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Attitude field survey : St. Croix River Basin

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PLATE 1

St. Croix River Basin Map

ATTITUDE FIELD SURVEY: ST. CROIX RIVER BASIN

I. PURPOSE OF SURVEY

Complaints have been received by the International St. Croix River Board of Control from local residents and camp owners relative to the low level of Spednic Lake prevailing during late summer and fall. In keeping with the International Joint Commission's desire to maintain a positive open planning process so as to incorporate the views and attitude of the public, a field survey was conducted in the St. Croix River Basin. The results of this field survey are contained in this attitude survey report. This information together with other components being accomplished by the American and Canadian staff comprise the St. Croix River Basin survey report as directed by the Commission in its communication of 10 April 1972 to the St. Croix River Board of Control.

This survey, which is part of a larger study, was undertaken to determine local resident and camp-owner attitudes relative to water level fluctuations in the major storage areas of the St. Croix River Basin. Particular emphasis was placed on Spednic Lake which is noticeably subject to the greatest fluctuation range in the St. Croix River watershed. Individuals surveyed were asked how the fluctuations affected the use and enjoyment of their properties, the frequency and duration of the effect, and their views on the proposal that the authorized minimum levels established by the International Joint Commission in 1965 be raised two feet to 378.5' msl during the summer and the winter level be raised five feet to 376.5' msl. The recommended changes are based on the results of computer runs developed by the U. S. Army, Corps of Engineers, and part of the broader study *Plan 2* which simulates reservoir system operation and is designated as the "~~Compromise Plan~~" of the four alternatives which were developed. Finally, the survey provided an excellent social profile of local interests who live and frequent the Spednic Lake area, and to a lesser degree, yielded similar information for the other major storage areas surveyed.

This attitude survey was a joint effort accomplished by the Atlantic Region, Inland Waters Directorate, Department of Environment for Canada and the Corps of Engineers, New England Division, Department of the Army of the United States.

II. METHOD OF SURVEY

Field interviews were conducted from 2 October 1973 through 27 October 1973 comprising 18 actual man-days. Title ownership data was developed from an inspection of the Tax Assessors Grand List in Vanceboro, Maine, and the Tax Assessment Roll in McAdam, New Brunswick.

Resident camp-owners were interviewed personally and absentee owners were mailed questionnaires for reply. Interviews were conducted by the Inland Waters Directorate for the Canadian portion of the basin and Corps of Engineers for the United States portion of the basin. Since all absentee owners on the Canadian side of Spednic Lake were Americans, it was agreed that the Corps would mail them questionnaires for reply. There were no Canadian owners on the United States portion of the basin.

To assist in the interview process a questionnaire form was developed jointly by the representatives of the Inland Waters Directorate and the Corps of Engineers and coordinated with officials of the Georgia-Pacific Corporation at the outset of the survey. The questionnaire format was designed to produce narrative comments and allow camp owners to expand their commentary on any expressed grievance or observation. It was not intended to restrict owners to strictly affirmative or negative replies. Commentary obtained from landowners on water level fluctuations and possible damaging effects on fish population was based on personal observation and past experience, either as camp owners on the lake or local residents using the lake. Many had difficulty relating specific elevations to their shore frontage. However, most were familiar with the reservoir staff gage maintained by Georgia-Pacific Corporation on the Vanceboro Dam and were able to correlate elevations indicated at the dam in determining water levels in front of their properties. The format for oral interviews, questionnaires and form letters mailed to absentee owners are shown in Appendices A, B, and C, respectively.

III. SCOPE OF SURVEY

Although primary emphasis was placed on Spednic Lake, attitude sampling was conducted on the St. Croix River and East Grand Lake in the East Branch of the St. Croix River Basin in addition to Big Lake, Grand Lake Stream, West Grand Lake and Pleasant Lake all located in the West Branch of the basin. The survey for Spednic Lake included virtually all private and commercial camp owners on both sides of the international boundary spanning the town of Vanceboro and unincorporated Township II, Range 3, in the State of Maine, and McAdam Township in the Province of New Brunswick. The more limited survey for other storage areas in the watershed included the towns of Danforth, Weston, Princeton, and Grand Lake Stream Village, State of Maine. For purposes of sampling, interviews were conducted with local town officials, commercial operators and camp owners with extensive experience on the lake, as well as any individual representing a lake or watershed association.

A total of 60 documented interviews was obtained. Of the 25 questionnaires which were mailed out to non-resident camp owners on Spednic Lake, 20 individuals responded and these were supplemented to the documented interviews. Additionally, numerous unrecorded discussions were held

with local residents in various parts of the basin to obtain a broader spectrum of local views on river and lake conditions.

IV. SPEDNIC LAKE

Of a total of 58 ownerships on both sides of Spednic Lake, 53 camp-owners were surveyed including four commercial operators and three former sporting camp owners who have abandoned their business but have retained ownership. In addition, formal interviews were conducted with five local residents, one motel operator, two camp owners on the St. Croix River downstream from the Vanceboro Dam and one non-resident commercial operator who frequently takes his guests to Spednic during the fishing season. The number of camp owners who use their properties for recreational purposes are evenly distributed between spring through fall and year-round usage. Of the four commercial operators, two are open for business on a year-round basis and two cater primarily to fishermen and hunters from mid-May through late November. At least eight owners permanently reside at the lake including three sporting camp owners. The nature and effects of the fluctuating water levels are specified below, but not necessarily in their order of priority.

Access - Since only four lake owners have road access to their properties, the foremost requirement is good boat access from the public landings to the cottages. All resident camp owners and local townspeople unanimously cited the difficult and hazardous boat access during low-water periods which normally run from mid-July through the winter unless there is a substantial amount of rainfall in autumn. Eight out of twenty non-resident owners who replied to the questionnaires stressed the problem of access during periods of critical drawdown. Complaints most frequently expressed by the locals during low water were boulder strewn and muck raked shores. Establishment of a permanent dock is virtually impossible because of the wide fluctuation range. Most owners have floating docks which they can move in or out in accordance with the level variances. Present and former sporting camp owners reported numerous boating mishaps and frequent motor damages resulting from low water. The depth profiles for Spednic Lake at Exhibit C illustrate the problem posed by allowable fluctuation range of 14.5 feet. Since the lake is shallow and rocky, a drop of 8 to 10 feet creates a difficult navigation situation on the lake and complicates access from Spednic to Palfrey Lake for two commercial operators and several camp owners located on Palfrey.

Critical low water periods occurring in 1964 and 1971 are shown in Exhibit A, photos #1 through #6. Photos #1, #2, and #3 show the Gordon Wallace property at Marley Cove in the summer of 1964 with boardwalk extending from dock to beach. The normal spring highwater is near the top of riprap section in front of the tree line. Photos #4, #5, and #6 show

the Horace Farnham premises at Lacoote's Point in the summer and early fall of 1971. Boats lined up along the beach in photo #5 belong to nearby camp owners who utilized the Farnham property to gain access to their cottages because they lacked suitable access in front of their properties. The Farnhams report that the shoreline dropped approximately 125 feet from embankment in 1971. Arlington Day and Arthur Dewitt report that their usual access is cut off at low water. Frazer Mason closed his camp in 1964 due to low water and lack of accessibility. Winter access is more difficult at low water because of the sharp drop-off from shore to the surface and poorer ice cover.

Low Water Table - Several camp owners and local Vanceboro residents, particularly High Street inhabitants, have experienced domestic water shortages during low water periods on Spednic. Many wells virtually ran dry in the summer and fall of 1971. Severely inconvenienced was Arnold York whose residence "Indian Hill Lodge" is located at the rear of the State boat landing in Vanceboro when his water line became exposed and froze in early December 1971. For the next four months Mr. York transported his water in barrels from Lambert Lake which is six to eight miles from his residence. Eugene Taylor, whose camp is located at Sandy Bay, stated that he purchased 200 feet of additional plastic line to draw water from the lake for camp use in 1971. Mr. Taylor added that the well, which is used for drinking water, is affected during low water periods.

Fishing - The fifty-three camp owners surveyed on Spednic were nearly unanimous in their observations that the fluctuations in water level have affected the small mouth bass and salmon populations in the lake. They remarked that salmon fishing has been declining steadily for the last ten years and although bass angling has improved in the last three years, the number of fish caught are fewer and smaller than in past years. The poor fishing has been attributed mainly to exposed spawning beds and trapped fingerlings in isolated pools on the lake when a rapid drawdown occurs. Comments on the steady decline of fishing are based on an average of 21.8 years per camp owner ranging from three to sixty years experience on the lake. One camp owner reported that white fish were taken commercially at one time but have now completely disappeared from the lake. Again this was attributed to exposure of spawning beds. Several camp owners noted that the sudden gate closures at the Vanceboro Dam seriously affected fishlife on the St. Croix River from Vanceboro to Grand Falls. One individual reflected that fish reproduction might be better enhanced if wood wastes and sunken logs, which have stacked up 20 feet in certain parts of the river from Vanceboro to Grand Falls were removed from the riverbed.

Erosion - Approximately 75 percent of the owners surveyed reported serious bank erosion, shore damages, loss of trees, and accumulation of debris in front of their properties because of high water especially in the spring of the year. The fluctuating water level prevents the establishment of stabilizing plant communities. The low winter level accompanied by a rise of level in the spring apparently pushes ice well upon shore accelerating erosion. In fact, Messrs Vance Crandlemire and James Powell whose camps are located some three miles from the public boatlanding in Vanceboro had to contend with an acre island which floated up and lodged against their frontage in the spring of 1973. Since the island could not be hauled away, they had to resort to dynamite to break it up creating considerable debris on the shoreline as a result. They theorized that the low winter level in concert with action from the ice break-up and subsequent high spring level caused uprooting of this land mass which eventually settled on their shoreline. Fraser Mason reported that the five-acre island leased from the provincial government has been reduced to roughly two acres. Permanent type docks have to be replaced annually by camp owners because of the extensive damage caused by ice every spring. William Keegan related that the Baskahegan Company granted him approximately 200 feet on the backside of his property about ten years ago to compensate for loss of frontage due to erosion. The Keegans have used the lakeside property for sixty years. Their permanent residence is in Vanceboro.

Aesthetics - Relatively few comments were submitted concerning environmental aspects. During highwater stages lakeside residents lose their beaches and part of their shorelines, which prevents walking along the shores; however, during periods of extreme low water, access for swimming is ruined for some owners by the presence of mud flats. Although they favored raising summer and winter minimum levels, three individuals stressed the importance of preserving the splendid isolation and wilderness characteristics of this remote region which could disappear if lake conditions are substantially improved and the area opened to intense commercial development. Reginald Crandlemire believes that the restrictive land lease policy adopted by Georgia-Pacific Corporation and control of water levels within prescribed limits have helped preserve the isolated wilderness ambiance by discouraging mass tourist usage. David and Marion Stocking enjoy the isolation of Hardwood Island preferring canoeing, bird-watching, fishing and swimming on the "perfect white sandy beaches". They support a stable water level which will safeguard fish and wildlife, but not so high that it will contribute to the proliferation of large motor boats on the lake which they state are noisy and scums the shoreline and mouths of creeks with oil.

Commercial (Losses in Income) - Although there are losses of income and devaluation of property resulting from poor lake conditions, it is

difficult to translate those losses into specific amounts. However, low water is undoubtedly a significant contributing factor to the number of vacancies occurring in sporting camps in late August and September. Decreased use of the lake for recreation is readily apparent during low water periods.

The four existing commercial operators have been burdened by the fluctuating water level on the lake. Fraser Mason and Arlington Day estimated a loss of revenue averaging \$1,500 and \$2,000 per annum respectively, over the last few years. Anthony Bost complained that the perennial September low water has significantly reduced the number of fishermen who rent his boats and camps during that period. Seven camps listed under the Estate of Georgia Crandlemire was a successful commercial venture until 1955. The heirs report that the present lake situation has to some extent discouraged a resumption of commercial activity. The caretaker and sport camp owner, John Armstrong, complained of inconvenience but did not show any loss of revenue. The motel owner in St. Croix claimed no loss of revenue from the fluctuations but did note that the sale of fishing licenses was down slightly in 1973. Retired Merle White, former commercial operator, remarked that the severe fluctuations impeded his operation and undoubtedly affected his annual revenue. He stated that his sportsmen sustained frequent mishaps with motorboats hitting submerged rocks during low water periods and that he experienced considerable difficulty getting hunters at various locations on the lake in the fall when the water level is low. Wilbur L. Libby, another former commercial operator, observed that the marketability of his property is adversely affected by the present fluctuation and that stabilization of the water levels would enhance his property's fair market value. Mr. Libby terminated his commercial activity in the fall of 1971 and currently does not plan to resume or sell his operation. Two Vanceboro merchants, Holis Beers and Henry Christensen, who are also camp owners on Spednic, remarked that poor lake conditions adversely affect local economy. They also pointed to the lack of periodic maintenance and repair of U. S. Highway #6 from Bangor to Vanceboro and attributed the road's generally poor condition to current lake conditions and resultant loss of tourism.

Summary - All of the camp owners and local residents surveyed were unanimous that better stabilization of water levels on Spednic Lake is needed to improve access to the camps and to enhance fisheries. Approximately 85 percent felt that the fluctuations have contributed to the decline of the smallmouth bass and salmon populations in the lake and 75 percent reported serious erosion problems resulting from high water particularly

in the spring. While, from an environmental standpoint, people had various comments about water levels such as loss of beaches or presence of mud flats, all would be happier if the water level was higher and more stable. Commercial interests are definitely in favor of better stabilization of water levels on Spednic. In fact, Frazer Mason and Merle White favored raising the level to 378.5' msl year round and the latter strongly recommended lowering the maximum elevation to 384.86' msl to reduce erosion problems arising from high water.

Leon Vinneau, former selectman and present Port Director, U. S. Customs Service in Vanceboro, stated that the State of Maine boat landing, which was completed in the fall of 1970, was unusable the following year because of the extreme low water level in 1971. Mr. Vinneau has abandoned plans for purchase of a larger boat because of the present lake conditions. Philip Babb, supervisory customs inspector and Vanceboro resident, reported that his family uses the lake year round for recreational purposes. Mr. Babb's son was selected by the Quebec-Labrador Foundation during the summer of 1973 to instruct some 50 children from Vanceboro and nearby Lambert Lake Township in water oriented activities such as boating and water skiing. Mr. Babb's 17' Boston Whaler was utilized by the group for the water oriented activities on Spednic. He stated the boat cannot be utilized during low water periods occurring in late summer.

There is nearly unanimous feeling among the local townspeople and resident camp owners that the Georgia-Pacific Corporation and its predecessor, St. Croix Paper Company, have been insensitive to their interests in the operation of the Vanceboro Dam. They charged that the "controlled" or "critical" elevation of 384.86' msl for the Vanceboro Dam has been frequently exceeded and that the companies have been less than diligent in their adherence to special operating requirements whenever that level is exceeded. High water, combined with wind and wave action, has caused substantial bank erosion on lakeshore properties. In 1968, Anthony Bost filed suit against the St. Croix Paper Company for cumulative damages to his three miles of shoreline resulting from high water and recovered \$3,000 on 19 September 1968 in an out-of-court settlement. A few unsuccessful attempts were made by Mr. Bost and other owners to obtain Congressional intercession for redress of their grievances. Most expressed a sense of futility when asked if they had contacted Georgia-Pacific or its predecessor for a resolution of their problems and felt powerless in coping with the mass of statistics and expertise which the company representatives presented at the few public hearings which have been held in the past concerning lake interests. There were no significant differences of opinion expressed

among the owners on either side of the international boundary and no noticeable variance between resident and non-resident owners.

V. EAST GRAND LAKE

East Grand Lake is the other major storage area in the East Branch of the St. Croix River watershed. The river originates at the lake's outlet in Forest City which is located just upstream from Spednic Lake. It spans the communities of Danforth, Weston, and Orient in Maine and North Lake Township in New Brunswick.

Attitude sampling was conducted in Danforth and Weston involving three commercial operators, the Town Manager in Danforth and three private camp owners. One of the camp owners developed 1-1/2 mile of shore frontage in Weston and is a founder of the East Grand Lake International Club which was organized in 1970.

The allowable range of fluctuation for East Grand is 7 feet with a maximum elevation of 434.94' msl. Persons surveyed affirmed that the range of fluctuation very seldom extends beyond 4 feet. Special operational procedures are required at the Forest City Dam whenever the water level reaches 6 inches below maximum elevation. Since East Grand is a large body of water, the shoreline is particularly susceptible to flooding and erosion from wind and wave action when lake level approaches maximum elevation.

Attitude sampling for this location indicates that private and commercial camp owners are dissatisfied with the frequent high-water levels on the lake which causes extensive erosion on their properties. George Graham, who purchased Rideout Sporting Camps ten years ago, recounted that the furnace under the main lodge and diningroom could not be utilized from mid-May through mid-June 1973 (approximately five weeks) because flood waters and the central heating system which supplies heat and hot water to five large camps was not utilized for a similar period. The owner confirmed that the spring flooding is an annual occurrence but usually lasts for a shorter duration (approximately three weeks). The flooding causes considerable disruption of normal operation and occurs during the period when the camps are booked solid with salmon fishermen who arrive as soon as the ice goes out. Mr. Graham operates seasonally from early May through late November. It was the largest commercial operation surveyed, consisting of 26 cottages, main lodge and diningroom, and a service and utility building. Photo #7, Exhibit A, was taken next to the main lodge overlooking boat docks and lake. About four years ago, Mr. Graham contacted Georgia-Pacific officials in Woodland seeking relief from the high-water level.

While the company official was sympathetic, he explained the company's position and the impossibility of relieving the situation.

Similarly, Paul Kneser, who operates Greenland Cove Camps, which includes main lodge and eight camps, complained of the perennial high-water occurring in the spring of the year. In 1973 Mr. Kneser was forced to shut off his furnace located below the diningroom in the main lodge for several days because of threat of flood waters. Although the flooding was not as serious in years prior to 1973, Mr. Kneser reported that substantial loss of sand on his beach recurs yearly. In addition to serious bank erosion, Mr. Kneser lost two birches and two maples in last year's spring flooding. The owner contends that the flood waters exceeded the allowable maximum elevation of 434.94'. The property appears at Exhibit A, photo #8.

Allen Clark, who has more than fifty years experience on the lake, is one of the founders and spokesman for the East Grand Lake International Club. The club was organized in 1970 to preserve and improve the environment and water quality of the lake. The membership presently numbers 125 and is made up of private camp owners and commercial operators on both sides of the lake. Mr. Clark stated that the west shore of the lake has been regularly plagued by high-water for many years, particularly in the spring. When Georgia-Pacific is holding a full head of water at the Forest City Dam accompanied by an east wind, waters will overlap shore embankment by several inches. Mr. Clark referred to a gentleman's agreement with Georgia-Pacific and Eastern Pulpwood companies which provided for the maintenance of the spring level 6 inches below maximum allowable elevation in order to minimize the effect of high water on lakeshore properties. The agreement was simply a mutual understanding between the spokesmen for the companies and the camp owners to encourage good public relations in the locality. It was unwritten and legally unenforceable. This informal arrangement was adhered to for many years until a couple of years ago when a substantial turnover of personnel occurred at the Woodland Division of Georgia-Pacific.

As a result of damage suits brought against Eastern Pulpwood by camp owners, approximately twenty years ago, many owners are now subject to a flowage easement up to elevation 434.94' msl running in favor of Georgia-Pacific, successor to Eastern Pulpwood. Mr. Clark reports that he personally recovered approximately \$8,000 in damages from Eastern Pulpwood and that he granted a specific flowage right up to elevation 434.94' msl to the company as part of the settlement as many of the owners did twenty years ago. Mr. Clark feels very strongly that a restoration of said gentleman's agreement will resolve 90 percent of owner grievances on the lake.

Byron L. Gould, Town Manager, in Danforth, Maine, recalled that approximately six complaints relative to high water on the lake were filed in his office in the last three years. Two of these specifically requested actual contacts with Georgia-Pacific officials. Mr. Gould stated he did not call the officials because he personally was unfamiliar with the company's allowable operational range then in existence on the lake.

VI. WEST GRAND LAKE AND GRAND LAKE STREAM

West Grand Lake is one of the principal storage areas in the West Branch of the St. Croix River watershed. Grand Lake Stream originates at the lake's outlet in Grand Lake Stream Village which is upstream of Big Lake and the Grand Falls flowage in Princeton, Maine. The lake and stream are nationally renowned for their excellent landlocked salmon and togue (lake trout) fishing. The oldest fish hatchery in the United States is located just below the dam on Grand Lake Stream and is currently operated by the Maine Inland Fish and Game Department.

Attitude sampling was obtained from lakeshore owners and residents along Grand Lake Stream in the village. They included two commercial operators, two camp owners, a former dam tender, the foreman at the Maine Fish Cultural Station, a retired Maine Guide and general store operator and former First Selectman of Grand Lake Stream Village.

The fluctuation range on West Grand is 9' 4" with a maximum elevation of 301.43' msl. In accordance with an agreement with the Maine Inland Fisheries and Game Department, a minimum flow of 100 cfs is required in Grand Lake Stream and gate closures at the dam have to be gradual to prevent isolation of young salmon in the stream. It is noted in the Georgia-Pacific's operational manual that drawdown in West Grand Lake shall be approximately in proportion to releases at Vanceboro for Spednic Lake.

Survey results for this location indicate a growing concern on the adverse effects which the fluctuations and sudden gate closures have on fish spawning habitats. Since a good share of the local economy in the village is dependent on visiting fishermen and sportsmen, maintenance of a constant fish population is vital to the livelihood of the community.

Francis R. Moore, First Selectman for fifteen years, commented on the irregular flows on Grand Lake Stream and fishkills resulting from insufficient water. Officials at the Maine Fish Cultural Station report that water fluctuations in the last five years have seriously affected togue reproduction. The drawdown continues after the mid-October spawning which exposes and dries up eggs. Fish reproduction will vastly improve if the lake

and stream can be maintained at a constant level following the middle of October. Although salmon are hatched at the station, survival rate for young salmon are hatched at the station, survival rate for young salmon released in the stream will improve substantially if better regulated flows are maintained at Grand Lake Stream Lake Dam. Paul Hoar, 75, Former guide and general store owner and lifetime resident of the community, has observed that the streamflows have been very irregular over the years. Mr. Hoar is the local agent for Webber Timberlands, a large landowner in this locality.

About a dozen village residents rely on the stream for domestic water. There are frequent water shortages in the wintertime attributable to a lack of streamflow. Because the winter lake level is generally low, gate structures freeze up and anchor ice forms on the fish screens which prevents water from going downstream.

Stanley J. Leen, Jr., has operated Leen's Lodge on West Grand for 16 years and has a ground lease from Webber Timberlands. He affirmed that fluctuations in water levels on the lake have not burdened his operation. Kurt Gowdy, NBC sportscaster, and Al McLane, Editor, Field & Stream Magazine, are among his regular guests. Robert C. and Barbara G. Hazelwood operate Pine Lodge at Kitchen Point Lodge at Kitchen Cove Point. They complained about the high water through the summer in 1972 and 1973 which caused serious erosion of a sandy beach. Prior to the creation of the Maine Land Use Regulation Commission, the Hazelwoods had a bulldozer pick up stones and boulders to protect the beach. Mrs. Hazelwood alleged that Georgia-Pacific has exceeded the approved maximum level for West Grand. A former village official also charged that the new Grand Lake Stream Dam completed two years ago is probably 10 to 12 inches higher than the maximum elevation of the lake as established by USGS benchmark. He added that the benchmark which is located on the west side of the dam is 10 to 12 inches under water in the spring.

The village sued St. Croix Paper Company approximately 9 years ago for damages to a public dock which is located on the east side of the dam. The matter was settled out of court. St. Croix furnished the equipment and material and paid the village approximately \$2,500 for legal fees and labor to restore the public dock. The former town official further volunteered that the village by actual survey conducted a few years ago has lost 2/3 of land at the public landing which was deeded to the town and is now under water. The above charges were not substantiated by the samplers. A formal survey would ascertain the validity of statements made by the former village officials.

VII. BIG LAKE AND GRAND FALLS FLOWAGE

Big Lake and Grand Falls flowage are the other major storage areas in the West Branch of the St. Croix River watershed. Big Lake is downstream of Grand Lake Stream and spans the Village of Grand Lake Stream, Indian Township and the town of Princeton. The Grand Falls flowage is downstream of Big Lake and runs through the towns of Bailey and Fowler.

Formal interviews were conducted with the Chairman of the Board of Selectmen in Princeton, a commercial operator who is founder of the St. Croix Watershed Association, and a local resident who is an extensive landowner on both lakes and owns the Ford dealership in the town of Princeton.

Big Lake and Grand Falls flowage are immediately upstream of the Georgia-Pacific Corporation Dam at Grand Falls. The dam regulates water in the lower river at all times, except during freshets when Grand Falls storage is at full capacity at elevation 203.5' msl.

Kenneth R. Savage, Ford dealer in Princeton, Maine, owns a cottage on West Grand, four cottages on Big Lake, 60 acres with one mile of shore frontage on the Grand Falls flowage, four year-round homes on the river in Princeton Village, and a camp on the East Branch of the St. Croix River. The four residences are rented and the four cottages on Big Lake form a complex used by Mr. Savage and his family. The owner has been using the Big Lake property for year-round recreational use for twenty years. Mr. Savage stated that water levels have been very favorable since Georgia-Pacific took over 5 or six years ago and reported that his neighbors on the lake are satisfied with the water levels. He did experience considerable erosion at the Big Lake complex in 1973, but attributed this to the abnormally heavy spring rainfall. High water eroded 8 feet of frontage beyond the riprap. The owner has placed additional riprap for better protection against high water.

John Drobish and his wife have been operating Play-Stead Lodge and Cottages on Route #1 in Princeton since 1971. They experienced no dissatisfaction with the water levels in Big Lake and downstream from the Grand Falls Dam where guides frequently take their guests for fishing and canoeing. The Drobishes are founders of the St. Croix Watershed Association whose principal aim is the establishment of environmental conditions which will enhance the Atlantic Salmon fishing. The owners vigorously support any program or action to reduce pollution in the St. Croix River.

Colby Fahey, Chairman of the Board of Selectmen in Princeton stated that camp owners on Big Lake have been generally satisfied with the lake level since Georgia-Pacific succeeded St. Croix Paper Company. He was delighted to learn that the International St. Croix River Board of Control was concerned about the fluctuations in water levels in the various storage areas throughout the watershed.

VIII. FINDINGS AND CONCLUSIONS

Spednic Lake - With the exception of three camp owners, everyone surveyed expressed dissatisfaction with the management of water levels on the lake. Local residents and camp owners unanimously endorsed the proposal to raise the minimum summer level to 378.5' msl and the winter elevation to 376.5' msl. They believe that a reduction of the fluctuation range will result in better stabilization of water levels and necessarily improve boating access and fishing. Most residents remarked that abnormally low water starts in early August and becomes critically low by Labor Day. Many observed that the water level was low when the survey was conducted in October 1973. A check of the reservoir staff gauge at Vanceboro Dam indicated that the lake level was at 382' msl at the start of survey and 380' msl at the termination thereof. The record flow chart at Exhibit B hereof indicates that the water level dipped under 378.5' msl only twice since 1967. In 1971 the level reached 378.5' on August 6 and September 2 in 1968. In other years since 1967 levels remained over 380' msl throughout August and September.

Plan 2

Although the ~~"Compromise Plan"~~ will improve boating access and the shoreline along the lake, it is the conclusion of the samplers that implementation of the plan will not completely resolve all camp-owner grievances. In view of complaints of perennial high water in East Grand Lake and other storage areas in the West Branch System, serious consideration should be given to ^{Plan 2} "High Buffer Plan" which provides for conservation storage at or above elevation 380.5' msl and buffer storage to meet "required flows" between 380.5' msl and 378.5' msl. If ~~the high buffer plan~~ ^{Plan 2} is implemented, the actual fluctuation ranges will be more equitably distributed throughout the various storage areas in the St. Croix River Basin.

Lake residents observed that the small mouth bass population has improved in the last three years but that the size of fish are smaller. The chart at Exhibit B shows that water levels since 1968 have been relatively stable during the bass spawning period in late May and early June. The range of fluctuation between spawning and hatching, 1 June to 30 June, is less than two feet. Since bass nests are generally four feet under water, it is unlikely that the bass spawning beds were exposed since 1968. The smaller size is probably due to factors other than the fluctuating water levels. The observation that the landlocked salmon is declining may be partly attributable to insufficient flows downriver from the Vanceboro Dam from late October through April causing a lack of proper aeration over the spawning beds. Landlocked salmon normally seek the larger rivers for spawning instead of the smaller feeder streams and tributaries on the lake.

It is equally important that minimal discharges be maintained at the Vanceboro Dam to provide a constant flow of water downriver.

In order to minimize the effects of erosion along the lakeshore properties, the special operating requirements for the Vanceboro Dam should be scrupulously adhered to whenever the "critical" elevation of 384.86' msl is reached. The attitude survey indicates that Georgia-Pacific and its predecessor may have been remiss in the past concerning these special operating procedures.

Plan 2

~~The compromise~~ plan will probably not substantially improve lake levels through August and September, particularly if required flows are drawn from the buffer storage. Conceivably, greater flow requirement may be imposed at the Vanceboro Dam in connection with improved water quality standards set by the Environmental Protection Agency and the Restoration of Atlantic salmon runs in the St. Croix River. If this should occur, lake levels will be lower in late summer and fall than previous years especially if the conservation storage above 378.5' msl is used exclusively for hydropower generating purposes.

Plan 3

~~The high buffer~~ plan would maintain a constant lake level of 378.5' msl or higher and would require greater drafts from East Grand Lake and the storage areas of the West Branch System. From camp-owner standpoint, reduction of water levels in latter storage areas would decrease the possibility of further erosion of their properties which is the principal concern on East Grand. The difference of economic losses to Georgia-Pacific and New Brunswick Power Commission resulting from ~~the compromise or high buffer plans~~ should determine whether the latter plan is feasible. In supporting ~~the compromise plan~~ ^{Plan 2}, local residents and camp owners anticipate that the summer level will remain at 378.5' msl or higher and that the winter level will not fall below 376.5 msl. They were not informed on the probability that required flows for water quality and fisheries may dictate lower levels. *Plans 2 & 3*

East Grand Lake - Sampling results indicate that erosion and damages caused by high water are the greatest concern of camp owners. A restoration of the gentleman's agreement referred to in Section V of this report, providing for the maintenance of the water level at 6 inches below maximum allowable elevation during the spring will eliminate most of camp-owner dissatisfaction with management of water levels. Since East Grand is deeper than Spednic, drawdowns have less impact on the shoreline and access for boating. No complaints were recorded relative to the quality of fishing.

West Grand Lake and Grand Lake Stream - In view of the community's dependence on visiting sportsmen, the main concern is the effect of

fluctuating water levels on the fish population. Local residents, commercial operators and fish culturists have all recommended that the lake be maintained at constant level following lake trout (togue) spawning season around mid-October. A drawdown of six inches or more can result in exposure of lake trout spawning grounds, since rocky, windswept shallows on the lake-shores are the ideal spawning areas for togue. The landlocked salmon are hatched at the Grand Lake Stream Hatchery below the dam. The State biologists report that any sudden gate closure may result in trapped young salmon in isolated pools along the stream. Streamflow is arrested in the winter months largely because anchor ice forms on the fish screens above the dam. Responsibility for maintenance of the screens rests with the Village of Grand Lake Stream. There is an agreement between Georgia-Pacific and the Maine Inland Fisheries and Game providing for a minimal flow at the Grand Lake Stream Dam.

Big Lake and Grand Falls Flowage - Sample results indicate that camp owners are satisfied with the management of water levels in this part of the basin. The erosion and damages sustained in the spring of 1973, were attributed to the abnormally heavy rainfall. There were comments that the lake was subject to substantial drawdown before Georgia-Pacific succeeded St. Croix Paper Company. The maintenance of water levels at minimum elevation on a continual basis at Grand Falls Dam necessarily imposes a greater requirement on other storage areas.

General Summary - The survey results clearly show that Spednic Lake is subject to more frequent and greater fluctuations than any of the other storage areas and that the fluctuations at Spednic have a more serious impact on the camp owner's use and enjoyment of his property. The total assessed value for lakeshore properties in Vanceboro is \$24,000. The total fair market value is \$100,000 based on assessment of 25 percent of fair market value. Since the assessments are low and have not been updated for some time, a more realistic value probably falls within the range of \$200,000 to \$250,000. Assuming a similar value in MacAdam Township, the total valuation of properties amounts to \$500,000 which represents a substantial capital investment. The lake also provides a sole source of income for four sporting camp operators and generates income for local merchants and one motel operator.

At both the entrance and exit interviews dated 4 October 1973 and 25 October 1973, respectively, Georgia-Pacific officials generally expressed a cooperative attitude relative to the local resident and camp-owner survey. The newer company officials were open-minded and receptive.

Veteran officials were more company-oriented and appeared less concerned about the problems of camp owners and local residents. As principal employer in the St. Croix River Basin, this latter attitude is economically logical and probably justifiable.

Recent Federal and State laws pertaining to protection of the environment and conservation of natural resources have compelled the company to take certain initiatives. Fish ladders have been built on new and existing dams to provide passageways for migrating fish and pollution treatment facilities are under construction in Woodland, Maine. The survey indicated that Georgia-Pacific and its predecessor have consistently cooperated with canoe clubs and organizations in providing adequate streamflow for their journey down the St. Croix River. Since many of these canoe clubs have national affiliation, local residents and camp owners interpret this cooperation as a move to avoid unfavorable national publicity. The Maine Wilderness Canoe Basin Camps on Pleasant Lake in the West Branch of the St. Croix River Basin has been organizing canoe trips on the St. Croix River for the last three years. The owner stated he had approximately 50 parties in 1973. He reported that he is only "mildly aggrieved" relative to low-water on the river and that he has received cooperation whenever the local dam tender in Vanceboro has been contacted for water releases. The owner had no specific grievance or complaint.

The State representative, Harold J. Silverman, of Calais, reported that he never received any complaints from his constituents concerning water levels on the lakes of the East and West Branches of the St. Croix. Several people in his district have expressed their concern about the water quality in the river which is related to the mission of the Environmental Protection Agency. Mr. Silverman favors raising the minimum summer and winter levels at Spednic if such action is operationally and economically feasible for Georgia-Pacific.

Camp owners at Spednic and West Grand Lakes complained about the rock piers which were formerly used as anchors for log booms upstream of the dams during river drives. State law establishes a deadline of 1 January 1976 for abandonment of river drives and Georgia-Pacific has already converted to transporting its timber by tractor-trailer to the Woodland plant. The abandoned stone piers constitute a serious boating hazard and should be removed. Buoys are impractical because of the wide range of fluctuating water levels.

Vanceboro residents and camp owners at Spednic were extremely agitated relative to the clear cutting on a hardwood ridge located southeast of Sandy Bay in Spednic Lake. (See Photos 9, 10, and 11 at Exhibit A.) They fear that erosion will affect the water quality at Spednic. However, there is an intervening plateau between the ridge and lakeshore which will likely prevent any washout from reaching the lake.

All ownerships but five were surveyed at Spednic. It is the sampler's opinion that significant data was obtained in the oral interviews and questionnaires which were mailed out for reply. Public meetings tend to inhibit most participants except for a few of the more vocal citizens who do not necessarily reflect the majority view. Additionally, the company enjoys an advantage over the residents and camp owners at public hearings since it closely monitors its own activities and keeps daily logs of its operation of the various dams throughout the watershed. In determining whether the ~~the~~ ^{Plan 2 or} ~~"Compromise Plan" or "High-Buffer Scheme"~~ ^{Plan 3} should be implemented, greater reliance should be placed on the more representative data which was elicited from each individual resident camp owner during the survey as opposed to information gathered at a formal public hearing. Based on responses elicited, it is the reporters' conclusion that local residents and camp owners would have opted for the ~~high-buffer plan~~ ^{Plan 3} had both plans been presented to them as alternatives.

The public attitude survey clearly demonstrated the following:

- A. Local residents and camp owners are definitely concerned about the present management of water levels in the St. Croix River Basin.
- B. Recreation is a significant use of this water resource. Any change in water management policy is temporary and subject to further revision as the character and intensity of uses of this resource become more specifically defined.
- C. Further studies are necessary in order to assess more accurately the recreational potential of this resource and its economic impact in the region.
- D. Further information should be obtained on the current economic value and future importance of hydropower in the system.
- E. Finally, any future studies should be cognizant of plans to improve existing fisheries and restore anadromous fish migrations in the St. Croix River System, so that any recommended change in water management policy will be compatible with those goals.