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ST. LAWRENCE RIVER  
ICE BOOM DEMONSTRATION  
NYDEC ENVIRONMENTAL ASSESSMENT  
DISCREPANCIES

Final Report  
April 1980

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Anna O. Buonocore  
Office of Comprehensive Planning  
Saint Lawrence Seaway Development Corporation

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ENVIRONMENTAL ASSESSMENT OF THE FY 1979 WINTER NAVIGATION DEMONSTRATION  
ON THE ST. LAWRENCE RIVER

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SUMMARY

The FY 1979 Navigation Season Extension Demonstration Program was part of an on-going program to determine the practicability of permanently extending the Seaway navigation season on the Great Lakes/St. Lawrence Seaway System. As part of the program, the St. Lawrence Seaway Development Corporation proposed to modify existing ice booms at Ogdensburg-Prescott and Galop Island in the St. Lawrence River and conduct a limited number of vessel transits in a demonstration corridor. The purpose of the proposed tests was to demonstrate the feasibility of navigating through ice booms while maintaining the stability of the ice cover and the hydraulic integrity of the river.

*This present report appraises a study entitled*

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An "Environmental Assessment of the FY 1979 Winter Navigation Demonstration on the St. Lawrence River" was prepared by the New York Department of Environmental Conservation, under an interagency agreement with the U. S. Fish and Wildlife Service, Region 5, utilizing Demonstration Program funds provided by the Corps of Engineers. Their report comprised a Summary Volume and two volumes of technical reports. The

*Dept.*

*present report concludes that 1)*

Although the Summary Volume purports to be a summary of the 15 technical reports, it makes conclusions in many cases based on unsubstantiated and often erroneous interpretation rather than on facts presented in the technical reports which it was to summarize, and 2)

*SUMMARIZE*

Much of the Environmental Assessment strays to discuss aspects of an operational extension of the season and its impacts on the 120-mile International portion of the St. Lawrence River, rather than addressing the proposed ice boom demonstration with one vessel in a 15 to 20 mile demonstration corridor. (ED) A

Major discrepancies are summarized in the following table under seven areas of concern: disruption of bottom sediments, recreation impacts, open water pools, benthic disturbances, levels and flows, food web disruptions, and drawdown and surge.

Careful study indicates that the technical reports should lead to a different conclusion than that reported in the Summary Volume.

ST. LAWRENCE RIVER ICE BOOM DEMONSTRATION NYDEC ENVIRONMENTAL ASSESSMENT DISCREPANCIES

NYDEC SUMMARY	NYDEC TECHNICAL REPORTS	OTHER SOURCE DOCUMENTS
<p><u>Disruption of Bottom Sediments</u></p> <p>1. "Ice boom modification of any kind will result in certain impacts to the St. Lawrence River System:...(3) Disruption of bottom sediments associated with the placement of new boom anchors and the potential release of organic and heavy metal pollutants present in those sediments." (p. vi)</p>	<p>B &amp; C: Figure A and Table 1 reveal only three sample sites at navigable depths, one of which was near Galop Boom gap--no sample taken; current too swift. One shallow sample site was located near Main Galop Boom--no sample; substrate too hard.</p>	<p>The proposed ice boom modifications would require no dredging of river bottom materials "The physical design of the modifications requires no permanent structures in the river. Anchors to be used comprise simple concrete blocks, rock anchors, stator or ship anchors, or existing structure." (Ref. 1, p. 28)*</p>
<p><u>Recreation Impacts</u></p> <p>2. Shoreline systems impacts due to levels and flows "...would also translate into under-termined but significant negative impacts on the recreational service industry that provides the economic base for the region." (p. 41)</p>	<p>D. "It was estimated that ice fishing from January 7 to March 20, 1978 generated over \$19,000 in revenues." This was based on creel surveys which were conducted at four locations: Chippewa Bay, the Ogdensburg Port area, Chimney Bay and Coles Creek area. (p. D-iv, 26)</p> <p>"When anglers were asked to suggest a dollar amount that they would have to be offered to give up ice fishing on the St. Lawrence River for a year...", a value of over \$2,000,000 was yielded for the ice fisheries in the study area. (p. D-29)</p>	<p>Neither Chippewa Bay nor Coles Creek are located within the proposed Demonstration Corridor. Ice fishing will not have to cease on the whole of the St. Lawrence or on the Demonstration Corridor.</p>
<p><u>Open Water Pools</u></p> <p>3. "The demonstration project would disturb critical open-water pools in the ice cover which serve as focal points for feeding and resting activity of wintering water birds and waterfowl. Replacement habitats are not available to mitigate these losses. Also, the presence and vitality of wintering eagle populations along the St. Lawrence River is linked to the maintenance of these open water pools." (p.vi-vii)</p>	<p>F. "The wintering Bald Eagle and waterfowl populations could be especially affected by river disturbance due to their tendency to concentrate in areas of open water." (p. F-38)</p>	<p>"Using the period of maximum ice cover (minimum open water pool area), complete filling of those pools susceptible to ice bleeding through the proposed gaps in the booms would reduce the open water area in the Ogdensburg to Iroquois reach by less than 5 percent. This can not be termed a significant reduction in the total open water area available to waterfowl and raptors, including the endangered bald eagle." (ref. 1, p. 29)*</p>
		<p><u>*References</u></p> <ol style="list-style-type: none"> <li>1. Proposed St. Lawrence River Boom Demonstration - SLSDC - August 1978</li> <li>2. Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River; May 1979</li> </ol>

ST. LAWRENCE RIVER ICE BOOM DEMONSTRATION NYDEC ENVIRONMENTAL ASSESSMENT DISCREPANCIES

NYDEC SUMMARY	NYDEC TECHNICAL REPORTS	OTHER SOURCE DOCUMENTS
<p><u>Benthic Disturbances</u></p> <p>4. "Reptiles and amphibians would be adversely affected by disturbance of shallow bottom sediment which are used for winter hibernation. Benthic invertebrates would also be affected by the disturbance of these sediments." (p. 33)</p>	<p>J. "The demonstration corridor does not contain extensive marshland areas or other highly valuable or critical habitats for herptiles....Any impacts that result in disturbance at the wetland/water interface would probably impact herptiles." However, "...such impacts would be slight if effects of the proposed demonstration are limited to the Demonstration Corridor." (p. J-8)</p>	
<p><u>Levels and Flows</u></p> <p>5. "Water level increases resulting from the demonstration activities could impact historical sites, shoreline structures, and commercial recreational facilities." (p. 33)</p> <p>"It is reasonable to assume that the passage of one cargo ship per day through modified ice booms will result in significant water level changes throughout the upstream portion of the St. Lawrence River system." (p. 36-37)</p> <p>"...flow cutbacks could result in as much as: i) a 0.4 ft. increase in Lake Ontario level for one ship passage per day; and ii) a 1.0 ft. increase in Lake Ontario level for five ship passages per day." (p. 36)</p> <p>"Water level rise or water level decrease resulting from channel jams would exert significant effects on the shallow water littoral zone." (p. 32)</p> <p>"Areas of potential water-level related impact include major wetland systems, constituting sizable acreages of wetland habitat." (p. 31)</p>	<p>A. "Several public recreational facilities and numerous commercial, recreational facilities, are located along the Demonstration Corridor and adjacent shoreline section but no impacts are anticipated from the Demonstration" (p. A-19)</p> <p>N. "The fifteen miles of linear shoreline in the Demonstration Corridor from Brockville to Cardinal are significantly straighter and much less complex than the two baseline sites. The channel reach from Brockville to Ogdensburg is essentially uninterrupted by islands and shoals. The transition from channel to upland is abrupt and littoral areas are limited in extent." (p. N-3)</p> <p>"Tibbets Creek Marsh is the only significant wetland area which fronts on the channel in the Demonstration Corridor". (p. N-3)</p> <p>H. "The main navigation channel is located approximately one mile to the west of the (Tibbets) creek mouth and is partially protected by a 1/2 mile long shoal". (p. H-61)</p>	<p>"Assuming the current operating minimum water level for Lake St. Lawrence, a St. Lawrence River Ice Boom Demonstration for a winter similar to that of 1976-77 would: a) have no impact on the water levels of Lake Ontario, b) have no impact on the flows in the St. Lawrence River; c) reduce the Lake St. Lawrence water level by an average of 0.47 foot. (This reduction is within the historical range of Lake St. Lawrence drawdowns).</p> <p>It is also concluded that these results are likely to be conservative because the ice release volume per ship passage used in the analyses was chosen at its higher range." (Ref. 2, p. 1-11)*</p> <p>"Analysis shows that the winters of 1976-77 and 1977-78 were the most severe winters to date insofar as their effect on levels and flows would produce the worst possible situation, and consequently that the proposed demonstration vessel transit should have no significant impact on levels and flows." (Ref. 1, p. 59-60)*</p>
		<p>*References</p> <ol style="list-style-type: none"> <li>Proposed St. Lawrence River Boom Demonstration - SLSDC - August 1978</li> <li>Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, May 1979</li> </ol>

ST. LAWRENCE RIVER ICE BOOM DEMONSTRATION NYDEC ENVIRONMENTAL ASSESSMENT DISCREPANCIES

NYDEC SUMMARY	NYDEC TECHNICAL REPORTS	OTHER SOURCE DOCUMENTS
<p><u>Food Web Disruptions</u></p> <p>6. "Although quantitative data to support food web modelling has not been collected, general projections of system-wide impacts from water level impacts on wetlands are possible with the current level of system information." (p. 33)</p>	<p>L. "Without an intimate knowledge of the area it is impossible to make 'educated guesses' about the impacts or gaps in the data set." (p. L-iv)</p>	
<p><u>Drawdown and Surge</u></p> <p>7. "Certain ice/shore interfaces are...subject to impact from ship passage...Four such areas are significant:" shoals and islands, wetlands, shallow littoral areas, pools in the ice cover. (p. 25-26)</p>	<p>G. "While the passage of vessels in close association with the littoral edge would certainly disturb this fragile assemblage of vegetative material and sediment, the significance of this disturbance is not known." (p. G-11)</p> <p>N. "The fifteen miles of linear shoreline in the Demonstration Corridor from Brockville to Cardinal are significantly straighter and much less complex than the two baseline sites. The channel reach from Brockville to Ogdensburg is essentially uninterrupted by islands and shoals. The transition from channel to upland is abrupt and littoral areas are limited in extent." (p. N-3)</p> <p>H. "The main navigation channel is located approximately one mile to the west of the (Tibbets) creek mouth and is partially protected by a 1 1/2 mile long shoal". (p. H-61)</p>	<p>"It is concluded that drawdown could be maintained at less than 3 to 4 inches at the worst place in the demonstration corridor if the ship speeds are maintained in the 6 to 8 mph range." (Ref. 1, p. 56)*</p> <p>"Using the period of maximum ice cover (minimum open water pool area), complete filling of those pools susceptible to ice bleeding through the proposed gaps in the booms would reduce the open water area in the Ogdensburg to Iroquois reach by less than 5 percent. (Ref. 1, p. 29)*</p>
		<p>*References</p> <ol style="list-style-type: none"> <li>Proposed St. Lawrence River Boom Demonstration - SLSDC - August 1978</li> <li>Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, May 1979</li> </ol>

## INTRODUCTION

The FY 1979 Navigation Season Extension Demonstration Program was part of an on-going program to determine the practicability of permanently extending the Seaway navigation season on the Great/Lakes St. Lawrence Seaway System. As part of the program, the St. Lawrence Seaway Development Corporation proposed to modify existing ice booms at Ogdensburg-Prescott and Galop Island in the St. Lawrence River and conduct a limited number of vessel transits in a demonstration corridor. The purpose of the proposed tests was to demonstrate the feasibility of navigating through ice booms while maintaining the stability of the ice cover and the hydraulic integrity of the river. The Demonstration Corridor includes the ice boom sites and extends upstream and downstream in the channel for a total length of approximately 20 miles.

In anticipation of that proposal, the Navigation Season Extension Demonstration Program allocated funds for the project "Environmental Assessment to Precede Execution of Winter Navigation Demonstration on the St. Lawrence River, FY 1979". These funds were transferred through the Detroit District of the Corps of Engineers to the United States Fish and Wildlife Service, Region 5. The Environmental Assessment was prepared by the New York Department of Environmental Conservation under an interagency agreement with the U. S. Fish and Wildlife Service, Region 5.

The Environmental Assessment emphasized a number of environmental concerns which would have to be addressed before the proposed demonstration could be judged environmentally acceptable. The concerns centered on the two major aspects of the proposed demonstration activities:

1. Construction related to boom modifications/additions;
2. Demonstration vessel transits as they:
  - a. startle wildlife
  - b. modify the ice cover, reducing open water available for waterfowl and raptors,
  - c. create significant wave action with a capacity for shore erosion, shore structure damage, and disturbance of wetlands and other aquatic habitat,

- d. cause ice movements with potential shore erosion and shore structure damage,
- e. cause ice to bleed through the gaps in the booms, lodging under the ice cover downstream, where it may increase hanging dams and create levels and flows problems.

The St. Lawrence Seaway Development Corporation is confident that the proposed modifications would have improved the stability of the ice cover in the corridor and that careful design of the demonstration, coupled with real-time monitoring and supervision by knowledgeable and responsible people, would have insured that no significant adverse environmental impacts would occur. In regards to the Environmental Assessment, the St. Lawrence Seaway Development Corporation found substantial discrepancies among the conclusions expressed in the Technical Summary Volume, those reached in the Technical Report Executive Summaries, and the facts presented in the Technical Reports. To some readers, there appeared to be a clear bias towards the unacceptability of any demonstration field activities, regardless of the design or probable real impacts. Further review of the Summary Volume and the Technical Reports indicated that the major portion of the Executive Summary was spent addressing the potential impacts of an operational season extension program throughout the entire U. S. portion of the St. Lawrence River, rather than the potential impacts of the proposed demonstration activities in the 15-20 mile demonstration corridor. The conclusions reached, therefore, related much more to a long-term operational program without any improvements (with the exception of the proposed boom modifications) than to the proposed demonstration activities.

The purpose of this report is to examine the Technical Summary conclusions and their validity by comparing them with the technical reports and the results of subsequent studies. These statements are quoted, wherever possible, to assure complete accuracy in presentation.

TECHNICAL REPORT A  
Cultural Resource Studies  
Along the Demonstration Corridor

There are two historical structures in the Demonstration Corridor: the Ford House on Chapman Point in the village of Morristown and the Customs House in the City of Ogdensburg on the mouth of the Oswegatchie River. The Ford House had an elevation of +10.53 feet above the river level on April 21, 1978, which was approximately the seasonal maximum, and the Customs House had an elevation of +2.64 feet. Additionally, there are four historic structures in the 10 mile shoreline segment upstream and three more along an equivalent length of shoreline downstream. Of the four historic structures located upstream only two had an elevation less than 16 feet above river level. One of these structures is a boathouse located on Crossover Island, which is approximately 8.7 miles upstream of the Demonstration Corridor. The top of its SE corner foundation had an elevation of 0.32 feet above the normal maximum water level. The second structure is the Chapman House, a stone house just north of Point Comfort, approximately 2.4 miles upstream of the Demonstration Corridor. The top of its riverward foundation corner had an elevation of +2.24 feet. Of the three historic structures situated downstream of the corridor all had elevations exceeding +5 feet. The nearest structure to the corridor is located 8.7 miles downstream.

Therefore, having identified only nine shore structures from a total of 829<sup>1</sup> which could be subject to some potential damage from winter navigation throughout the entire U. S. portion of the St. Lawrence Seaway, there clearly appears to be no justification for the concern expressed for these structures in the Summary Report. Moreover since these structures are so few in number, these can be carefully monitored and the test halted if significant demonstration impacts are evident.

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<sup>1</sup>Environmental Assessment of the FY 1979 Winter Navigation Demonstration on the St. Lawrence River - Technical Reports Summary Volume, New York State Department of Environmental Conservation, Page 29.

"Several public recreational facilities, and numerous commercial recreational facilities, are located along the Demonstration Corridor and adjacent shoreline section, but no impacts are anticipated from the demonstration"<sup>2</sup> to quote from the conclusion of Technical Report A. However, in the summary report under section 3.38, "Effects of Water Levels on Cultural Resources", it is stated that: "Water level increases resulting from Demonstration activities could impact historical sites, shoreline structures, and commercial recreational facilities."<sup>3</sup> This appears to be intentional misrepresentation of the technical report's findings.

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<sup>2</sup>Environmental Assessment, Volume I, Page A-19

<sup>3</sup>Environmental Assessment, Summary Report, Page 33

TECHNICAL REPORT B  
Benthic Sampling and Substrate  
Analysis at Ice Boom Sites I  
Benthic Invertebrate Populations

TECHNICAL REPORT C  
Benthic Sampling and Substrate  
Analysis at Ice Boom Sites II  
Heavy Metal Contaminant Content

These two technical reports assume that dredging of river bottom materials is required for the proposed ice boom modifications and proceed with the analysis of possible impacts to benthic invertebrate populations and determination of contaminant status of sediment. The locations of sediment samples extended from Maitland, Ontario, to just above Galop Island. Samples were taken along both shorelines, with a great concentration of sampling near the mouth of the Oswegatchie River.

Only three of 31 total samples attempted were situated in the vicinity (within one quarter mile) of the navigation channel and the proposed ice boom modifications.<sup>4</sup> Unfortunately, one of the three samples was not taken because the current was too swift, and a second was not taken because the substrate was too rocky, or hard. Thus, only one of 31 possible samples was taken in a location relating to the proposed modifications. Locations of the remaining sample sites, which include the Port of Ogdensburg, river/stream outlets, bay areas and shallow shoreline areas, exhibit no direct relation to the proposed ice boom anchor installations. These locations do, however, reflect areas with a high probability for finding high levels of organic enrichment of bottom sediments as well as contamination by heavy metals.

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<sup>4</sup>Environmental Assessment, Volume I, Page B-3

As discussed in the SLSDC report on the "Proposed St. Lawrence River Ice Boom Demonstration", the proposed ice boom modification would require no dredging of river bottom materials. "The physical design of the modifications requires no permanent structures in the river. Anchors to be used comprise simple concrete blocks, rock anchors, stato or ship anchors or existing structures."<sup>5</sup> NYDEC's Summary Volume makes no mention of possible alternatives to the mud anchor. Instead, it states under "Probable Impacts" that "Ice boom modification of any kind...will result in certain impacts to the St. Lawrence River system....(3) Disruption of bottom sediments associated with the placement of new boom anchors and the potential release of organic and heavy metal pollutants present in those sediments."<sup>6</sup>

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<sup>5</sup>Proposed St. Lawrence River Ice Boom Demonstration, St. Lawrence Seaway Development Corporation, Page 28

<sup>6</sup>Environmental Assessment, Summary Volume, Page vi

TECHNICAL REPORT D  
Adult Fisheries Study

In the executive summary of the technical report it is estimated that recreational "...ice fishing from January 7 to March 20, 1978, generated over \$19,000 in revenues."<sup>7</sup> This figure is based on creel surveys which were conducted at four locations; Chippewa Bay, the Ogdensburg Port area, Chimney Bay and the Coles Creek area. Neither Chippewa Bay nor Coles Creek are located within the proposed demonstration corridor. The aerial counts of anglers conducted in this survey indicated that the "...relative intensity of recreational angling as measured by the estimated total number of anglers..." at the four locations, "...was greatest at Chippewa Bay (33%), followed by Coles Creek (27%), Ogdensburg (24%), and Chimney Bay (6%)."<sup>8</sup> Since at least 60% of the anglers observed were located well outside of the demonstration corridor, the calculated figure does not represent actual revenues generated within the corridor.

Officials from four fishing derbies normally held during the proposed demonstration study period were also consulted on the amount of money generated as a result of prizes, raffle, meals, and registrations. Although three of these four events are held outside the demonstration corridor, their revenues were also included in the \$19,000 figure.

In regards to the fishing experience "...anglers were asked to suggest a dollar amount that they would have to be offered to give up ice fishing on the St. Lawrence River for a year."<sup>9</sup> This question yielded a value over \$2 million. This is an invalid means for evaluating the fishing experience

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<sup>7</sup>Environmental Assessment, Volume I, Page D-iv

<sup>8</sup>Environmental Assessment, Volume I, Page D-26

<sup>9</sup>Environmental Assessment, Volume I, Page D-29

for two reasons. The question is a misleading one because the anglers are responding under the assumption that they must completely surrender the sport of fishing on the whole of the St. Lawrence, whereas in actuality only a small segment of the river is in question regarding the demonstration activities. Secondly, the question presumes without justification that the presence of a broken channel in the river will completely eliminate all ice fishing in the study area. This is contrary to the experience with the operational program on the St. Marys River, where ice fishing has continued in close proximity to the navigation channel in the presence of all-winter navigation. There is no discussion about this, however, in the technical report.

TECHNICAL REPORT E  
Water Level and Ice Modeling Studies

A valid concern as expressed in the executive summary is a reduction in discharge capacity due to ice passing downstream through the booms and increasing the hanging dams below Cardinal. The extent of reduction in the discharge capacity is a direct function of:

1. The average amount of ice which will bleed through the gap in the Galop Island boom with each transit, and
2. The number of vessel transits.

The number of vessel transits is completely controllable. In addition, the demonstration activities will be halted at any point in time when, in the judgment of the advisory groups, the amount of ice passing through the gap is excessive. Based on the results with the navigation ice boom at Copeland Cut, observations during the closing of 1976 at Ogdensburg-Prescott boom, and a review of the performance of the Little Rapids Cut Boom in the St. Marys River, the NYDEC estimate of 700,000 cubic feet of ice per vessel transit has been found to be more than an order of magnitude greater than the amount which would be expected.<sup>10</sup> The SLSDC/ARCTEC model/design effort had, as a basic criterion, the requirement to minimize the amount of ice which will bleed through the ice boom gaps. The proposed boom modifications will include provisions for easy closure of the gaps at the conclusion of testing or earlier, if an event so dictates. The proposed field demonstration has as one of its major goals the careful monitoring and measurement of ice which actually passes through each gap with each vessel transit to narrow the confidence bonds of the estimates of this important parameter and to insure that no adverse impacts occur during the demonstration field activities. Furthermore, in the Acres American, Inc., "Comments on

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<sup>10</sup> Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, U. S. Army Engineer District Detroit, Page 11

Draft Report, 'Impacts on Levels and Flows', it is stated that:

"AAI, at the time of the study for NYDEC, was not aware of the data collected on ice "bleeding" at the St. Mary's River ice boom. This recorded data appears to comprise the best (and probably the only) existing prototype observations of ice bleeding from a navigable boom, and should be more reliable than the model test results which were the basis to AAI's preliminary estimate. These observations also appear to corroborate the results from SLSDC's model testing program. The value of 100,000 ft.<sup>3</sup> of ice release per ship passage therefore appears to be an appropriate estimate for a proposed navigation gap of 225 ft." <sup>11</sup>

Dr. John F. Kennedy of the University of Iowa and Dr. Bernard Michel of Laval University in Quebec City, Canada, both specialists in the hydraulics of ice covered rivers, were commissioned to review the several reports on the proposed ice boom tests and related activities in the effort to resolve conflicting conclusions. Both concluded in their studies<sup>12, 13</sup> that the ice boom tests on the St. Lawrence River would have no measurable effects on the Lake Ontario water levels or St. Lawrence water flows.

The Detroit District Corps of Engineers was asked to explain the difference between the NYDEC's conclusion of "significant impacts" to Lake Ontario levels and St. Lawrence River flows and SLSDC's conclusion of "no significant impacts", and to provide an estimate to the expected impacts on levels and flows. In a Winter Navigation Demonstration Program Report on the impacts on levels and flows of the proposed demonstration the Detroit District concluded that:

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<sup>11</sup>Comments on Draft Report on Levels and Flows", ACRES American Inc.  
Page 4

<sup>12</sup>Reconciliation Between Levels and Flows Demonstration Program for Winter Navigation St. Lawrence Seaway, Dr. Bernard Michel, July 1979.

<sup>13</sup>Impacts on Levels and Flows from the Proposed Demonstration of St. Lawrence Season Extension, Dr. John F. Kennedy, Final October 1979.

- "1. Assuming the current operating minimum water level for Lake St. Lawrence, a St. Lawrence River Ice Boom Demonstration for a winter similar to that of 1976-77 would:
  - a) have no impact on the water levels of Lake Ontario;
  - b) have no impact on the flows in the St. Lawrence River;
  - c) reduce the Lake St. Lawrence water level by an average of 0.47 foot. (This reduction is within the historical range of Lake St. Lawrence drawdowns.)

"It is also concluded that these results are likely to be conservative because the ice volume released per ship passage used in the analyses was chosen at the higher range (700,000 cubic feet per transit.)

2. Considering both the current state of the art of hydraulic/ice modeling and the magnitude of the identified impacts as compared to the natural yearly Lake St. Lawrence fluctuations, further refinement of Conclusion 1. above is not recommended (at this time).
3. Vessel transit tests for the collection of levels and flows data would provide valuable information which, when combined with the results of this report, could form an excellent basis for predicting the future hydraulic/ice conditions for winter navigation on Lake Ontario-St. Lawrence River System."<sup>14</sup>

On March 5, 1979, the following statement was made in the Great Lakes Environmental Research Laboratory Comments on the ACRES American, Inc., Documentation of "Computer Simulation of the Ice Processes on the St. Lawrence River":

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<sup>14</sup>Winter Navigation Demonstration Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, Page i-ii

"It is very disappointing to find that after such a large effort was made to reconcile differences of opinion between SLSDC and the State of New York that the work of the State of New York contractor was 'meant only to show sensitivity of river head losses'. The statement of lake level effects became a major issue and was one of the highlights of the Environmental Assessment report. In view of the comments now made by the contractor, we feel this section of the report should be rewritten to accurately explain the assumptions made in reaching the conclusions on the lake level effects and also the reliability of those numbers."<sup>15</sup>

No such revision was ever undertaken, however.

In addition, a U. S. Army Cold Regions Research and Engineering Laboratory report entitled, "Remote Sensing of Accumulated Frazil and Brash Ice in the St. Lawrence" states that "...depending upon the weather conditions of the season, heat budget calculations indicate that for every areal unit of surface left uncovered through the winter, between 10 and 25 cubic units of ice will be formed."<sup>16</sup>

Using aerial photography of the Cardinal to Ogdensburg-Prescott reach for winters 1971 through 1978 and a weighted average approach, the average open water area for the period January 1 to March 31 was calculated as 161,600,000 square feet for the given reach.

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<sup>15</sup>Comments to ACRES American Inc., Documentation of "Computer Simulation of the Ice Processes on the St. Lawrence River, Great Lakes Environmental Research Laboratory, Page 2.

<sup>16</sup>Remote Sensing of Accumulated Frazil and Brash Ice in the St. Lawrence River, Arnold M. Dean, Jr., U. S. Army Cold Regions Research and Engineering Laboratory, Page 1.

The following table displays the various volumes of ice released per transit estimates as well as the St. Marys River result for a 225 foot gap. From this, the volume per week and per 12-week test period was calculated, as a function of the number of trips per week assumed for the estimate. The latter was compared with the calculations of volume of ice to be generated in the open water pool area from January 1 to March 31. By observation, in a low ice generation year, the volume of ice released per 12-week test period remains below 6.5% for all the estimates, except for NYDEC's estimate for 35 transits per week for which there is an incredible jump to 18.9%. In a high ice generation year, the percentage does not exceed 2.40%, except in the NYDEC estimate where, again, it is a high 7.28%. The actual volume of ice generation for a given year will most likely fall between the high and low calculations. Therefore, the volume of ice bleeding expressed as a percentage of the ice being generated in the open water area will amount to 5% or less, certainly not a significant amount. This holds true for the St. Marys River results as well as all estimates except those of NYDEC.

COMPARISON OF ICE BLEEDING ESTIMATES -- ST. LAWRENCE RIVER BOOM TEST

	Volume of Ice Released Per Vessel Transit (cu. ft.)	Transits Per Week	Volume of Ice Released Per Week (cu. ft.)	Volume of Ice Released Per 12 Week Test Period (cu. ft.)	Percent of Ice Released to Total Ice Generation* Low End High End
St. Mary's River Results	5,000	30	150,000	1,800,000	.11 .04
Dr. Kennedy's Estimate	30,000	30	900,000	10,800,000	.67 .27
SLSNC Consolidated Conditions Estimate	73,000	30	2,190,000	26,280,000	1.63 .65
Corps of Engineers Estimate	100,000	30	3,000,000	36,000,000	2.23 .89
SLSNC Unconsolidated Estimate	263,000	30	7,890,000	94,680,000	5.86 2.34
NYDEC Estimate	700,000 700,000	5 35	4,900,000 24,500,000	58,800,000 294,000,000	3.64 18.19 1.46 7.28

\*Volume of Ice Released per 12 week test period (column 4)/Volume of ice generated in open water area from January 1 to March 31 (Low End = 1,616,000,000 cu. ft.; High End = 4,039,000,000 cu. ft.)

17 Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, U. S. Army Engineer District Detroit, Page 11

18 Impact on Levels and Flows from Proposed Demonstration on the St. Lawrence Seaway Season Extension, John F. Kennedy, Ph.D., Pages 14-15

TECHNICAL REPORT F  
Bird Studies During the Winter of 1978

According to the Summary Volume, a primary concern regarding the potential impacts of the proposed demonstration activities is the disturbance of "...critical open-water pools in the ice cover which serve as focal points for feeding and resting activity of wintering water birds and waterfowl. Replacement habitats are not available to mitigate these losses. Also, the presence and vitality of wintering eagle populations along the St. Lawrence River is linked to the maintenance of these open water pools."<sup>19</sup>

The "Proposed St. Lawrence River Ice Boom Demonstration" states that "...using the period of maximum ice cover (minimum open water pool area), complete filling of those pools susceptible to ice bleeding through the proposed gaps in the boom would reduce the open water area in the Ogdensburg to Iroquois reach by less than 5 percent. This can not be termed a significant reduction in the total open water area available to waterfowl and raptors, including the endangered bald eagle."<sup>20</sup>

Finally, a letter from U. S. Fish and Wildlife, Region 5, Regional Director Howard N. Larsen was sent to Colonel Melvyn D. Remus, Corps of Engineers on July 7, 1978 and stated that "We have reviewed the impacts presented in the assessment and conclude that the demonstration project will not jeopardize the continued existence of the bald eagle."<sup>21</sup>

<sup>19</sup>Environmental Assessment, Summary Volume, Page vi-vii

<sup>20</sup>Proposed St. Lawrence River Ice Boom Demonstration, Page 29

<sup>21</sup>FY 79 Navigation Season Extension Demonstration Program, Final Environmental Statement, Volume II, Appendix, August 1978, Page I-11

TECHNICAL REPORT G  
Winter Studies with Littoral Vegetation

The summary report states that a "water level rise or water level decrease resulting from channel jams would exert significant effects on the shallow water littoral zone."<sup>22</sup> In the technical report, under "Impact of Demonstration Activity on Littoral Vegetation" it is stated that "...while the passage of vessels in close association with the littoral edge would certainly disturb this fragile assemblage of vegetative material and sediment, the significance of this disturbance is not known."<sup>23</sup> There is a definite discrepancy between the two statements.

The question to be answered now is what is the extent of resources susceptible? Is the littoral vegetation found in the demonstration corridor a significant percentage of the total for the entire river? The U. S. shoreline within the demonstration corridor (21.7 miles)<sup>24</sup> is only 5% of the total U. S. shoreline along the St. Lawrence River (413.6 miles).<sup>25</sup> To quote from Technical Report N, Habitat Mapping and Critical Habitat Studies:

"The transition from channel to upland is abrupt and littoral areas are limited in extent."<sup>26</sup> "Tibbet's Creek Marsh is the only significant wetland area which fronts on the channel on the Demonstration Corridor."<sup>26</sup> This area, however, rather than fronting on the channel, is well protected from vessel-generated waves by both its distance from the navigation channel and the fact that it is shielded by the Chimney Island shoal.<sup>27</sup>

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<sup>22</sup>Environmental Assessment, Summary Volume, Page 32

<sup>23</sup>Environmental Assessment, Volume I, Page G-11

<sup>24</sup>Calculated by St. Lawrence Seaway Development Corporation, Office of Comprehensive Planning

<sup>25</sup>Evaluation of shore Structures and Shore Erodibility - St. Lawrence River, New York State, St. Lawrence Eastern Ontario Commission, December 1977, Page 70

<sup>26</sup>Environmental Assessment, Volume II, Page N-3

<sup>27</sup>Environmental Assessment, Volume II, Page H-61

Further quoting Technical Report N: "The environment of the Demonstration Corridor is atypical in comparison with the upstream and downstream baseline sites selected to characterize the remainder of the St. Lawrence River. The numerous island and shoals which are so apparent in these baseline reaches are absent from the Demonstration Corridor." To quote further: "A second differentiating feature between the Demonstration Corridor and the baseline sites is the absence of large bays and wetlands at the channel/shoreline contact. It is these areas that provide the expansive shallow water littoral community which is so important to the St. Lawrence fishery. If a section of the St. Lawrence River could have been chosen to minimize impacts on critical shoreline environments, few would compare with the Demonstration Corridor."<sup>28</sup>

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<sup>28</sup>Environmental Assessment, Volume II, Page N-17

TECHNICAL REPORT H  
Ice Survey Studies Related to Demonstration Activities

The executive summary states that winter navigation through an unstable ice cover during the early winter, early spring and throughout a mild winter could result in significant impacts to critical shoreline environments as a result of winter navigation. "Impacts from ship passage can be anticipated on shoals and islands..., the shallow water littoral zone..., and annually formed open water ponds in the ice cover. In addition water level fluctuations could result in disruptions to the shallow water littoral system and wetlands."<sup>29</sup>

Quoting from Technical Report N: Habitat Mapping and Critical Habitat Studies: "The fifteen miles of linear shoreline in the Demonstration Corridor from Brockville to Cardinal are significantly straighter and much less complex than the two baseline sites. The channel reach from Brockville to Ogdensburg is essentially uninterrupted by islands and shoals. The transition from channel to upland is abrupt and littoral areas are limited in extent."<sup>30</sup> To quote from Technical Report H: "Wetlands systems along the river are normally well removed from the shipping channel and the effects of wave surge would not exert that prominent an impact on most systems."<sup>31</sup>

Further quoting from Technical Report N: "Tibhet's Creek Marsh is the only significant wetland area which fronts on the channel in the Demonstration Corridor."<sup>30</sup> And from Technical Report H: "The main navigation channel is located approximately one mile to the west of the creek mouth and is partially protected by a 1 1/2 mile long shoal."<sup>32</sup>

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<sup>29</sup>Environmental Assessment, Volume II, Page H-iv

<sup>30</sup>Environmental Assessment, Volume II, Page N-3

<sup>31</sup>Environmental Assessment, Volume II, Page H-70

<sup>32</sup>Environmental Assessment, Volume II, Page H-61

On the basis of the material presented in Technical Reports N and H, it is apparent that:

1. The aquatic habitat within the Demonstration Corridor is an insignificant portion of the total on the St. Lawrence River.
2. The one significant wetland area in the Demonstration Corridor is well protected from vessel-generated waves by both its distance from the channel and the fact that it is shielded by the Chimney Island shoal.

Regarding the open water pools, it has been found that during "...the period of maximum ice cover (minimum open water pool area), complete filling of those pools susceptible to ice bleeding through the proposed gaps in the booms would reduce the open water area in the Ogdensburg to Iroquois reach by less than 5 percent."<sup>33</sup> It is difficult to understand how this level of impact could be termed significant.

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<sup>33</sup> Proposed St. Lawrence River Ice Boom Demonstration, Page 29

TECHNICAL REPORT I  
Spring Census of Larval Fishes

In the Technical Report it is stated that the spawning period of many of the area's fishes is from May through mid-summer.<sup>34</sup> This would, therefore, be subsequent to any of the proposed demonstration activities, which would be scheduled approximately from January to mid-March, and therefore, would result in no impact. According to the study, "...there was no evidence that the boom sites represented unique winter spawning habitats on early population of fish eggs or larvae."<sup>35</sup>

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<sup>34</sup>Environmental Assessment, Volume II, Page I-20

<sup>35</sup>Environmental Assessment, Volume II, Page I-20

TECHNICAL REPORT J  
Amphibians and Reptiles Studies  
Along the Demonstration Corridor

An excerpt from this technical report read:

"...the demonstration corridor does not contain extensive marshland areas or other highly valuable or critical habitats for herptiles. This conclusion was reinforced by the comparisons with the diversity of shoreline environments and associated herptile habitats (in two baseline sites at Chippewa Bay and Brandy Brook). Any impacts that result in disturbance at the wetland/water interface would probably impact herptiles. This would especially be true if such disturbance involved marsh edges and soft mud bottoms used for reproduction and dormancy."<sup>36</sup>

However, "...such impacts may be slight if effects of the proposed demonstration are limited to the Demonstration Corridor."<sup>37</sup>

The Summary Volume states that "reptiles and amphibians would be adversely affected by disturbance of shallow bottom sediments which are used for winter hibernation. Benthic invertebrate populations would also be affected by the disturbance of these sediments."<sup>38</sup>

Comparison of the above two excerpts provides another example of the clear disposition on the part of the Summary Volume towards the unacceptability of any demonstration field activities, regardless of the probable real impacts.

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<sup>36</sup>Environmental Assessment, Volume II, Page J-8

<sup>37</sup>Environmental Assessment, Volume II, Page J-8

<sup>38</sup>Environmental Assessment, Volume II, Summary Volume, Page 33

TECHNICAL REPORT K  
Primary Producers, Secondary Consumers and  
Water Quality in the St. Lawrence River

This report provides various water quality information but makes no predictions or conclusions regarding possible impacts related to the winter navigation demonstration. Quoting from the technical report: "Several water quality parameters were examined at four sites in the St. Lawrence River before and after the passage of the icebreaker, SIMCOE, on March 21, 1978 (Appendix E). This preliminary data was limited in scope and certainly not conclusive. Changes in water quality were not dramatic and trends varied between sites, suggesting that observed concentrations were not only a function of possible ship movement, but also the dynamic nature of the river and variation in the methods of analysis."<sup>39</sup> The Summary Volume, however, speculates that, "Although quantitative data to support food web modeling has not been collected, general projections of system-wide impacts from water level impacts on wetlands are possible with the current level of system information."<sup>40</sup>

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<sup>39</sup>Environmental Assessment, Volume II, Page K-29

<sup>40</sup>Environmental Assessment, Summary Volume, Page 33

TECHNICAL REPORT L  
Aquatic Food Web Characterization Studies

The Summary Report notes that quantitative data to support food web modeling has not be collected, but maintains that "...general projections of system-wide impacts from water level impacts on wetlands are possible with the current level of system information."<sup>41</sup> In the conclusion of Technical Report L, however, we read that "More emphasis needs to be placed on quantitative data and less on species lists and presence/absence analysis. At this stage, the data are inadequate to permit a quantitative analysis of the potential impacts of the proposed project."<sup>42</sup> "Without an intimate knowledge of the area it is impossible to make 'educated guesses' about the impacts or gaps in the data set."<sup>43</sup>

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<sup>41</sup> Environmental Assessment, Summary Volume, Page 33

<sup>42</sup> Environmental Assessment, Volume II, Page L-14

<sup>43</sup> Environmental Assessment, Volume II, Page L-15

TECHNICAL REPORT M  
Mammal and Furbearer Studies  
During the Winter of 1978

There are 40 mammal species which occur in shoreline habitats and on islands along the Demonstration Corridor. Although 13 of these species are locally considered as "rare", none are presently classified as endangered in New York State. "Therefore, demonstration activities would have no direct impact on endangered mammalian species."<sup>44</sup>

A total of four U. S. islands are found within the Demonstration Corridor: Galop, "The Gut", Benedict, and Chimney. Five Canadian islands are located within the Corridor. The maintenance of an open channel throughout the winter would have no impact on animal traffic from the U. S. mainland to any U. S. islands. All U. S. islands are located south of the open channel; therefore, there is no barrier-effect to mammals.

The existence of an open channel throughout the winter could alter the mammal's use of ice, particularly the use by red fox and coyotes; but the effect would only be noticeable as it impacts travel across the international boundary in the Demonstration Corridor only. Therefore, as stated in the Executive Summary of Technical Report M: "While the proposed FY 1979 Demonstration will probably create negative impacts in the same manner as an extension of the navigation season, we do not believe the effect will be as severe."<sup>45</sup>

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<sup>44</sup>Environmental Assessment, Volume II, Page M-20

<sup>45</sup>Environmental Assessment, Volume II, Page M-iv

TECHNICAL REPORT N  
Habitat Mapping and Critical Habitat Studies

The technical report conclusion reads:

"The Demonstration Corridor from Morristown to Cardinal differs substantially from baseline sites chosen to represent the river. The islands, shoals, shallow water littoral areas, and wetlands which characterize other river reaches are all but absent within the Corridor. A thin band of shoreline littoral vegetation and a limited number of shoal and island areas are present in the channel. Eight unique habitat areas were located within the Demonstration Corridor. Seven of these occur in close enough proximity to the channel so that they could be directly impacted by ship passage related to the proposed winter navigation demonstration. Similar impacts can be expected along the thin strip of shoreline littoral area if evidence collected elsewhere is indicative of the effects of winter ship movements. Although the shoreline littoral area is limited in extent, its significance is high, since resident fish populations have few areas in which to seek the food and protection provided in the littoral zone. Negative impacts on all of these features should be anticipated from the proposed Demonstration."<sup>46</sup>

Quoting from the text of Technical Report N: "The fifteen miles of linear shoreline in the Demonstration Corridor from Brockville to Cardinal are significantly straighter and much less complex than the two baseline sites. The channel reach from Brockville to Ogdensburg is essentially uninterrupted by islands and shoals."<sup>47</sup> Further quoting, this time from Technical Report H, Ice Survey Studies, "Wetland systems along the river

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<sup>46</sup>Environmental Assessment, Volume II, Page N-18

<sup>47</sup>Environmental Assessment, Volume II, Page N-3

are normally well removed from the shipping channel and the effects of wave surge would not exert that prominent an impact on most systems."<sup>48</sup> And finally, as discussed in Technical Report N under "Possible Impacts of Winter Navigation on Critical Shoreline Habitats": "The environment of the Demonstration Corridor is atypical in comparison with the upstream and downstream baseline sites selected to characterize the remainder of the St. Lawrence River. The numerous island and shoals which are so apparent in these baseline reaches are absent from the Demonstration Corridor."<sup>49</sup> To quote further: "A second differentiating feature between the Demonstration Corridor and the baseline sites is the absence of large bays and wetlands at the channel/shoreline contact. It is these areas that provide the expansive shallow water littoral community which is so important to the St. Lawrence fishery. If a section of the St. Lawrence River could have been chosen to minimize impacts on critical shoreline environments, few would compare with the Demonstration Corridor."<sup>50</sup>

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<sup>48</sup>Environmental Assessment, Volume II, Page H-70

<sup>49</sup>Environmental Assessment, Volume II, Page N-17

<sup>50</sup>Environmental Assessment, Volume II, Page N-17

TECHNICAL REPORT 0  
Shoreline Water Level Monitoring Studies

Quoting from the Executive Summary, "...data support the contention that minor changes in water level will have widespread impacts in individual wetland systems....The relationship between inshore and channel water levels is poorly understood, especially at the level needed to confidently predict responses on a short term basis."<sup>51</sup>

Any change in water level is of valid concern. This could be the result of:

1. Increased hanging dams (medium term)
2. Drawdown and surge (short term)

Regarding the potential impacts on hanging dams of ice bleeding through the boom gaps, an ad hoc group chaired by the Corps of Engineers checked the analysis by NYDEC and SLSDC. Utilizing a third method for computing levels and flows, developed by the Great Lakes Environmental Research Laboratory, the Corps concluded that:

- "(1) Assuming the current operating minimum water level for Lake St. Lawrence, a St. Lawrence River Ice Boom Demonstration for a winter similar to that of 1976-77 would:
- a) have no impact on the water levels of Lake Ontario;
  - b) have no impact on the flows in the St. Lawrence River;
  - c) reduce the Lake St. Lawrence water level by an average of 0.47 foot. (This reduction is within the historical range of Lake St. Lawrence draw-downs.)"<sup>52</sup>

<sup>51</sup>Environmental Assessment, Volume II, Page 0-iv

<sup>52</sup>Winter Navigation Demonstration Program Impacts on Levels and Flows of Lake Ontario and the St. Lawrence River, Page i

These conclusions were based on an assumption by NYDEC that 24.5 million cubic feet of ice per week would pass the Galop Boom as a result of the demonstration vessel transits. SLSDC model tests indicated that under consolidated conditions volumes of up to 2.19 million cubic feet might be expected, while actual experience at the Soo yielded volumes of 150,000 cubic feet per week. The SLSDC model value is 1/163 of the amount assumed by NYDEC. Water velocities at the Soo and Galop booms are comparable, while the Galop Boom gap is 225 feet as compared to 250 feet at the Soo. The potential levels and flows impacts of this order of magnitude of ice bleeding would not be measurable.

By rigidly adhering to a detailed Operational Plan throughout the Demonstration as is proposed, the SLSDC would provide substantial additional assurance of no unacceptable risk to the environment. The purpose of this Operational Plan is to insure adequate documentation of the field test activities and their impacts, while at the same time providing sufficient real-time data to allow continuous assurance of the environmental acceptability of the on-going field activities and/or sufficient notice of incipient adverse impacts in order to allow modification or halting of the field activities before any unacceptable adverse impact results.

Secondly, short term water level impacts due to drawdown and surge are a direct function of vessel speed and, therefore, completely controllable. Demonstration vessel transits will be carefully controlled movements of a chartered 730' lake vessel, piloted by a master experienced in St. Lawrence River ice navigation. Vessel speeds will be carefully controlled to minimize drawdown and surge action within the Demonstration Corridor. "It can be seen that if the ship speed is kept at around 6 to 8 mph, the largest drawdown which could be expected would be about 0.35 feet. Since vessel speeds in ice may be adjusted to essentially

zero, full control of the drawdown phenomenon is possible during winter transits."<sup>53</sup> This was reconfirmed by a drawdown and surge study conducted on the St. Lawrence River near Ogdensburg which stated:

"For the range of ship sizes and ship speeds through water (3 to 18 mph) the findings are: Ship wakes at the shoreline near Tibbits Creek and in Tibbits Creek were so small as to be unmeasurable (1 in.). Drawdown and surge in the study area were also small (1 to 3 in.)..."<sup>54</sup>

Speeds will be monitored by means of SLSDC radar speed surveillance equipment and checked against the detailed operating plan.

Furthermore, an examination of the relative importance of the Demonstration Corridor shoreline as compared to the rest of the International portion of the river might be useful. The maximum amount of U. S. shoreline in the Demonstration Corridor that could be impacted by drawdown and surge is 21.7 miles,<sup>55</sup> which is 5% of the total U. S. shoreline on the St. Lawrence River (413.6 miles).<sup>56</sup> This can hardly be termed a significant percentage of the total. Technical Report N, Habitat Mapping and Critical Habitat Studies, provides additional perspective on this question.

"The environment of the Demonstration Corridor is atypical in comparison with the upstream and downstream baseline sites selected to characterize the remainder of the St. Lawrence River."<sup>57</sup> To quote

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<sup>53</sup>Proposed St. Lawrence River Ice Boom Demonstration, Page 56

<sup>54</sup>Ship Generated Drawdown and Surge Study St. Lawrence River Near Ogdensburg, New York, Normandeu Associates, Inc., December 1979, Executive Summary

<sup>55</sup>Calculated by St. Lawrence Seaway Development Corporation, Office of Comprehensive Planning

<sup>56</sup>Evaluation of Shore Structures and Shore Erodibility, St. Lawrence River, New York State, St. Lawrence Eastern Ontario Commission, December 1977, Page 70

<sup>57</sup>Environmental Assessment, Volume II, Page N-17

further: "A second differentiating feature between the Demonstration Corridor and the baseline sites is the absence of large bays and wetlands at the channel/shoreline contact. It is these areas that provide the expansive shallow water littoral community which is so important to the St. Lawrence fishery. If a section of the St. Lawrence River could have been chosen to minimize impacts on critical shoreline environments, few would compare with the Demonstration Corridor."<sup>57</sup>

<sup>57</sup>Environmental Assessment, Volume II, Page N-17

## CONCLUSIONS

Upon examination of the NYDEC Environmental Assessment Technical Reports, it is apparent that the Summary Volume is a cleverly written document with an obvious bias against navigation season extension in any form. Although it purports to be a summary of the 15 Technical Reports, it makes conclusions in many cases based on unsubstantiated speculation rather than on facts presented in the Technical Reports. There appears to be a clear disposition towards the unacceptability of any demonstration field activities, regardless of the design or probable real impacts.

Review of the Summary volume and the Technical Reports further indicate that the major portion of the Executive Summary was spent addressing the potential impacts of an operational season extension program throughout the entire U. S. portion of the St. Lawrence River, rather than the potential impacts of the proposed demonstration activities in the 15-20 mile demonstration corridor. The conclusions reached relate much more to a long term operational program without any improvements (except the proposed boom modification) than to the proposed demonstration activities. Indeed, the identification of needed improvements, as well as a careful examination of actual environmental ramifications, would result from the limited demonstration activities. Such an operational program without additional major improvements is infeasible from a technical, as well as an environmental, standpoint.

## STATUS OF PROJECT

In July 1978, the Corps of Engineers circulated to all interested groups, copies of the "Environmental Assessment, FY 1979 Winter Navigation Demonstration on the St. Lawrence River", in which then NYDEC Commissioner, Mr. Peter A. A. Berle called for disapproval of the proposed demonstration on the St. Lawrence River, "...irrespective of its final design."<sup>58</sup> The demonstration was subsequently cancelled for a number of reasons. The following are comments on the NYDEC Environmental Assessment by a number of agencies, abstracted from the final Season Extension Survey Report:<sup>59</sup>

The United States Coast Guard concluded that the tests should be conducted and questioned, "Is a less than significant adverse impact acceptable?"

The United States Environmental Protection Agency found that the information presented supported selection of the test site except for concern over the Bald Eagle, and withheld a recommendation pending the final engineering data, the endangered species determination, and the results of public meetings.

The United States Fish and Wildlife Service found that a revised draft EIS which clearly documented impacts was required, indicating that the impacts should first be quantified. On July 7, 1978, the FWS, Region 5, determined that the proposed tests would not jeopardize the continued existence of the Bald Eagle within the meaning of the Endangered Species Act.

<sup>58</sup>Environmental Assessment, Summary Volume, Page i.

<sup>59</sup>Final Survey Study for Great Lakes and St. Lawrence Seaway Navigation Season Extension, Volume IV, Appendix F, Section II, Page 57-59.

The Maritime Administration generally disagreed with the assessment, pointing out numerous inconsistencies and stating "...the viewpoint expressed appears too parochial in nature" (concerning economic considerations). MARAD recommended conducting the tests.

The National Oceanic and Atmospheric Administration commented "...that the effects of the modest demonstration program proposed for the St. Lawrence River would have minimal impact on the environment."

The Department of Natural Resources of the State of Wisconsin stated that the NYDEC call for a disapproval of the proposed demonstration was premature and recommended that the program continue.

The Department of Environmental Resources of the Commonwealth of Pennsylvania stated that the report did not contain sufficient information to adequately justify conclusions, recommending that the program be carried out.

The Toronto Harbour Commissioners believed that statements concerning ice jamming and water level consequences supported Mr. Berle's conclusion, but thought the tests should be made following further study of boom modifications and operational techniques.

In independent studies commissioned by the St. Lawrence Seaway Development Corporation, Dr. Bernard Michel<sup>60</sup> of Laval University in Quebec City, Canada, and Dr. John F. Kennedy<sup>61</sup> of the University of

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<sup>60</sup> Reconciliation Between Levels & Flows Demonstration Program for Winter Navigation St. Lawrence Seaway, Dr. Bernard Michel, July 1979.

<sup>61</sup> Impacts on Levels and Flows from the Proposed Demonstration of St. Lawrence Season Extension, Dr. John F. Kennedy, Final-October 1979.

Iowa, both specialists in the hydraulics of ice-covered rivers and streams, reviewed the several reports of proposed ice boom tests and related activities in the effort to resolve conflicting conclusions. They found that the test voyages through the ice boom openings on the St. Lawrence River would have no measurable impact on the flow of water in the River or on water levels of Lake Ontario.

On September 30, 1979, the Demonstration Program officially ended. In August 1979, the District Engineer issued the final Feasibility Report, which proposed a 10-month navigation season on Lake Ontario and the St. Lawrence. The North Central Division Engineer concurred with the District Engineer's recommendation and endorsed the Report on December 31, 1979. The Final Survey Report on Navigation Season Extension for the Great Lakes and St. Lawrence Seaway was released in January 1980 for public review. In this report, it is recommended that limited tests of vessel transits through an ice boom or booms under a full ice cover condition be performed during the recommended post authorization phase of the Navigation Season Extension Program.<sup>62</sup> Comments on this report were to be accepted by the Board of Engineers for Rivers and Harbors through June 15, 1980, after which the BERH was to furnish its final report to the Chief of Engineers.

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<sup>62</sup>Final Survey Study for Great Lakes and St. Lawrence Seaway Navigation Season Extension, Volume II, Appendix B, Page 127-128