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**DOING
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ASSESSMENT:
TWO CASES FROM
A CORPS FIELD DISTRICT**

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RUTH LOVE, Ph.D.

NOVEMBER 1978

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FORT BELVOIR, VIRGINIA 22060

DOING SOCIAL EFFECTS ASSESSMENT:
TWO CASES FROM A CORPS FIELD DISTRICT

A Report Submitted to:

U.S. Army Engineer Institute for Water Resources
Kingman Building
Fort Belvoir, Virginia 22060

by

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of

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| This case study is intended to complement the "how to do social effects analysis" thrust of recent manuals. It describes how a sociologist, working in a Corps of Engineers district, approached social effects assessment on two studies. The report describes both management and technical considerations involved in these assessments. It takes the reader through the step-by-step historical process of doing social effects assessment. | | |

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PREFACE

Since the National Environmental Policy Act (NEPA), Principles and Standards (P&S) for water resources planners and other legislature, professionals in the Federal Water Resources Agencies have been searching for new ways to assess the social effects of water projects, a number of manuals, handbooks, models and "cookbooks" have been generated in this search. However, social effects assessment does not easily lend itself to rigid rules.

Consequently, the social analysis research program at the Institute for Water Resources endeavors to supplement more standard technique and handbook efforts with case studies of actual field level social effects assessment. We think that water resources field planners can benefit from experience of their peers in the field. While these case studies might not provide complete transferable models, they do illuminate situations analogous to those faced by water resources professionals throughout the country. They demonstrate ways to effectively employ social science techniques in water resources project planning and operations.

JERRY DELLI PRISCOLI, Ph.D
Social Scientist
Institute for Water Resources

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I. INTRODUCTION

The National Environmental Policy Act of 1970 mandated examination of the effects of major Federal actions on the human, as well as the physical and biological environments. To facilitate analysis of effects of the human environment, several Federal agencies contracted with social scientists for preparations of manuals on the conduct of social effects assessments.^{1/} The present case study is intended to complement the "how to do social effects analysis" thrust of the manuals by describing how social effects assessments were actually conducted for two proposed Corps projects in southwest Oregon, Applegate and Days Creek dams.

This report describes the aims guiding the Applegate and Days Creek assessments, the conceptual approaches used, the research decisions made, and the conduct of work. This historic, although not necessarily historical, account is intended to allow others doing social effects assessments to mine ideas from past experience and adapt them to their situations. I stress the idea of adaptation. While there is no one correct way of assessing social effects, nor a ready-made formula for doing so, there are sets of ideas and methods which can be adapted to given assessment tasks (see footnote 1).

When I joined the Corps of Engineers in 1975, I was immediately assigned to assess the social effects of Applegate and Days Creek dams for inclusion in supplementary Environmental Impact Statements on both projects. Since the two river valleys for which the projects were authorized were similar socially, I could use the same general conceptual approach for assessing social effects. A variety of factors, however, led to different approaches to data collection, tabulation, and analysis on which the assessments would be based. For the Applegate social assessment, in consultation with two other members of the Applegate EIS team, I developed a research design, collected the field data without direct assistance, and proceeded from there to the assessment. In contrast, for Days Creek, I let a social assessment contract, the results of which would be summarized in the EIS.

Both administrative and substantive considerations led to the decision to contract the Days Creek social assessment and do the Applegate assessment within the Environmental Resources Branch. The Applegate project was already in the construction phase, with Real Estate Division having started purchasing property from people living in the reservoir

1/ Examples include Stephen Fitzsimmons, et al, Social Assessment Manual, Boulder, Colorado: Westview Press, 1977, prepared by Abt Associates for the Bureau of Reclamation; and Richard Gale, Social Impact Assessment Handbook (in press) prepared for the U.S. Forest Service.

site when work was started on a supplementary EIS. To avoid construction delays, we were told to produce the supplement quickly, which did not allow for the luxury of lead time to let a contract. Days Creek, however, was in an earlier planning stage. The Portland District had completed review reports and an EIS on the project in 1971, which were to serve as a base for preparing a Phase I General Design Memorandum in 1975-76. One-and-a-half years were scheduled for preparing the GDM and the EIS supplement. This time frame, although still very short due to the need to honor Corps promises to a Senator, provided a minimum amount of lead time for letting a social effects assessment contract. Also, since work on Days Creek and Applegate EIS supplements was to occur simultaneously, it was necessary to let a contract for at least one social assessment so that I would have time to work on the other.

From a substantive standpoint, Days Creek warranted a larger assessment than did Applegate. The former is a much larger project, regulating a larger river, and so would induce effects of greater magnitude. Days Creek would regulate South Umpqua River, the major river in southern Douglas County, flowing for more than 100 miles from the Cascades to join the North Umpqua River, and then flowing another 150 miles to the Pacific Ocean. Applegate Dam would regulate Applegate River, a stream of 54 miles flowing into the famous Rogue River. The summer flow augmentation that Days Creek Dam could provide would alleviate almost chronic water shortages in southern Douglas County and facilitate future economic and population growth there. Applegate Dam, in contrast, would play a lesser role in the water supply structure of Jackson and Josephine counties by mainly stabilizing and augmenting water for irrigation in one sub-basin of the area.

Other differences of magnitude between the two projects include the number of households to be displaced and the potential for recreation at the proposed reservoirs. Days Creek would dislocate about 130 households, one hamlet, one Forest Service ranger station and one boarding school, while Applegate would dislocate only about 36 dwellings and one store. The reservoir behind Days Creek would offer an 18-mile-long stretch of water with 52 miles of shoreline for recreation, while Applegate would create a reservoir about 4-1/2 miles long, with 18 miles of shoreline for recreation. The larger scale of Days Creek would require a larger data base for an adequate effects assessment than would Applegate and so would require more work than could be accomplished without additional assistance.

One component of both social assessments was the development of social profiles of the people and their ways of life, who would be affected by various aspects of the proposed reservoirs, especially those living relatively close to the projects. There are several ways of gathering data for social profiles, but the most direct is interviewing the people to be described. For Applegate, only a small number of interviews

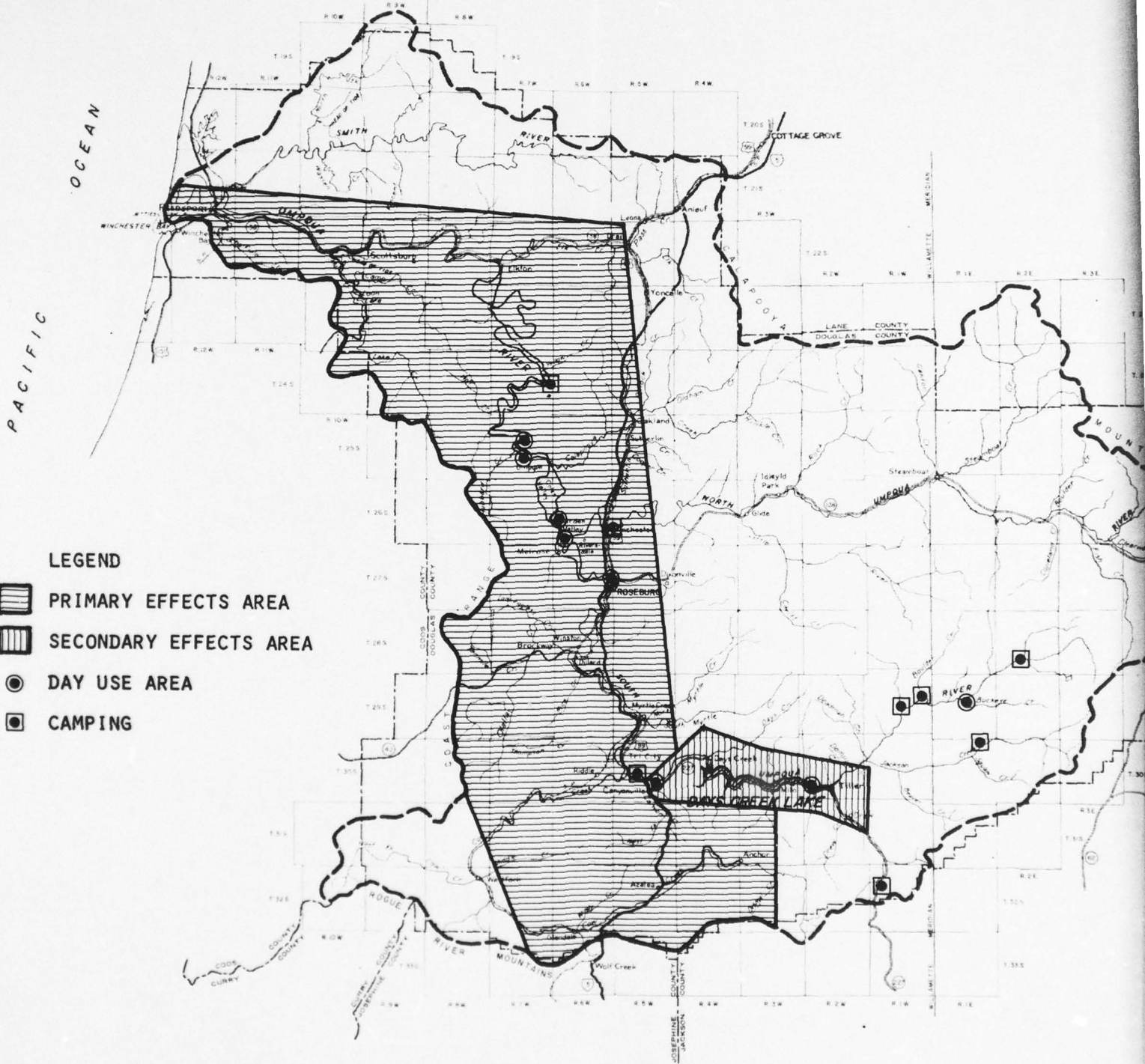
were planned with residents, to complement other data sources which, together, would yield a qualitative social profile of Applegators. For Days Creek, a major contract task item was the development of systematic samples of residents living in different parts of the effects area, who would be interviewed. The systematic sampling would permit quantitative, as well as qualitative analysis of social profile data. However, due to inadequate provisions for communicating with the contractor, the proverbial lack of time and money, and my own lack of experience and training in contracting, the Days Creek social profile and assessment effort was less successful than the more limited Applegate effort.

II. SUMMARY OF SOCIAL EFFECTS

Before looking at how the assessment process was conducted for each project, I shall summarize the social and land-use effects discussed in the Applegate and Days Creek Supplementary EIS's (available from Portland District). A primary and secondary effects area was identified for each project. A primary effects area consists of a comparatively small locality where many direct and indirect project effects tend to be concentrated, coalescing to affect most of the area's residents in some way. A secondary effects area consists of a larger area where direct and indirect effects would be more diffuse, affecting selected segments of the population. The distinction between the two types of areas, in reality, is a graduated one. For both Applegate and Days Creek, the primary effects areas consisted of the narrow valleys containing the damsites and the secondary roads along which recreationists would travel to reach the proposed reservoirs. The secondary effects areas in each instance were located in larger, broader valleys containing the main cities.

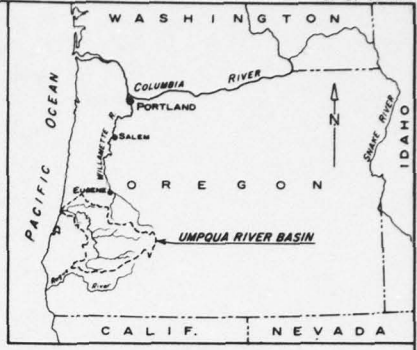
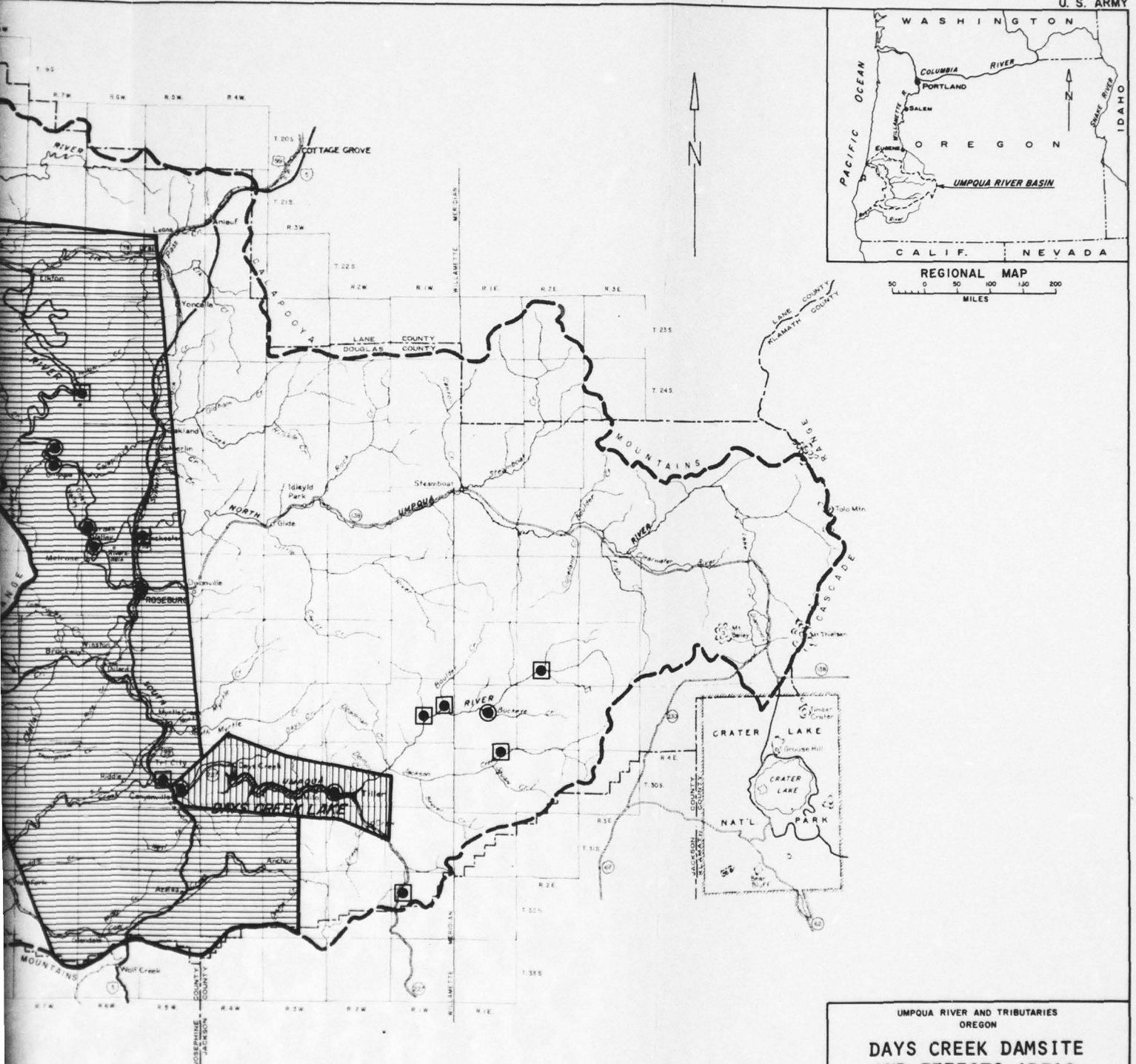
A. Social Settings

Days Creek and Applegate project sites are located in timbered, narrow, river valleys where foothills give way to more mountainous terrain of the Cascade Range. Narrow winding county roads connect the damsites with the nearest incorporated towns. Both sites are about an hour's drive away from major cities in southwest Oregon. Logging and farming on mainly marginal land are the dominant economic activities in the vicinities of both projects. Historically, Euro-American population migration to the valleys fluctuated due to the vagaries of early day mining and the demand for timber during and after World War II. Currently, both valleys are experiencing population growth, reflecting the recent national trend of urban to rural migration in counties not containing large cities (Standard Metropolitan Statistical Areas). Some newcomers commute out of the valleys to their jobs. But ways of life revolve mainly around styles, values, and attitudes associated with farming, cattle ranching, and logging. Many families have kin



DAYS CREEK RESERVOIR AREA

U. S. ARMY



REGIONAL MAP
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 MILES

DAYS CREEK RESERVOIR AREA

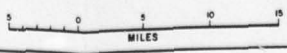
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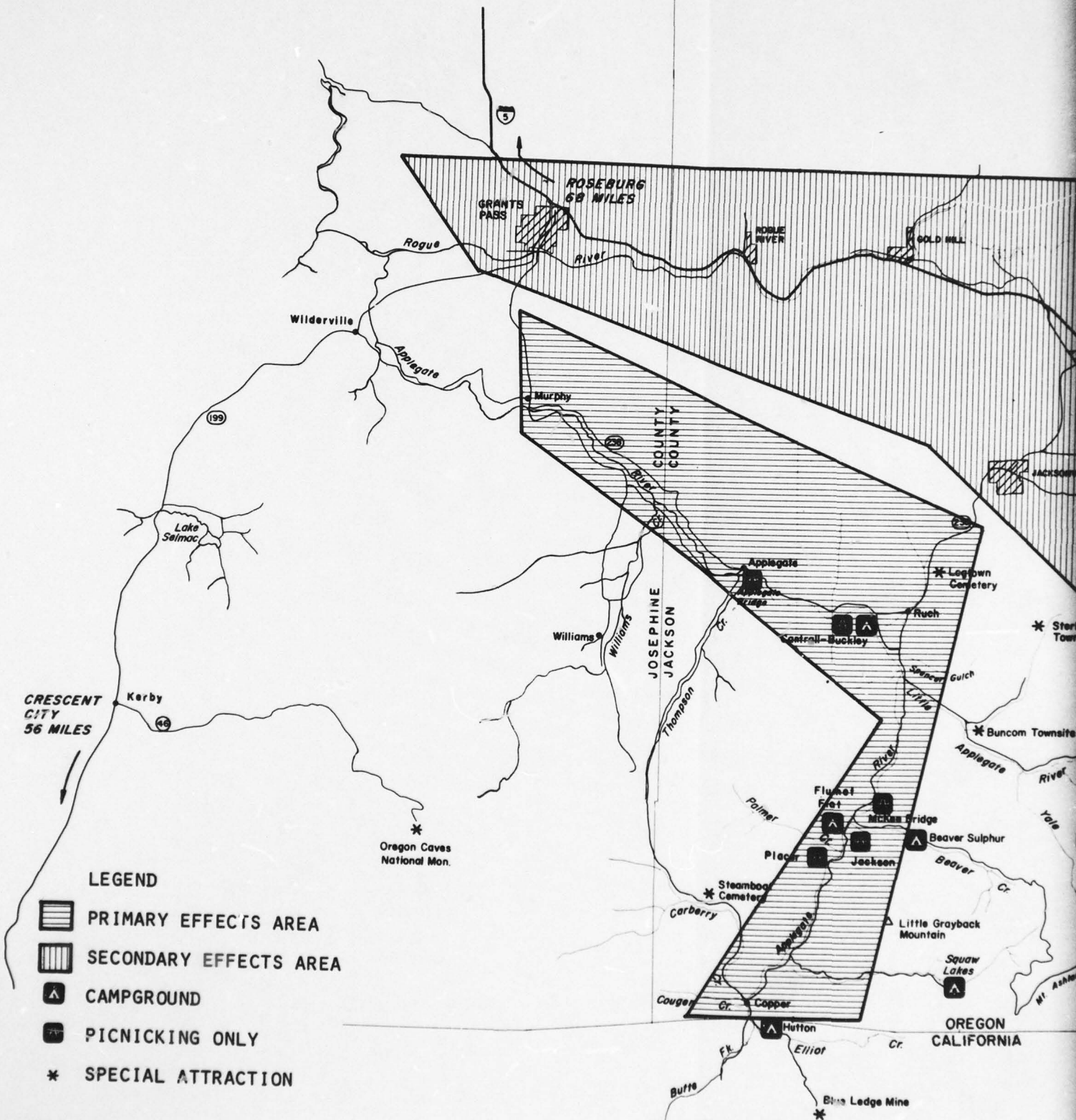
**DAYS CREEK DAMSITE
 AND EFFECTS AREAS**

U. S. ARMY ENGINEER DISTRICT, PORTLAND






| | | |
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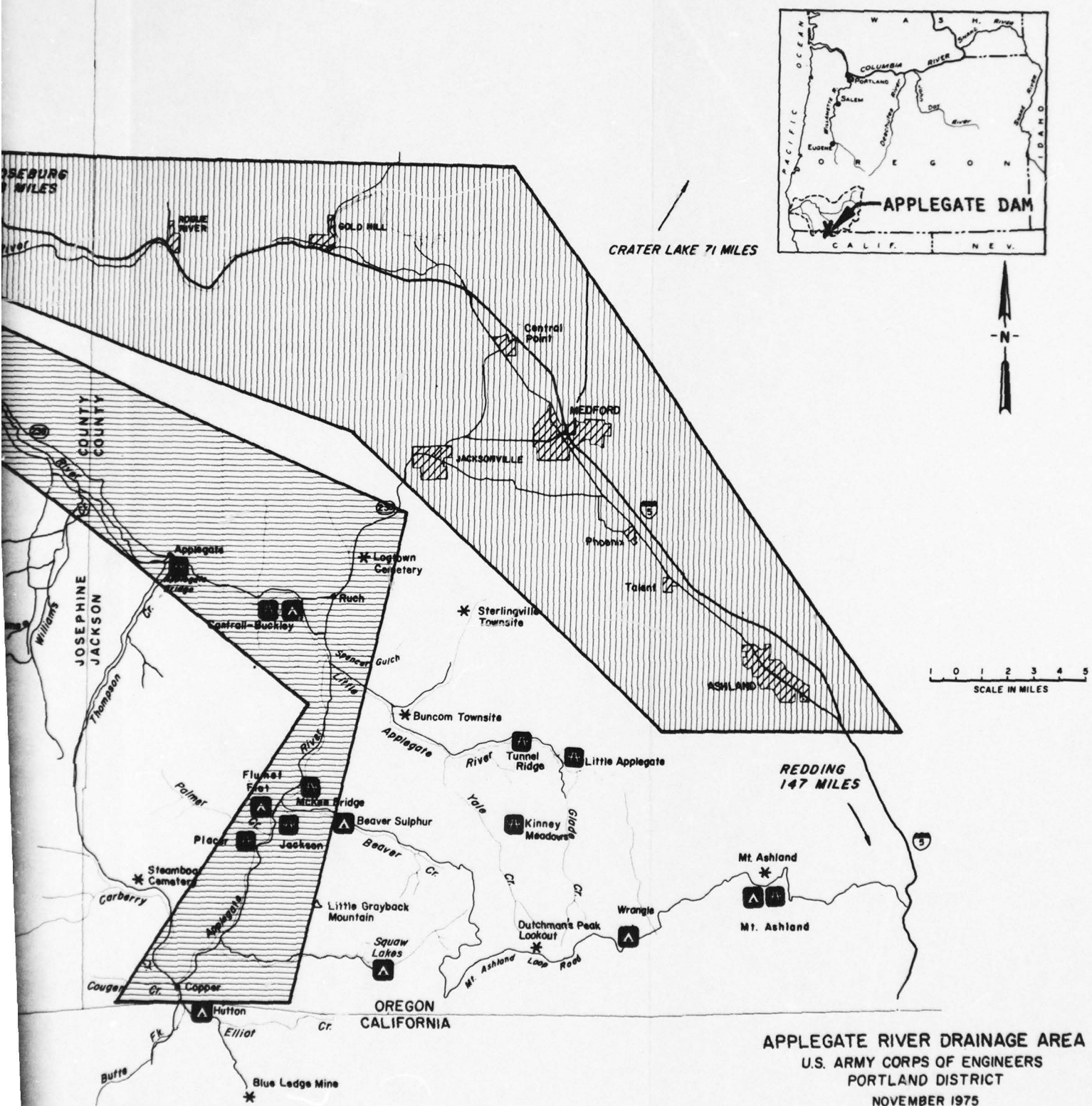




LEGEND

-  PRIMARY EFFECTS AREA
-  SECONDARY EFFECTS AREA
-  CAMPGROUND
-  PICNICKING ONLY
-  SPECIAL ATTRACTION

APPLEGATE RESERVOIR AREA



APPLEGATE RESERVOIR AREA
3B

APPLEGATE RIVER DRAINAGE AREA
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
NOVEMBER 1975

scattered throughout their valley with whom they visit frequently. Other sources of social life revolve around small hamlets with their schools, churches, and granges. Newcomers to the valleys are accepted if they demonstrate commitments to hard work and local values.

B. Effects of Displacement on Relocatees

Among the 130 households to be displaced by Days Creek, it was estimated that about 40 percent would incur economic hardships, disruption of meaningful ties to kin and friends in the immediate area, and somewhat more than usual tensions and anxieties associated with a residential move, unless they could resettle in the immediate vicinity. Nearby resettlement would be difficult, unless special steps were initiated to acquire land, because much of it is owned by private timber companies or by the Forest Service. Several miles downstream, available land is flatter and less forested, so it is less attractive to the relocatees who have a strong sense of identity with the upper portion of their narrow valley.

Another 50 percent of the Days Creek relocatees would experience mainly psychological losses through removal from a place and ambience which they regard highly. This segment is relatively affluent, with some owning property elsewhere and others being employed in the secondary effects area. The remaining 10 percent of Days Creek relocatees have such diversified socio-economic profiles that effects they would experience are difficult to categorize.

Effects of displacement on Applegate relocatees, involving 19 permanent households and some seasonal residents, would exhibit the same range as for Days Creek. However, the loss of social ties among relocatees would be less significant, for, in recent years, there has been considerable turnover and out-migration among households living in the project site, some of it project-related, some which would have occurred anyway.

C. Effects Stemming From Displacement of Social Institutions

The Days Creek project would eliminate the hamlet of Tiller, which includes a Forest Service ranger station and a grade school (K-6). The effects of this would be felt in the hamlet of Days Creek, several miles downstream, just below the project site, for the ranger station and Forest Service employee families would probably relocate there. The Tiller school would be absorbed by the Days Creek school, which has capacity. The absorption of children of professional Forest Service employees in the Days Creek school would change the structure of parental involvement in that school.

The Days Creek project would also eliminate a church-affiliated boarding high school, which would require local churchgoers to switch affiliations to a similar denomination about a half-hour drive farther downstream and would eliminate one source of local pride. Dislocation of the school may lead to its demise, for trustees have been advocating closure due to high costs, while parents of students have been advocating retention of a rural-oriented school. A suitable resettlement location and financial arrangement would have to be found if the parrents' position is to prevail.

The Applegate project would eliminate a store selling canned goods and gasoline, mainly to hunters. Also, it functioned as a social gathering spot over the years for people in the remoter valley reaches and as an information booth for recreation visitors. It is likely that these functions will be absorbed to some extent by a recently remodeled cafe-tavern-grocery-gas station 17 miles farther downstream.

D. Effects Stemming From Reservoir Recreation

The influx of many recreation visitors into both Days Creek and Applegate primary effects area would change the sense of rural solitude, increase traffic (interfering with cattle movement in the Applegate), require road improvements, and increase law enforcement activities. The increased presence of "outside" agencies would go counter to the local spirit of independence and freedom from "outside" interference.

Visitors to the Applegate would increase "beer, ice cube, and gas" trade at existing outlets. Visitors to Days Creek would do likewise, but in this instance it is unclear whether this increase would offset the retail and service sales to be lost through elimination of Tiller hamlet.

Reservoir recreation would increase pressures for rural subdivisions in both primary effects areas, especially on land where soils are not of prime agricultural quality. Due to state comprehensive land-use planning laws, the lack of sewer facilities, and poor septic tank suitability, there are constraints on development. Nonetheless, more people than otherwise would move to the areas, attracted by proximity to reservoir recreation in naturally attractive settings. Post-dam migrants would be more affluent, engage to a greater degree in professional-level occupations than present migrants, and bring with them some urban-middle class values. These, in turn, would induce some socio-cultural changes in each primary effects area. In Applegate, now characterized by relatively cohesive country neighborhoods with local leadership, there would be a lesser sense of common identity

unless post-dam newcomers accept local values and local leadership. In Days Creek, where there is little sense of community above the webs of informal kin and family ties, and little community leadership, except to fight the dam, post-dam migrants are likely to introduce community activities and a new layer of structure that does not exist now.

Both alterations in in-migration patterns and the increased presence of "outside" agencies as a result of reservoir recreation would generate some changes in ways of life in the Applegate and Days Creek primary effects areas. Since most people living there cherish their present ways of life, they are likely to regard these changes with some displeasure until memories dim.

More generally, construction of Applegate and Days Creek dams would alter the structure of water-related recreation opportunities for residents of both primary and secondary effects areas. The reservoirs themselves, while adding new still-water recreation opportunities, would displace some existing river-related opportunities, would alter the swimming season due to water temperature changes induced by reservoir released, and in the case of Days Creek, would enhance downstream river recreation through low-flow augmentation.

The restructuring of these opportunities would have different meanings for different segments of the affected populations, both for Applegate and Days Creek. The bulk of secondary-effects area residents favored the addition of another "lake" for recreation, but some expressed concern that this would be obtained at the expense of eliminating streamside recreation that dispersed people rather than concentrating them. Primary effects area residents felt that the new recreation opportunities, especially in a region where reservoirs and lakes were available to most within an hour's drive, were not commensurate with the impacts that large-scale recreation development would have on their ways of life. These sentiments were especially prevalent in the Applegate primary effects area where traffic congestion is already a problem and houses are relatively close to the road.

The boundary of the Days Creek primary effects area is marked by the city of Canyonville (pop. about 1,200 in 1975). Its civic and business leaders see the proposed reservoir as an opportunity to promote the town as the "gateway to Days Creek" and to increase the volume of tourist-related trade. Certainly, the presence of reservoir recreation would increase retail trade, as well as provide a new symbol of community identity and focus for community activities, but whether business induced by reservoir recreation would be large enough to satisfy Canyonville hopes is not clear.

E. Effects Stemming From Provision of Irrigation

The Days Creek project would strengthen and intensify agriculture in the lower section of the primary effects area and in the secondary effects area. Farmers who do not presently irrigate, however, are unlikely to start irrigation farming. Rather, as opportunity arises, they would sell their land to others who would irrigate. Where transactions involve small holdings, the purchaser would probably consolidate holdings to permit greater economies of scale for irrigation agriculture.

F. Effects Stemming From Flood Control

Flood control from the Days Creek project would reduce flooding along more than 100 miles of flood plain. On the edges of urban areas, flood protection would encourage urban expansion into the countryside. In clearly rural areas, flood control would strengthen farming. In the Applegate primary effects area, flood control would encourage rural subdivisions in the upper portions where soils are poor and there is comparatively little flat land. In the lower portion, where there are good soils and flat land, flood control would strengthen farming.

G. Effects Stemming From Water Quality Control and Low Flow Augmentation

The Days Creek project would alleviate almost chronic summer water shortages in major portions of the South Umpqua Valley (secondary effects area), especially its urban and urbanizing areas. This would facilitate but not guarantee the establishment of new industries in these areas, which are being sought by business leaders. If new industries came, further urbanization and economic development would occur. Flow augmentation from the Applegate project would facilitate rural subdivision farther upstream where soils are marginal and strengthen existing irrigation farming farther downstream where soils are more suitable for agriculture.

H. "Larger" Meanings of the Foregoing Effects

None of the socio-cultural changes and effects that Days Creek and Applegate projects are expected to induce are inherently "good" or "bad." The evaluation one places on them depends on how a person wants to live, the ways of life he has experienced, and available opportunities. The evaluation also depends on one's dreams and visions for the future.

Overall, the Days Creek project would enhance life styles associated with middle-class patterns and larger-scale, more intensive agricultural patterns, while altering life styles associated with isolated rural logging and small-scale farming. All this is occurring when more

people are becoming interested in settings rich in natural and pastoral amenities, while the number of areas providing this opportunity are decreasing. It is also occurring in a region where urban-based economic development has lagged, so its residents have had few opportunities for economic well-being.

Due to the "larger" meanings of the Applegate project, valley residents were ambivalent about it. They recognized the need for flood control and low-flow augmentation to assist farmers and ranchers. But they feared development of reservoir recreation would have significant impacts on ways of life, especially for people living in the upper valley. Those who would be most heavily affected by reservoir recreation resolved the matter by opposing the project and, in some instances, advancing alternative solutions to the problems of flooding and flow augmentation.

III. GOALS OF SOCIAL EFFECTS ASSESSMENT PROCESS

The end product of the assessment process is analysis of how social institutions such as formal ones, like schools, governments and churches, and informal ones, like taverns and groups of families or friends, might be altered by a proposed action, and how people's patterns of living might be changed. The task can be approached in a "dry statistics" manner, with such statements as:

The local population will increase by about 200 households. The school district superintendent said that the three grade schools and one high school have sufficient classroom space and staff to accommodate the related increase in school enrollment.

On the surface, the foregoing statement is adequate, and reflects considerable work in obtaining the relevant statistics. But it lets the reader exercise his own values and biases in judging its meaning. For some readers, all may be in order since the school district has capacity. Other readers, however, brought up to cherish small school enrollments, may conclude that something of value will be lost through enrollment increase. The statement, then, is not meaningful for it gives no clues as to what the enrollment increase means for the teachers, students and parents who will experience it. Will more enrollment reduce the amount of time teachers give to individual students? Will more enrollment give the school enough students for developing additional course offerings, or for joining the Class B Athletic League, made up of schools with a minimum size of 1,000 students?

Such questions force us to consider the meanings people of a community might assign to school enrollment increases and to go beyond immediate visible effects to second and third order effects. Answers to these questions permit us to assess the trade-offs among effects. Increases

in school enrollment can have mixed effects, on the one hand, possibly decreasing the amount of individual attention students receive; on the other hand, opening new curricular and extra-curricular opportunities that were less feasible with a smaller student body.

This discussion illustrates a level of analysis whereby the reader not only learns the effects, but also gains insight about what effects mean to people in various walks of life who will be affected by a proposed action. The analysis permits incorporation of the perspective of affected segments of the population into the planning process.

IV. CONCEPTUAL APPROACH AND EFFECTS CATEGORIES

Two intersecting concepts, social change and social system, undergirded the effects assessments for Applegate and Days Creek. Human communities are continually undergoing social change, be it glacial and barely perceptible or so rapid that it whizzes by like a tennis ball, leaving one swivel-headed. For effects assessments, then, we can ask how the impact area has changed in the past and what the likely course of change would be in the future, without implementation of any agency project.

The answer to this question yields a set of data on which one can superimpose immediate effects of a set of alternatives, considering how they would alter the course of change. This approach allows for the development of alternative future scenarios. For Days Creek and Applegate, the alternatives consisted of building or not building the proposed dams. Although I did not explicitly use a "with" and "without project" scenario approach, I discussed how the coalescing of several project-induced factors would affect the course of change in Applegate and Days Creek Valleys. These factors are derived from concepts pertaining to social systems, land use, and population.

A social system is an inclusive concept embracing a set of interrelated roles.^{1/} Persons occupying these roles interact with each other, setting processes in motion that influence subsequent interaction. At community and regional levels of analysis, a social system entails political, religious, educational, recreational, esthetic, familial, and purely social institutions, roles and interactions. One assumption underlying the concept of social system is that its institutions are intertwined to varying degrees. Change in one institutional sector is likely to stimulate changes in other sectors (although not necessarily at the same rate or the same degree).

Analytically, land is a nonhuman input to social systems. Policies governing land ownership and land-use practices emerge from the political-legal sector of a social system. Land ownership patterns and land-use practices emerge from familial, economic, and political processes

^{1/} See chart of Social System Components, Appendix A

occurring within a social system. Theoretically, then, land-use effects can be treated as a social system "output." However, when assessing multipurpose projects like Applegate and Days Creek, which can induce major land-use changes, it is useful to separate social system and land-use effects, for three reasons. First, land-use effects resulting from provision of flood control, irrigation water, reservoir recreation, and water quality control precede some social system effects of multipurpose projects (see sections D and G above for examples). Second, national policies governing preparation of EIS's require that an EIS discuss the degree of compatibility between anticipated project-induced land-use changes and land-use planning goals and directions of local governments. It is easier for a reviewer to determine that these requirements have been met if land-use effects are treated separately from social system effects. Third, some factors influencing project-induced land-use effects do not derive from social systems. Geologic and topographic features can enhance or constrain these effects (see section F above). Likewise, technical "outputs" of social systems like transportation networks and availability of utilities can enhance or constrain these effects. But clearly, the development and enforcement of land-use plans and regulations, which are political-legal "outputs" of a social system, also influence these effects.

Population characteristics and movements constitute human inputs to social systems. Again, it is useful to treat population factors separately. Multipurpose projects often induce a variety of population movements. These can include the displacement of people living in the project site, the in-migration of construction workers to the project vicinity during project construction, the attraction of new residents to the impact area as a result of the project's presence, and recreation visitors to the project. Each type of population movement generates social system effects. The character and magnitude of these social system effects are partly determined by the number of people being displaced, the number of newcomers and project-related recreation visitors attracted to the area, and the social characteristics of each group. Land-use factors limit the effects of population movement on the impact area social system by channelling or even limiting the number of new households that could migrate to the area.

The interrelationship between social system, land use, and population factors served as a general conceptual scheme for conducting social effects assessment research for the Applegate and Days Creek EIS supplements.

V. IMPACT AREA BOUNDARIES, DIVISION OF LABOR, AND CHRONOLOGY OF WORK

A. Applegate Project

The first work step of the Applegate assessment consisted of collecting and examining topographic, Forest Service and highway maps, and census data of the project area vicinity. This examination and previous familiarity with Applegate Valley and the surrounding counties (based on personal travels) led to professional judgments (hypotheses) about how project effects would be distributed geographically, and decisions about primary and secondary effects area boundaries. These decisions would guide the research effort because an area that is likely to experience a greater concentration of effects requires more in-depth study than an area where effects are likely to be fewer and less inter-related.

The Applegate social effects EIS team decided that in the secondary effects area, centering around the rapidly growing cities of Medford and Grants Pass, project effects and benefits, except those relating to dam construction and recreation, would be difficult to discern. Therefore, the level of assessment effort to be expended there would be small. In contrast, a much greater assessment effort would be required in the primary area, for most project effects and benefits would be concentrated in the Applegate Valley.

To further guide the assessment effort, the primary area was subdivided into an upper area where effects from recreation would be most pronounced and a lower area where effects from flood control and flow augmentation would be most evident. This decision would have been enhanced if it had been based on a brief field trip to the valley. Subsequently, the EIS team recognized there was an intermediate area connecting the upper and lower valleys where effects from all project purposes could be anticipated. But a field trip for refining effects area concepts and boundaries was not possible due to time and institutional constraints.

The Applegate social effects EIS team consisted of a land use-outdoor recreation specialist (Steve); a public administration, forestry, and recreation specialist (Paul); (both with biology backgrounds) and a sociologist (myself). The biology backgrounds would prove helpful in identifying linkages between social and environmental effects. After establishing impact area boundaries, we developed work plans for the our field trip we would be allowed to the Applegate Valley. Paul and Steve would drive the roads near the Applegate River, noting land-use patterns and established recreation areas and looking for signs of

informal recreation use along the river. Also, they made appointments with staff of public agencies responsible for the impact areas, to talk about land use and recreation. The agencies included the U.S. Forest Service which could provide information about its management plans for the recreation areas at the proposed reservoir and land use near the project site; county and city park departments which could provide information on local recreation concerns; the county planning agencies which could provide information about comprehensive planning directions, land use and population trends; and the local agricultural extension agent who could provide insight into local farming practices and trends. My task called for interviewing residents of the upper and lower primary effects areas in regard to their ways of life, sources of employment, community participation, changes they have observed in the valley, what they like and dislike about the valley, their recreation patterns, and their attitudes toward the proposed project.

We developed agendas for our respective tasks. Steve and Paul listed topics and subtopics that they wanted agency staff to discuss. They planned to visit agencies together so that they could alternate between taking detailed notes and pursuing lines of questioning, thereby minimizing interviewer fatigue, insuring that clarification would be obtained for ambiguous statements made by an agency official, and insuring that many points relating to land use, water resources, and recreation would be covered.^{1/} I wrote a structured questionnaire to use in interviews with Applegate residents (see Appendix B). We critiqued each other's agendas, offering suggestions for items to be added to ensure complementarity and completeness of the data we were after. Prior to departing for field work, I had my questionnaire printed, after approval by the Engineering Division. Also, I prepared and had printed a letter of introduction, signed by the Branch Chief, to give to Applegate residents when I knocked on their doors (see Appendix B).

During our 3-1/2 days in the field, exclusive of travel time, Steve and Paul were able to visit with all the agency staff they needed to see, but I was unable to obtain as many interviews with Applegate residents as I had hoped. Houses were scattered throughout farm and forest land, and some residents were away during the day, so I spent more time driving than I had anticipated and less time making contracts for interviews. Evening interviews would have been useful, but by the end of the day I was too fatigued to pursue them, especially knowing that interviews do not go smoothly when an interviewer is too tired to be sensitive and responsive to what someone is saying. A partner to "share the territory" and evening work would have been helpful.

^{1/} The strategy of tandem interviewing is used frequently in social research where funding and staffing permit.

I came away with 13 interviews using the questionnaire, and two "unstructured" interviews with a school teacher and a school custodian, who provided insights into Applegate norms and values. The lack of numbers was compensated by the depth of interviews with some residents. The residents, whether farmers, cattle ranchers, retirees, or commuters, were generally responsive to me, although some opposed the project. Regardless of educational level, they were knowledgeable about valley ways and willing to talk about life there. By pursuing lines of conversation that they mentioned while answering structured questions from the interview schedule, I obtained additional data about land use, population movements, farming patterns, acceptance of newcomers, local concerns and attitudes, especially in regard to the proposed dam. From these data, I was able to draw general portraits about ways of life in Applegate Valley, but I could not say what proportion of households followed a particular way of life.

The decision to conduct more in-depth interviews with some residents emerged in the field. Several factors contributed to it. First, I was not following a systematic sampling procedure. The limited amount of time for conducting Applegate social effects research precluded development of a sample design although I used general criteria for choosing the houses I approached.^{1/} Without a sample design, I would have to analyze my data qualitatively rather than quantitatively and statistically. Therefore, spending additional time with some respondents in lieu of obtaining several more structured interviews would not invalidate the research plan. Second, sometimes spending 15 more minutes with a respondent rather than getting one more-structured interview can yield a greater understanding of local social dynamics. A third factor stemmed from Engineering Division instructions not to contact the residents who would be displaced by the proposed project. Since the Real Estate Division had already entered into property negotiations with them, there was concern that interviews would interfere with these proceedings.

To obtain sociological data on the households to be displaced, how their removal would affect life in Applegate Valley, and how relocation would affect them, I used indirect means. These were: (1) asking other Applegate residents about the people to be displaced; (2) asking Real Estate staff working on Applegate about their perceptions of the relocatees; (3) obtaining information about some social characteristics from Real Estate files on relocatees who had already been contacted.

^{1/} These were: (a) select every third or fourth house along the main road; (b) select houses in both the upper and lower valley, since project effects would vary with locality; (c) alternate between farms and rural residences, since farmers and nonfarmers would experience different effects; (d) alternate between houses with riverfront property and houses without.

The data obtained through these means were not as complete as would have been possible through interviews. Missing items included social characteristics of some households, how relocatees felt about resettlement, and their preferences for resettlement. As a result, statements about relocatee effects were based mainly on generalizations substantiated by findings from other relocation studies.^{1/}

During our field trip, we met each evening to share the results of the day's work, tape-recording our conversations for future reference. These sessions enabled us to evaluate our methods and make adjustments for the next day. The data Steve and Paul were obtaining from agency people complemented my results, giving us confidence that we were finding out what we needed to know for land-use, social and recreation effects assessment. We formulated additional "hypotheses" about possible effects which we could "test" through the next day's interviews. Also, we discussed the possibility that Paul or Steve might do some house-to-house interviewing but decided against this because their tandem interviewing was proving very useful, as expected.

After the field trip was over, we developed an iterative process for preparing the land-use, social, and recreation effects sections for the EIS. Steve and I wrote first drafts, combining discussion of setting and effects in the same sections to facilitate logical derivation of effects. Paul functioned as reviewer and devil's advocate, critiquing our drafts. We repeated this process three times, each time pruning detail while clarifying the discussion.

Between iterations, I obtained additional data, much by telephone, to complete the past and present social portrait of the Applegate Valley. The Oregon Historical Society Library yielded detailed 19th Century census data and accounts of exploration and settlement by Euro-Americans. The post office serving the Applegate Valley provided dates when various post offices operated there, from which further inferences could be made about settlement. School personnel in the Applegate Valley sent a local history written by a class, supplemented information on recent enrollment trends that I compiled from the annual Oregon State Department of Education directory, and provided further insights into the social structure and values of Applegate Valley. These insights were augmented by telephone conversations with the two valley ministers. They were

^{1/} Mark A. Shields, Social Impact Assessment: An Analytic Bibliography, Fort Belvoir, VA: U.S. Army Engineer Institute for Water Resources, 1974. B. S. and B. P. Dohrenwend, Stressful Life Events, New York: John Wiley & Sons, 1974. J. W. Wilson, People in the Way, Toronto: University of Toronto Press, 1973.

able to describe the range of attitudes toward the project that Applegate Valley residents held, and how these related to their ways of life, and where their dwellings were located in relation to the project site. The local water master provided information on farming practices, land ownership changes, and community conflicts relating to water scarcity. Detailed 1970 census data, obtained in the form of computer printouts via SIRAP, and earlier published census reports were used to identify population trends and overall socio-economic characteristics of valley residents. These data and the field work yielded a comprehensive, mainly qualitative, portrait of ways of life in the Applegate Valley and how the valley has been changing. This portrait, coupled with Steve's data on land-use trends, land-use planning goals, and limitations served as the basis for drawing inferences about social effects that would result from the proposed subject.

The effects assessment was supplemented with a qualitative analysis of the range of public opinion toward the project held by residents living in the three impact areas. The primary source of data for this analysis came from the two Applegate public hearing transcripts. Citizens' statements were coded according to the impact area in which they lived, and then cross-coded according to their reasons for supporting or opposing the project. The transcript data were supplemented by the field interviews and telephone conversations with civic leaders living in the secondary impact area and farmers in the lower section of the primary impact area, which elicited their views of the proposed project. These findings were summarized in a chart for the EIS and is reprinted here.

TABLE 1. PREPONDERANCE OF EXPRESSED ATTITUDES TOWARD COMPONENTS OF THE PROPOSED APPLGATE PROJECT BY RESIDENTIAL LOCATION

| Project Component | RESIDENTIAL LOCATION | | |
|--|---|---|-------------------------|
| | Above confluence of Little Applegate and Applegate Rivers | Below confluence of Little Applegate and Applegate Rivers | Grants Pass and Medford |
| Flood Control | Concerned that project might not solve valley's flooding problem | Strong support | Strong support |
| Irrigation | Concerned that project might not solve valley's irrigation supply problem | Strong support | Strong support |
| Water quality and flow enhancement (fishery enhancement) | Few comments | Few comments | Support |
| Recreation at reservoir | Strong opposition | Few comments | Mild support |

Sources: U.S. Army Corps of Engineers, informational meeting, 1973
 U.S. Army Corps of Engineers, public meeting, 1974
 Interviews and conversations, Jackson County portion of Applegate Valley, July 1975
 Telephone interviews of persons active in the communities of Grants Pass and Medford, December 1975

(The above table was constructed by counting the number of times effects of project components were mentioned in interviews and hearing testimonies, and gauging the intensity of feeling expressed in regard to these effects.)

B. Days Creek Social Effects Assessment

The results of two contracts were used in the Days Creek EIS to summarize the social, land-use and economic effects of the proposed project. In addition to the social effects contract administered by Environmental Resources Branch, Economics Section let a contract for assessing land-use and property values in the flood plain and other research that would provide a base for calculating benefit-cost ratios. Some data from the Economics Section contract was also used for assessing land-use, general economic, and population movement effects associated with the Days Creek project.

Social effects assessment work for Days Creek fell into several phases. These were: (1) contract development, which included work scope preparation, and selection of and negotiations with the contractor; (2) reviewing contractor's work at pre-established checkpoints; (3) a 1-day "windshield" field trip to the primary effects area; (4) conducting interviews by telephone with public employees in the primary and secondary effects areas working for local governments, post offices, schools, the Forest Service, the Agricultural Extension Service, and the Watermaster's staff to supplement the data provided by both contracts; (5) writing the land-use and social effects section, and portions of the recreation section for the Days Creek EIS, based on data from the two contracts, additional telephone interviews, the U.S. Census and local historical accounts about the primary impact area since settlement by Euro-Americans. In discussing the work phases for Days Creek, I shall discuss mainly those aspects that differed from the work process for the Applegate.

1. Developing the Contract Workslope

The workslope for the social effects contract consisted of three parts: (1) a conceptual framework outline for addressing social effects, including questions to be answered by the contractor through his research; (2) a similar conceptual framework prepared by the contractor which discussed very broadly the research methods to be used; (3) a specific listing of variables for which data should be gathered which I prepared. To simplify the present discussion, however, I shall summarize the workslope as a whole, not distinguishing among its parts.

The framework on which the workslope was based included concepts of social change and social system discussed earlier. Also, it included the concept of human adaptation to social change. People's capacities for adapting to change with a minimum of tension and anxiety depend on a variety of factors including income and level of education, past experience with change, whether they regard the impending change as favorable, and whether they are integrated mainly in one fairly tight-knit social group or have a variety of social ties to several diverse groups and communities.

The workscope called for collecting two types of data, using two types of social research methods. The first was qualitative data on the structure and functioning of social institutions and communities in the primary impact area, and to a more limited degree, in the secondary impact area. These data would be gathered through unstructured in-depth interviews with public employees, business people and community leaders. The second type was quantitative data on the characteristics of people living in the primary and secondary effects areas, including their attitudes to the proposed project. These data would be gathered through structured interviews, using a questionnaire, with systematically developed samples of three types of respondents. The "relocatee" sample of respondents would be drawn from the 130 households in the project site which would be displaced by construction. The "stayer" sample would be drawn from households in the primary effects area which would not be displaced, but would experience effects relating to the departure of relocatees and the presence of the project, especially its recreation component. The "downstream" sample would be drawn from the population living in the secondary effects area; these people would benefit from flood control, water quality control, low-flow augmentation, irrigation, and recreation that the project would provide and would experience effects relating to economic development stimulated by the project.

The workscope also provided a general outline of the types of questions to be asked of respondents. These included standard survey items for measuring the degree to which each respondent was integrated into a local web of relationships and identified with his place of residence (community cohesion), the degree to which each respondent had psychological capacities for adapting to change, the degree to which each had experienced residential change in the past, perceptions of change in general, socio-economic status, outdoor recreation patterns, the degree to which each respondent experienced difficulties in regard to water resources, and his attitudes toward the project. Additional questions would be asked of relocatees regarding their properties and their plans for relocation.

The workscope itself did not specify in detail how data were to be analyzed. With this array of data, however, it is possible to make multi-variable comparisons among respondents within and between samples. For example, a community cohesion and identity score could be developed for each respondent, based on his answers to several questions regarding contact with kin, friends and neighbors, participation in local activities and identity with place. The process of combining answers to several questions into one score is known as index construction, a standard

procedure in social survey research. Likewise, a socio-economic score can be developed for each respondent, based on income, occupation and education. Within each sample, respondents can be divided into high, medium and low socio-economic status aggregates. For each aggregate, then, the range of community cohesion can be ascertained. Similar analytic steps can be taken with other survey data. This type of analysis of the Days Creek survey data, along with qualitative data about community affairs and local institutions, could provide a base for developing inferences about effects of the Days Creek project on different segments of the population, and on institutions, facilities and businesses in the primary and secondary effects areas.

The Days Creek workscope was conceptually similar to the Applegate research plan but called for more intensive and extensive research. The Days Creek plan for interviewing, using a structured questionnaire, is analogous to the small-scale house-to-house survey conducted in the Applegate. The Days Creek plan for conducting interviews with public employees and key community people is analogous to Steve's and Paul's conversations with agency staff and my telephone interviews with ministers and other key informants about the Applegate. The larger scale of the Days Creek assessment plan reflects the larger implications of the project and an effort to specify effects more precisely, especially in regard to stayers and relocatees.

2. Selecting the Social Effects Contractor

On the advice of the branch contracts administrator, I decided to use the "sole source" method of selecting a contractor. Factors leading to this decision were:

(1) In 1975, contractors listed with Portland District did not have major social effects assessment capacities. (This condition is changing now.)

(2) The Days Creek time schedule was too short to allow for advertising the contract in Commerce Business Daily and engaging in a competitive selection process.

(3) Only \$20,000 was available for a social effects contract because the budget had been developed by a non-social scientist prior to my being hired by the Corps. (\$32,000 would have been a more adequate sum.) To use this sum effectively, the contract would have to go to a university which, in 1975, charged less for contract overhead, salaries and computer runs than did a private firm.

(4) Two Oregon State University Professors, Drs. Hogg and Smith, had conducted an assessment of social effects of dam construction and the first few years of reservoir operation on an Oregon community of 4,000 inhabitants.^{1/} The assessment, based on a mix of qualitative and quantitative data obtained through a survey, unstructured interviews, and analysis of tax and other records, exemplified the type of work I had in mind for Days Creek. Therefore, the contract was offered to Oregon State University. Hogg became principal investigator (Smith could not be reached) and he selected William Honey as his co-investigator.^{2/}

During contract negotiations, it became apparent that either we would have to scale down the workscope or expand the budget. The matter was resolved when Dr. Hogg was able to obtain about \$7,000 through University funding sources and the Corps increased its share to \$21,000. Furthermore, he was able to reduce costs. Some students he hired were eligible for the Government's work-study program, so only about 25 percent of their wages would come from contract funds. The Forest Service provided a bunkhouse free of charge for accommodating students during the 5 days they were interviewing people in the primary effects area, in exchange for receiving research reports about the area from Dr. Hogg.

3. Contract Schedule and Implementation of Workscope

Due to the Corps' tight schedule for the Days Creek General Design Memorandum and Supplementary EIS, the schedule for the Social Effects Contract required submission of final report in 6-1/2 months (see column one of table 2).

^{1/} Thomas C. Hogg and Courtland L. Smith, Socio-Cultural Impacts of Water Resources Development in the Santiam River Basin. Corvallis, Oregon: Water Resources Research Institute, Oregon State University, October 1970.

^{2/} After completing contract requirements, Hogg had the Days Creek report published since the Corps decided not to do so, due to the costs of publishing a lengthy report. The report may be purchased from Oregon State University. Thomas C. Hogg and William D. Honey, Dam The River: The Proposed Days Creek Dam and the Human Ecology of The South Umpqua River Basin, Oregon. Corvallis, Oregon: Water Resources Research Institute, WRR I-43, September 1976.

TABLE 2 SCHEDULES FOR DAYS CREEK PROJECT

| <u>Contract Stages</u> | <u>Original Contract Schedule</u> | <u>Changes in Contract Schedule</u> | <u>Due Date for Days Creek GDM and EIS Supplement, printed</u> |
|-------------------------------------|--|-------------------------------------|--|
| Contract signed | 1 Jul 75 | -- | 30 Jun 76 |
| Outline and draft questionnaire due | 1 Aug 75 | -- | 30 Jun 76 |
| 1st review conference | 15 Aug 75 | -- | 30 Jun 76 |
| Draft report due | 15 Nov 75 | 15 Dec 75 | Uncertainty, extension expected |
| 2nd review conference | 15 Dec 75 | 13 Jan 76 | Extension expected |
| Final report due | 15 Jan 76 | 29 Mar 76 | In February 1976, new deadline of 30 May 76 announced |
| Legal contract termination | 16 Apr 76 | -- | 30 May 76 |
| Supplemental report | Not specifically indicated in contract | Jun 76 | |

During contract negotiations, Dr. Hogg asked that the contract termination date be set for mid-April, 3 months after the deadline for the final report. This would give him leeway for developing additional analyses, which would be written up as supplemental reports. We all knew that the contract schedule was extremely tight in view of the workscope requirements, with no allowance for the emergence of difficulties that might prove time consuming.

Through the early phases, work proceeded fairly smoothly and on schedule. Dr. Hogg prepared his report outline and draft questionnaire quickly for review by the Corps. At the first check-point conference, I gave him written comments on the outline and questionnaire which we discussed, leading to changes in the questionnaire. Next, Hogg had the questionnaire printed, drew his samples using electric utility company billing lists for downstreamers and stayers, and Corps of Engineers property maps for the relocatees. Students were hired and trained for conducting interviews with people in the three samples. During a 10-day field trip, they interviewed 127 downstreamers, 123 stayers and 55 relocatees, using the questionnaire. Meanwhile, Hogg and Honey conducted unstructured interviews with public agency employees and others knowledgeable about the primary and secondary effects areas.

During the rest of September and October, the questionnaire data were coded, transferred to computer tape and analyzed. Computer program problems were encountered, and their resolution consumed time and money, both in scarce supply. Dr. Hogg requested a 1-month extension for submitting the draft report. This was granted since it appeared that the Days Creek overall schedule was being extended.

In mid-December, we received the draft report agreeing informally that the chapters on social effects could be deferred until preparation of the final report. Even with a month's extension, there was simply not enough time to prepare these chapters for inclusion in the draft report.

The draft report contained a comprehensive chapter on the regional socio-economic history of the South Umpqua River Basin but very little history on the primary effects area itself. It presented tables comparing downstreamers, stayers, and relocatees in regard to income, social ties, experience with and perception of change, psychological capacity for adapting to change, attitudes toward the proposed project, and other variables specified in the workscope. These data gave a general social profile of the three samples, treating each as a whole. However, there were no intrasample comparisons. Responses to clusters of related questions, such as those indicating

community cohesion, had not been combined into an index score for each respondent. Analysis utilizing several variables was also lacking (e.g., the relationship between community cohesion and attitudes toward the project within each sample; the relationship between outdoor recreation patterns and attitudes toward the project). Finally, there was no description, to have been based on both qualitative and quantitative data, of the community relations and institutional patterns among stayers and relocatees in the primary effects area, and the extent to which these overlapped.

More work needed to be done, but time and budget constraints would permit only a few more computer runs. Therefore, I chose to forego requesting extensive in-depth analysis of the survey data, which meant foregoing more precise delineation of project effects on different segments of the samples, especially among stayers and relocatees. Instead, I requested that preparation of the final report concentrate on three endeavors: (a) using both qualitative and quantitative data to develop a description of social structure, institutions and ways of life in the primary effects area; (b) doing a limited number of additional computer runs to help determine the degree to which stayers and relocatees were involved in the same structures and activities; (c) doing the effects assessment.

At the second checkpoint conference, held in mid-January, the discussion focused on the three points above. Dr. Hogg requested that 2 months instead of 1 be allowed for preparation of the final report. The request was granted for the Days Creek schedule was going to be extended.

4. Preparation of Land Use and Social Effects Section for Days Creek EIS

A month after the review conference, the Days Creek work schedule was revised, but not as hoped. The Portland District was instructed to condense planning and assessment work into an abbreviated time span, and to issue the draft EIS supplement in May 1976. I had to start immediately on writing of the land-use and social effects section, even though the Hogg and Honey final report would not be available until 6 weeks later. Although Dr. Hogg could not expedite preparation of the final report, he was very willing to provide data by telephone as I needed it. This led to an interesting working situation where I began with the draft report and materials provided by the Economics Section contract, identified data gaps, and then filled the gaps by one of several means. I checked with Bill Honey to see if he had the data. If he didn't, we discussed data sources, and, in some instances, he made telephone calls to key

community people and public employees in the primary and secondary effects areas, and, in other instances, I did. Also, Bill hand-tabulated some survey data from the stayer and relocatee questionnaires to supplement computer-generated tables, to avoid additional programming and computer costs. Thus, I was able to obtain the additional data, especially the qualitative sort dealing with community processes, in time for deadlines, without putting further pressure on the contractor.

The final report was given to the Corps at the end of March, in time to prove useful for writing social effects pertaining to Canyonville and the secondary effects area. The three supplemental reports, two of which focused very specifically on ways of life associated with Tiller hamlet, the boarding school and the relocatees, were given to the Corps in June, shortly after the draft EIS was issued. Receipt of these reports several months earlier would have facilitated development of the EIS social effects section.

VI. APPLEGATE AND DAYS CREEK ASSESSMENTS IN RETROSPECT

The Applegate and Days Creek social and land-use effects assessments can be judged from several perspectives, including the types of comments received on their respective draft EIS's, changes in project planning as a result of the assessment, costs of doing the assessments, and applicability of the assessment experiences to other social effects assessments.

A. Comments Received on the Draft EIS's

From the perspective of agencies and citizens commenting on the draft EIS's, the two sections in each dealing with land-use, social effects and recreation proved satisfactory, even though both projects were controversial in their respective regions. The Applegate project led to a two-county referendum on whether the dam should be built (voters supported the project). The Days Creek public hearing, held just after release of the EIS supplement attracted about 1,000 persons. Comments received on the Applegate and Days Creek EIS's, and made at the Days Creek public hearing showed that readers understood the discussion of land-use, social and recreation effects and were generally satisfied with the level of detail presented. Responses to Applegate comments on these matters were developed in 1 day, along with three minor revisions of the EIS text to clarify discussion.

Responses to Days Creek comments required about 4 work days since some comments were requests for a more thorough discussion of effects on Tiller hamlet and of the meanings that relocatees, stayers and downstreamers attached to water resources development. More discussion of effects on Tiller was developed through additional telephone interviews with public employees in the primary effects area and utilization of material in two of the contractor's supplemental reports. The other request was handled indirectly by discussing in depth two tables displaying relocatee, stayer, and downstreamer responses to questions about reservoir projects. The discussion could have been simplified if a computer run were done to meld the two tables into one more complex table, but this was not feasible for the usual time and cost reasons.

B. Influence of Effects Assessment on Project Planning

Days Creek (first authorized in 1928) and Applegate (authorized in 1962) were, respectively, in the advanced engineering and initial construction phases when supplemental EIS's were prepared for these projects. The role that supplemental effects assessment could play in the planning processes for these reservoirs was therefore ambiguous. As matters turned out, however, the Applegate social effects assessment played a minor role in modification of recreation plans.

In 1967, the U.S. Forest Service developed a recreation facilities and management proposal for the Applegate, which was projected to generate about one-quarter million visitor days in the 3rd year after project completion, increasing to one-third million in the 10th year (one visitor day = a 12-hour visit). In the early 1970's, Forest Service recreation planners began having concerns about possible land-use and social effects that could be generated in a small, sparsely populated valley by this many recreation visits and began rethinking the Applegate recreation plan, scaling it down to attract and accommodate fewer visitors, and to provide a more "primitive" recreation experience. The Forest Service, however, had not yet developed a revised recreation proposal on which the supplementary EIS could be based, so effects assessment was based on the much larger-scale 1967 plan. After its publication, the EIS helped reaffirm the Forest Service's decision to scale down the Applegate recreation plan, and increased citizen interest in the Forest Service planning and public involvement process for reformulating the Applegate recreation plan.

The reformulated plan, completed in 1977 when construction of the Applegate project began, provides for low density "primitive" recreation at picnic areas, walk-in/boat-in campgrounds, and limits boat speeds on Applegate Lake to 10 miles per hour or less.^{1/} With this plan, the maximum annual number of visitor days is projected to be 105,500, or 68 percent less than the 333,000 visitor days anticipated in the 10th year of operation under the old Applegate recreation plan. Consequently, the magnitude of the effects that **reservoir recreation would have on land use, population growth, traffic and ways of life in the Applegate Valley will not be nearly as great as described in the supplementary EIS.**

Due to problems associated with water quality and fish enhancement, the Days Creek project was recalled for reformulation after the final supplemental EIS was printed but not yet filed with CEQ. There are several ways in which the Days Creek social effects assessment could be used in further project planning. First, it could be used as a springboard for developing a relocation planning process that would involve relocatees, land owners in the immediate vicinity of the project site, local governing units and the Corps, thereby mitigating some of the adverse effects usually resulting from project-induced displacement. Second, the effects assessment could be used in developing a recreation proposal for a reformulated project that would consider effects associated with large-scale reservoir recreation, and the dominant attitude expressed by downstreamers and stayers that the South Umpqua River should be carefully and selectively developed.

C. Costs Associated with Applegate and Days Creek Social Assessments

The Days Creek social assessment cost about four times as much as the Applegate endeavor (table 3). This difference is consistent with the difference in magnitude between the two projects as symbolized by the size of the impoundments, 480,000 acre-feet for Days Creek and 80,000 acre-feet for Applegate. (For other differences in magnitude between the projects, see Section I.)

^{1/} U.S. Forest Service, Applegate Lake Recreation Plan, Rogue River National Forest. Medford, Oregon, November 1977.

TABLE 3 COSTS FOR PREPARING SOCIAL EFFECTS ASSESSMENTS, 1975-1976

| Cost Items | Applegate EIS Supplement | | Days Creek EIS Supplement | |
|--|----------------------------------|----------|----------------------------------|----------|
| | | | | |
| Corps internal professional midlevel labor | 8 man-months | \$10,100 | 9 man-months | \$11,350 |
| Travel by Corps staff | 3 persons/ 5 days in field | \$ 750 | 1 person/ 1½ days in field | 120 |
| Contract: | | | | |
| Corps | | | | \$21,000 |
| Oregon State University | | | | \$ 7,000 |
| Total Costs | | \$10,850 | | \$39,470 |

D. Clearance of Questionnaires

On 24 December 1942, as its Christmas gift to the nation, Congress passed the Federal Reports Act requiring agencies to receive prior approval of forms that are to be filled out by ten or more people. One intent of the act was to avoid duplicate Government information gathering from businesses and individuals, an activity that had greatly increased due to war-time information needs. Although OMB has interpreted the act to apply to social research questionnaires, there is great variation in compliance with it. Neither the Applegate nor the Days Creek questionnaires were submitted to OMB for clearance, a procedure usually taking 3-6 months.

Several considerations supported this non-action. First, interviews had to be conducted if EIS's in compliance with NEPA were to be prepared. Second, persons would be asked to help with the social assessments by granting permission for interviews, giving them the option to decline. Furthermore, for the Applegate assessment, we anticipated interviewing no more than 25 households, using the same questionnaire format. This number was sufficiently small to be in keeping with the spirit of the 1942 law. The Days Creek questionnaire was reviewed by the Oregon State University faculty committee on the rights of human subjects. The committee approved the questionnaire because it was consistent with laws on the protection of privacy, and met professional standards. We regarded this review as an alternative to OMB clearance.

After the Days Creek study was completed, in 1976, President Ford issued an executive order reaffirming the requirement to clear questionnaires with OMB. Consequently, social assessment research in the Portland District has been limited to qualitative studies similar to that conducted for Applegate. In one instance, an effort was made to obtain clearance for a recreation study questionnaire. But the Division declined to forward it to OCE, for transmittal to OMB.

E. Applicability of Applegate and Days Creek Assessments to Other Social Effects Assessments

Research undertakings for developing social profiles and effects can range from relatively small-scale efforts like that for Applegate to large-scale efforts like that for Days Creek. The Applegate study was a minimal undertaking, with qualitative data being collected quickly from relatively few sources while the Days Creek study was a much larger undertaking intended to yield descriptions of ways of life based on quantifiable data as well as qualitative data. The key differences between the two studies were that for the Applegate no systematic sampling procedure was used to select residents who were interviewed, a much shorter questionnaire guided structured interviews (the Applegate questionnaire required 15-20 minutes of interview time while the Days Creek form required about 50 minutes), and structured interviews were conducted with considerably fewer residents (13 residents for the Applegate study in contrast to 305 residents for the Days Creek study).^{1/} The two studies were similar, however, in that for both unstructured interviews with persons in governmental, school, church and agricultural positions provided data for assessing land-use, agricultural and institutional effects. Also, for both studies, extensive use was made of census data and accounts of local history.

Given these differences and similarities between the two effects assessments, under what conditions would it be useful to undertake an assessment that includes a large-scale social survey, and under what conditions would a more restricted social survey be sufficient? The following considerations are intended as guidelines to answer this question.

1. When the project would induce a variety of second and third order effects in a large area with a heterogeneous population, a larger-scale social survey would be useful. This would permit systematic assessment of how people in different walks of life (defined

^{1/} In addition, for the Applegate, some telephone interviews were conducted with residents of the secondary effects area to ascertain their attitudes and interests in the proposed project. See more detailed earlier discussion.

by such indicators as a person's occupation, complexity of community in which he lives and his ties to it, his recreation patterns, etc.) regard changes that the project may bring. (Indicators for this include general and specific satisfactions with current situation, rate of change and way of life; aspirations for future; and attitudes to likely project effects, including "costs" such as higher taxes and "more" government.)

2. When a project would require relocation of more than 50 households, a larger-scale systematic social survey would facilitate delineation of the range of effects that different types of relocatees could be expected to experience.

3. When a project would require displacement of institutions and business, as well as a significant number of families relative to the total number in the area, the effects of dislocation on stayers would have to be considered. If the stayer population is both relatively large and heterogeneous, again a systematic social survey would be useful to delineate effects more clearly.

In addition to these "rules of thumb", some administrative considerations should be taken into account when deciding how extensive a social effects assessment is to be. Large-scale social surveys require careful conceptualization based both on an understanding of project purposes and preliminary consideration of first-order effects that the project would have on an impact area. Due to the need for haste, the Days Creek workscope was planned without full comprehension of the irrigation, municipal and industrial water supply components of the project, and without a field trip to the primary and secondary effects areas. With a better understanding of project components and with a field trip, a different sampling strategy would have been used. Downstreamers would have been divided into sub-samples of farmers, residents living in areas experiencing water shortages, and residents living in other areas. Stayers would have been divided into a sub-sample living relatively close to the project site and a sub-sample living in Canyonville, the city which would function as Days Creek "gateway" if the project were built. This conceptualization would have permitted a more specific delineation of the range of second and third order effects on ways of life in the various impact areas. When a project schedule is too tight to allow for thorough planning of a large scale social survey, the idea of undertaking one should be scrapped.

Ideally, aspects of the planning process, as defined by the guidelines for implementing "Principles and Standards", should influence decisions about the scale of the social effects assessment effort. For each

phase of the planning process, one can choose to engage in small-scale social surveys yielding mainly qualitative data or larger-scale surveys involving sampling procedures and yielding quantifiable as well as qualitative data.

Questions for which the unit of analysis is an individual or family can be answered more rigorously through large surveys based on sampling procedures. For example, the extent to which residents of an area are willing to exchange some environmental degradation for industrial development can be ascertained most systematically through a survey based on sampling procedures. Likewise, the range of responses different types of farmers and other landowners might have toward the irrigation component of a project can be ascertained more rigorously through a survey based on sampling.

Questions for which the unit of analysis is a neighborhood, community or interest group can be answered more cheaply, efficiently and with almost equal adequacy through small-scale qualitative surveys, where the emphasis is on richness of detail. For example, an assessment of how a rural community would be affected by irrigation water from a proposed project can be made through interviews with the local agricultural agents, the water master, elected officials, farm and community leaders, proponents and opponents of the project, and several farmers, each with a different type of farm operation. Interviews with a few knowledgeable people have the advantage of eliciting information about what has happened in the recent past which can provide some guidelines for the near future. In the case of irrigation, agricultural agents have observed what types of farmers will adopt irrigation farming, what types will stand pat, and what types will sell their land to newcomers who in turn will adopt irrigation farming.

Early in the planning process, when the emphasis is on problem identification, small-scale social surveys would usually be appropriate. These would be aimed at obtaining a range of qualitative data on ways of life obtaining in the study area, and types of problems relating to water resources that are associated with these ways of life. Public involvement proceedings for this planning phase can provide some data for this purpose but should not serve as the sole source of data. During the problem identification phase of planning, all the publics to be affected by an eventual plan may not yet be known, and may not yet have joined the public involvement process. Even a small-scale reconnaissance social survey can compensate for this if the researcher identifies all distinct neighborhoods and communities in the study area, and interviews several people in each regarding local ways of life, community structure and aspirations for the future, community outlooks on change and water resources concerns. This type of reconnaissance work was missing from the Applegate and Days Creek

assessment since time did not permit preliminary field trips, but it would have facilitated delineation of impact area boundaries and conceptualization of sub-samples to be interviewed.

During the next phase of planning, when the formulation of alternatives are stressed, decisions about the scale of social effects surveys should be based on the rules of thumb presented earlier and on the results of the reconnaissance and public involvement work of the first phase. The scale of the proposed surveys should be commensurate with the data needed to evaluate alternatives in the last phases of pre-decision planning. Also, as planners move closer to choosing one alternative, social effects assessment data can be used for developing strategies to reduce the more undesirable effects associated with one or another alternative.

During the planning process, decisions can be made about who is to perform the social assessment work needed for a particular phase. The work can be performed under contract, or by hiring temporary employees, or by permanent staff. In the Portland District, all three approaches have been used for small-scale assessments. Large-scale assessments, however, usually can best be done under contract. Since my first contracting experience on Days Creek, I have discovered that one key to successful contracting, besides adequate time and money, is maintaining close informal contact with the contractors. This allows for continuous exchange of information, clarification of ideas, and emergence of new ideas as the work proceeds. This is essential for no contract workscope can be written so thoroughly that it covers all nuances of the conduct of work. Nor should it be, for then the later stages of work cannot benefit from what is learned during the early stages.

VII A FINAL WORD

Although assessing social effects is not a mysterious activity, it does not lend itself to a strict set of "how to do it" rules. This stems from the fact that effects that people will experience are very closely tied to how they live and the meanings they attach to their ways of life. The first key to any effects assessment then is to identify several ways of life that obtain in a given area, or to use the words of politics, the several constituencies or interest groups in an area. The second key is to consider in specific step-by-step terms how a proposed action will generate effects. These were the strategies used in the effects assessments for Days Creek and Applegate projects.

APPENDIX A

If the question is asked, how would different social units respond to the effects of a proposed action, for identifying the types of units to be studied. Figure I consists of a broad classification scheme of social systems. It is intended to be suggestive for determining what types of social units to include.

FIGURE I. CLASSIFICATION OF MAJOR SOCIAL SYSTEM COMPONENTS¹

| Institutional Area | Institutional Value | Creators | Purveyors | Regulation/ Enforcement | Recipients Described by | |
|--|---------------------------------------|--|--|--|--|---|
| Economy National level Regional level Local level | Prosperity | Producers Boards of Directors Executives Managers Workers (Unions) Salesmen Unemployed and Job Seekers | Dealers Boards of Directors Executives Managers Workers (Unions) Salesmen Unemployed and Job Seekers | Supply/Demand Inspectors Regulations | Consumers Consumer Organizations | Age, Sex Ethnicity Family Membership Place of Origin Occupation Income Commitment Work, etc. |
| Polity National Regional/ State level Local level | Order | Rulers Executive Legislative Judicial Political parties, Interest Groups, etc. | Administrators Federal State County Municipality Neighborhoods Family | Inspectors Regulations Police Military | Citizens Political Parties, Interest Groups, etc. | Same as above Commitment Political Philosophy |
| Education National Regional/ State level County level Local level | Knowledge | Scholars Researchers | Teachers Superintendents College Presidents Board of Directors Principals Deans, etc. | Accreditation Agencies Examiners Truant Officers | Pupils, Students | Age, Sex Ethnicity Family Membership Place of Origin Occupation Commitment Work, etc. |
| Religion National level Regional level Local level | Sacred Beliefs Salvation, Grace | Prophets | Clergy Church Infrastructure Sect Leadership | | Believers, Parishioners Followers | |
| Arts National Regional/ State level Local level | Beauty Form Expression | Artists | Performers Entrepreneurs Museums Theaters, etc. | Critics Censors | Audience Viewers | |

- Assumptions:
1. Activities and decisions relating to any institutional area can occur in any type of group, from a small group or people who share the same section in the Corps to much more inclusive entities like a state government.
 2. Decisions and actions at the small group level have implications for outcomes as well as decision-making influence. In other words, a street cleaning policy at the highest level of government is ultimately a street sweeper.
 3. Relations among institutional areas can range from considerable interdependence to considerable independence.
 4. All groups, whether a firm, a family or a community, must give some minimal attention to each other and to themselves.

¹Adapted from Hans Zetterberg, *Social Theory and Social Practice*, N.Y.: Bedminster Press, 1962.
Talcott Parsons, "General Theory," *Sociology Today*, edited by R. K. Merton, et al., N.Y., Basic Books, 1966.

APPENDIX A

how would different social units respond to the effects of a proposed action, then a framework is needed of units to be studied. Figure I consists of a broad classification scheme of the major components of intended to be suggestive for determining what types of social units to include in a social assessment.

SYSTEM COMPONENTS¹

| Actors | Purveyors | Regulation/ Enforcement | Recipients Described by | | Mode of Stratification | Medium of Exchange |
|--|--|--|--|--|--|---------------------------------|
| of ctors ives s (Unions) men d and kers | Dealers Boards of Directors Executives Managers Workers (Unions) Salesmen Unemployed and Job Seekers | Supply/Demand Inspectors Regulations | Consumers Consumer Organiza- tions | Age, Sex Ethnicity Family Members Place of Origin Occupation Income Commitment to Work, etc. | Wealth Occupational Prestige | Money/Barter/ In Kind |
| ve tive n al ies, E Groups, | Administrators Federal State County Municipality Neighborhoods Family | Inspectors Regulations Police Military | Citizens Political Parties, Interest Groups, etc. | Same as above Commitment to Political Philosophy | Power Normative power Remunerative power Coercive power | Votes, favors |
| rs | Teachers Superintendents College Presidents Board of Directors Principals Deans, etc. | Accredation Agencies Examiners Truant Officers | Pupils, Students | Age, Sex Ethnicity Family Members Place of Origin Occupation, Income Commitment to Work, etc. | Competence | Grades Gold Stars Degrees |
| | Clergy Church Infra- structure Sect Leadership | | Believers, Parishioners Followers | | Holiness, Piety | |
| | Performers Entrepreneurs Museums Theaters, etc. | Critics Censors | Audience Viewers | | Taste | Appreciation |

ions relating to any institutional area can occur in any type of group, from relatively small groups like a family the same section in the Corps to much more inclusive entities like a state government or OCE.

at the small group level have implications for outcomes as well as decisions at higher levels of authority and words, a street cleaning policy at the highest level of government is ultimately only as effective as the street

stitutional areas can range from considerable interdependence to considerable autonomy.

firm, a family or a community, must give some minimal attention to each institutional area if they are to maintain

theory and Social Practice, N.Y.: Bedminster Press, 1962.

Theory," Sociology Today, edited by R. K. Merton, et al., N.Y., Basic Books, 1959.



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:

14 July 1975

TO WHOM IT MAY CONCERN

This letter is to introduce Dr. Ruth Love, our sociologist, who is conducting a survey to analyze the various ways in which people may be affected by Corps projects. We would very much appreciate your answering Dr. Love's questions in order to help us develop an understanding of the relationship between Corps projects and people.

The interview would take about twenty minutes of your time. Your answers will be treated confidentially. Dr. Love will be combining what you say with that of what other people say in her report, so in no way would your identity be known to anyone else.

You are not obligated to participate in this study, but your willingness to do so would be most valuable to us.

Sincerely yours,

A handwritten signature in cursive script, reading "Edward Johnson", is written over the typed name.

EDWARD JOHNSON
Chief, Environmental Quality Branch

INTERVIEW SCHEDULE FOR APPLICATE STAYERS AND DOWNSTREAMERS

YEAR-ROUND RESIDENCE FORM

Number _____ Date _____ Time interview began _____ Time terminated _____
 Sex of respondent _____ Interviewer's name _____

HELLO, I'M _____ FROM THE CORPS OF ENGINEERS. WE'RE DOING A STUDY ON HOW PROJECTS LIKE THE PROPOSED APELIGATE DAM AFFECT PEOPLE. YOU CAN HELP US WITH THE STUDY BY ANSWERING SOME QUESTIONS ABOUT YOUR LIFE HERE.

LET'S BEGIN WITH--

1. DO YOU LIVE HERE ALL YEAR ROUND? Yes _____ No _____
 (if no, turn to alternate interview schedule)
2. HOW LONG HAVE YOU LIVED IN THIS HOUSE? _____
3. WHERE DID YOU LIVE BEFORE YOU MOVED TO THIS HOUSE? _____
4. WHAT LED YOU TO CHOOSE THIS LOCATION? _____

5. DO YOU OWN OR RENT THIS PROPERTY? Own _____ Rent _____
6. HOW MANY ACRES OF LAND DO YOU HAVE HERE? _____
7. DOES YOUR LAND FRONT ON THE RIVER? Yes _____ No _____
8. HOW DO YOU USE YOUR LAND? (probe for types of farming and other uses)

9. (for farm use only) DO YOU IRRIGATE? Yes _____ No _____
 (if no, ANY PARTICULAR REASON WHY YOU DON'T IRRIGATE?)

9. (continued)

(if yes, DO YOU HAVE TO PAY FOR IRRIGATION? Yes _____ No _____
 ARE YOU ABLE TO OBTAIN AS MUCH IRRIGATION WATER AS YOU NEED? Yes _____ No _____
 (if no, WOULD YOU BE WILLING TO PAY (MORE) FOR ADDITIONAL IRRIGATION WATER?
 Yes _____ No _____

10. (For non-farmers) WHAT IS YOUR OCCUPATION? _____
 (For farmers) DO YOU FARM FULL-TIME? Yes _____ No _____
 DO YOU HAVE OTHER SOURCES OF INCOME BESIDES FARMING? Yes _____ No _____
 (if yes, FROM WHERE DO YOU RECEIVE OTHER INCOME?
 Social security _____ other _____
 pension _____
 employment _____ (probe for what kind of job)

11. (for non-farmers only)
 ARE YOU PRESENTLY EMPLOYED? Yes _____ No _____
 (if yes, WHERE IS YOUR JOB LOCATED? _____

12. HOW MANY PERSONS LIVE HERE WITH YOU?
 FOR EACH PERSON PLEASE TELL ME THEIR AGE, SEX, AND RELATIONSHIP TO YOU

| | Relationship to Respondent | Sex | Age |
|----|----------------------------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |
| 5. | _____ | _____ | _____ |

13. AND WHAT IS YOUR OWN AGE, ABOUT?
 14. (Skip if no school-age children) WHERE DO YOUR CHILDREN GO TO SCHOOL?
 1. _____
 2. _____

29. DO YOU THINK THE DAM WILL HELP ANYONE? HOW ABOUT:
YOURSELF? FARMERS, DOWNSTREAM PEOPLE, DEVELOPERS, SECOND HOME PEOPLE,
RECREATIONISTS (the foregoing are probes)

WHY IS THAT?

30. DO YOU THINK THE DAM WILL HURT ANYONE? HOW ABOUT:
YOURSELF, FARMERS, DOWNSTREAM PEOPLE, DEVELOPERS, SECOND HOME PEOPLE,
RECREATIONISTS?

HOW WILL THE DAM HURT THESE PEOPLE?

31. DO YOU ANTICIPATE ANY CHANGES IN YOUR LIFE AS A RESULT OF THE DAM?
Yes _____ No _____
(if no, probe to make sure that is their perception)
(if yes, WHAT SORTS OF CHANGES?)

33. FOR THE LAST QUESTIONS I'M GOING TO HAND YOU A CARD, AND YOU CAN
CHOOSE THE ANSWER THAT BEST DESCRIBES YOURSELF.

25. YOU'VE LIVED HERE FOR AWHILE. HAVE YOU NOTICED ANY CHANGES IN THE
APPLAGATE VALLEY SINCE YOU FIRST CAME? (probes: numbers, types of
people, traffic, etc.)

26. HOW DO YOU FEEL ABOUT THESE CHANGES?

27. ARE YOU AWARE THAT A DAM MIGHT BE BUILT? Yes _____ No _____ (if no skip
(if yes, WHAT DO YOU THINK WILL HAPPEN HERE WHEN THE DAM IS BUILT?
HOW WILL THE AREA CHANGE?) to Q 33)

28. HAVE YOU EVER TALKED ABOUT THE DAM WITH YOUR FRIENDS OR NEIGHBORS?
Yes _____ No _____
(if yes, WHAT DO THEY THINK WILL HAPPEN HERE AFTER THE DAM IS BUILT?)

WHICH ANSWER BEST DESCRIBES THE SCHOOLING YOU'VE HAD?

- 1. grade school _____
- 2. grade school completed _____
- 3. high school _____
- 4. high school completed _____
- 5. college _____
- 6. college completed _____

33. WHICH ANSWER BEST DESCRIBES YOUR ANNUAL FAMILY INCOME?

- 1. 0-\$1,999 _____
- 2. \$2,000-\$3,999 _____
- 3. \$4,000-\$5,999 _____
- 4. \$6,000-\$7,999 _____
- 5. \$8,000-\$9,999 _____
- 6. \$10,000-\$12,999 _____
- 7. \$13,000-\$15,999 _____
- 8. \$16,000-\$18,999 _____
- 9. \$19,000-\$24,999 _____
- 10. \$25,000 or more _____

end of interview THAN YOU VERY MUCH, ETC. ANYTHING ELSE YOU WOULD LIKE TO TELL ME.