ISSUES AND PARTICIPANTS IN THE CONTROVERSY
OVER RECAPTURE OF THE
CHIPPEWA FLOWAGE

by

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ABSTRACT

The Chippewa Flowage is a fifty-five year old Federal Power Commission licensed reservoir in northern Wisconsin. Licensee Northern States Power Company has applied for a new license. A portion of the project lies within the Lac Court Oreilles Indian Reservation and is adjacent to the Chequamegon National Forest. Some Indians and some environmentalists want Federal ownership through recapture pursuant to the Federal Water Power Act of 1935. Environmental preservation and justice for the Indian are stated reasons for recapture. All agree the area should be preserved as a wild recreational resource.

This study investigated issues and the resource plus suggests management alternatives. All levels of government must cooperate to meet management needs. Shoreline erosion, a major issue, is not serious. Quality access is necessary to maintain the wild character of the resource. Solitude is a great asset of wild areas. Management of the Chippewa Flowage should preserve solitude and wildlife values. Recapture will not assure preservation of the Chippewa Flowage or correct the causes of injustice to the Indian. Further study is necessary for informed decisions on Flowage management. Northern States Power Company should be relicensed provided license provisions specify environmentally sound management.
This study would not have been possible without the cooperation of all the individuals polled and interviewed.

Specific thanks is extended to Mr. Jerry Kripps and Mr. Don Robinson of Northern States Power Company for their assistance. The patience and guidance of my graduate advisor Professor Robert Engelhard is greatly appreciated.

A special thanks must go to my wife Sue for her effort and encouragement and to my parents and brother for their encouragement during difficult times.
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I. INTRODUCTION

Congress will decide the future of the Chippewa Flowage. This reservoir, Federal Power Commission Project 108, is a wild recreation area in Sawyer County, Wisconsin. Until August 1971, Northern States Power Company operated the Chippewa Flowage under a fifty year Federal Power Commission license. They have applied for a second license to continue management. To date, the Federal Power Commission has granted permission to operate on an annual basis only and are investigating relicensing. Since the beginning in 1921, management of this resource and inclusion of the LacCourt Oreilles Indian Reservation into Project 108 have produced local conflict. Since 1971 the project has become a national controversy. Recapture is a one word description for a 1968 amendment to the Federal Water Power Act of 1935, which says "any federal department or agency may make a motion, during relicense proceedings, that the U.S. exercise its right to take over any project and if the Federal Power Commission does not recommend such action Congress has two years to act." The relicensing process is expanded by the National Environmental Policy Act of 1969 in that environmental impact and resource use must be considered through public input.

The dominant issues raised by influence groups are loss of human rights, correct land use, wilderness preservation, power generation
and advantages of either private or public ownership. These issues are basic to many national and local resource allocation decisions and have both psychological and physical bases. The one aspect that most agree on is that the Chippewa Flowage should be preserved as an area of quality recreation. The costs and method of accomplishment is the controversy. There are major legal, social, political, ecological and economic complications to the decisions. For example, this is the first major relicensing subject to the National Environmental Policy Act of 1969. The Federal Power Commission must recommend who should manage the reservoir and how; then Congress has two years to act on that recommendation.

This thesis will describe the resource, present the primary participants and their opinions, explore the issues, discuss alternatives and present recommendations regarding management and use.
II. PERSPECTIVE AND METHODS

A. Problem Dimensions

Environmental problems, solutions and decisions exist in a five dimensional perspective; time, space, motion, information and value. Time, space and motion can be considered practical dimensions with information a major dimension of all life and value a dominant dimension of human life. Each of the dimensions if affected by the other four, forming a continuum. All variables in the recapture controversy operate in this continuum.

The apparent complexity of a problem is proportional to the scope and depth of the perspective. A solution to a problem involving a complex investigation is of uncertain consequence if decided from a limited perspective.

This investigation is to help broaden the perspective from which a decision might be reached by groups and individuals. It is made from an understanding of the Chippewa Flowage environment gained from investigation and management of that resource. In no way does this inquiry present or explore all possible factors of this decision. It presents major components and offers alternatives which can be realistically implemented. Alternatives explored include future recreation and wilderness management, land and water use controls and public versus private management.
B. Methods

Three methods were used to gather information. Letters were sent to participants followed by interviews of key individuals in the State of Wisconsin. A study of the shoreline erosion was completed. Shoreline erosion is a major concern of interested citizens. Documents and evidence in the Federal Power Commission hearings and briefs in the court case were reviewed.

Letters sent to participants explained the purpose of the study. Information was requested on their position plus identification of participants having information and opinions on the issues. Figure 1 is a sample letter.

Shoreline erosion was mapped by boat. Sample sites were selected and site conditions were recorded to establish major factors and effects of erosion on shoreline dynamics. Detailed explanation of this method is in Chapter VI.
III. THE RESOURCE

A. Land-Vegetation

To hundreds of people the Flowage is a home and a living; to thousands it is a place to recreate; to tens of thousands it provides water to generate electricity and to all that know it the Flowage provides a realization that wonderful wild places still exist. Diversity, both natural and man made, is the word that best describes the flowage. Diversity produced both stability and change which fires the controversy over future use. The 29,050 acre system consists of 15,300 acres of water studded with 120 islands, 13,750 acres of land and contains 233 miles of shoreline (10) (11).

Glaciation, erosion, vegetation and flooding have produced the land and water equilibrium. Pitted outwash and ground moraine of basically sandy soils interspersed with loess, gravel, rock and clay on the upland and organic bog soil in depressions form the flowage basin (Fig. 2).

Vegetation communities on the upland are dominantly xeric composed of stands of white birch-aspen-oak, white pine-red pine, and jack pine. Limited mesic communities of sugar maple-yellow birch-basswood-hemlock exist on one island and the south west exterior shore. Many lowland communities were inundated by the Flowage. Free floating bogs, 80 acres and less, are dispersed throughout the flowage. Sphagnum moss, tamarack, leatherleaf and black spruce are
major bog plants found in a variety of association on both attached and
free floating bogs. Lowland communities of black ash-yellow birch-
white cedar are rare. A few openings of bracken-grassland are found
near the eastern shores. Boreal forest, of balsam fir and white spruce
in different stages of succession, give the aura of wilderness to the
eastern shores. This is home to most wildlife species now native to
northern Wisconsin, especially the endangered bald eagle and osprey.

B. Water-Fish

The Chippewa Flowage was created by construction of an earth fill
dam that was completed in 1923 (10). Two forks of the Chippewa River,
six minor tributaries and 11 lakes were flooded. Reservoir water
quality and quantity changes with the season and dam operation. A boat
trip from the dam in the southeast to Crane Lake in the northwest (Fig. 2)
reveals a gradient in the water from dark and swampy to clear and green.
Studies determined Flowage water to be soft, of low fertility and varying
in alkalinity from 17 to 42 ppm. Methyl Purple Alkalinity (12).

Aquatic communities are neither uniform nor pervasive in species
makeup or distribution (12). Wild rice is absent and cattail is a common
dominant emergant plant. Loon and scattered pairs of waterfowl nest
on the flowage. A few beaver lodges are found principally on bogs be-
because drawdown limits their habitat.
The fishery is noted as one of the best muskellunge and walleye waters in the U.S. A Wisconsin Department of Natural Resources biologist stated that the yearly winter drawdown is probably the reason for successful walleye and muskellunge reproduction (4). Crappies and perch are the most important panfish. Some bass and bluegill are present but not abundant (12).

C. Economy

Recreation and logging are the two economic mainstays for Sawyer County (12). Summer recreation is important on the flowage. Sawyer County was settled by lumbermen. In past decades recreation has grown in importance. The short growing season and unproductive sandy soils limit agricultural development. Wood products is the single most important industry.

The Lac Court Oreilles Reservation, is classified a depressed area by the Federal government (Fig. 2) (12). Thirty-eight to fifty percent of the Indian income comes from welfare payment (4). In 1971 only 78 out of an available labor force of 138 Indians were permanently employed (12). The lands and waters of the flowage are positive but undetermined factors in the bands sustenance. Hunting and fishing provide some food to the Indian.
D. Land Ownership

Northern States Power Company owns approximately 75% of the exterior flowage shoreline and 90% of the island shoreline; it has flowage easements on the remaining lands (10). Approximately 80% of the shoreline is undeveloped. Highly developed cottage areas are concentrations of individually held land with flowage easements held by Northern States Power Company. Northern States Power Company owns a total of 25,836 acres and has flowage easements on another 3,213 acres (4). Eighty acres are within the Chequamegon National Forest (4).

Lac Court Oreilles Reservation land within the project consisted of 7,761.63 acres. Northern States Power Company owns 5,500 acres, has flowage easements on 1,745 acres and rents approximately 525 acres from the tribe (12). The Chequamegon National Forest, Lac Court Oreilles Reservation and Consolidated Papers Inc. are major land owners in the project vicinity.

There are 18 leases on Northern States Power Company lands; ten to resorts, two for private cabins, three to local and state government and three for roads. Two licensed landfills are operated by towns on Northern States Power Company owned land. Northern States Power Company manages a 50 unit campground and boat landing. A fee is charged for camping or launching. Five other free boat landings are
on company land; three operated by Northern States Power Company, one by the Town of Winter and one by the Ojibwa Commercial Club. The company provides, free of charge, eighteen island campsites with basic facilities plus six primitive island sites. These sites are maintained and patroled by Northern States Power Company employees.

E. Legal Responsibilities

All levels of government have some responsibility for flowage land and water use controls. The towns tax land and may enact ordinances governing sanitation, boating safety and control of seaplanes, snowmobiles and ice traffic. Sawyer County has shoreland zoning. The State of Wisconsin through the Department of Natural Resources is responsible for maintaining it's trust responsibility for public use of navigable waters and enforcing regulations regarding timber harvest and fish and game management. The Federal Government through the Federal Water Power Act and Federal Power Commission regulates activities and assets of Northern States Power Company. The Bureau of Indian Affairs manages Indian trust lands and the U.S. Forest Service manages land for watershed protection. There are many other governmental variables to use controls.
F. N.S.P. Operation History

Minnesota Power and Light under the Federal Water Power Act and state statute purchased or condemned land to operate under the Federal Power Commission license granted in 1921. Northern States Power Company through its subsidiary, Chippewa Flambeau Improvement Company, has operated the reservoir to regulate river flow for power generation and flood control. During the first ten years of operation water levels were fluctuated during all seasons. Summer drawdowns averaged as much as five feet during this period of operation. However, since 1940 the present operation has produced little fluctuation of summer level and a winter drawdown from eleven to twenty-one feet depending on spring runoff expected. Company policy is to maintain summer levels six inches to a foot below full in order to curtail shoreline erosion and provide for recreational use.
IV. PARTICIPANTS AND OPINIONS

A. Controversy

The social conflict over this reservoir's future is a reflection of environmental concern today. It results from past injustice and present difference of philosophy, perspective and belief of what is the best use of the resource.

B. Federal Power Commission

The Federal Power Commission is a five member body of the federal executive branch which administers the Federal Water Powers Act of 1935. It is responsible for planning and deciding how hydro-power will be developed and distributed. The Commission conducted preliminary hearings in Hayward, Wisconsin in July 1973 and formal hearings are proceeding in Washington D.C. at this writing. It prepared an environmental impact statement to comply with the National Environmental Policy Act of 1969.

The Commission's jurisdiction has been challenged in court by a coalition of Indian and environmental groups including the Lac Court Oreilles Band, American Indian Movement, Great Lakes Intertribal Council and the Northern Environmental Council. Federal Power Commission opinion Number 664, with one commissioner dissenting, holds the Commission may grant a new license notwithstanding the
unwillingness of the Lac Court Oreilles Band to consent to the use of tribal lands flooded by the project. The Commission Staff initial and reply brief supports a new license subject to a number of conditions. The Commission is setting policy as it decides this case. This is a possible reason for the lengthy process.

On February 14, 1975, the Commission reopened the record to allow the U.S. Forest Service and the Lac Court Oreilles Band to prepare and submit a joint management plan for the Flowage by October 15, 1975. That plan was submitted by the deadline.

The Federal Power Commission and the coalition had their case before the United States Court of Appeals for the District of Columbia. Argument centered around the power of the Commission over Indian Reservation land under the Federal Water Power Act of 1935 as affected by the Indian Reorganization Act of 1934. The decision upheld the power of the Commission. The remainder of this chapter is a synopsis by group of the opinions in commission proceedings and court case.

C. Indian

The Lac Court Oreilles Band of Lake Superior Chippewa Indians organized under the Indian Reorganization Act in 1966 (12). The growing Band lives on the reservation and has objected to the reservoir since the early 1900's (7). Their testimony and arguments before the
commission are: the commission is not justified in issuing an annual or a new license without consent of the band; Northern States Power Company's poor performance under the terms of the original license specifically, too much land was flooded, inadequate village site preparation and construction, no movement of graves, little payment for timber, minimal rice payment and propagation, no stocking of the reservoir and the adjustment of rental payments required by the license was inadequate. They further state that the power project is inconsistent with the purpose of the reservation; the existence of this power project can be expected to cause severe and adverse environmental effects; there is no longer a need for power from the project; the use is contrary to the Treaty of 1854 between the Chippewa Nation and the United States. They maintain that only through recapture can Indian lands be restored and environmental preservation assured (7).

In arguments before the Court of Appeals by the Lac Court Oreilles Band, Great Lakes Inter Tribal Council Inc, and American Indian Movement National Directors Inc, it was asserted: treaties guarantee the Band's sovereignty over its reservation land; the Band has statutory authority to prevent any encumbrance of its land; tribal consent is needed as a prerequisite to licensing of reservation land; the Commission has no jurisdiction in a taking which is inconsistent with the purpose of the reservation; the Commission has no jurisdiction to issue an annual license; the Commissions opinions contain error (8). The tribal
chairman has stated that the lands are needed to expand the Band's land base (4).

D. Northern Environmental Council

The Northern Environmental Council is one of the prime movers in the drive to initiate recapture of the Flowage. The Council is the representative body of the member organizations. Representation is variable with the members' activities and interests. Members are conservation and environmental groups from Michigan, Wisconsin, Minnesota, North Dakota and South Dakota. For example, members are: Audubon Society, Duluth Chapter; North Dakota Natural Science Society; Students for Pollution Control, Michigan; Trout Unlimited, Wisconsin and others. The Council maintains that: The project lands within the reservation should be returned to the Band; Northern States Power Company ownership could spur environmentally disastrous development; the flowage could best be managed in a single government agency such as the U.S. Forest Service; the basic purpose of the Flowage could be changed to protect its natural values; shoreland erosion on the flowage would be greatly reduced if flowage water levels were stabilized; flood control and power benefits would not be greatly reduced (9). The Council also states that the cost of recapture to the taxpayer would be approximately one million dollars; net investment cost minus depreciation.
E. State of Wisconsin

The State of Wisconsin is primarily represented by the Department of Natural Resources and the Department of Justice. Governor Patrick J. Lucey has filed a separate position statement.

The Department of Natural Resources issued a position statement, adopted by the Natural Resources Board on 18 January 1973, which outlined objectives and considerations of future management (20). It gave no preference as to who should manage the Flowage in the future. Their statement urged two objectives be achieved; preserve the wild quality of the resource and maintain and improve fishery and other ecologic features. It made three additional recommendations; insure all lands in or adjacent to the project area have land use controls; there is no reason to develop many additional recreation facilities. A master plan should be developed for all lands. The Natural Resources Board in October 1975, the day after it was presented with the newly proposed combined management plan of the Lac Court Oreilles Band and the United States Forest Service voted to endorse "the concept of recapture and balanced multiple use" (21).

In a post hearing brief before the Federal Power Commission, the Department of Justice presented a complicated and positioned statement (19). It considered ownership by either Northern States Power Company or the U.S. Forest Service and reaffirmed portions of the
January 18, 1973 statement of the National Resource Board. It asked, if Northern States Power Company is relicensed, that; the license term be twenty to thirty years; Recreation on the Big Chip, a cooperative Flowage management plan between Northern States Power Company and the Department of Natural Resources, be accepted as a license condition; yearly water level fluctuations be limited to ten feet; limitations be revised if justified by scientific data accumulated after 1973 and that all major landowners involved be consulted regarding land use planning. The brief went further to define the evidence it relied on and criticized other evidence. Specifically it stated evidence on erosion and flood control by witnesses for Indian and Environmental groups was dubious. It criticized U.S. Forest Service attitude and uncooperative approach to Federal Power Commission hearings. Its closing statement said, the total record supports relicensing but if recapture is implemented developmental controls not now on the record should be sought. What those controls should be was not discussed.

F. Legislation

Senator Gaylord Nelson and Representative David Obey of Wisconsin have introduced separate legislation calling for the recapture and return of lands to the Lac Court Oreilles Band (14). Both bills ask that the U.S. Forest Service manage lands not returned to the reservation. Their reasons are that this action is needed to preserve
wilderness values and Northern States Power Company's management invites development.

G. U.S. Department of Interior

The U.S. Department of Interior filed a recapture motion with the Federal Power Commission on February 29, 1972 (12). Their letter endorsed the U.S. Forest Service as environmental managers of the reservoir and concurred in part with U.S. Department of Agriculture's position on recapture. In addition, some activities of Northern States Power Company, such as leasing of cabins, resorts and roads were asserted to be not consistent with the common public good. The letter stated that the Secretary of the Interior supported the Band in its effort to regain its lands. It recommended recapture and return of all project lands within the boundaries of the reservation to the Band and that the dam site be managed by the U.S. Forest Service.

In February 1974, in response to a request by the Secretary of the Federal Power Commission, the Secretary of Interior submitted two conditions he deemed necessary to protect the reservation in the event a new license be issued to Northern States Power Company. First, between April 15 and September 20, the Flowage should be stabilized; during the remainder of the year a two foot drop be allowed. Reestablishment of natural wild rice, reduction of shoreline erosion and improvement of wildlife habitat would result. Second, hunting, fishing,
trapping and wild rice harvesting rights of the Indian be unencumbered by Northern States Power Company on project lands and waters to insure guarantees made in the Treaties of 1837, 1842 and 1854 (15).

H. U.S. Department of Agriculture

The U.S. Department of Agriculture on April 25, 1968, in response to an invitation from the Federal Power Commission, presented a detailed analysis for recapture. The report outlined resources of the Flowage in relation to the Chequamegon National Forest. This report stressed the ability of quality recreation to draw tourists and affect the economy. It said public ownership and U.S. Forest Service administration would ensure the scenic roadways, trails and wildlife management needed. The report proposed development of facilities to serve 5,000 people at a time, nearly one-half of these would be able to use the lake at the same time. Total accommodation of their proposed project is 11,000 people. Expertise of Chequamegon personnel would be utilized in resource management. The report took several definite positions. The project should be recaptured, with the Forest Service acquiring all lands except the dam and flooded lands. A Federal Power Commission power withdrawal should be made. The new licensee (Northern States Power Company) should retain its interest for power purposes. Water level control should be similar to that in the past. Forest Service access rights should be stipulated (12).
In August of 1971 the U.S. Forest Service further detailed its position by saying it had not completely explored all the issues in its previous statement but it would not recommend change in its current recapture position until National Environmental Policy Act requirements are met (12). Upon review of the Federal Power Commission Draft Environmental Impact Statement, the U.S. Forest Service concluded that a lack of cooperation among various management entities could be harmful and that it has the authority to manage project lands placed under its jurisdiction (4). The U.S. Forest Service, U.S. Department of Interior and Lac Court Oreilles Band submitted their joint plan to the Commission on October 15, 1975.

I. Wilderness Watch

Wilderness Watch is a national coalition of scientists and laymen concerned with ecological consideration in the use of America's sylvan lands. Wilderness Watch is listed as a member of the Northern Environmental Council.

In hearings before the Federal Power Commission, the president of the group and one of the group's scientific advisors presented testimony saying relicensing would provide greater protection for the Flowage as a recreational resource than recapture. They favored issuance of twenty-five or fifty year license and stressed the concept that private ownership can provide excellent environmental protection,
that resources controlled by government are usually inadequately protected. The testimony cited Northern States Power Company's past management and its policy declarations in the "Big Chip Agreement" as reasons for relicensing. Wilderness Watch commented that both the private and governmental segments of the "white" culture were responsible for injustices to the Indian and that protection of the Flowage would be beneficial to all involved. To formulate opinions the group conducted onsite inspections of the Flowage and reviewed available information concerning the controversy (18).

J. Local Government

The Towns of Hunter and Ojibwa, Sawyer County, Wisconsin, have adopted resolutions favoring relicensing (12). The Town of Hunter whose boundaries encompass the majority of the Flowage asked that the lease contain certain conditions: Limit winter drawdown to 13 feet or whenever a reading at Herman's Landing bridge reveals less than five parts per million dissolved oxygen; summer levels full or one foot below full unless a drawdown is required for rough fish control; three foot drawdown before freezeup; more attention to fish management; realistic property assessments; five years after issuance of new license Northern States Power Company or the Town of Hunter may cancel the license and Northern States Power Company cannot sell, lease or subdivide project lands. Town officials were not satisfied
with unguaranteed payments in lieu of taxes offered by the U.S. Forest Service.

In November of 1971, Sawyer County Board adopted a resolution favoring relicensing and opposing recapture (12). The board thought future licenses should require control of development, more realistic tax revenues for local government and drawdown guidelines. It made no recommendations as to specific license conditions.

A petition with signatures of three hundred local taxpayers, including thirty-four resort owners, opposed recapture (12). The petition asked that Northern States Power Company be relicensed in a way that would preserve the Flowage and that drawdown and fish management be studied.

K. Bureau of Outdoor Recreation

The Bureau of Outdoor Recreation has reviewed Northern States Power Company's recreational license exhibit and has not recommended recapture (16). Recapture is recommended by the Bureau whenever significantly more public recreation could be derived under Federal ownership.

L. Others

The Wisconsin Resource Conservation Council and the Chippewa Chapter of the Society of American Foresters both expressed concern
that the many environmental management questions be answered by study and public hearing before a decision is made (12).

Recapture has been urged by the Sawyer County Environmental Committee, a group of civic, business and conservation leaders, on the grounds that it is necessary to preserve wilderness and maintain the fishery (2). Nationwide Federal Power Commission licensed reservoir managers are closely watching this decision in anticipation of future recapture and management decisions. This decision will define Federal Power Commission policy for licensing existing projects and will guide license holders in justifying their continued use of public waters. Many other groups and individuals have expressed concern over the future of the Flowage.

In summary, there appear to be three proposed alternatives, relicense Northern States Power Company; recapture the project; or relicense Northern States Power Company to operate the dam with lands managed by the U.S. Forest Service.
A. Indian Rights

Today as in the past the role of the Reservation and the Indian in the diverse culture of the United States is uncertain. The legal, economic and social links between the Indian and the majority government are strained. Cultural difference and human indifference cause misunderstanding and conflict.

The rights of the Indian individual and Tribes have been the subject of court decisions at all levels. Indian treaties have promised to the Indian protection by the Federal government. Protection from what and how is not certain.

The Bureau of Indian Affairs has the trust responsibility of administering some reservation lands (3). The Indian Reorganization Act of 1934 provided for the establishment of tribal government with many functions parallel to local town government.

The Indian has a long history of loss of land and interest in land to the "white man." Greed and growth are the two dominant forces in this process. There is a movement nationally for the Indian to assert treaty rights and independence through social and economic processes tied to land ownership and use.
B. Cultural Difference

The Chippewa Flowage controversy is a product of history and shifting attitudes of society affecting the Indian and land use. No one philosophical outlook can encompass a solution to these cultural conflicts. There is a cultural void which only change can fill. The question is how to deal with and guide change at the levels of human understanding.

Basic to the decisions and solutions of the Flowage controversy is the integration of the two cultures and the value judgements this implies. There are no answers only past experience to relate to the future. Justice and fairness seem unattainable and clouded with doubt. Two things are certain. The ecological balance that produced the Indian culture is gone and internal and external conflicts resulting from the associated cultural changes are unavoidable. The answers lie in the recognition by all involved that present population must adjust to living in a more realistic balance with the land and that the loss and conflict suffered in the necessary cultural changes will have an inequitable impact. Indian philosophy is attuned to living with the land. Humans through their actions provide an expressed definition of their philosophy. The Indian philosophy did not evolve with intense technological growth. That philosophy can be a guide but it is not the rule to provide a technological society with realistic life styles and community
Recapture is in no way a solution to the economic and social problems and conflicts of the Lac Court Oreilles Band. The present land base has provided little real income to the Reservation. It is difficult to understand how ownership and control by the Bureau of Indian Affairs or the Band of underwater or island lands will provide any greater benefits to the Band. Ownership may on the other hand become an economic and political burden.
VI. SHORELAND EROSION

Shoreline erosion is a major issue in this controversy. Understanding the extent and rate of erosion is necessary to determine the biological and recreational carrying capacity of the reservoir. Factors other than water level manipulation were explored in this study.

A. History

Glacial drift in the form of pitted outwash and ground moraine, modified by erosion, formed the land. Prior to flooding, Flowage topography was described as generally undulating (5). The western half of the Flowage was much dissected near streams and lakes; the eastern half gently undulating without much variation. Some rough terrain was encountered in the extreme northwest, south central, and along the west fork of the Chippewa River.

B. Procedures

Reconnaissance mapping of erosion and site analysis of bank conditions was conducted from July to October 1974. Erosion of moderate to severe nature was recorded. Criteria for determining erosional conditions were: the amount of exposed mineral soil above high water mark on moderate to steep slopes and significant loss of vegetation caused by undermining. Erosion was classified as high bank when extending over six feet, and low bank under six feet above the high water.
All erosion sites were recorded on a field map. Ninety percent of the shore length was traversed by boat.

A soils map is a classification of a system of variables not directly related to erodability. Changes in materials below the diagnostic horizon are not indicated on most soils maps. Due to the vertical variability of some glacial drift no correlation could be expected between mapped soil type and shoreline erosion response of the soil.

Using a 1967 Forest Service soils map as a general guide fifty-nine samples of eroding material were taken. When a difference in soil of an eroded bank was noticed, or a major change in shoreline condition was observed, a sample of material was taken and conditions were recorded. A sample was also taken when one eroding shoreline appeared to be of different soil than that previously observed.

Major factors recorded at each sample point were aspect (direction of slope), percent slope of eroding surface, vertical height of eroding surface above high water mark, percent and length of slope above the eroding bank, vegetation type and condition, eroding bank conditions, shore composition plus bottom composition and slope. General conditions of sediment deposition, near shore, were also noted. Areas of extensive, human alteration of shoreline were not mapped or sampled.

Aspect, percent and height of slope, bank material and vegetation were presumed the major land factors of erosion; fetch the major water factor (113). Fetch is the uninterrupted distance over water which wind...
created waves travel. No representative wind velocity and direction data were found. The completed map was analyzed by tabulating the number of eroding stretches by aspect (Fig. 3). Sample sites were identically tabulated and results compared to map tabulations.

C. Results

The map of combined high and low bank erosion (Fig. 3) was different from the Chippewa Flowage Investigations map (12). There were five hundred nineteen incidents of erosion recorded on the field map (Fig. 3).

Four general shoreline types were observed; high bank with a gentle sloped bottom, high bank with a steep slope bottom, low bank with a gentle sloped bottom and low bank with a steep sloped bottom (Fig. 4). Although the sample aspect percentages were not identical to the map aspect percentages they are close enough to validate the sample and make it representative of general shorelines and eroding materials (Fig. 6).

Erosion of exposed mineral soil was evident after a one and one-half inch rain, enough to cause rills as deep as six inches on banks with a south aspect (Photograph 1). North and east eroding banks were much better stabilized by vegetation than south or west banks. North eroding banks were usually steeper than south eroding banks (Fig. 4). Banks with north or east aspect had extensive areas of completely barren
mineral soil only when adjacent to large water area. Shoreline with extensive vegetation toppling was encountered in fifteen percent of the samples (Photograph 2). General observation put the total shoreline with extensive vegetation toppling at five percent or less. Human use greatly accelerated erosion on the natural shoreline.

All factors being similar, areas of rocky material, primarily in the south eastern portion, have a more stable shoreline (Photograph 3). Berms of various width were found on almost all eroding stretches of shoreline. There was no correlation between vegetation type and erosion patterns. Slumped and broken root mats were found on many of the eroding banks.

Field examination of the material samples showed an overall variety of size from clay to boulder. Different associations of sand and sand-gravel strata were the most commonly found bank component (Photograph 4). Rocky, sandy, clay material; clean gravel; loess; gravelly, silty, sand material and gravelly, rocky sand material were also major bank components. Numerous deposits of sand sediment were found as spits off islands and exterior shoreline with beaches building in or across small bays (Photograph 5). These deposits were most times adjacent to eroding banks. Many sediment deposits were being stabilized by willow. Young willow two to six feet tall were found on many stretches of shoreline (Photograph 6). Little or no evidence of ice heave phenomena was seen at the high water mark.
Type I of the four general shorelines (Fig. 4) is associated with large water areas having high wave potential. This shoreline appears to be the most actively eroding. Type II is associated with glacial pits and partially inundated river and creek cuts. It is on this shoreline that aspect seems to play less of a role in the revegetation and stabilization. These shores are not associated with a long fetch perpendicular to the shoreline and high energy waves usually do not impact this shoreline.

Low bank erosion such as type III showed no association to land or water features. On these shorelines the type of bank material appeared to play an important role. Other conditions being similar, the rocky shores have more stable and vegetated banks. The most infrequent shoreline, type IV, is associated with well protected pits and partially inundated river and creek valleys. The erosion on these shores was usually not great. Slope and material type were controlling factors in the amount of erosion. Extreme slope of eighty-five to ninety percent and sandy material were common to type IV. Berms, observed on all types, were not large but indicate some stability of most of the reservoir shoreline.

The reservoir is oriented east and west. Orientation cannot account for the difference between north and south eroding percentages. This difference is a result of dry conditions characteristic of south aspect, which contributes to bank erodability.
Shoreline stability in the south eastern portion of the Flowage may be partially related to the nature of the glacial till. Till is less erodible than outwash (6) and it produces a rocky erosion resistant shoreline.

No relationship was found between the type of forest vegetation and erosion. This could be attributed to limited sampling. However, existence of any vegetation is important particularly on depositional areas which are subject to a high rate of wind and rain erosion during periods of drawdown (Photograph 7). The steeper north slopes are probably due to the favorable conditions for revegetation. Revegetation appears to be a result of optimum moisture conditions associated with north aspect. Willow, found on shorelines throughout the Flowage has a positive stabilizing effect.

Island camping is one of the most highly valued recreational experiences of the Flowage. Island campsites are found on windswept shoreline adjacent to large water areas. A wind gives protection from insects. Large water areas have beautiful views. Concentration of human and water impact caused serious erosion and loss of recreation quality on a number of sites.

D. Future Needs

Manipulation of water levels may perpetuate disequilibrium. Erosion is not great on shoreline types II and IV. The specific role of
water level manipulation in maintaining disequilibrium is unknown and cannot be known until the amount and rate of erosion, to exposed bottom, during drawdown is determined by further study.

There are four factors affecting shoreline erosion and bank stability. They are fetch, aspect, percent and height of slope and soil types. Their relationships to each other are complicated and variable. Fetch is the most important.

In type I areas, extensive erosion has occurred primarily because of proximity to large water areas. Wave erosion of the bank is significant on all aspects; rill erosion is periodic on south and west aspects and depositional areas. South aspects are not revegetating as well as north aspects. Bank measurements and sediment studies; over a period of years will be needed if we are to understand the rate of shoreline erosion. Wind data is necessary for complete understanding of erosion processes and patterns.

Although many stretches of mineral soil banks were observed they are not seriously eroding, except in a few instances. There are two specific functions to consider, the processes removing material from the bank (creep, rill erosion, wind erosion) and the transport of material by water from the toe of the slope. These are interrelated functions whose interaction is specific to a particular site environment. Revegetation is no guarantee that, in the long run, the slope will be more stable, unless that revegetation affects soil characteristics, i.e.
resistant woody roots (Photograph 8). The aspect, human use, slope, and specific composition of the soil are major factors in revegetation. There is a greater alteration of shoreline due to deposition of material in small bays than major change to eroding shoreline.
"Country" is what some call it, wilderness, wild recreation paradise and sylvan land are other descriptions. Experience of the natural and the unknown draw people to the Flowage. It is in the unknown and the natural that resource managers find their greatest challenge in planning for environmentally sound resource use.

Most agree that the Chippewa Flowage should be preserved as an area of quality recreation. What quality recreation is and how it should be experienced differ with the perspective of the individual or group.

A. Quality

It must be recognized that the "quality" of Flowage recreation lies in the fishing, camping, boating, water, land and wildlife experienced by people. This quality is a product of the dimensions of the resource and the use.

The Flowage is by no means a wilderness either by legal definition or by physical reality. It does have the character of wilderness and that is what must be maintained through management.
B. Planning

The fishery, islands and shoreline were an accident of development for reservoir purposes. The past and present development of resorts and their facilities was basically unplanned and of individual initiative. Island camping was of the same origin. Planned fire control, fish and game management and law enforcement were, are and must be major factors in the maintenance of this resource.

In the past decade management by Northern States Power Company resulted in planned forest management, boat launching facilities, control of island campsite use and development and greater control over leases to resorts.

Leases for private cabins are being terminated. Planning is necessary if the Flowage is to be both used and maintained. What the scope and affect of that planning are and how it will be implemented are major decisions to be made. At this time it is questionable whether these decisions can and will be made. This is due to the complexity of institutional arrangements, uncertainties of the law, lack of data on the resource base and philosophical differences of interested and responsible parties.

In this controversy can be seen reflections of national land use issues. Multiple use and who can best provide recreational facilities; the private or public sector.
Multiple use turns on resource use tradeoff considerations. In this case recreation versus hydropower. Decisions are based on priorities of use and relative economic and environmental values.

Where it can equal public recreation the private sector is preferred by government and by users. It provides cost assessments tuned to our economic system.

C. Tradeoffs

Inherent to the ownership of the resource is who will make the tradeoff decision and how these decisions will be made. This is as much or more of an issue than the decisions themselves.

Future maintenance of environmental quality and access are as much related to other resource allocation and use as they are to user group impacts. Which will affect quality and access the most is unpredictable. Some of the characteristics of public versus private ownership and management of resources will be discussed in Chapter VII. The quality of the Flowage environment comes from its imposing natural diversity. Although man induced, the equilibrium reached under natural laws favors the wild environment people seek.

D. Solitude

The one quality of the Flowage, and of most wild places, which is most desirable is solitude. The geographic location, accessability
physical dimensions and wild resources encourage solitude. Solitude must be sought by humans, it cannot be forced on them. At its best it is reached through effort or with some degree of difficulty. This is the key to maintaining the quality of the Flowage. Any other approach would be unwise. Access must be equitable but should be gained through difficulty or effort. To be successful the access must reflect some of the qualities of the Flowage itself. The base for this concept lies in cooperative resource and information management.

The first step is for the involved government levels to formulate agree upon and decide a policy favoring planned management. Just and legal rights to ownership and use must be predictable before any such policy is implemented. The scope of Indian rights must be recognizable before rights can be balanced and cooperative decisions can rise above the level of survival.

Island camping provides the natural separation that promotes solitude. It is desirable to maintain this activity and to insure its future. Access control is the key.

E. Access

Access is not the point at which the road or trail meets the water. It is a broad concept working in five dimensions whose major components are attitude, cost and ability to use. As each of these components works in the five dimensions then what access is depends upon and
affects your perspective.

Management goals on access cannot be accomplished solely by providing public landings but must include the Reservation, the resorts, the users and transportation methods.

F. Roads

Recreation on the Flowage is directly tied to the cultural and technological uses to which the adjacent land and resources are put. This is most evident in the development of transportation routes, primarily roads. Environmentally pleasing road construction will aid in access quality but much more must be considered if a realistic recreational carrying capacity is to be maintained. Recreational quality then is tied not only to the "Flowage management plan" but is dependent upon surrounding resource use decisions of all. Only through community cooperation is the Chippewa Flowage to be preserved.

I think it is recognized that solitude is necessary for individual understanding of self. Through a realization of self a sense of community is attainable. One of the greatest assets of wilderness, self realization, may go unnoticed because of lack of community cooperation. As a result the community itself may suffer.
A. Governmental Powers

The arguments for or against private versus public ownership turn on philosophical grounds. For government the essence of the argument lies in two basic governmental powers as applied to property, the police power and the power of eminent domain. These powers have been described as follows. "In the exercise of eminent domain property or an easement therein is taken from the owner and applied to public use because the use or enjoyment of such property or easement therein is beneficial to the public. In the exercise of the police power the owner is denied the unrestricted use or enjoyment of his property or his property is taken from him because his use or enjoyment of such property is injurious to the public welfare." What is beneficial and what is injurious is relative to what the legal system will consider in its determinations. Constitutional guarantees of the individual and economic value are the two major factors in the process of balancing public versus private ownership.

B. Managers

The U.S. Forest Service and Northern States Power Company function in Wisconsin with the power of eminent domain. Northern States Power Company uses the power of eminent domain through legislative
authorization. It is used only when land ownership is necessary for a particular project. The U.S. Forest Service functions under authority of enabling legislation and other legislative mandates. Because they are inherently different, one a private utility the other a government agency their relationship to the police power is opposite. Northern States Power Company as a private utility is subject to extensive police power regulation of specific activities. The U.S. Forest Service as an agent of government uses, to a limited extent, police power to guide resource use impacts. The specifics of a particular situation usually determine if and how the two powers are to be used. With access having the broad implications that it has then the police power and eminent domain must be realistically meshed to provide to all the optimum and most equitable use of the resource. This type of coordination is a legislative matter.

The legal relationships of Northern States Power Company and the U.S. Forest Service to the land, water and wildlife resources are important considerations in the controversy over ownership.

C. Land

Presently, Northern States Power Company through a Federal Power Commission license and land ownership uses public waters to generate electricity in downstream plants. It is required to provide public access to the reservoir. The company has the Big Chip Agree-
ment with the Wisconsin Department of Natural Resources to manage Flowage lands for recreation, forestry and wildlife. Stipulations in a new license may specify management for recreation, forestry and wildlife.

The U.S. Forest Service is entrusted, through legislation, with the management of specific public lands.

D. Water

The waters of the Chippewa River and hence the Chippewa Flowage are subject to a changeable split of authority between the State of Wisconsin and the Federal Government. The dominant federal agency, in this case, is the Federal Power Commission. The dominant state agency is the Wisconsin Department of Natural Resources. A limited delegation of the States authority to regulate boating and ice traffic is given to municipalities in Chapter 30 of the Wisconsin Statutes.

E. Fish and Wildlife

There is also a split of authority regarding the wildlife using the Flowage environment. Federal regulation stems from treaties and endangered species legislation on migratory birds. State regulation stems from proprietary powers thus the state has the prime responsibility for most flowage wildlife regulation. The regulation of the taking of fish is inherent to the state. The exceptions to the States powers to regulate
Flowage fish and game are found in the Treaty of 1854 and other treaties between the United States and the Chippewa Nation.

F. Ownership Split

Management and its objectives are difficult to accomplish due to the split in ownership or trusteeship of the resources. Single ownership or trusteeship however can in no way guarantee responsible management or the attainment of management objectives. In this case a single management entity is not probable nor would it be desirable. A cooperative arrangement of public and private ownership is the optimum answer. In this way segments of society or individuals have a variable access to decision making and management bodies. People can then relate to management so rights can be balanced and change accommodated. A question which must be answered in deciding on the ownership pattern is: what will work in the present and provide for stable change in the future? That which is just and fair should not be set aside to overcome management problems.

G. Order and Diversity

One principal of government that has long been recognized is that out of order comes stability. The ecologist and economist recognize that diversity is necessary for stability. Order must favor diversity to provide real stability and the corresponding ability of a system to
accommodate change. Order, diversity and stability exist and interact on different levels in a continuum that seeks equilibrium. What shifts in equilibrium would public ownership bring to the Chippewa Flowage environment?

H. Land and Water

The dominant management concept is one of water use as affected by land use. Land use solutions alone will provide only a partial answer to problems. Federal ownership of a majority of the land surrounding the Flowage would bring little change in institutional responsibilities over water management. Water level fluctuations would still be set through a Federal Power Commission license. Boating and fishing would still be regulated by state law. Water use conflicts would still be dealt with on the state and town level.

Land use controls under federal ownership would be split between the U.S. Forest Service, Bureau of Indian Affairs and the Lac Court Oreilles Band. Some lands would remain in private ownership and would be subject to local and state regulations.

I. Recapture

Decisions on Flowage management, should recapture be implemented, could vary with how the recapture is accomplished. Legislation may set specific guidelines and assign responsibility. If not, management
will be a compromise between the Federal Power Commission, Bureau of Indian Affairs, U.S. Forest Service and the Lac Court Oreilles Band.

Will public ownership of Flowage lands and its costs be justified by greater resource protection, more return from the resource and equitable access? The history of other federally owned and managed lands provides no clear answer to the cost-benefit question. The return on the investment will depend on whether diversity is enhanced or depleted by the equilibrium change of recapture. Access to the resource will be determined by the involvement of the community in the management and use of the resource.
A. National Issues

Many of the issues and questions posed around relicensing Northern States Power Company are national in scope and not confined to the Chippewa Flowage. The importance and priority of issues varies locally and alters the perception of problems and their solutions. It is this balance of local and national interest which makes decision making difficult.

In recent years, there have been proposals for a Federal land use policy. Generally the proposals provide for a legislative determination of parameters defining comprehensive policy which would tie the various federal agencies to a land use evaluation system. This system would function by providing lines of communication, cooperative arrangements and consistent guidelines for federal land use decision making.

Such a policy would have been very valuable to the participants in the Chippewa Flowage controversy. I believe that had such a policy been in effect many of the legal and political uncertainties would have been eliminated and the public would have been better served.

There is an idea that water power is no longer an important part of U.S. energy production. The amount of electricity produced by hydropower is not large relative to U.S. demand. As a source of clean dependable energy tied to environmentally sound resource
management hydropower can be important. Regulated water levels, associated with hydropower, can be a positive factor in flood plain management and water quality maintenance.

The most perplexing and insoluble of the issues is Indian rights. The plethora of treaties affecting fishing and hunting rights, state jurisdiction and taxing powers, land ownership, sovereignty and federal trust responsibility toward the Indian make the constitutional guarantee of "equal rights" an unreachable standard. Until a definable national goal is set by Congress no real achievement of "equality" can be expected.

A good assessment of what government should do is that, it should do for people what people cannot do for themselves. Many people see issues relative to "big government" versus "the little guy" or individual rights and needs versus social rights and needs.

The two basic powers of our government, eminent domain and the police power, function in different ways aspiring to different goals. The power of eminent domain can provide stability of a needed resource and a framework for allocation of public resources. The police power can be responsive to change and can be very flexible providing for discretion. It is an excellent barometer of the people who must enforce the law and the people who respond to the law.

The Chippewa Flowage controversy is not an isolated situation. It is a unique conglomerate of people and land. Solutions to the problems
inherent to the Flowage cannot be found in special treatment. Recap­
ture should be accomplished only if benefits can be shown to outweigh
the costs. One of the costs of recapture will no doubt be special legis­
lation to solve management problems.

B. State Issues

The issues of national interest in the controversy are not dominant.
There are issues of particular concern to Wisconsin citizens. The
diverse use of Wisconsin's surface waters is governed by an incomplete
statutory regulatory scheme. This is especially true of surface water
use regulations, with a split of authority between the Department of
Natural Resources and towns, cities and villages. This system at
present cannot respond by providing environmentally sound surface
water use regulation necessary to maintain the wild character of the
Chippewa Flowage. The department cannot act as it does not have the
authority. The municipalities power to act, Section 30.77, of the Wis­
consin Statutes, provides the broad standard of public health safety and
welfare. Municipalities who enact local regulations generally do not
enforce them. Maintaining enforcement capability is expensive even
with state cost sharing.

Much of the discussion of issues in this controversy has centered
around land use controls. Yet, what is being dealt with is a waterbody.
The U.S. Forest Service would have little authority to regulate surface
water use. Responsibility will lie with the state with or without recapture.

The Chippewa River, downstream from the Chippewa Flowage, is as important a wild recreational resource as the reservoir. Much of the riparian land for a distance of 25 miles downstream is relatively wild and is owned by Northern States Power Company. Recapture will affect ownership by Northern States Power. The water level management of the Flowage adjusts the quality and quantity of the downstream water. The real affects of recapture and water stabilization on the Chippewa River have not been established.

Wild rice is a very desirable aquatic plant. Its status in the state of Wisconsin is not understood. Wild rice stands have been disappearing from Wisconsin waters over the past 50 years. A knowledge of why wild rice is disappearing or even where or how much of it is left is not readily available. There is scattered information on wild rice. Much of this information need only be compiled to provide a basic understanding of the resource. Only after this has been done can assessment of the feasibility of wild rice restoration projects in the state be determined.

Public access is vital for waters of the state to be truly public. If public access is to be more than a line where the water meets the road then more than just 60 foot public roadways are needed. Municipalities are benefited and burdened by surface water users. Some meshing of
county shoreland zoning, land use planning and public access requirements could be a possible solution.

C. Local Issues

The joint management plan proposed by the Lac Court Oreilles Band and the U.S. Forest Service calls for town boating regulations to protect areas planted to wild rice. These areas must be marked with buoys to provide an enforceable regulation. Any buoys used must meet the standards of the Wisconsin uniform waterway marking system. Such buoys would be white with fluorescent orange markings. They would be incompatible with the wild character of the Chippewa Flowage.

One of the most important factors in Flowage management is local planning. This means that the communities affected must cooperate and participate in the planning process. There is a consensus that the flowage should be wild. This point of agreement should be used as a base from which to plan. The environmental and economic needs of this recreation-forestry based region were partially insured by long term planning of past decades. Planning to provide for future long term needs is a necessity. Those who do not participate in that planning will lose out.

Recreation is the greatest product of the Chippewa Flowage, wilderness is the quality people seek. It's diverse and unique wildlife are the key to environmentally sound management and use. Island camping
and musky fishing are activities which require uncrowed conditions. All these factors point to the level of management and use which should be sought. Uses which cause a minimum of permanent land alteration and which are transitory are the most desirable. Any increases in high impact land use should be in areas which will provide the greatest local economic benefit and be adjacent to already impacted lands (Fig. 5). Boating, fishing and island camping are relatively low impact transitory uses however support facilities such as marinas, resorts and parking lots are high impact permanent uses. Thus an access management program is necessary.

Wildlife habitat preservation, shoreland erosion dynamics and aesthetic values should be the main factors emphasized in the formulation of a comprehensive management plan. This would be a positive step toward an environmentally and economically feasible resource use system. The Flowage will be wild only if the eagle, osprey and loon inhabit its shores.
X. RECOMMENDATIONS

A. Management

There are many specific management measures which should be undertaken regardless of who will manage the Chippewa Flowage. There are general management philosophies which must be established to coordinate management activities. The following recommendations are made to help define management philosophy and provide specific measures which can be implemented in response to observed needs.

1. There should be no change of water level regime until the impacts of any changes on Flowage water quality and downstream water quality and quantity are known. None of the data examined by me nor any observation of flowage shorelines justifies a water level management change. Any change should not adversely affect the ecological balance that is the Chippewa Flowage. The Environmental Protection Agency has expressed doubt about the wisdom of the proposed stabilized water levels found in the U.S. Forest Service and Lac Court Oreilles Band management plan (17). The importance and ecological requirements of the willow, found on many miles of Flowage shoreline, should be known before water level management changes are made.

2. The wildlife which inhabits and makes pleasing the Chippewa Flowage should be given prime consideration in any management decisions.
This can be accomplished through a management philosophy of "gradual change." A management plan which is comprehensive in scope, which stresses quality access and use levels and that will not produce harmful environmental impact should be sought.

3. Information on use restrictions and use suggestions should be available at boat landings, resorts, campgrounds and island campsites. The information is best presented in a brief but positive manner. Examples are: Live vegetation does not burn well and is needed by wildlife; Clean your camp area; Camp on designated campsites only; The island campers greatest impact is soil erosion. A small but apparent information board is suggested. Each information station should suggest a location where further information or guidance can be obtained. Management employees should make as many user contacts as practicable and should express by their actions a positive management philosophy.

4. The patrol and cleanup of island campsites and public access should be accomplished once for each site every three days. This will give the island camper solitude yet provide the necessary services of cleanup, information and guidance. Used data should be gathered by patrol and cleanup employees. This data is important in evaluating island camping and management needs.
5. Any further development of user facilities such as public landings, resorts, roads or marinas should be undertaken only if it does not encourage undesirable uses such as boat slips, lawns, large parking lots or dredging of lake bottom. Certainly the Lac Court Oreilles land should be considered first in new facility development.

6. Two of the island campsites should be closed to camping. They are sites 8 and 13 (Fig. 5). After the garbage can and other user facilities are removed the shorelines should be riprapped to impede further erosion. It would be desirable to replant the site with native trees and shrubs. This should discourage use and blend the campsite into the surrounding landscape.

7. Many of the island campsites have erosion problems or potential erosion problems. Sites 2, 3, 5, 7, 9, and 16 should be riprapped with rock to prevent further shoreland erosion. Riprapping should be done with a native rock in as natural a manner as practicable. Willow cuttings can be used to stabilize some shore areas and provide vegetation screens in the future. Site 15 should have its ladder replaced.

8. An inactive gravel pit on project lands should be recontoured and revegetated (Fig. 5). This gravel pit should yield a considerable amount of rock for riprap. There is lake access adjacent to the pit.
9. Shoreline erosion studies should be undertaken to determine management needs and recreational carrying capacity. Use area designations, access and facility development should be guided by erosion data. Permanent erosion measurement sites should be selected and established on a long term basis. Measurement of erosion parameters should be accomplished at selected time intervals.

B. Recapture

There is no one reason for the present wild state of the Chippewa Flowage nor will any one factor preserve or despoil it. Use levels and management programs are the two most important factors in its future. Recapture is not the answer to the problems of the Chippewa Flowage controversy.

The benefits of recapture are not significant. It cannot control use levels nor will effective management program be undertaken because of it. Injustice to the Indian will not be righted under recapture.

It is my conclusion that Northern States Power Company should be relicensed provided license stipulation set environmental management standards. Certainly, the Lac Court Oreilles Band must be justly compensated for use of their lands. Further, the economic benefits of desired recreational development should be directed toward the reservation.
A combination of strengthened county shoreland zoning, a concerned attitude of resource management agencies providing coordinated programs in their areas of responsibility and citizen involvement can provide a viable management program. These are specific steps which can be taken to enhance cooperative management.

1. An advisory group whose recommendations must be given management consideration could be a license stipulation. The group could be representatives of interested and responsible parties. Representation from Northern States Power Company, Lac Court Oreilles Band, local government, state government, environmental interests and the U.S. Forest Service is desirable. This group should be a forum for public input, technical information and a coordinating body for surrounding land use management.

2. A comprehensive public access policy by the State of Wisconsin would do much to assist in the evaluation of resource use trade-offs. This is especially true in evaluating the need for transportation and resource management services. Such a policy should have legislative authorization for optimum implementation. The two major components of this access policy should be that it is equitable and that it considers environmental impact of access on the water body.

3. Further county zoning regulation may be justified. Providing for
specific zoning restrictions coordinated with management objectives and an active public education and information program is desirable. Such zoning regulations will need careful study and investigation before implementation.

4. Much is not known about the Chippewa Flowage environment. Further and continued study is necessary. This is especially evident in the areas of water manipulation, access management, use levels and recreational carrying capacity. This knowledge should aid others in their resource management problems.
SELECTED BIBLIOGRAPHY


Appendix A

Figure 1  Typical survey letter
Figure 2  Flowage map with reservation and National Forest boundaries
Figure 3  Flowage map of shoreline erosion
Figure 4  Major features of four generalized shorelines
Figure 5  Flowage map with campsites, gravel pit and impacted areas
Figure 6  Table of erosion percentages by aspect
Senator Gaylord Nelson  
U.S. Senate  
Washington D.C. 20510

Senator Nelson:

I am writing this letter in regards to the Chippewa Flowage Recapture Controversy. At present I am a graduate student at the University of Wisconsin Stevens Point in the College of Natural Resource. My proposed Masters Thesis involves the issues involving recapture and the groups involved in the controversy. The accounts provided in the newspapers were out of context and at most incomplete in relating the issues. I am aware of your interest in the issue and I would appreciate your estimation of the problem and solutions and possibly a suggestion as to who to contact from the other groups (Chippewa Band, Northern Environmental Group) to obtain a representative opinion.

I have lived on the Chippewa River most of my life in Chippewa Falls and have worked three summers on the Chippewa flowage. I hope to present the issues and problems as other people see them, show where they agree and conflict and to some extent show what impact logical decision might have.

I will be grateful for any help and guidance which you can offer. Thank you.

Sincerely,

Marc A. Schultz
MAJOR FEATURES OF FOUR GENERAL SHORELINES (cross-section)

I High Bank

eroded area

bank

berm

av. % slope by aspect total no. samples
north - 88%
south - 74%
est - no sample
west - 83%

II High Bank

eroded area

eroding bank

berm

av. % slope by aspect total no. samples
north - 86%
south - 70%
est - 79%
west - 80%

III Low Bank

eroded area

bank

berm

av. % slope by aspect total no. samples
north - 81%
south - 74%
est - 86%
west - no sample

IV Low Bank (combined profile)

eroded area

bank

berm

significant sample not obtained for breakdown

Figure 4
A PERCENTAGE COMPARISON BY ASPECT OF SAMPLE SITES TO TOTAL MAPPED EROSION

<table>
<thead>
<tr>
<th>Aspect</th>
<th>59 Sample Sites</th>
<th>519 Mapped Erosion Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>South</td>
<td>45%</td>
<td>40%</td>
</tr>
<tr>
<td>East</td>
<td>11%</td>
<td>15%</td>
</tr>
<tr>
<td>West</td>
<td>17%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Figure 6
## Appendix B

| Photograph 1 | Rill erosion, south aspect on island near Pete's Bar |
| Photograph 2 | Toppling vegetation, north aspect near bunker bay |
| Photograph 3 | Rocky shoreline, west aspect near channel to dam |
| Photograph 4 | Sand strata, south aspect near Pokegama Lake |
| Photograph 5 | Depositional area near church bars |
| Photograph 6 | Young willow, south aspect of island near Pete's Bar |
| Photograph 7 | Erosion on depositional area near Herman's Landing |
| Photograph 8 | Stand of pine, north aspect on Moonshine Lake |