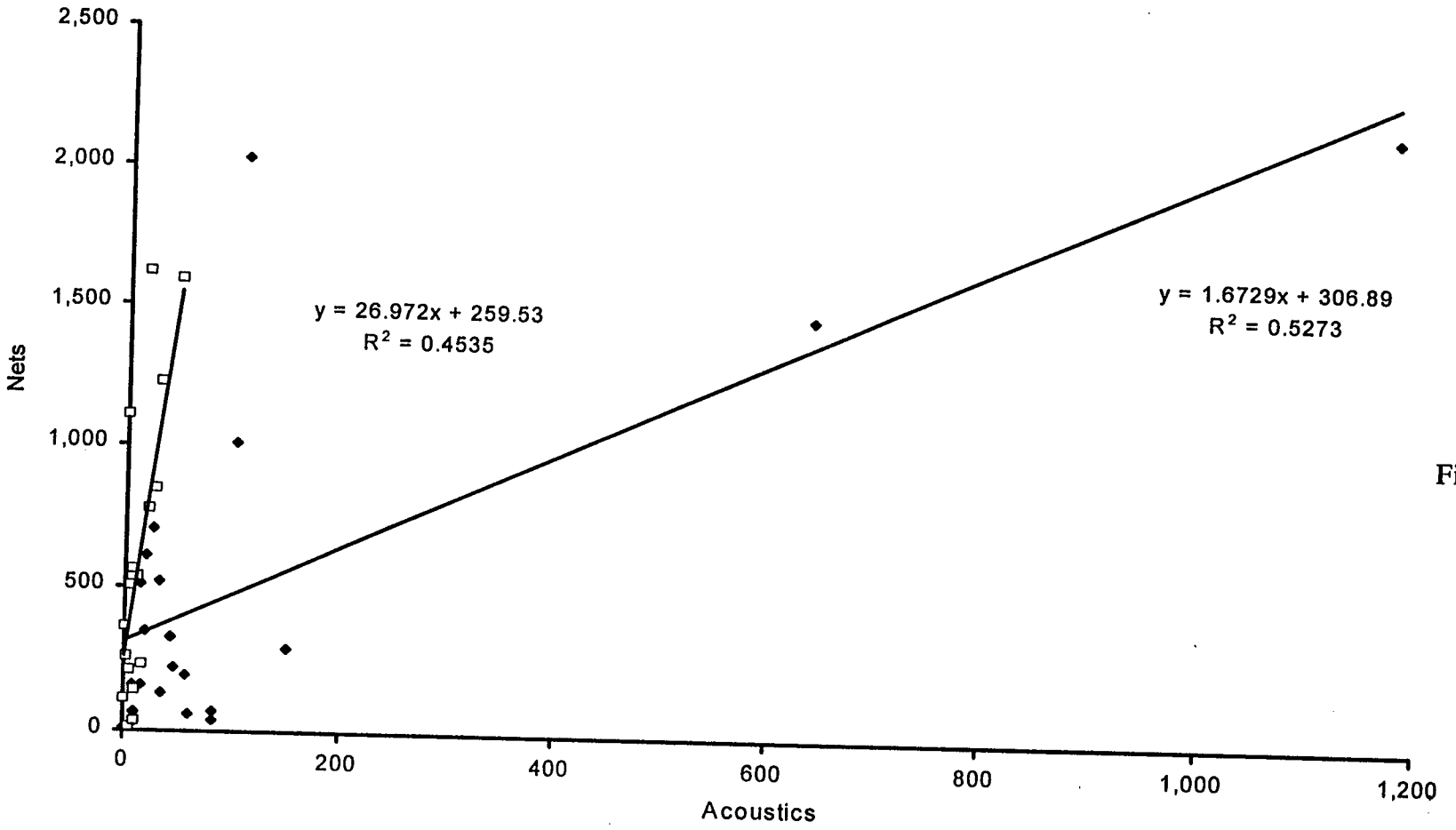


Figure 6-3. Unit 7 pumpback regression for predicted net entrainment rates from hydroacoustic data. Separate regressions are calculated for data collected prior to and after mid June, 1996. Diamond symbols represent samples collected prior to June 15 and open square symbols represent samples collected after June 15, 1996.



Figure

6-4. Unit 8 pumpback regression for predicted net entrainment rates from hydroacoustic data.

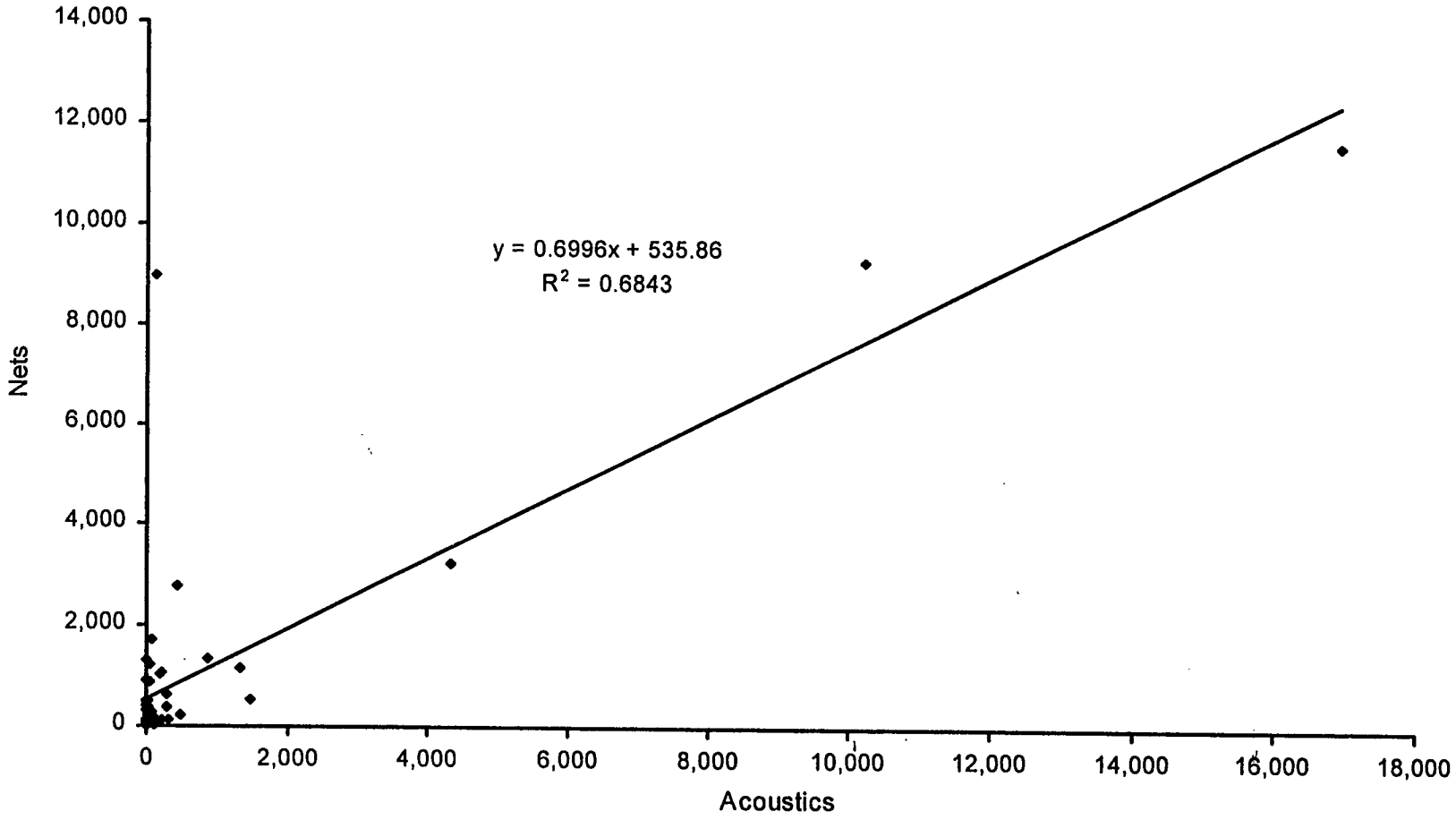


Figure 6-5. Hydroacoustic estimates of entrainment percent by event for the Phase III period for Unit 5.

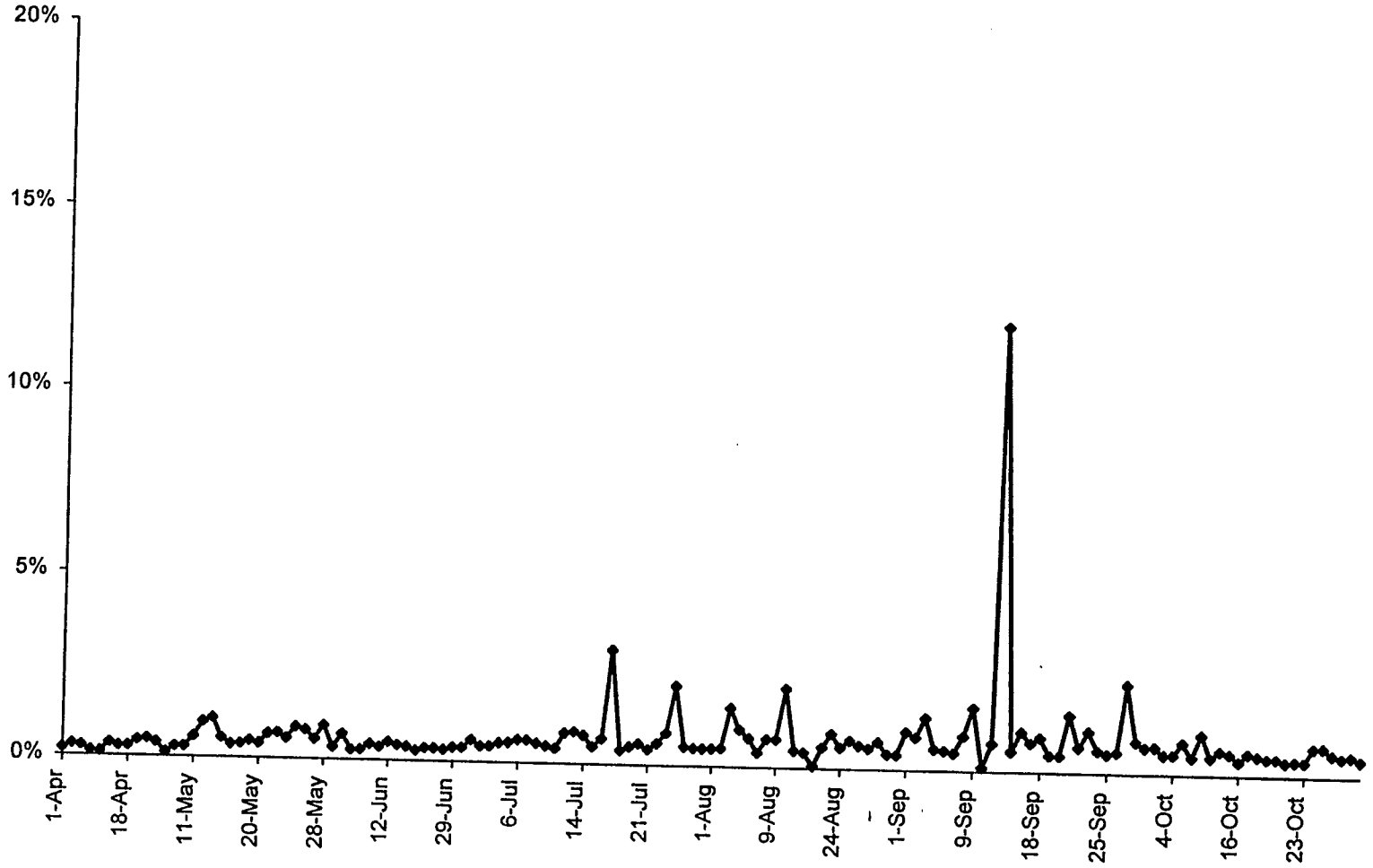


Figure 6-6. Hydroacoustic estimates of entrainment percent by event for the Phase III period for Unit 6.

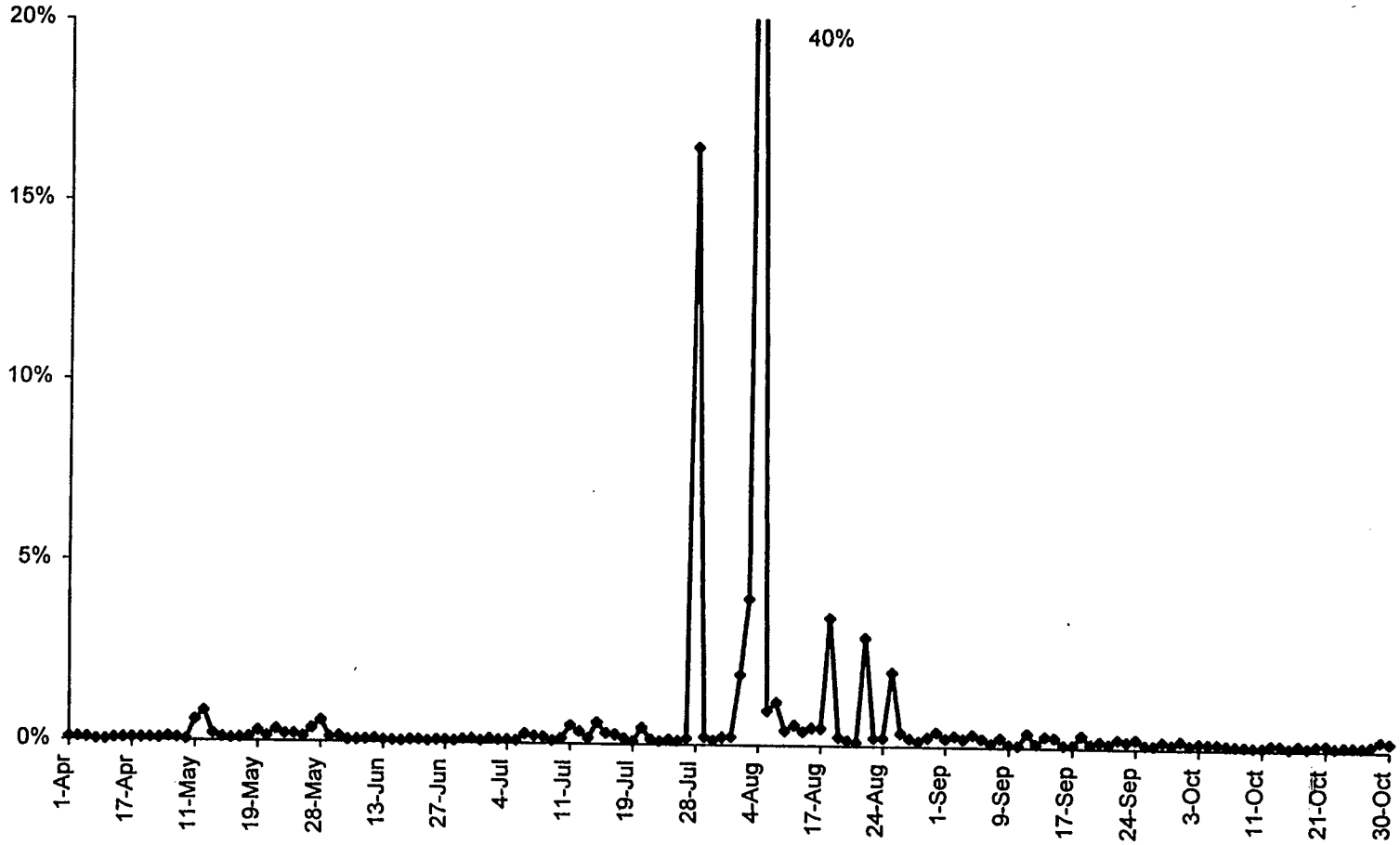


Figure 6-7. Hydroacoustic estimates of entrainment percent by event for the Phase III period for Unit 7.

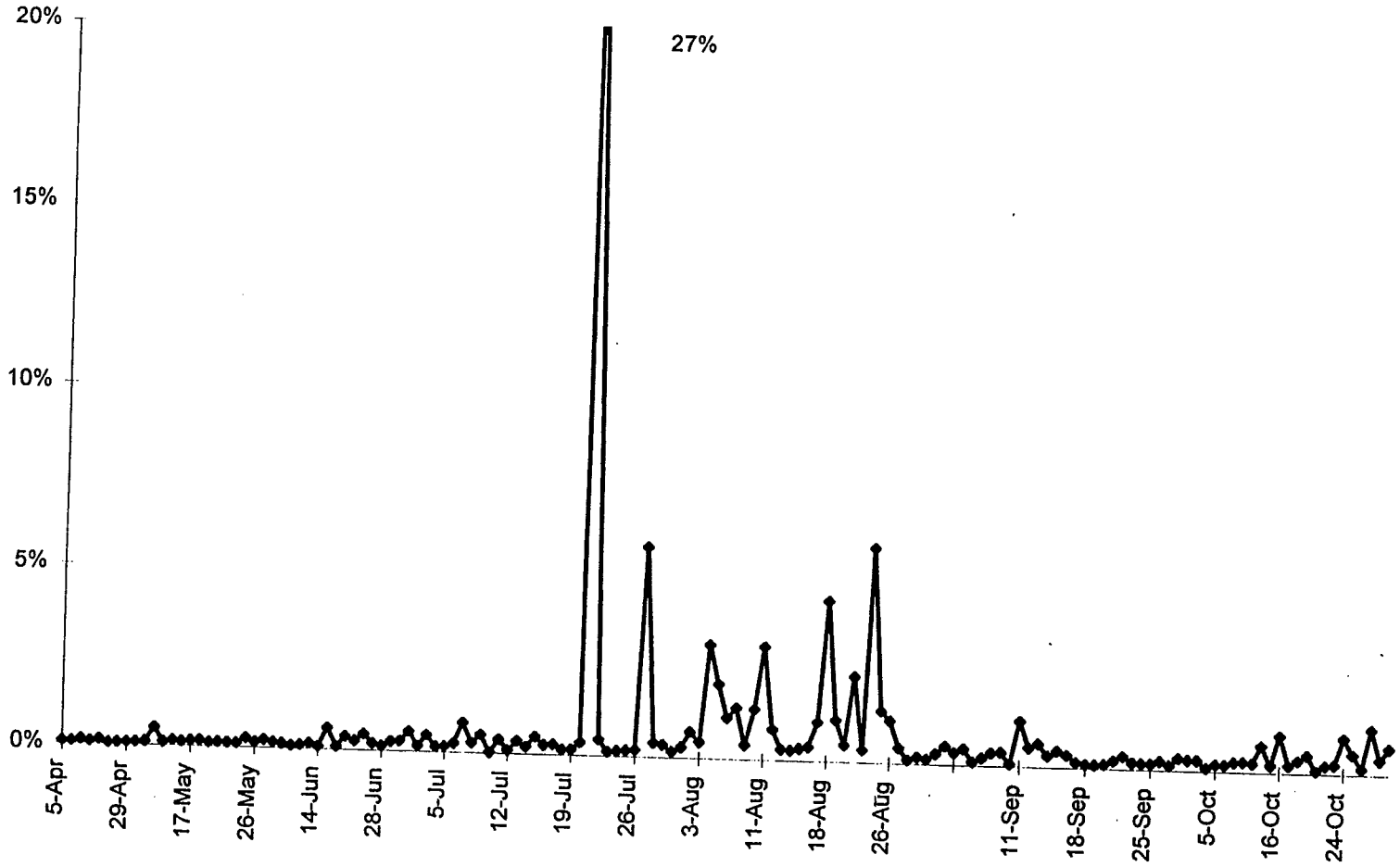


Figure 6-8. Hydroacoustic estimates of entrainment percent by event for the Phase III period for Unit 8.

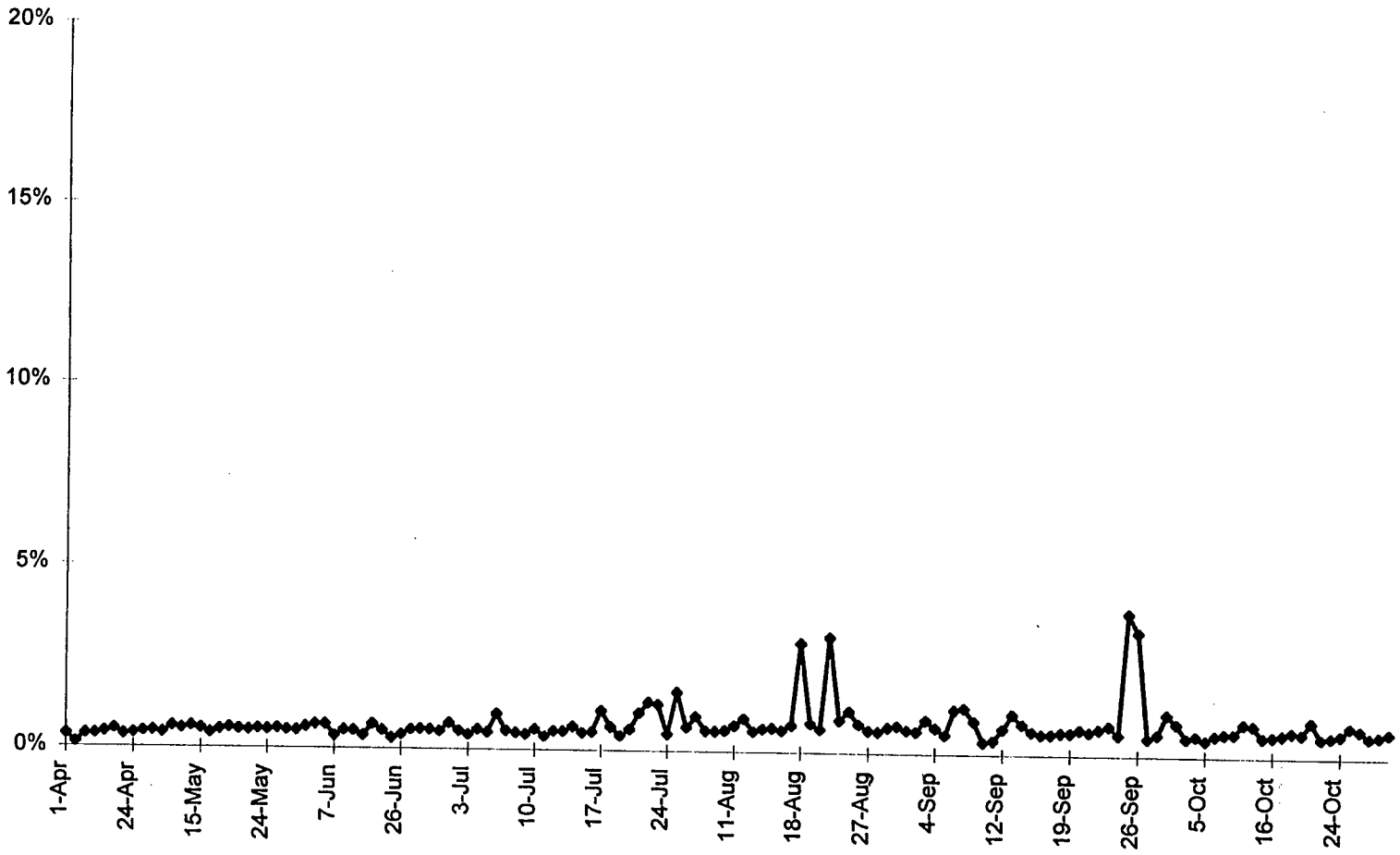
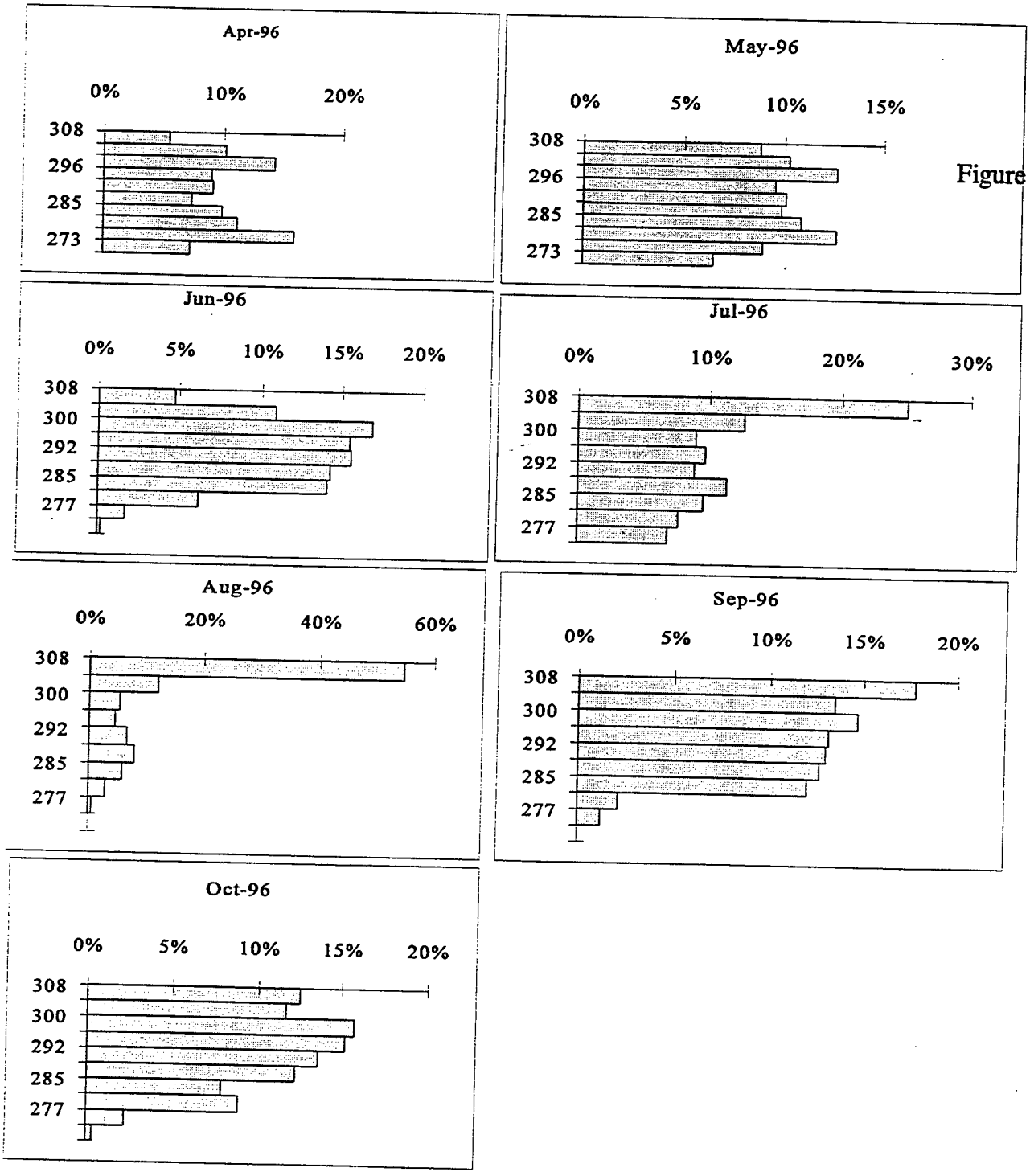


Figure 6-9. Vertical distribution (percent of total by month for Unit 5) of fish counted by hydroacoustics as entrained by depth (elevation, feet above sea level). The top of the intake is at 286 ft.



Figure

Figure 6-10. Vertical distribution (percent of total by month for Unit 6) of fish counted by hydroacoustics as entrained by depth (elevation, feet above sea level). The top of the intake is at 286 ft.

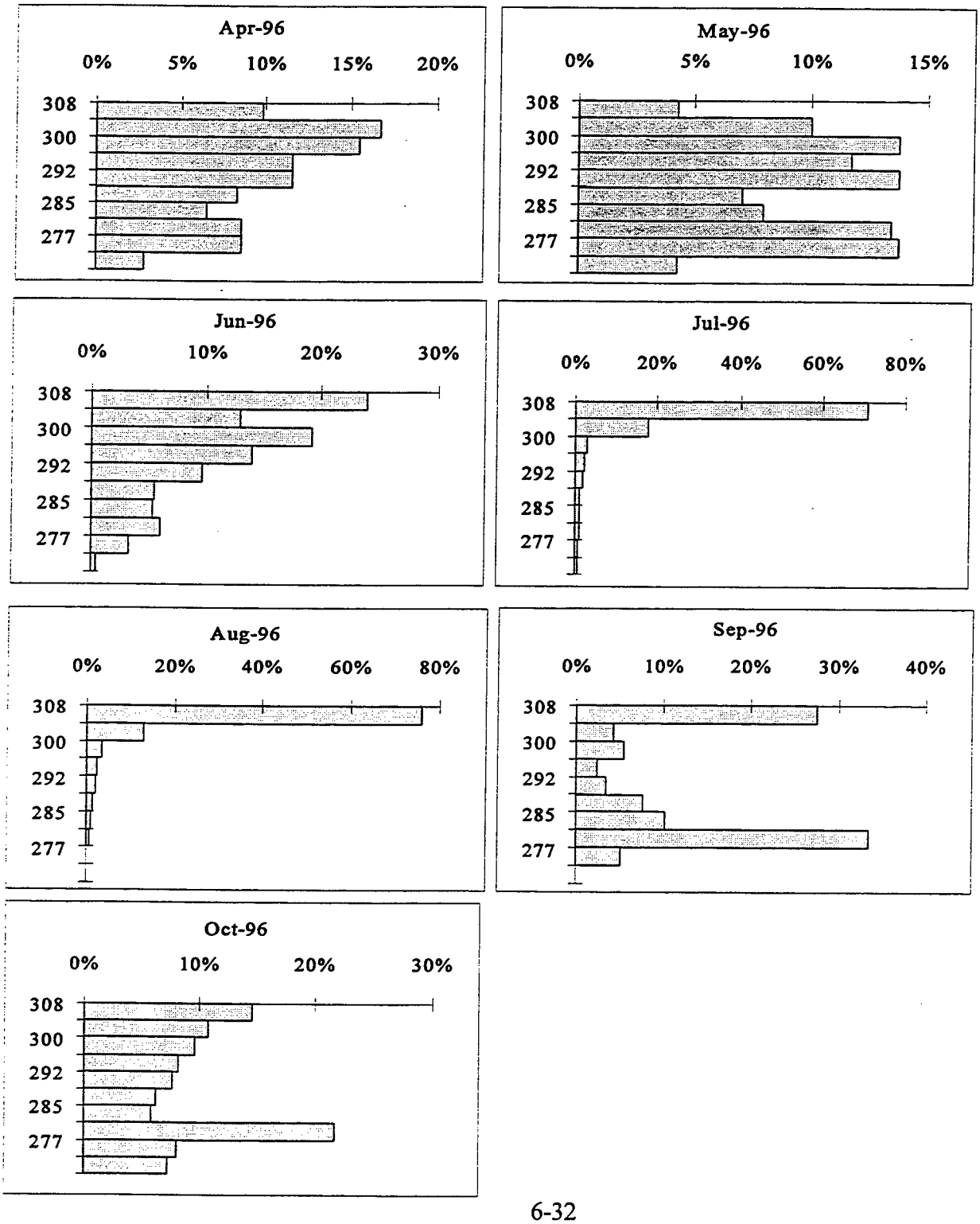


Figure 6-11. Vertical distribution (percent of total by month for Unit 7) of fish counted by hydroacoustics as entrained by depth (elevation, feet above sea level). The top of the intake is at elevation 286 ft.

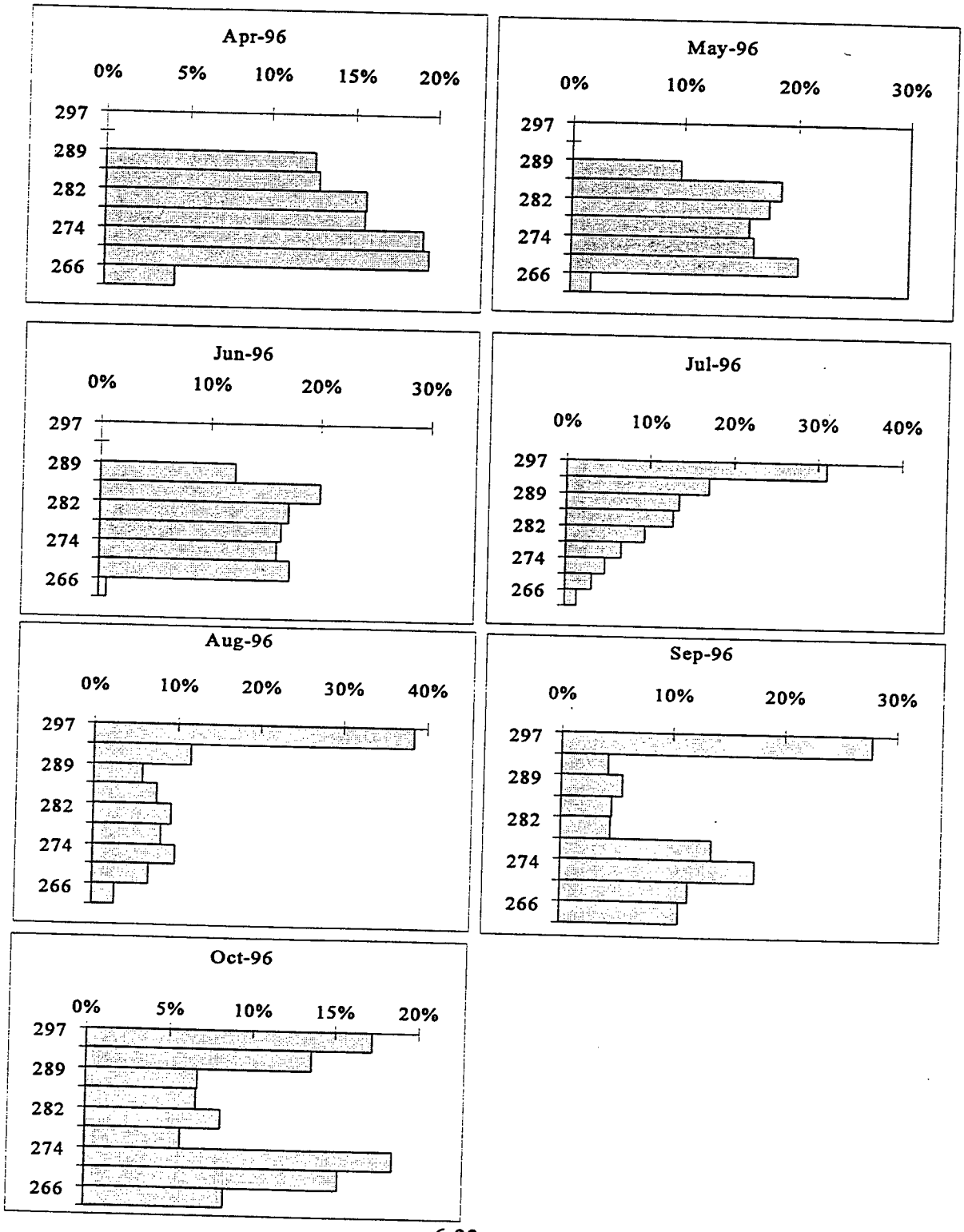


Figure 6-12. Vertical distribution (percent of total by month for Unit 8) of fish counted by hydroacoustics as entrained by depth (elevation, feet above sea level). The top of the intake is at elevation 286 ft.

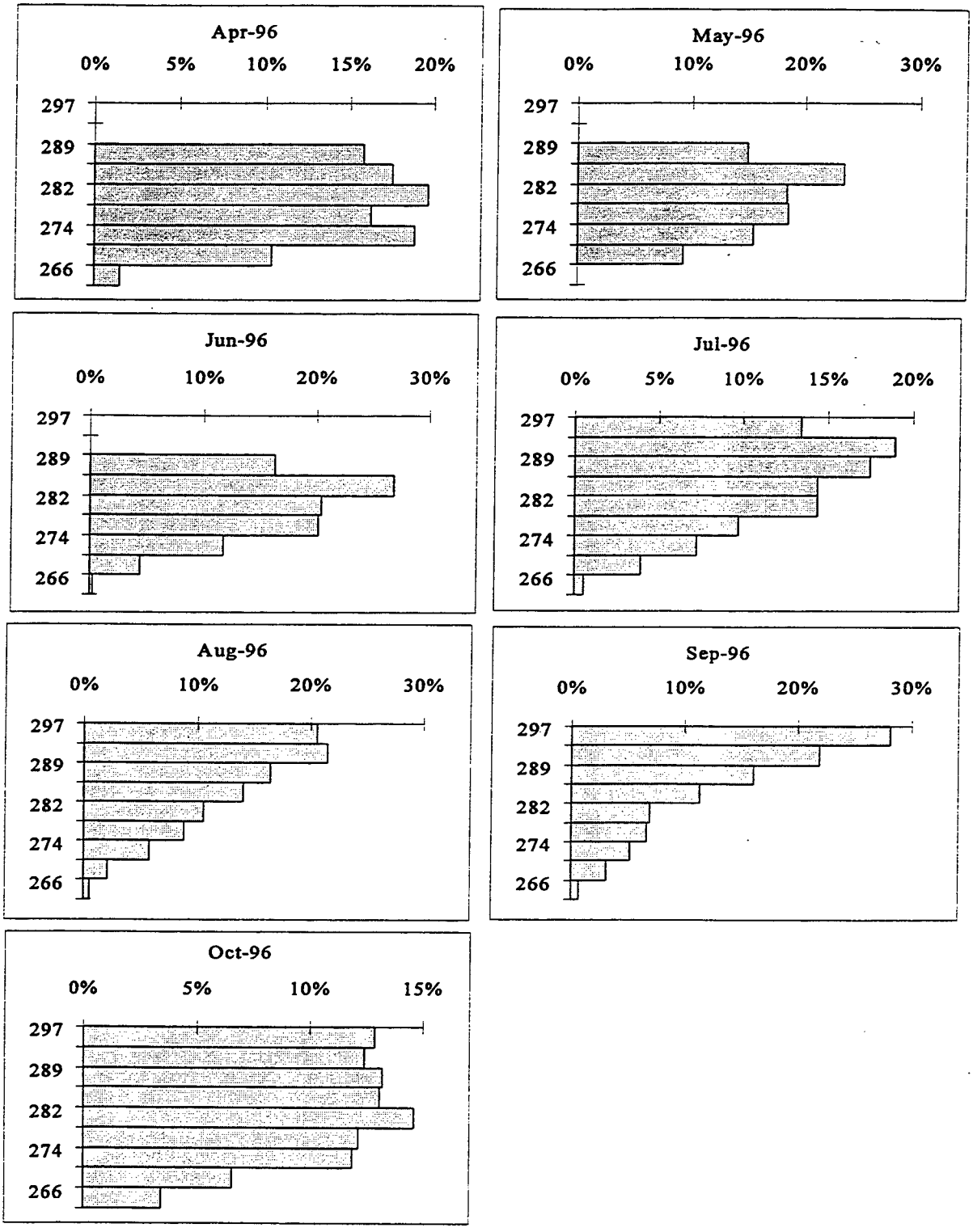
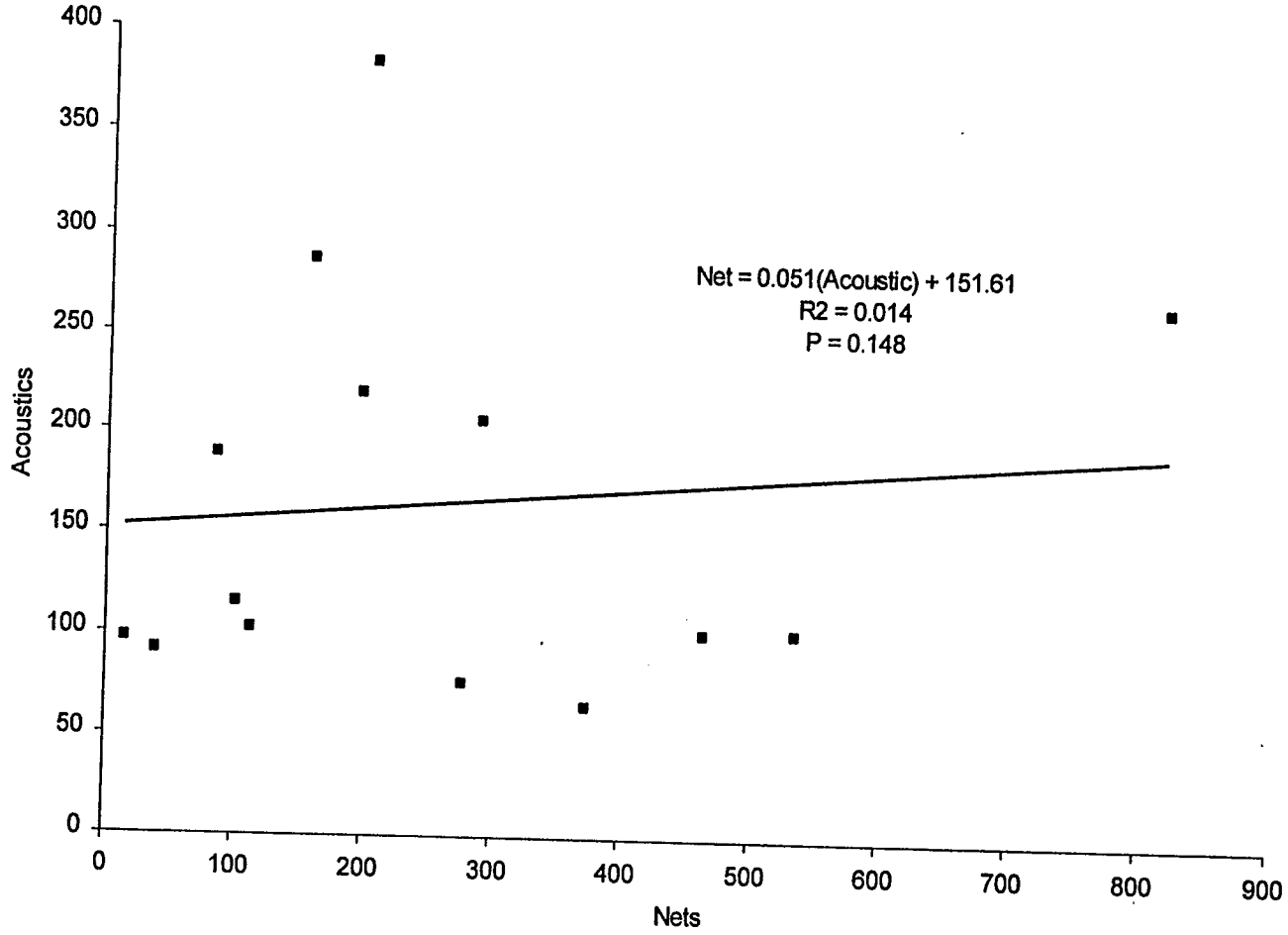


Figure 6-13. Regression for predicted net entrainment from hydroacoustic data collected during generation at R. B. Russell dam April through July, 1995.



7 Threadfin Shad and Blueback Herring Population Estimates

Summary

Complete assessment of the effects of pumped storage operation requires that population numbers of abundant forage species be determined. However, it is difficult to estimate numbers of small, open water species using conventional fishery collecting gear. Mobile hydroacoustics surveys were used to estimate numbers of blueback herring and threadfin shad in JST Lake. Mark-recapture methods were used to estimate the number of adult blueback herring.

Mark-recapture methods involve capturing a significant proportion of a population of unknown size, marking the captured individuals so that they can be later identified, releasing them into the population at large, capturing members of the same population at a later time, and determining the proportion of the recaptured population that is marked. The population size can be estimated from the simple proportionality of (total recaptured individuals)/ (recaptured marked individuals) times the number of fishes initially marked. The mark-recapture study determined that the number of adult blueback herring in JST in May of 1996 was 84,165,737 with 95% confidence limits of 70,110,058 to 100,830,552. The mean length and 1 standard deviation of fish during marking was 140.3 mm (5.5 in.) +/- 5.0 mm (0.20 in.), during the May-June recovery was 148.8 mm (5.9 in.) +/- 6.1 mm (0.24 in.), and during the August recovery was 153.3 mm (6.0 in.) +/- 6.9 mm (0.27 in.). The mark-rapture study is included as Appendix I.

Mobile hydroacoustics surveys utilize scientific grade equipment so that fish depth and acoustical size can be determined with great accuracy. Mobile hydroacoustics is able to sample large areas of the lake relatively easily so that definitive statements can be made about the number and distribution of fishes that commonly occur in the open waters of a lake. However, hydroacoustics sampling cannot determine the species composition of fish. Species composition information must be provided by other gear types.

The open water area of Strom Thurmond Reservoir was sampled in March and August 1996 with mobile hydroacoustics and several types of nets to estimate species composition, population abundance, and size-structure of small, pelagic fishes of JST Lake. Sampling was conducted after sunset by randomly traversing the open water region of the reservoir at a speed of 4-5 mph. Species- and size-composition information from concurrent netting provided data to apportion hydroacoustics targets as blueback herring, threadfin shad, or other fish species.

Results of the two mobile hydroacoustic surveys can be found in Appendices G and H. The spring fish abundance estimate was 138,129,575 and the summer estimate was 1,364,104,921 fish, nearly ten times the spring estimate. During the springtime sample, netting indicated that all species were more or less evenly distributed throughout JST Lake and that the proportions of blueback herring and threadfin shad were approximately equal (57 million threadfin shad and 68 million blueback herring). The length frequency distribution of threadfin shad indicates that 98 percent of these were shad spawned in 1996.

The threadfin shad population increased from 57 million to 1,322 million from the spring to summer estimate whereas the blueback herring population estimate declined from 68 million in spring to 42 million in August. The August sample included a significant increase in juvenile fish (less than 90 mm long) but a precipitous decline in fish greater than 90 mm. The mean size for fish estimated in the March hydroacoustics sample was 120 mm with no indication of the presence of juveniles. The March hydroacoustics population estimate and the May mark-recapture population estimate fall within each others 95 percent confidence limits and it is reasonable to expect many of the blueback herring in the 120 mm size estimated from the March mobile hydroacoustics estimate to recruited into the 140 mm size range of marked fish in May. However, the August mobile hydroacoustics blueback herring population estimate appears to be inconsistent both with the March mobile hydroacoustic estimate and the May mark recapture estimate. The discrepancy can be best explained by examining the netting data used to apportion the hydroacoustics targets into species-specific abundance estimates and considering the distribution of blueback herring within JST Lake in August. Unlike in the spring, when blueback herring can be expected to occur in much of JST Lake, their distribution (particularly of adults) in August appears to be restricted to cooler, deeper water. The likelihood of adequately sampling blueback herring in August when they are concentrated into certain regions of JST Lake is less than when they are more uniformly distributed in spring. Also, the netting data used to apportion hydroacoustics data by species is considerably less balanced in the summer when the number of small, open water fishes are overwhelmingly threadfin shad. For example, blueback herring often represent less than 3 percent of the purse seine sample (Table 7-1) and the catch per net set for the deep sets of other types of netting is also generally low. Consequently, August relative abundance estimates for blueback herring can be significantly impacted by a shift of small numbers of blueback herring. For example, only one blueback herring in the 60-90 mm size class was captured in all of the deep net sets, whereas 49 out of a 200 fish subsample in a tailrace purse seine sample were in this same size range. Nets are a notoriously variable sampling gear and generally

provide a poor basis for population estimates. While the netting probably adequately describes pattern in year class progression and general spatial distribution patterns, it is unlikely to provide an adequate basis for apportioning mobile hydroacoustics targets into species.

Table 7-1
August Summary Proportions of Blueback Herring in Purse Seines

	Purse Seine			
Size Class (mm)	Number Samples Combined	Blueback Herring Number	Threadfin Shad Number	Mean Percent Threadfin Shad
<60	7	39	1562	97.6
60-90	6	49[1]	151	75.5
90-130	2	0	4	100
>130	2	0	0	0

[1] - of the 6 samples, 1 contained 48 blueback herring (tailrace station), 1 contained 1 blueback herring, and 4 had 0's.

8 Blueback Herring Commercial Catch

Summary

Blueback herring are an abundant commercially and recreationally important bait fish. Commercial bait dealers capture blueback herring in large numbers and sell them to recreational fishermen and many recreational fishermen capture blueback herring for bait. To fully assess the impacts of pumped storage operation on blueback herring it is also important to describe and quantify sources of mortality in addition to entrainment.

Standard creel survey methods were employed to obtain commercial catch for blueback herring. Nighttime interviews were conducted at the boat ramp immediately downstream of Richard B. Russell Dam on the South Carolina shore for completed trips only. An instantaneous count of the total number of commercial fishermen was made in the tailrace at the peak of effort each night. Up to five surveys per week were conducted during months of high commercial activity and at least one survey per week was conducted from July 1994 through May 1996.

Catch and effort peaked between August and October, the period when blueback herring are concentrated in the tailrace due to warm and stratified conditions throughout the reservoir. Estimated monthly catch in the tailrace of Richard B. Russell Dam varied from 0 to 177,525 blueback herring. Estimated commercial harvest of blueback herring in the last half of 1994 was 542,854, in all of 1995 was 555,377, and through May of 1996 was 15,820. This study is attached as Appendix J.

9 Sport Catch Creel Survey

Summary

Fishermen harvest information, commonly called creel information or creel surveys, describes the temporal and spatial patterns in take of sport fish. Typically creel surveys provide information such as catch per unit effort and total harvest although the South Carolina DNR creel survey of J. Strom Thurmond Lake has included a questionnaire on the attitudes of fisherman towards pumped storage operations. This information can be employed to evaluate the effect of additional mortality sources, such as turbine mortality, on the population structure of common sport fishes. It can also be employed to describe how project operation can effect angling. The South Carolina Department of Natural Resources (SCDNR) conducted creel surveys on Richard B. Russell Lake and J. Strom Thurmond Lake from January 1, 1991, through October 31, 1996 (Appendix K). The Georgia Department of Natural Resources has conducted creel surveys in the Richard B. Russell tailwater from 1988 through 1996 (Appendix L).

Results of the SCDNR creel survey indicate that most anglers targeted largemouth bass and crappie in Richard B. Russell Lake and that these two species were caught in greatest number both in terms of number and weight. Overall catch rates for all species combined ranged from 0.75 fish/hr (1995) to 0.94 fish/hr (1994). In J. Strom Thurmond Lake, most anglers targeted largemouth bass, crappie, and hybrids. However, bluegill, crappie, largemouth bass, redear sunfish, hybrids, and white perch comprised the majority of the harvest from 1991 to the present by number and crappie, largemouth bass, hybrid bass, and striped bass by weight. For the two reservoirs together, anglers have spent an average of approximately $10 million per year on gas, bait, food, lodging, and miscellaneous items since 1991. Patterns for those portions of 1996 documented in the reports did not appear to be significantly different in whole lake creel patterns. The GADNR creel indicates that *Morone* sp. (hybrid bass, striped bass, white bass, and white perch) dominate the creel in the tailwater of Richard B. Russell Dam. There appear to be differences in angler success patterns in the tailwater area of Richard B. Russell Dam for striped bass and hybrid bass in 1996 with apparent reductions in angler harvest. The results of the SCDNR survey on JST indicated that a majority of the fishermen (58 percent) did not think that pumped-storage operation impacted fishing success. The survey also indicated

that a majority of the fishermen on RBR (53 percent) felt that pumpback operation did not impact their fishing success. Those anglers in both lakes that felt pumpback operation had impacted fishing also felt that the numbers and size of fish caught had been reduced; however, many also felt that they did not know the effects of pumpback operation on their fishing success.

10 Improvements to the Fish Protection System

At the end of Phase II, the fish protection system consisted of the following components: (a) a high frequency sound repulsion system that repels blueback herring from the pump-turbine intakes (from the face of the downstream side of the dam downstream to a distance of about 50m); (b) banks of high-pressure sodium lights located on the Georgia shoreline where water velocities are reduced; (c) a bar screen veneer composed of panels of stainless steel wedge-wire on 2-in. centers banded directly to the trashracks; and d) operational guidelines that eliminate daytime pumping and recommend that pumping not begin before one hour after official sunset and end prior to one hour before official sunrise. Evaluations of the fish protection system indicate that it had substantially reduced fish entrainment and should be an integral part of pumped storage operation at RBR Dam during Phase III sampling. Prior to the beginning of Phase III the protection system was improved by expanding the sound repulsion system to include Units 7 and 8, the sound repulsion system was reconfigured, the light system was expanded on the Georgia shore and a new bank of lights were installed on the South Carolina shore, the bar rack veneer was inspected and modified where needed to eliminate gaps around the outside border of the trashracks where the center-line distance between the bar rack veneer members exceeded two inches, and a rock berm was constructed about 600 feet downstream of the dam that extended laterally about 300 feet into the channel to redirect the flow to eliminate the vortex that appeared to entrain blueback herring into Unit 8. Although more data are required to confirm the exact efficiency of the fish protection system, no significant entrainment events were observed during Phase III sampling similar to what was observed on a number of occasions during Pre-Phase III sampling. The continued success of the fish protection system suggests that the present configuration of the fish protection system is optimal and should be employed during commercial level operation.

11 Mobile Hydroacoustics Summary

Summary

Mobile hydroacoustics surveys utilize a scientific grade system that functions much like a depth finder except that the range and acoustical size of fish can be determined and recorded with great accuracy. In a mobile hydroacoustics survey, a transducer that emits high frequency sound waves is attached to a boat. The boat transverses a set of transects of known length. Each time the boat passes over fish, the return echos are recorded and later analyzed. From these echos it is possible to expand the number of fish sampled by the survey to estimate the number of fish in the lake. Mobile hydroacoustics sampling is noninvasive (does not damage the fishes) and large areas of the lake can be sampled relatively easily so that definitive statements can be made about the number and distribution of fishes that commonly occur in the open waters of a lake. Mobile hydoacoustics is particularly useful for sampling the numbers and spatial distribution of small open-water fishes such as threadfin shad and blueback herring that are particularly susceptible to entrainment.

Mobile hydroacoustic surveys were conducted in the tailrace and tailwater areas of the Richard B. Russell (RBR) Dam concurrently with the collection of gillnetting and electrofishing baseline data monthly over a ten-year period spanning 1986 to 1996 (provided as Appendix M). The mobile hydroacoustics surveys were utilized to provide information on the distribution of fish over time and to compare the pre-pumpback and pumpback fish distributions. Mobile hydroacoustics was also used to determine monthly population estimates for small open water fishes below RBR Dam in 1996.

Monthly mobile hydroacoustic surveys were performed on established line-transects in the RBR tailrace and tailwater areas. This collection method was used consistently during the 10-year study period. To ensure proper repetition of survey transects between collection events, both start and endpoint of each transect was marked with a reflective marker, and with latitude and longitude position using a Ground Positioning System (GPS). The RBR tailrace area was defined as the lake area immediately adjacent to the base of the Russell Dam and extending

approximately 0.25 miles downstream of the dam. This area was sampled by twelve parallel transects that began on the Georgia bank and extended to the South Carolina bank. The RBR tailwater area was defined as the lake area located approximately 0.25 to 4.5 miles below the Russell Dam. Surveys in this area were performed along eleven parallel transects extending from the Georgia bank to the South Carolina bank. Mobile hydroacoustic population estimates were performed in 1996 to provide an estimate of the open water fish population residing in the RBR tailrace and tailwater areas. The surveys were conducted after sundown during a non-generation period and encompassed the area from the RBR Dam downstream to the mouth of Russell Creek.

An in depth review of the ten-year hydroacoustic database was performed to detect missing data points and possible errors. The electronic database was obtained from WES and a copy of the original collection sheets were obtained from the various contractors used during the study. These data were compared to detect missing data points in the database. Changes to the database were made to correct processing of the bottom in the data file during analysis or to correct scaling of the output. The errors detected during the quality assurance check of the data base were corrected using the best available information. These corrections and missing data points did not appear to affect the quality of the data or its usefulness for application to the project.

Seasonal distribution of fish density in the RBR tailrace and tailwater areas was analyzed to observe overall trends. Overall trends indicate low fish densities during the cooler winter months, followed by an increase in fish density during the spring months. Fish densities tend to peak between May and August, and decrease in the fall as water temperatures cool. This pattern can be most easily explained by the movement of fish towards the RBR Dam in the spring and the annual recruitment of young fish during the summer. The nighttime sampling surveys indicate that the maximum fish densities occurred during 1994 and 1996. The nighttime data indicated slight shifts in fish distribution throughout the year. The highest densities of fish were observed in the area immediately below the RBR Dam during the spring and summer months. Fish densities increased downstream as the water temperatures cool in the fall and winter months. The daytime data indicated the same general trend. In most of the surveys, the mean monthly depth of fish targets was deeper during daylight surveys than night surveys. The data indicate that daytime sampling detected only 25 percent of the fish densities observed during nighttime sampling. Statistical analysis of day vs night data indicates that approximately half the number of transects were necessary to predict density at night than during daylight; tailrace night - 32 transects, tailrace day - 69 transects, tailwater night - 18 transects, and tailwater day - 44 transects. Based on these analyses it was determined that nighttime data was a more reliable predictor of actual fish density in the tailrace and tailwater areas.

During the 10-year study period, many environmental and physical changes occurred in the project area including; drought, the addition of tailrace lights, tailrace channel dredging, the addition of fishing berms, the "Unit 8 vortex berm," and project generation and pumpback operations. The 10-year data base was

reviewed to detect changes in the tailrace and tailwater fishery associated with these changes. Although the study was not originally designed to address these changes, portions of the data base were appropriate for this analysis.

A severe drought was experienced at the project in 1986-89. The low water levels in the RBR tailrace may have accounted for the low densities of fish in the tailwater during these years by: (1) low water levels would have provided less actual habitat and would not be able to hold as many fish; (2) the shallow water level would have decreased the area of the water column sampled by hydroacoustics since the transducer did not sample the top 6 feet of the water column; and (3) the shallow bar in the lower tailrace area would have restricted fish movement.

Since electrical generation at the RBR project is related to turbine operation and tailrace flows, the total generation by month was examined for trends in comparison with fish densities for the tailrace night samples. During years of relatively high generation, (1990, 1993, 1995, and 1996), fish densities in the tailrace area decline. Due to increased water velocities in the tailrace, it is likely that fish either repositioned into low velocity areas close to banks or possibly moved downstream to tailwater areas. The increased tailrace velocities would especially have an impact on juvenile populations residing in the tailwater, since their ability to fight the flows is lower than adults.

Another change that occurred during the study period was the addition of illumination to the RBR tailrace area. Lights were installed along the dam face, fishing pier, and along both banks of the tailrace. Based on the behavioral responses of blueback herring and threadfin shad to light, the hydroacoustic data was examined to observe any trends associated with increased lighting. The percent of the total number of fish in segments near the Georgia bank increased after installation of the lights. It was not determined if this relationship is statistically significant, or if lights were the only reason for this change in fish distribution in the tailrace.

Another influence that occurred during the study period was the physical change in the tailrace by dredging. The tailrace area was deepened by dredging during an eight month period that extended from September 1994 to March 1995. Hydroacoustic data from the periods before, during, and after dredging were examined to observe spatial changes in fish distribution throughout the RBR tailrace and tailwater that may be associated with dredging. Examination of both nighttime and daytime survey data revealed no spatial changes in the fish distributions in the tailrace or tailwater that can be related to dredging operations.

Pre-Phase III and Phase III project pumpback operations were undertaken during the spring of 1995 and 1996, respectively, at the RBR project. Variations in the monthly mean densities occurred over the 10 year period sampled and include densities lower during the Pre-Phase III and Phase III period than in 1994, although densities were lower in 1986-1987 and equally low in 1989-1990. Possible explanations for this decline in 1995 and 1996 include: increasing generation at RBR Dam flushing the tailwater, entrainment, natural variability of threadfin

shad and blueback populations in Thurmond Lake, or physical changes in the tailwater.

Monthly population estimates were initiated in January 1996 to provide an estimate of the number of fish in the RBR tailrace and that portion of the tailwater affected by pumpback operations. The population estimates allowed the number of fish susceptible to entrainment to be estimated during a 4 unit pumpback operation in the immediate vicinity of the intakes (above the boat exclusion buoyline) and in the tailwater area. This information was compared with the monthly hydroacoustic estimates of pumpback entrainment during the Phase III period. Hydroacoustic entrainment estimates related well to the mobile hydroacoustics fish population estimates for the 7 months in the Phase III period. Highest populations of fish occurred during July and August when entrainment of threadfin shad was highest. The entrainment estimates were regressed against the mobile hydroacoustic population estimates for the months where data were available, an $R^2 = 0.91$ with $P < 0.001$ indicates a good relationship exists for the Phase III test period. This relationship was also supported by the small mesh gillnetting. Catches of threadfin shad were substantially higher during moratorium sampling than during nonmoratorium sampling at the most upstream station of JST. Approximately 11.0 percent of the fish (predominantly threadfin shad and blueback herring) in the 1,344 acre area sampled were entrained monthly. The mobile hydroacoustic sample area represents less than 2 percent of the area of Strom Thurmond Lake, and the population estimates for this area in March and August represent 2.9 percent and 1.9 percent of the lakewide population estimates for those months. Entrainment estimates were also compared with line transect density estimates, however, the relationship was not as closely correlated as the population estimate data.

12 Population Modeling

Summary

The impacts of operating pumped storage at RBR Dam cannot be completely assessed by simply comparing the entrainment losses against estimates of population abundance. Risk assessment methods, combined with population modeling, must be used to quantify the risk that an impact may cause a population to decrease to extinction or to a threshold level. In this approach a mathematical model is used to describe the dynamics of a target species. Population vital statistics are randomly selected to predict 50-year population histories that appear to match the general pattern observed for the target species. This process is repeated up to 1000 times. The resulting trajectories can be analyzed statistically to determine the probability that over multiple runs a population may go extinct or reach a lower threshold. Losses resulting from entrainment can be placed in this same framework and the impact can be couched as an increase in the probability of extinction or an increased probability that the low threshold will be reached. Population model based risk assessment using the RAMAS population models was performed on the following five species/groups of fish: threadfin shad, blueback herring, black crappie, hybrid bass, and striped bass (provided in Appendix N). Threadfin shad and blueback herring are both short-lived and their growth is strongly regulated by density (i.e., expansion in numbers at high population levels is inhibited). Striped bass and hybrid bass are long-lived species whose abundance is maintained by stocking. Compared to the other four species, relatively little is known about the vital statistics of black crappie, a naturally reproducing sport fish within JST Lake.

Assessments were performed at two levels: Scenario A is based on entrainment data collected from August 31, 1993 to October 31, 1996 (includes high entrainment events observed between Phases II and III). Scenario A simulations include effects of average water year entrainment rates on each species population as well as the effects of more extreme entrainment rates to determine the sensitivity of the models. Entrainment for extreme events was obtained by adding 3 standard errors to mean entrainment rates for each month and expanding by the number of hours of pumping for each month. Scenario B simulations were restricted to evaluations of Phase III monthly rates projected to annual average water year entrainment. Scenario B simulations are based on the most complete data sets to simulate

commercial operation at RBR because: (1) entrainment rates and population vital statistics are available; (2) all fish protection system and channel modifications were completed and all systems remained constant during the testing period; (3) Phase III samples are the only entrainment data collected under conventional generation and water quality conditions that could be expected under commercial pumpback operation.

Results of the risk analysis are presented as the maximum risk (probability) that population levels will fall below baseline simulation results at least once over a simulation period of 50 years. Results of the risk assessments indicates that entrainment affects the five species to varying degrees.

Threadfin Shad. Population levels of threadfin shad appear to be unaffected by entrainment losses under Scenario B. Under Scenario A the worst case entrainment loss (mean rates plus 3 standard errors) performed as a sensitivity test indicates that the maximum risk of decline increases only 5 percent at a population level of 6 million adults. Even the worst-case entrainment conditions indicate a minimal impact on population levels the risk that the population will decline to any threshold is barely discernible from background.

Blueback herring. Population levels of blueback herring appear to be minimally affected by projected average year entrainment losses under either scenario with a maximum increase in the probability of decline of 7 percent and 3 percent, respectively, above background for Scenarios A and B. Under extreme entrainment conditions (mean entrainment plus 3 standard errors or 12 percent), the risk assessment modeling shows a maximum increased risk of 53 percent above background that the population will dip below 11.3 million fish at least once over a period of 50 years. The 12 percent entrainment scenario of the modeled baseline population (0.12×51.3 M = 6.15 M) is 14 times higher than the dry year annual worst-case loss obtained from Phase III data.

Hybrid Bass. Population size under the projected mean annual entrainment total for Scenario A or B shows a stable population reduction of 10,000 fish and a maximum increased risk of decline of 3 percent. The maximum entrainment scenario of 6 percent increases the risk by 15 percent that the population will decline below 46,000 fish at least once over a period of 50 years. The 6 percent entrainment scenario of the modeled baseline population ($0.06 \times 270{,}000 = 16{,}200$) is over 7 times the projected dry year annual worst-case loss of 2,134 fish. Based on the model, the loss of hybrid bass can be completely compensated by increasing the stocking rate to 746,000 fish per year (20 percent increase).

Striped Bass. Population size under projected mean annual entrainment total for Scenario A shows a reduction of 10,000 to 20,000 fish and a maximum increased risk of decline of 7 percent. Scenario B entrainment produced a maximum increased risk of decline of 4 percent. The maximum entrainment scenario of 8 percent of the baseline modeled population increases the risk by 22 percent that the population will decline below 50,000 fish at least once over a period of 50 years. The 8 percent entrainment scenario is more than 4 times the projected

dry year worst case loss of 2,789 fish based on annual projections using Phase III data. Based on the model, the loss of striped bass can be completely compensated by increasing the stocking rate to 286,700 fish (28 percent increase).

Black Crappie. The black crappie modeled baseline population stabilized at a mean abundance of 350,000 fish. The average annual harvest of black crappie from 1983 to 1996 was 255,335 fish. The abundance of black crappie in 1994 was over 6 million based on the cove rotenone data. It is therefore unlikely that the model predicted baseline population is correct. The authors of the population model note that there is not sufficient data on the black crappie population in JST to produce a model with any certainty, and skepticism when reviewing the results is recommended.

13 Predictions of Future Entrainment

Summary

Entrainment samples provide estimates of the numbers of fish passing through the pump-turbines. These rates can be used to describe entrainment patterns during the period of sampling, but also can be used to project possible entrainment by taking the entrainment rate obtained from monitoring and expanding by the numbers of hours of pumpback operation that can be expected under different future hydrological conditions. The amount of pumpback operation that will occur in the future is partially dependent upon basin inflows. Higher basin inflows reduce the need for pumping operation to maintain the capacity of conventional generation. Expansions to predict entrainment (all adjusted for survival) to future operation are based on the hourly fish passage rate obtained from netting samples for each month multiplied by the unit hours of operation anticipated for wet, average, and dry water years. We emphasize that these projections are approximations because it is likely that reproduction and recruitment of fish within JST is also sensitive to hydrology so that different water years will exhibit differences in fish abundance and species composition. Species possibly impacted by turbine passage were evaluated using population modeling based risk assessment as described in a previous section. Impacts that are proportionally small are difficult to assess with population modeling because the impact is small relative to the uncertainty in population vital statistics. Various sensitivity analyses are conducted to determine how the use of a range of vital statistics would affect the results of the model. Entrainment numbers were also compared to population estimates and to commercial harvest, sport harvest and other sources of mortality to allow entrainment totals to be placed in a relative context. For example, projected entrainment of 4,842,477 fishes weighing 20010 kg are projected to be killed under worst case operations for April through October. This is 0.27 percent by number and 0.24 percent by biomass of the total of approximately 1.807 billion fish in JST with a biomass of 8.4 million kilograms estimated to occur in JST during the late summer (by convention, the time period when many reservoir fishery assessments are made) of 1996. For a 12 month entrainment scenario, approximately 0.45 percent (8,067,489) by number and 0.28 percent (23,434 kg) by weight of the fish in

JST Lake can be reasonably expected to be killed by turbine passage during a dry year.

Anticipated entrainment totals, corrected for survival, for the different water years differ substantially from 1,040,553 for a wet year to 4,842,477 under dry year conditions during April through October. For the entire year (adjusted for survival), entrainment is estimated at 1,125,431 for a wet year and 8,067,489 for a dry year. The average year predicted entrainment by number of 4,294,869 is close to the dry year prediction because the biggest difference between average and dry year conditions is in the amount of spring time pumping when the entrainment of fish by number is substantially less than in the late summer. However, the difference by biomass between dry water year entrainment (20010 kg) and average water year entrainment (16002) is greater because larger fish are entrained during spring and early summer pumpback operation.

Phase III Data Projected to Full Pumpback

Expansions to predict entrainment (all adjusted for survival) to future operation are based on the hourly fish passage rate obtained from netting samples for each month multiplied times the unit hours of operation anticipated for wet, average, and dry water years. Assessment of entrainment is made at a lakewide scale because the results of both mark-recapture studies for blueback herring and radio telemetry studies on striped bass and hybrid bass indicate that fish are widely distributed within the reservoir on an annual basis and are not restricted to one portion of the lake. Localized and seasonal effects on fish distributions are presented in the section on temperature habitat for striped bass. Tables 1-3 and 1-5 (not adjusted for survival) and Tables 1-4 and 1-19 (adjusted for survival) include columns in which both the numbers and biomasses of netted fish are expanded to predict entrainment under different water years (note that referenced tables are presented in section 1 of this report). The anticipated entrainment total losses, adjusted for survival, for the different water years differ substantially from 1,040,553 fish for a wet year to 4,842,477 under dry year conditions during April through October (1-3). For the entire year (adjusted for survival), entrainment losses are estimated at 1,125,431 for a wet year and 8,067,489 for a dry year (Table 1-19). The average year predicted entrainment by number of 4,294,869 fish is close to the dry year prediction of 4,842,477 because the biggest difference between average and dry year conditions is in the amount of spring time pumping when the entrainment of fish by number is substantially less than in the late summer. However, the difference by biomass between dry water year entrainment (20010 kg) and average water year entrainment (16002) is proportionally greater because larger fish are entrained during spring and early summer pumpback operation.

Entrainment samples provide estimates of the numbers of fish passing through the pump-turbines. Species likely to be impacted by turbine passage were evaluated using population modeling based risk assessment. Impacts that are proportionally small are difficult to assess with population modeling because the impact is small relative to the uncertainty in population vital statistics. Population

modeling based risk assessment is presented in another section. Entrainment numbers were also compared to population estimates and to commercial harvest, sport harvest (Table 13-1), and other sources of mortality to allow entrainment totals to be placed in a relative context. For example, projected entrainment of 4,842,477 fishes weighing 20010 kg are projected to be killed under worst case operations for April through October. This is 0.27 percent by number and 0.24 percent by biomass of the total of approximately 1.807 billion fish in JST with a biomass of 8.4 million kilograms estimated to occur in JST during the late summer (by convention, the time period when many reservoir fishery assessments are made) of 1996. For a 12 month entrainment scenario, approximately 0.45 percent (8,067,489) by number and 0.28 percent (23,434 kg) by weight of the fish in JST Lake can be reasonably expected to be killed by turbine passage during a dry year. These estimates assume that whole lake abundance estimates from 1996 are representative of abundances in other water years.

Population estimates (using two different methods) and commercial harvest data are available for blueback herring against which the entrainment totals can be compared. Mobile hydroacoustics provides a total spring-time population estimate of 68 million fish. Mark-recapture censusing techniques yielded an estimate of 84 million adults in May of 1996. A total of 294,110 blueback herring of all sizes are projected to be killed during maximum pumpback operation (projected dry year operations) during April through October and about 313,069 can be reasonably expected to be killed during an annual cycle. The entrainment mortality total for April through October represents 0.43 percent of the total blueback herring population. On an annual basis, the entrainment mortality total is 0.46 percent of the total blueback herring population in JST Lake. Commercial harvest for 6 months of 1994 is 542,854 fish and for the full year in 1995 is 555,377 fish. Harvest in 1995 was considerably reduced because of an abundance of the smaller size classes of fish that are not useable as bait by fishermen. Turbine mortality of blueback herring during pumping operation is substantially less than commercial harvest. The marked-recapture study to estimate the number of adult blueback herring in the lake sacrificed 144,227 adult fish which is 49 percent of the estimated mortality resulting from worst case pumpback operation.

Population estimates using mobile hydroacoustics are available for threadfin shad greater than 1.2 inches in both March and August of 1996. The March population estimate is 56,577, 931 fish and the August estimate is 1,322,185,433 fish. The estimated turbine mortality loss of threadfin shad under maximum pumpback operation during Phase III months is 4,426,610 or 0. 33 percent of the total or for an annual cycle 7,035,204 individuals representing 0.53 percent of the total numbers using the August population estimate. Threadfin shad have great reproductive potential and typically exhibit "boom and bust" cycles particularly when reduced winter water temperatures result in winter kill of this species. The August estimate is used because entrainment of threadfin shad is highest in August and September during their period of maximum abundance.

No direct population estimates are available for black crappie, white perch, striped bass, or hybrid bass. However, creel surveys are available against which

entrainment of harvestable sizes of these species can be contrasted. In addition, routine gillnet surveys have been conducted for 11 years as part of baseline studies in JST Lake and offer a gage against which to measure pumpback entrainment at Richard B. Russell Dam. Stocking goals are also known for striped bass and hybrid bass and can be used as a crude population estimate against which entrainment can be compared.

Under worst case (dry year pumping operation), 55,618 total and 19,619 harvestable white perch are estimated to be killed by entrainment or impingement during the biologically active (Phase III) time period. This compares to an estimated total of 4,184,270 white perch obtained from cove rotenone expansions for 1994, the first year in which white perch become a significant proportion of the JST fish community. White perch show the greatest potential for impact of any species investigated with 1.33 percent of the population being killed by pumping operation from April through October. Separate annual estimates of entrainment mortality for white perch are not presented because 98 percent of the entrainment of this species occurs during the April through October time frame (Table 1-17). Although lake wide numbers provide no evidence of impact, sport harvest of white perch for January through October of 1996 was estimated at 67,816 which is more than three times the entrainment totals of harvestable-size fish projected during worst case operation (Table 13-1). White perch are the fish population most likely to be impacted by pumped storage operation; however, they have not been identified as a desirable sport fish. As an additional consideration, it is likely that the population estimate used in the analysis (1994 cove rotenone areal expansions) substantially underestimate the abundance of this species. The sport catch for this species was 3,900 in 1994 compared to 67,816 in 1996, suggesting an order of magnitude increase in the number of harvestable white perch in the three year period. Concomitantly, baseline monitoring using gillnets shows that the catch rate for this species has increased at all JST stations from 1992 to 1996.

Black crappie entrainment mortality under worst case pumping scenarios is estimated to be 33,155 fish with 2,294 fish being of harvestable size. Long-term sport harvest of black crappie from 1983 to 1996 averages 255,335 fish/year with 203,032 black crappie caught in 1996. Entrainment mortality loss of harvestable-sized fish is only 0.90 percent of the long term average sport catch and 1.13 percent of the estimated sport catch in 1996 (Table 13-1). The total number of black crappie entrained is 0.52 percent of the long-term average abundance of black crappie in JST Lake of 6,428,593 and 0.23 percent of the over 14 million black crappie that were estimated for JST Lake in 1994, the most recent year in which cove rotenone data are available. Separate annual estimates for black crappie are not presented because 99 percent of the entrainment mortality loss of this one species occurs during the April through October time frame (Table 1-17).

Striped bass entrainment and impingement mortality under April-October worst case pumping scenarios are estimated to be 1124 fish (1056 entrained and 68 impinged) with 557 being of harvestable size (9-14 in. long) and 37 being of desirable size (15 in. long or longer). For an annual cycle, 1484 striped bass can be reasonably expected to be killed by entrainment and mortality (1394 by turbine

mortality and 90 by impingement) with similar relative size composition presented for the April through October time frame. The total population size of striped bass in JST Lake is unknown,although the management goal is to have an abundance of 3 striped bass per acre of lake area. Using this as a general guide approximately 225,000 catchable striped bass could be reasonably expected to occur in JST Lake. The worst case April through October mortality total of 594 for the two largest size-groups of striped bass is 2.6 percent (594 / 225,000) of the management target. The long term average sport harvest of striped bass is 18,504 fish/year (Table 13-1). April through October mortality of the largest two size classes of striped bass is 3.2 percent of harvest and mortality of the largest size group of striped bass (probably most representative of sport harvest) compared to the sport harvest is 0.020 percent (37 / 225,000). Routine and moratorium gillnetting (an accepted fishery assessment tool) has been conducted in JST Lake from 1986 to the present to provide relative estimates of spatial and temporal patterns of distribution of large, active fishes such as striped bass and hybrid bass. Average catch of striped bass in gill nets is 187 fish/year with 59 percent in the desirable length category (15 in. long and longer) or 110 fish/year compared to 37 fish/year of the 15-in. and larger length group entrained by the dam. Remarkably, the effects of the baseline netting program has substantially greater impact on the numbers of the largest length group of striped bass than does pumped storage operation under worst-case (dry year) operations.

Hybrid bass entrainment and impingement mortality under worst case pumping scenarios are estimated to be 616 fish (536 by passage mortality and 80 by impingement) with 329 being of harvestable size (9-14 in. long) and 111 being of desirable size (15 in. long or longer). For an annual cycle of operation, a total of 1016 hybrid bass can be reasonably expected to be killed (884 by passage mortality and 132 by impingement). The total population size of hybrid bass in JST Lake is unknown, although the management goal is to have an abundance of 7 hybrid bass per acre of lake area. Using this as a general guide approximately 525,000 catchable hybrid bass could be reasonably expected to occur in JST Lake. The worst case April through October mortality total of 440 (360 by passage mortality and 80 by impingement) for the two largest size-groups of hybrid bass is 0.08 percent of the management target density. The long term average sport harvest of hybrid bass is 60,304 fish/year. April through October mortality of the largest two size classes of hybrid bass (440) is 0.73 percent of harvest and mortality (111) of the largest size group of hybrid bass (probably most representative of sport harvest) compared to the sport harvest is 0.18 percent (Table 13-1). Routine and moratorium gillnetting has been conducted in JST Lake from 1986 to the present. Average catch of hybrid bass in gill nets is 617 fish/year with 69.0 percent in the desirable length category (15 inches long and longer) or 426 fish/year compared to 109 fish/year of the same length group entrained by the dam. Remarkably, like for striped bass, the effects of the baseline netting program has substantially greater impact on the numbers of larger hybrid bass than does operation of pumped storage operation under worst case conditions.

Table 13-1
JST Creel Survey Harvest Estimates Total Number By Species

YEAR	Striped Bass	Hybrid Bass	Crappie	Largemouth Bass	Yellow Perch	White Perch
1983	4,103	62,102	210,893	98,462	0	0
1984	2,568	59,384	396,190	159,526	0	0
1985	13,018	55,246	285,366	108,594	5,447	0
1986	5,691	36,016	189,311	103,878	2,350	0
1987	29,274	40,690	246,063	152,500	8,072	0
1988	No Creel					
1989	4,374	41,204	249,844	187,166	5,293	0
1990	13,531	67,195	415,446	302,137	15,438	0
1991	30,424	63,440	250,119	158,663	4,662	908
1992	11,056	77,367	252,813	209,751	3,894	4,184
1993	35,234	85,693	168,669	182,457	5,861	11,128
1994	46,525	106,591	183,994	213,489	3,633	3,900
1995	29,717	51,972	267,610	144,783	9,509	61,215
1996*	15,035	37,058	203,032	70,783	1,516	67,816
Total	240,546	783,958	3,319,350	2,092,189	65,675	149,151
AVG.	18,504	60,304	255,335	160,938	5,970	24,859

* 1996 striped bass, hybrid bass, and white perch estimates are from the South Carolina DNR creel estimates and only include the area from the confluence of the Savannah and Broad Rivers downstream to Thurmond Dam. The Georgia DNR creel estimate which includes the area from the confluence of the Savannah and Broad Rivers upstream to Russell Dam had a combined striped bass, hybrid bass, white bass, and white perch harvest of 6,564 fish, but does not include species specific estimates. All other species include a combination of both states creel estimates.

Table 13-2
Projected numbers and percentages of fish killed by entrainment during commercial pumped storage operation under dry (maximum), average, and wet (minimum) conditions and total fish numbers in JST. Total fish in JST obtained by combining arithmetic mean cove rotenone expansions (CR) excluding threadfin shad and blueback herring. Threadfin shad estimates were obtained from August 1996 mobile hydroacoustics survey (HAT). Estimates for adult blueback herring obtained from mark recapture study (MRB). TT=cell total. Entrainment numbers based on Phase III data, April to October

Size Class All Species	Total # Fish By Size in JST[1]	#/Percent Entrained Dry Year Maximum[2]	#/Percent Entrained Average Year	#/Percent Entrained Wet Year Minimum
1.2"-3.4"	CR- 345,161,127 HAT- 1,306,372,203 TT- 1,651,533,330	4,370,834[3] 0.26%	3,931,395 0.23%	983,264 0.06%
3.5"-5.4"	CR- 36,770,382 HAT- 15,560,376 TT-52,330,758	200,008 0.37%	155,351 0.30%	29,840 0.06%
5.5"-8.4"	CR- 13,161,897 HAT- 252,854 MRB- 84,165,737 TT- 97,580,488	265,442 0.31%	203,783 0.24%	26,794 0.03%
≥ 8.5"	CR- 5,361,769 HA- 0 TT- 5,361,769	6,260 0.12%	4,390 0.08%	662 0.01%
TOTALS:	CR- 400,615,422 HA+MR- 1,443,546,991 TT-1,806,806,345	4,842,544 0.26%	4,294,919 0.23%	1,040,560 0.06%

[1] Population by size class determined by 5 years of cove rotenone sampling in JST Lake for species other than blueback herring and threadfin shad. Proportion of fish less than 1.2 in. determined from 1986 & 1987 cove rotenone studies and used to decrease long term mean number of fish. Threadfin shad abundance & size information obtained from mobile hydroacoustic surveys conducted in August of 1996 and blueback herring abundance obtained from May 1996 mark-recapture study.
[2] Numbers and percentages for Phase III expanded data based on current projections for pumping unit hours for dry, mean, and wet water years.
[3] The efficiency of both the netting gear and the fixed-aspect hydroacoustics monitoring system drops off within the 2.0 in. size class (which includes fishes from 1.5 in. to 2.4 in. long).

14 Striped Bass Temperature Habitat

Summary

Water temperature and dissolved oxygen (DO) monitoring and multi-dimensional water quality modeling both indicated temperature impacts associated with pumped-storage operation in the tailwater area of RBR Dam. These impacts were coincided with a decline in striped bass and hybrid bass harvest in 1996. Water quality data collected from the critical summer period (July-September, 1992-1996) were examined to characterize tailwater and lakewide striped bass habitat dynamics in JST Lake. Water quality dynamics relative to striped bass requirements are presented because they are better known and more restrictive than hybrid bass water quality requirements.

Two categories of striped bass habitat were defined by the following bounds: preferred habitat (water having DO greater than 3.0 parts per million and temperature less than 24 °C) and restricted habitat (DO greater than 3.0 PPM and water temperature less than 27 °C). Striped bass restricted habitat in the RBR tailwater did not decrease with RBR operations in 1996 compared to conditions in 1993, a year having similar lake elevation patterns to 1996. However, a loss in striped bass preferred habitat was evident in the RBR tailwaters. The loss in preferred habitat was related to an increase in the mean water temperature released from RBR Dam and increased bottom temperatures recorded in the RBR tailwaters.

Lakewide restricted habitat did not show a noticeable decrease in 1996 compared to 1993. Lakewide preferred habitat was lowest during September, 1996, but was similar to 1993 estimates. Preferred habitat was available in other portions of the lake other than the tailwater. In 1996 water temperatures in the tailwater may have exceeded the preferred habitat criteria with a concomitant out-migration of striped bass and other cool water species into the main body of the lake. Lakewide habitat volumes estimated from the CE-QUAL-W2 water quality model indicated less habitat in years when lake levels are lower.

Introduction

Striped bass have been successfully stocked into JST Lake and provide an important and viable sport fishery. However, summer mortality of striped bass has been widely documented due to a decrease in habitat associated with a temperature-oxygen squeeze (Zale,1990). An increase in bottom water temperatures, coupled with a decline in the striped bass harvest in the RBR tailwaters during the Phase III study, warranted further investigation into striped bass habitat in the RBR tailwaters and Strom Thurmond Reservoir. Water quality data was analyzed for the critical summer period July-August from 1992-1996 to determine if there was any change in striped bass habitat.

Methods

Striped bass habitat was broken into two categories to allow a more complete analysis. The first habitat type is termed "preferred habitat" and is defined as having an upper avoidance temperature of 24 °C and a lower dissolved oxygen avoidance concentration of 3 mg/l based on published literature (Crance, 1984; Van Den Avyle,1990). These criteria describe the upper bonds of habitat conditions striped bass will select if made available to them. The second habitat type was termed "restricted habitat" which is defined as having an upper temperature limit of 27 C and a lower DO concentration of 3 mg/l. Striped bass stop feeding when water temperatures reach 27 °C (Zale,1990).

Methods used in collecting limnological data in Richard B. Russell and Strom Thurmond Reservoirs can be found in the "Water Quality and Hydrodynamics Results" section of the Phase III Report. Water quality data used in this analysis were taken from routine monthly samples throughout the lake at sampling stations as shown in Figure 2.3 of the Water Quality Phase III Report. At each station water temperature, dissolved oxygen, pH, and conductivity were measured at 2-meter intervals from the water surface to the lake bottom. The lake was divided into seven regions each containing at least one water quality station.

An elevation-volume relationship was determined for each of the seven regions based upon a digital terrain map of the lake. A regression equation was determined to approximate the elevation-volume relationship within each sub-region. A second or third order polynomial (equation 1) was found to closely fit the data in each case ($R^2 > 0.98$). The seven stations used in this analysis along with the coefficients defining the elevation-volume relationship are listed in Table 14-1. Striped bass habitat is calculated volumetrically using the CE-QUAL-W2 model

$$Vol = C1(Elev - C2)^{C3}$$

where

Vol = storage volume in cubic meters.

Elev = elevation in ft.

C1,C2,C3 = elevation volume coefficients.

A total of about 100 observations of temperature and DO were integrated over JST Lake to obtain monthly estimates of average temperature, DO, and striped bass habitat volumes listed in Tables 14-2 to 14-4. An elevation range and a corresponding volume was determined for each water quality observation. The energy or mass associated with each observation was then categorized by habitat category and totaled for the entire lake.

Results

There was no loss of restricted habitat in the RBR tailwaters during 1996 compared to previous years (Figures 1-3). However, a decline in preferred striped bass habitat was evident in the tailwater region of RBR Dam during July and August, 1996. The loss of preferred habitat in the RBR tailwaters was related to an increase in mean water temperature released from RBR Dam (Water Quality Report Figure 4.24) and increased bottom temperatures recorded in the tailwaters during 1996 compared to previous years (Water Quality Report Figures 4.6 and 4.7). Daily tailwater isotherms plotted August 23- September 2, 1996 indicate that when pump events are directly preceded by conventional generation, water temperatures decrease at all tailrace locations from PU04001 to P045 (Water Quality Report Figure 3.9).

Lakewide restricted habitat did not show a noticeable decrease in 1996 compared to 1993 (Tables 14-2 to 14-4). Similarities in limnological conditions between 1993 and 1996 were also evident in July when deeper waters near the JST Dam supported higher DO concentrations compared to other years. Restricted habitat was highest volumetrically in JST Lake during July 1994 with 68.5% of the lake available. During August, restricted habitat was highest during 1992 and 1994, respectively. The least year to year variation in restricted habitat occurred in September among the months analyzed. Higher concentrations of DO, resulting from unseasonably large discharges through JST Dam, increased striped bass habitat lakewide in September 1994 compared to other years studied.

Preferred habitat was highest during August, 1992 with 36.5% of the lake volume available. The increase in habitat during this period was mainly due to higher concentrations of DO available near the JST Dam (Figure 2). Preferred habitat was lowest volumetrically during September, 1996, but was similar to the lakewide habitat estimated in 1993.

Lake water elevation appeared to affect striped bass habitat. Higher pool elevations in 1994 during July and August could be a contributing factor to the increased volume of restricted habitat. Conversely, lower lake elevations in September of 1993 and 1996 occurred when preferred habitat was lowest.

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Table 14-1
Coefficients For JST Lake Stage-Volume Relationship

Station	c1	c2	c3
015	643.85	216.0	3.0
020	32565.07	180.0	2.0
025	294.099	198.0	3.0
030	937.87	246.0	3.0
035	36774.01	267.0	2.0
039 or 040	708.49	276.0	3.0
045	217.26	276.0	3.0

Table 14-2
JST Storage Volume Distribution for July, 1992-1996

Date	Pool Elevation (ft)	Storage Volume ($m^3 \times 10^9$)	Percent Volume Tmp < 27 °C DO > 3 mg/l (Restricted)	Percent Volume Tmp < 24 °C DO > 3 mg/l (Preferred)	Mean Temp (C)	Mean DO (mg/l)
7/20/92	328.7	3.11	22.6	22.4	23.2	5.2
7/14/93	328.2	3.07	37.3	28.9	23.2	5.7
7/5/94	331.8	3.36	68.5	19.9	23.2	5.3
7/13/95	329.2	3.14	26.6	16.4	23.5	5.0
7/15/96	328.6	3.09	25.5	12.3	22.8	5.2

Table 14-3
JST Storage Volume Distribution for August, 1992-1996

Date	Pool Elevation ft	Storage Volume ($m^3 \times 10^9$)	Percent Volume Tmp <27 °C DO >3 mg/l (Restricted)	Percent Volume Tmp < 24 °C DO > 3 mg/l (Preferred)	Mean Temp. (C)	Mean DO (mg/l)
8/19/92	327.6	3.01	50.8	36.5	23.6	6.2
8/12/93	327.0	2.99	16.3	11.2	23.2	4.6
8/18/94	332.8	3.45	49.4	17.2	24.3	4.8
8/14/95	327.6	3.01	14.2	7.8	24.7	5.0
8/12/96	328.5	3.09	15.0	8.5	24.1	4.3

Table 14-4
JST Storage Volume Distribution for September, 1992-1996

Date	Pool Elevation (ft)	Storage Volume (m^3 x10^9)	Percent Volume Tmp < 27 °C DO > 3 mg/l (Restricted)	Percent Volume Tmp < 24 °C DO > 3 mg/l (Preferred)	Mean Temp (C)	Mean DO (mg/l)
9/22/92	330.1	3.22	57.6	15.2	23.7	5.4
9/13/93	325.5	2.85	49.5	7.6	23.5	5.0
9/15/94	330.5	3.25	47.3	16.0	24.1	5.0
9/11/95	329.5	3.17	67.1	13.3	24.1	5.2
9/16/96	325.8	2.88	69.4	6.9	24.5	4.9

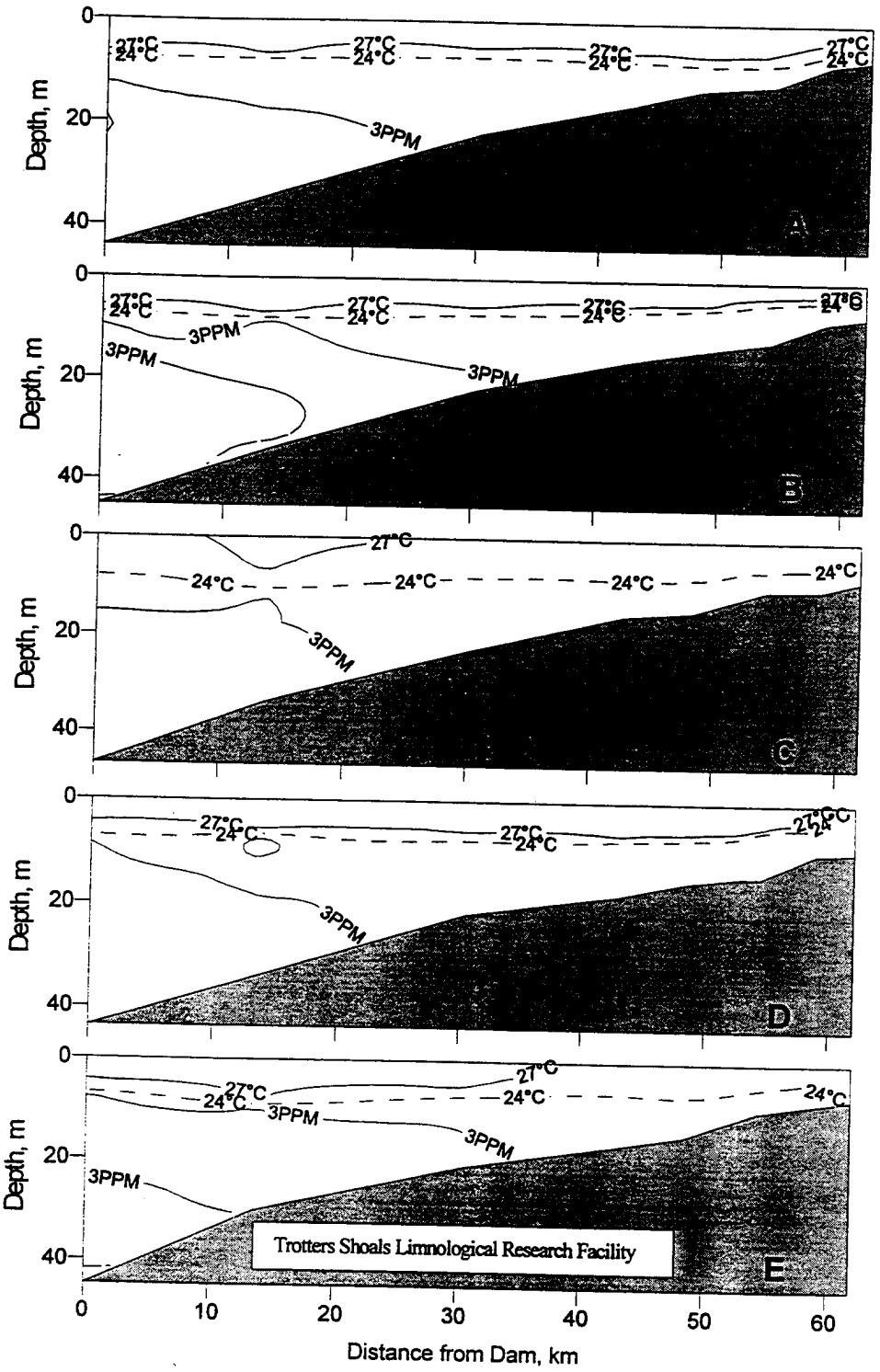

Figure 1. Striped Bass habitat in J. Strom Thurmond Lake described using dissolved oxygen (mg/l) and temperature (°C) parameters collected on July 16, 1992 (A), July 14, 1993 (B), July 15, 1994 (C), July 11, 1995 (D), and July 16, 1996 (E).

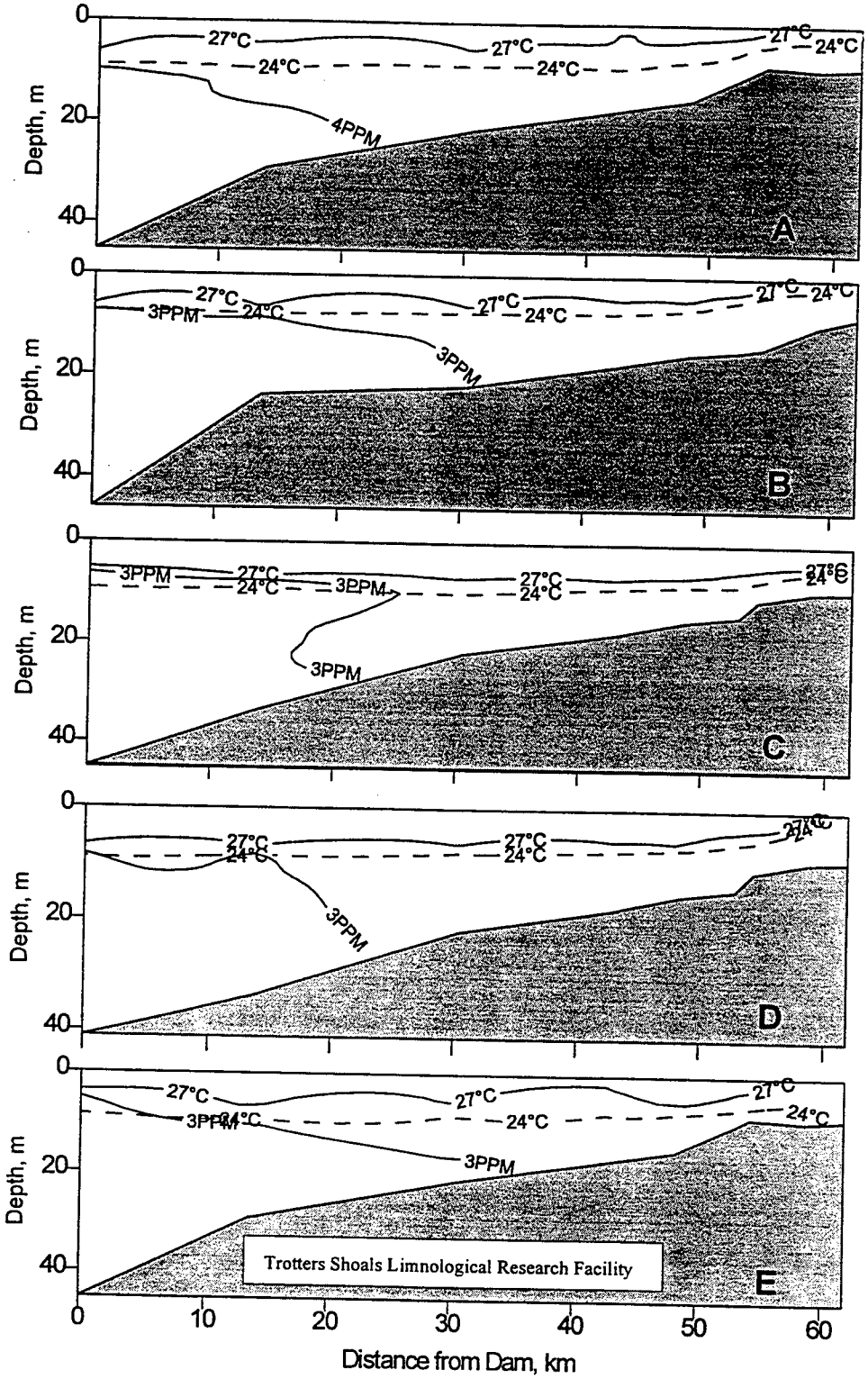

Figure 2. Striped Bass habitat in J. Strom Thurmond Lake described using dissolved oxygen (mg/l) and temperature (°C) parameters collected on August 12, 1992 (A), August 14, 1993 (B), August 18, 1994 (C), August 14, 1995 (D), and August 12, 1996 (E).

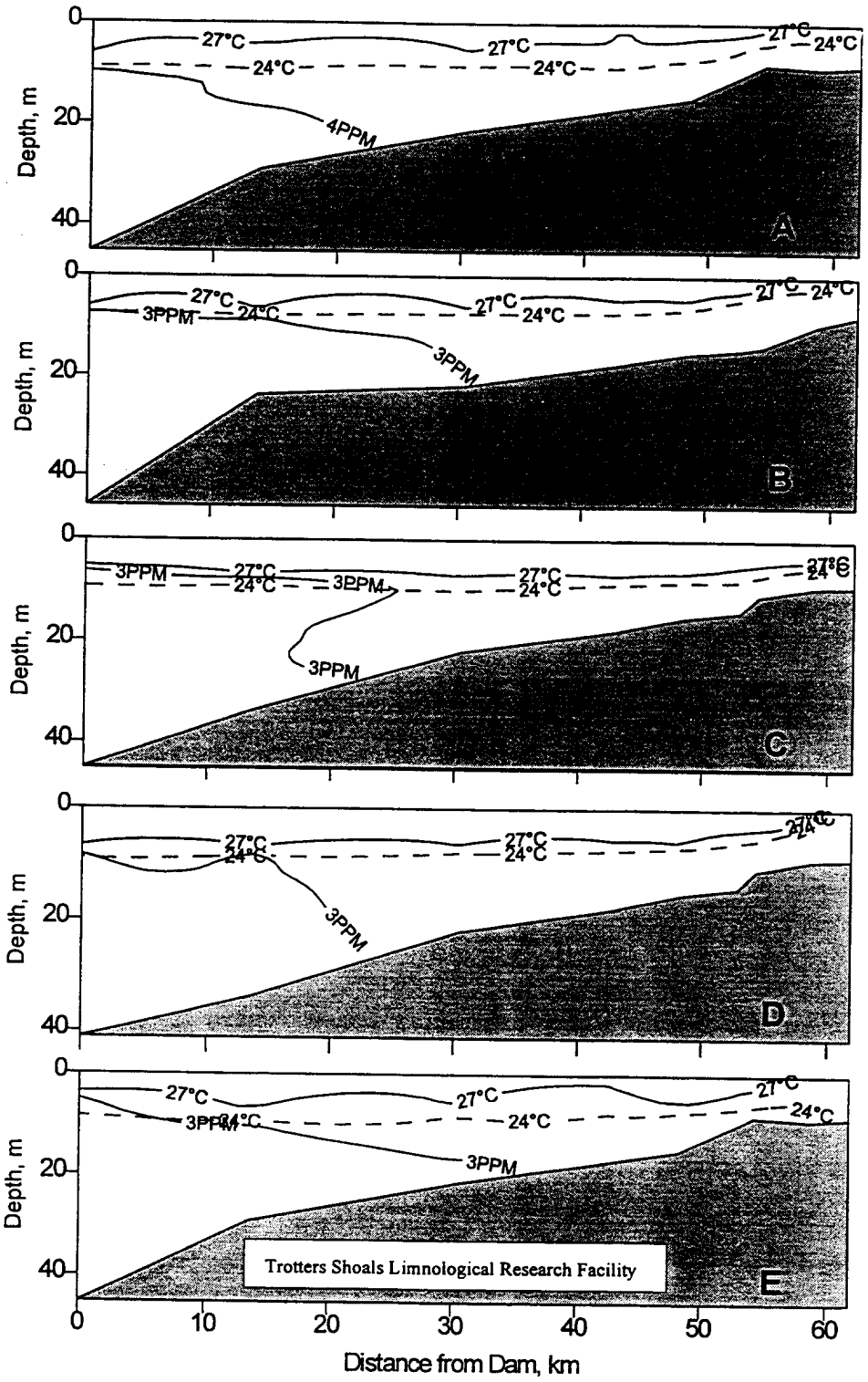

Figure 2. Striped Bass habitat in J. Strom Thurmond Lake described using dissolved oxygen (mg/l) and temperature (°C) parameters collected on August 12, 1992 (A), August 14, 1993 (B), August 18, 1994 (C), August 14, 1995 (D), and August 12, 1996 (E).

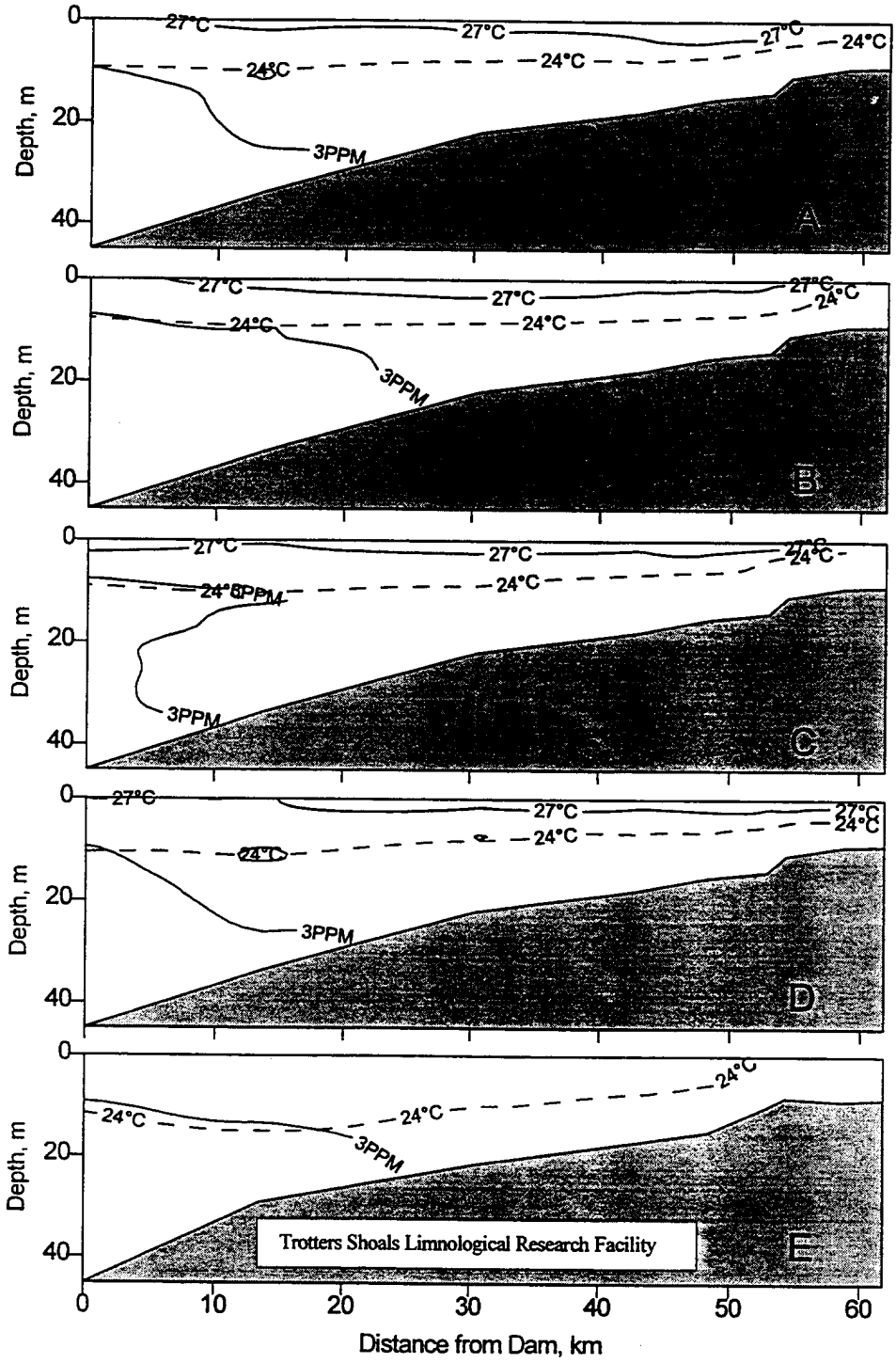

Figure 3. Striped Bass habitat in J. Strom Thurmond Lake described using dissolved oxygen (mg/l) and temperature (°C) parameters collected on September 16, 1992 (A), September 14, 1993 (B), September 15, 1994 (C), September 11, 1995 (D), and September 16, 1996 (E).

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY *(Leave blank)*

2. REPORT DATE
January 1999

3. REPORT TYPE AND DATES COVERED
Final report

4. TITLE AND SUBTITLE
Richard B. Russell Phase III Completion Report: Impacts of Four-Unit Pumpback Operation

5. FUNDING NUMBERS

6. AUTHOR(S)
John M. Nestler, Don Dennerline, Mark Weiland, Gary Weeks, Don Degan, Sandra Howie, Jamie Sykes

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
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8. PERFORMING ORGANIZATION REPORT NUMBER
Technical Report EL-99-1

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army District, Savannah
100 West Oglethorpe Ave.
Savannah, GA 31401-3640

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
Available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

The U.S. Army Engineer District, Savannah, operates Richard B. Russell (RBR) Dam and Lake which is located on the Savannah River approximately 16 miles southeast of Elberton, Georgia. RBR Lake is located between two other Federal projects: Hartwell Dam and Lake on the upstream side, and J. Strom Thurmond (JST) Dam and Lake on the downstream side. The RBR powerhouse contains four conventional generation units, and four reversible pump-turbines. The pump-turbines can be used to generate power, or they can be reversed and used as pumps to move water from JST Lake to RBR Lake during periods of low power demand to replenish upstream storage for subsequent peak generation needs.

Potential environmental concerns associated with pump storage include entrainment of fish from the afterbay (JST Lake) during pumping, an increase in entrainment of fish from the forebay (RBR Lake) during generation resulting from generating with eight units versus four, and changes in the water quality regime of both RBR and JST Lakes.

In view of these potential environmental concerns, the Savannah District initiated an exhaustive study in 1986, the Richard B. Russell Fish Entrainment Study. The major objectives of this study were to provide baseline data on the fish community of JST Lake, predict entrainment and fish mortality, develop fish protection measures, and monitor entrainment through the units. Ongoing water quality studies in JST and RBR Lakes were modified and expanded to supplement the fishery studies and address water quality concerns. No study identified any factor which indicated that commercial operation of the pumpback units at RBR would produce irreparable impacts to the aquatic ecosystems at RBR and JST Lakes.

14. SUBJECT TERMS
Fish community
Fish mortality
J. Strom Thurmond Dam
Richard B. Russell Dam

15. NUMBER OF PAGES
675

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED		

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