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**REPORT**  
**of the**  
**LEGISLATIVE INTERIM COMMISSION**  
**to study the**  
**UPPER MISSISSIPPI RESERVOIRS**

**Submitted to**  
**the Governor and the Legislature**  
**of the**  
**State of Minnesota**  
**January, 1959**

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# Laws of Minnesota 1957, Chapter 862

## AN ACT

### FOR THE ESTABLISHMENT OF AN INTERIM COMMISSION ON THE UPPER MISSISSIPPI RESERVOIRS.

#### BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. The large reservoirs at and near the head waters of the Mississippi River comprise a part of the public and navigable waters of the State of Minnesota. They are of great importance to the health and welfare of the people of this State and to the maintenance of the tourist industry in this State. The proper control and regulation of the reservoirs in the interest of the people of this State is a matter affected with the public interest.

Sec. 2. A Commission is hereby created to consist of three (3) members of the House of Representatives, to be appointed by the Speaker, and three (3) members of the Senate, to be appointed by the Committee on Committees in the Senate, for the purpose of studying the problems created by the method of operation of the control structures affecting these reservoirs by federal agencies, ascertaining more effective methods of control, promoting cooperation between State and federal agencies and devising such means of cooperation as may be effectuated.

Sec. 3. The Commission is authorized and directed to study the legal factors involved in control or joint control by the State, to recommend legislation found by it to be desirable and to contact and secure the cooperation of Minnesota members in the Congress of the United States and federal agencies exercising control.

Sec. 4. The facilities of the legislative research committee are hereby made available to the Commission, and the Commissioner of Conservation is authorized and directed to extend to the Commission full cooperation.

Sec. 5. Members of the Commission shall be allowed and paid their actual traveling and other expenses necessarily incurred in the performance of their duties and may retain legal assistance.

Sec. 6. The Commission shall make its report to the Governor and to the 1959 session of the Legislature not later than the opening day thereof.

Sec. 7. There is hereby appropriated, out of money in the State treasury not otherwise appropriated, the sum of Five Thousand Dollars (\$5,000.00), or so much thereof as may be necessary to pay the expenses incurred by the Commission. For the payment of such expenses, the Commission shall draw its warrants upon the State treasury, which warrant shall be signed by the chairman and at least two (2) of its members. The State auditor shall then approve and the State treasurer shall pay such warrants as and when presented. A general summary or statement of the expenses incurred and paid by the Commission shall be included with its report.

Approved April 29, 1957

## REPORT OF THE LEGISLATIVE INTERIM COMMISSION ON UPPER MISSISSIPPI RESERVOIRS INTRODUCTION

Chapter 862 of the Laws of Minnesota 1957, entitled "An Act For the Establishment Of An Interim Commission On The Upper Mississippi Reservoirs," enjoined a new commission to (a) study the problems created by the federal government's method of operating the control structures affecting the headwater reservoirs of the Mississippi River, (b) ascertain more effective methods of controlling the dams, (c) promote cooperation between State and federal agencies and devise such means of cooperation as may be effectuated, (d) examine the legal factors involved in control or joint control by the State, and (e) recommend desirable legislation.

To accomplish its ends the Commission obtained legal assistance from Mandt Torrison, attorney from St. Paul, secured the services of Adolph F. Meyer, consulting hydraulic engineer from Minneapolis, and conducted three public fact-finding meetings—August 13, 1957 at Walker, April 22, 1958 at the State Capitol, and September 3, 1958 at Grand Rapids. The Commission is particularly thankful for the cooperation of Dr. George Selke and his assistants from the Conservation Department and Colonel Desloge Brown and other members of the U.S. Army Corps of Engineers. Also very important were the pertinent observations and comments by representatives of the U.S. Fish and Wild Life Service and the U.S. Forestry Service.

In the following report four primary subjects will be considered: general information and background; the question of legal jurisdiction over the area; problems of regulating the reservoirs for optimum satisfaction of divergent demands and uses of water; and recommendations of the Commission.

### PART I. GENERAL BACKGROUND

A thorough study of problems arising specifically in connection with the northern Minnesota lake region which drains into the upper Mississippi reservoirs must be undertaken with cognizance of the topographic features of Minnesota, the history of hydrological developments in the region, and the function of the reservoirs in the past, present and future. The complexity of the problems and the solution to conflicting demands on the water resources of the headwater area will be more fully appreciated once these factors have been considered.

#### Minnesota Topography

The dependence of man on water for life and sustenance hardly needs to be emphasized—evidence of it is everywhere present. Quite naturally then as Minnesota developed, considerable attention

was directed to the beneficial exploitation of water resources. Early efforts to maximize the usefulness of available water and to reduce the dual danger of water shortages and floods took the form of small dam construction. Built at lake outlets and along the rivers of the State by federal, State, local and private authorities, these dams served different and sometimes contradictory purposes. Today these small dams constitute the means by which the State's water resources are artificially regulated since topographically Minnesota is not suited for the construction of large dams. Minnesota is notably devoid of deep valleys with narrow constricted exits where a short dam could be built which would store tremendous quantities of water. Unlike the developed stretches of the Missouri River in the Dakotas and Montana, Minnesota terrain does not lend itself to the creation of major flood control reservoirs. Such dams, in any event, would be economically unfeasible because the benefits derived from the dams would not outweigh loss caused by flooding valuable farm land. Storage detention basins, for whatever purpose, necessarily must consist of small dams which capitalize on existing lake sites and minor rivers and streams.

#### Regional Development

Congress first expressed an interest in the north central Minnesota area now containing the upper Mississippi reservoirs in an Act of June 18, 1878 (Chapter 264, 20 Stat. 162). As consequently developed some 4,535 square miles have been encompassed in the total watershed area of the reservoirs. Centered mainly in Cass, Itasca, Beltrami and Hubbard counties, a large part of the drainage area is also located in Clearwater, Crow Wing, Aitkin, Carlton, and St. Louis counties. In other words, the upper Mississippi reservoirs take in the bulk of the lake wilderness resort area of Minnesota. Indicative of the magnitude and importance of the region is the fact that there are over 90 Minnesota lakes, not counting the reservoir lakes themselves, which drain into the reservoirs. In approximate figures, 33 lakes drain into Winnibigoshish, 22 into Leech, 17 into Pine, eight into Pokegama, four into Gull, and three into Sandy. Consequently it should be remembered throughout this report that when reservoirs are referred to singly or in combination that much more than the reservoir lakes are affected. For example, statements about the Winnibigoshish reservoir may also be considered to be statements about some 33 lakes and 1,442 square miles of land in the watershed area.

The direct relationship between water outflow of the region and favorable navigation conditions downstream induced the federal government to establish reservoirs at Leech Lake, Lake Winnibigoshish and Pokegama by 1884. The Leech Lake reservoir dam was located at the outlet of the lake in the Leech Lake River and was known as the Federal Dam. The dam is not in the Mississippi

River proper but controls water feeding into the Mississippi channel below Ball Club Lake. The dam in connection with the Winnibigoshish reservoir is located in the Mississippi River at the outlet of this lake. The Pokegama Lake Dam is downstream in the Mississippi from Mud Lake outlet and Lake Winnibigoshish. The purpose of constructing these dams as with the three later ones was the storage of water to be released during dry periods to aid navigation in the Mississippi River below St. Paul and particularly in the lower Mississippi below Minnesota. The completion of the dams on Pine River in 1907, at Sandy Lake in 1909, and Gull Lake in 1913 brought to six the total number of dams used for the detention of water for navigation purposes. In addition a dam at Cass Lake has been constructed and is operated by the U.S. Forest Service.

The total useable capacity of these reservoirs is two and a quarter million acre feet of storage, the major portion of which is contained in Leech and Winnibigoshish lakes. Of the lesser dams, Pokegama functions primarily as a medium by which water may be made promptly available to the Twin Cities and lower Mississippi navigation. (It also acts as an element in flood control in the Aitkin area). It is replenished by releases from Winnibigoshish whose water requires approximately fourteen days to traverse swamps. The time lag from Pokegama to the Twin Cities is only about ten days. Sandy Lake functions as a supplementary storage lake while Gull Lake and Pine River are relatively unimportant to the scheme of water control for the purposes of navigation or flood control. Conceivably control of the latter two dams might be relinquished by the Corps of Engineers since they justify water control activities only on the basis of demonstrable benefits for navigation and incidentally for flood control. Gull and Pine reservoirs serve neither of these purposes significantly. The annual cost of operating the reservoirs, excluding cost of repair and new construction, is about \$75,000.

The most recent hydrological development in the area consists of the restoration of the dam at the outlet of Mud Lake by the Minnesota Conservation Department (to have been completed October 1, 1958). Although discussed at length before the Commission this project will not be considered beyond this brief paragraph since the dam is under State control, serves local or conservation interests, and does not basically affect or alter the operation of the federal dams. Inoperable since 1945, the new Mud Lake dam was designed to restore wildlife conditions in a twenty mile area—of four to five thousand acres—to its condition of twenty-five or thirty years ago. It slows down the flow of the river which the two lakes form and stabilizes the level of Mud and Goose lakes. It was not intended that the two lakes become part of the reservoir system even though they constitute a portion of the route traversed by water released from Leech Lake. The concern of the Conservation

Department was with propagation of northern pike, development of the wild rice crop, and hunting. Although the level of the two lakes is directly controlled by the release of water from the Leech Dam, the Corps of Engineers has agreed to operate the Mud Lake Dam in such a way as to maintain as nearly as possible levels set by the Conservation Department.

#### Function of the Reservoirs, Past, Present and Future

Ostensibly built for and functioning as an aid to navigation, the actual role of the reservoirs in the past and at present is not so easily rationalized. As an agency of the federal government, the Corps of Engineers justifies water control activities only on the grounds of aid to navigation and incidentally flood control. By and large, aid to navigation has been the stated reason for existence of the upper Mississippi reservoirs, as revealed in relevant legislation, reports of the Corps of Engineers, and testimony to the Commission. However, it is not to be assumed that the reservoirs have been operated wholly and consistently for navigation during the past seven decades nor even that this has been the primary purpose or use of detained waters. Colonel Brown testified at the Walker meeting in 1957 to the effect that the use for which the dams had been built—navigation—had diminished but the Corps of Engineers used them for storage of water for any emergency which might develop. Other uses, including flood control and water supply, have also developed.

The Corps of Engineers has operated the control structures with some consideration for local needs and interests as well as the needs of downstream navigation. During 1929, however, residents, local resort and business interests, and others began to express dissatisfaction with the operation of the dams. Specifically the complaint was that the low level of the lakes during the summer of 1929 was the cause of extensive damage and loss of income. The low and fluctuating levels of water allegedly killed quantities of fish, ruined the wild rice harvest, and therefore adversely affected hunting and fishing prospects and income from recreational activities. Minimum lake level associations were formed, hearings were held, and minimum levels for the six lakes were adopted by the Corps of Engineers. Ample rains and the paramount demands of the war emergency in the years immediately subsequent to 1930 forced the issue of lake levels into the background, but it revived in post-war years in the form of demands for limits on the maximum water levels. Damage from fluctuations and from high levels was alleged this time. As a result of pre-war and post-war local pressures, ranges of operation were agreed upon—or rather, were consented to by the Corps of Engineers. Desired summer levels for each lake have also been a subject of controversy.

It is clear that local interests have increasingly found a place in the equation of the hydrological computations that govern the operation of the reservoir dams. With only nominal demands on water in recent years for the purpose of navigation, the reservoirs have been operated with an eye to more stabilized levels, gradual fluctuations in winter to conserve fish, minimum levels to protect wild rice crops and an abundance of waterfowl, maximum levels to prevent erosion and damage to resorts, and summer levels for recreation. Water also has been and is being used for pollution abatement (dilution of sewage), irrigation, water power, and urban water supply. From the viewpoint of the Corps of Engineers the most significant outcome of the attempt to satisfy local demands on the water resources has been the effective reduction of the available capacity of the reservoirs for navigation by almost three-fourths of the original storage capacity.

As for the future it appears that some changes in the role and significance of the reservoirs may be expected. Dr. Selke suggested that new uses for the stored water will develop, including irrigation and sanitation. Changes in the downstream situation which may affect the future of the upper Mississippi reservoirs were reported to the Commission. A new weir near Lock No. 27 at Chain of the Rock just above St. Louis which has been authorized, approved and some funds for construction appropriated will reduce the required releases of water from the upper Mississippi reservoirs by maintaining a higher tailwater level below Lock No. 26. A second downstream change will be the expanded capacity of the Missouri River reservoirs which will make more water available for navigation below Chain of the Rock. Partially counteracting these developments will be the anticipated three-fold increase in tonnage handled by the Mississippi River above the mouth of the Minnesota River due to the Upper Harbor project at Minneapolis. Presently 700,000 tons of barge shipping a year are handled in the Minneapolis harbor area; in the near future it will be a predicted 2,000,000 tons. Each vessel will require water for locking and there will be more vessels. In this connection it should be pointed out that the release of locking water from one lock provides the necessary water for the same purpose in lower locks. In other words, the use of water is not in direct proportion to cargo tonnage or vessels plying the river.

## PART II. THE LAW AND THE UPPER MISSISSIPPI RESERVOIRS

Any activity initiated by the State, including that with reference to the upper Mississippi reservoirs, presumably is to be confined to the area of the legally possible. The Commission sought to thoroughly examine the boundaries of that area both because the reservoirs were a new subject for consideration by the legislature<sup>1</sup> and because there are numerous fine distinctions to be discerned in the discharge of responsibilities and the exercise of authority where powers are held concurrently by federal and State governments. As a prerequisite to further consideration of problems relating to the operation of the reservoirs the Commission sought to make explicit the legal factors which relate to jurisdiction and authority over the headwaters of the Mississippi River. At its request a report on the legal function and power of the State with respect to the reservoirs was prepared and submitted to the Commission by Mandt Torrison of Counsel Bundlie, Kelley and Maun. Seeking to delineate just what authority and jurisdiction the State has over the region, this report explored three aspects of the subject: (1) the legal status of the federal government and its agencies in connection with the regulation of the reservoirs; (2) the extent of the State's power to regulate waters within its boundaries; and (3) the area of concurrent federal and State regulatory powers, with special attention being given to the extent to which Congress may have preempted the regulatory field affecting the reservoirs. The topics will be reviewed in this order even though it will involve a certain amount of repetition since they are interrelated.

## The Legal Status of Federal Control of Waters

The "commerce clause" of the United States Constitution, Article I, section 8, clause 3, is the source of federal control with respect to the upper Mississippi reservoirs. Granting Congress the power to regulate commerce with foreign nations, among the States, and with the Indian Tribes, control of interstate navigable waters comes within the purview of this clause. As declared in an early Supreme Court decision:

"Commerce includes navigation. The power to regulate commerce comprehends the control for that purpose, and to the extent necessary, of all the navigable waters in the United States which are accessible from a State other than those in which they lie. For this purpose they are

<sup>1</sup>Resolution No. 11—S.F. No. 710—of April 17, 1945, memorialized Congress to authorize a survey of the Upper Mississippi River navigation reservoirs. Not much came of this due to curtailment of work during the Korean Conflict. Col. Brown testified that work (13 years later) is still proceeding on this requested project.

the public property of the nation, and subject to all requisite legislation by Congress." (*Gilman v. Philadelphia*, 3 Wall. 713; U.S. 1866)

For many years the powers of Congress to regulate commerce on waterways was restricted to waters which were in fact navigable, which were or could be used in their ordinary condition by customary modes of water transportation. However, this historic interpretation has been substantially broadened by a series of court decisions to include much more than navigation of all the navigable waters of the United States. For example, the significant **Appalachian Electric Power Company** decision of 1940 (331 U.S. 377, 61 S. Ct. 291, 85 L. Ed. 243) stated in part that:

"In our view, it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. . . Flood protection, watershed development, recovery of the cost of improvement through utilization of power are likewise parts of commerce control. . . That authority is as broad as the needs of commerce."

The effect of this and other decisions has been the expansion of the meaning of "navigable waters" so that the federal government may now also regulate waterways made useful for commercial navigation through artificial aids, non-navigable portions of waterways if commerce is promoted or preserved on the navigable portions, and non-navigable tributaries of navigable rivers if the tributaries affect the volume of water naturally coming into the navigable stream. Furthermore, Congress has authority to prohibit the creation of any obstruction in navigable waters and may require the removal of obstructions even though they have been constructed under State authority.

Federal authority is limited to regulation and control within the beds of these waters whether in private ownership or State ownership, and does not extend above the natural ordinary high water mark. Also Congress may not arbitrarily destroy or impair the rights of riparian owners by legislation which has no real or substantial relationship to commerce.

Pursuant to the commerce authority outlined above, Congress has authorized and provided for appropriations for the construction, maintenance and operation of improvements on navigable waters, including the upper Mississippi reservoirs. Congress has also enacted legislation prescribing conditions which must be complied with in the creation of obstructions or the alteration or modification of the channel, course, location, condition or capacity of any navigable water of the United States.

### The Extent of State Control of Waters

States have two types of jurisdiction over waters within their boundaries, one held exclusively, the other concurrently with the federal government. As part of the reserved powers of the States under the federal constitution, each State has the complete and exclusive power to regulate and control navigable or public waters which lie wholly within the State and do not constitute a navigable water of the United States. With respect to the navigable waters of the United States, however, the regulatory power of the States is subject to the paramount authority of the federal government in the field of interstate and foreign commerce.

Since the upper Mississippi reservoirs fall within the latter category the Commission was particularly concerned with concurrent powers. In brief, the regulatory power of the State is subject to the paramount authority of the federal government as to the navigable waters of the United States. The States may exercise such control as is not inconsistent with federal action or functions and does not materially or unreasonably interfere with or burden such commerce. Stated more positively, Counsel Torrison reported that

“ . . . the power of the State over navigable waters within its boundaries extends to the enactment and enforcement of such reasonable police regulations as may be deemed necessary to preserve the common right of enjoying such waters, and the State may determine the extent and manner of enjoyment of conflicting rights and uses. It may close the stream to navigation in the public interest, provided such closing does not materially or unreasonably interfere with interstate or foreign commerce or conflict with federal control.”

Within limits then a State has authority to make any improvements in such navigable waters as well as the power to impede or obstruct navigation in such waters if, in the judgment of the legislature, the public good requires it.

Congress has recognized that a large measure of control over navigable waters may be exercised by the States. While retaining its right to interfere and supersede the State authority at any time, Congress has left to the States the control and management of various matters relating to and affecting such waters. Indeed since 1944 Congress has declared in each general River and Harbor appropriation act that it shall be the policy of Congress

“to recognize the interests and rights of the States in determining the development of the watersheds within their borders and likewise their interests and right in water utilization and control . . . and to limit the author-

ization and construction of navigation works in those in which a substantial benefit to navigation will be realized therefrom and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.” (Act of December 22, 1944, c. 656, 58 Stat. 887.)

### Jurisdiction and Authority as between State and Federal Governments

It is evident from the foregoing that State and federal jurisdictional rights over navigable waters overlap and that the lines of demarcation are not distinctly drawn. On the one hand Congress has primary authority over navigation as part of the power to regulate interstate and foreign commerce, but, on the other hand, the interest of the States in their domestic commerce is such that the authority of Congress is not necessarily exclusive of State action. The established practice for resolving conflicts of asserted jurisdictional rights over navigable waters may be summarized in three statements:

- A. The power of the State is supreme in the absence of prohibitory federal legislation.
- B. The authority of the State is superseded by the paramount authority of the federal government only to the extent and on the matters specified explicitly and clearly in federal statutes manifesting such an intent to exclude State authority.
- C. The State is not divested of jurisdiction over regulation of navigable waters where there is Congressional legislation which, though specific, is not regulatory (e.g., simply authorization and appropriations for improvements).

A formidable question the Commission sought to answer was “To what extent has the federal government occupied the regulatory field relating to the upper Mississippi reservoirs?” Has Congress pre-empted the field to the exclusion of the State of Minnesota? An examination of federal legislation, as undertaken by the Commission’s counsel, reveals that while the State of Minnesota is far from autonomous in the field, Congress has not acted in such a way as to exclude the State from taking part in jurisdiction over the reservoirs; there is probably a wide field for State regulatory control.

Statement A, labeling State action as plenary in the absence of federal action, hardly has effect in this instance since there is a considerable amount of legislation relating to the reservoirs. In addition there are two general statutory provisions, sections of the Act of March 3, 1899, c. 425, presently coded as 33 USCA §§ 401 and 403, which prohibit, in any case, the construction or maintenance



of obstructions on navigable waters without the approval of the federal government. Regardless of legislation which refers specifically to the reservoirs, these general provisions are sufficient to preclude the State of Minnesota from unilaterally and independently, without federal consent, constructing any dam on the headwaters of the Mississippi River or its tributaries. But these laws do not transfer exclusive control to the federal government and they do not override the authority of the State to put its veto on the placing of obstructions in navigable waters within the State. As construed by the Courts these laws were intended to require both State and federal approval of such obstructions.

Statement B provides that a State is not divested of power to legislate with reference to navigable waters except as Congress directs federal agencies to take exclusive control over an area for an authorized purpose. With one possible exception there are no such statutes which have any relation to regulation of the upper Mississippi reservoirs. The one law, a provision of the River and Harbor Act of 1888 (now coded as 33 USCA § 601), has never been construed by the courts, has been given no significance by the Army Corps of Engineers, and, according to the Commission's counsel, any doubt about the present effect of the provision "is fully dissipated by the preamble of each River and Harbor appropriation act subsequent to December 22, 1944, wherein Congress declares that it recognizes the interests and rights of the States" with respect to navigable waters. Since Congress has not manifested an intent to exclude Minnesota from jurisdiction, the reservoirs may be considered subject to the control of both State and federal governments.

There has been a considerable amount of specific but non-regulatory legislation as referred to in Statement C which applies to the reservoirs. The six control structures have been authorized, erected, operated and maintained through federal legislation. This type of legislation does **not** divest the State of its rights to control and regulate the reservoirs in the interest of its citizens and in any manner which is not inconsistent with their use by the federal government in the aid of navigation. As property of the United States government, the control structures may not be injured, destroyed or tampered with by any person without the consent of the federal government. However, through legislative action Minnesota can superimpose limits for control of the waters of these reservoirs in the interest of public welfare, subject to the paramount rights of the federal government to utilize the water for navigation if such action becomes reasonably necessary.

In summary, the State of Minnesota is not completely free to legislate with reference to the upper Mississippi reservoirs but neither is the State powerless to act; rather, the area is subject

to the concurrent powers of State and federal governments. While the powers of the State to regulate perhaps could have been subordinated to the federal government by specific act of Congress, the Congress has not so acted, and the State legislature is consequently unrestricted in its present right to control, subject only to the limitation that such control does not unreasonably interfere with navigation in the Mississippi. The extent of Minnesota's powers over the reservoirs includes the enactment and enforcement of such reasonable police regulations as may be deemed necessary to preserve the common right of enjoying such waters, and the State may determine the extent and manner of enjoyment of conflicting rights and uses. State action is limited in that it may not materially or unreasonably interfere with interstate or foreign commerce or conflict with federal control.

### PART III. DIVERGENT DEMANDS ON WATER RESOURCES OF THE RESERVOIR AREA

Several problems arise out of the federal government's method of operating the reservoirs. The main problem and the one to which all the others are related is the problem of satisfying divergent demands for water. Residents of the Mississippi watershed, of which the upper Mississippi reservoirs are an integral part, have great needs for water but for different and sometimes conflicting purposes. In the reservoir area these divergent requirements converge as pressures upon the policies of operation followed by the Corps of Engineers. Since this is the focal point, problems surrounding the operation of the reservoirs may best be approached from the standpoint of conflicting demands for water. There are two types of conflicts: inconsistent federal uses and incompatible local requirements.

#### Conflicting Federal Requirements

Previous discussion has emphasized the role of the reservoirs in navigation. However, they have been used as well for flood control though this is hardly mentioned in statutes relating to the reservoirs. While flood abatement and aid to navigation are the two water control purposes served by the Corps of Engineers it is not true that all water control projects can be effectively used for both purposes. This is especially true of detention basins which do not have too great storage capacity such as the upper Mississippi reservoirs. A large supply of water for navigation is hardly in line with flood control objectives. Adolph F. Meyer, the Commission's consulting hydraulic engineer, reported:

"Inasmuch as the maintenance of full reservoirs for navigation is inconsistent with the maintenance of empty reservoirs for maximum possible retardation of flood waters, the operation must always represent a compromise between objectives."

Aid to navigation has been and is the primary purpose of the reservoirs, the Corps of Engineers maintains, but it is not intended that flood conditions be aggravated by having the reservoirs too full at the time of the breakup in spring.

To the extent that flood control has been attempted it has been done by means of allocating or ear-marking available storage capacity for specific purposes. A common practice for large reservoirs, allocation of capacity is not so useful as a satisfactory multi-purpose solution with small dams. Commission-member Senator Rosenmeier underlined this when he stated at the Walker meeting that the problem of the Corps of Engineers seems to be that of "trying to

use an inadequate set of resources, both water and storage reservoirs, for irreconcilable purposes."

#### Conflicting Local Needs

Local requirements for water, like federal needs, conflict with one another. Minnesotans, whether living close to the reservoirs or downstream from them, have many and divergent uses for reservoir water. Recreation, water supply, sewage disposal, irrigation, domestic navigation, water power, maximal conditions for game, fish, and wild rice production as well as stabilization of levels in the interest of resort properties are some of the main uses which precipitate these conflicts.

An extensive survey of affected persons would be necessary to accurately determine the degree and intensity of conflicting requirements but testimony revealed some important factors. In the first place the requirements of resort and recreational interests on the lakes may be diametrically opposed to downstream riparian demands and interests. Lake residents and resort businesses desire a stable lake level which necessarily requires variable outflow; downstream interests desire regulated outflow which would entail a variable lake level. Interested parties directly tangent to the reservoirs are in moderate disagreement as to what the lake levels should be. Most testimony to the Commission showed acquiescence with existing levels of the reservoirs and a fear that they might not be maintained by the Corps of Engineers.

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Changed conditions call for revision of policies governing the operation of the upper Mississippi reservoirs. Originally constructed for navigation, today other factors, such as recreational interests, wildlife, water conservation, wild rice production, municipal water supply, power interests, sewage dispersal, the economy of the areas directly involved and local taxing divisions, must play the paramount role in decisions to release or detain reservoir water. The policy of the Corps of Engineers with respect to this change of circumstances seems to be this: federal needs for the reservoirs have changed and may allow more complete accommodation of local interests, but the reservoirs are still thought to be desirable as a standby support to navigation under emergency conditions. Colonel Brown testified that the reservoirs are used very little for navigation purposes. The Commission's hydraulic engineer reported that since World War II there has been only one instance when an irregular release of water was required for the purpose of aiding navigation. Such releases, furthermore, have little effect on the level of the river as each release of 1000 cubic feet per second provides only one-tenth of a foot rise in the river at St. Louis. As a result of these

factors, the Corps of Engineers has endeavored to operate the reservoirs so as to meet local demands but always with the oppressive impediment that their jurisdiction is confined to regulation solely in the interest of navigation and, incidentally, flood control. The Secretary of War in 1936 promulgated restrictions on the water levels of the reservoirs that were to be maintained; they were revised in 1944. These restrictions—the lowering of the high water level and the raising of the low water level—indicate the declining need of navigational uses. Colonel Brown indicated that only 27% of the original capacity is now useable for navigation. The following table, prepared by the Commission's hydraulic engineer shows where reductions have taken place.

Reservoirs	Original Low Limit	Present Low Limit	Loss in Storage Capacity	Original Upper Limit	Present Upper Limit	Loss in Storage Capacity
Winnibigoshish	0.0	6.0	158,490 SFD	14.2	12.0	119,640 SFD
Leech	0.5	0.0 gain	27,000 "	5.24	3.0	167,990 "
Pokegama	4.5	6.0	9,260 "	12.0	10.0	21,760 "
Sandy	0.6	7.0	17,620 "	11.0	11.0	0 "
Pine	1.3	9.0	23,900 "	18.5	14.0	32,990 "
Gull	1.0	5.0	22,590 "	7.0	7.0	0 "
			204,860 "			342,380 "

However diminutive a role the reservoirs play in the regulation of the level of the Mississippi River, the Corps of Engineers maintain that the reservoirs may be useful to navigation under emergency conditions. The level of the Mississippi is controlled by small but regulated discharges of water from many reservoirs and the Corps of Engineers contend that the upper Mississippi reservoirs, though a very small part of the total effort, should still be an integral part of that program in order not to complicate the problem and increase the burden of other reservoirs. Finally, there is the possibility of emergencies during which time water from the upper Mississippi reservoirs might be essential to navigation.

In contrast to the position of the Corps of Engineers, it is the point of view of State and local interests that the reservoirs ought to be used primarily for local needs and that action should be taken to insure primacy of these interests in the operation of the reservoirs. While federal use of the storage capacity has admittedly diminished to the point of being merely nominal, local water requirements have increased tremendously. Even though the Corps of Engineers has operated the reservoirs with an eye to local needs, there have been times when these requirements have been disregarded. For example, the unnecessarily abrupt stoppage of water from Leech Dam in March, 1958, resulted in extensive damage to fish.

Dissatisfaction with current practices of the Corps of Engineers and wholehearted endorsement of the preliminary disclosures of this Commission has led various conservation groups representing state-wide opinion to adopt and endorse the following resolution:

"In view of the tremendous importance of the Upper Mississippi Reservoirs, including Leech Lake, Winnibigoshish, Pokegama, Big Sandy, White Fish and Gull, together with their tributary waters, to the people of this State for recreational, wildlife, and other uses, and in view of the minimal value of these waters for navigation purposes in the lower Mississippi River, we urge State and federal legislation preferably to vest full control of the reservoirs in a State agency or at least establish a joint control as between the State and the Army engineers."

Adherents of this resolution include the Minnesota Game Protective League, the Isaac Walton League, the Minnesota Conservation Federation, Southern Minnesota Conservation Association and the Central Conservation Association, Ramsey County Sportsmen's Association, Darkhouse and Winter Angling Association, and many others.

In view of the factors discussed in this report the Commission concludes that:

- more complete and reliable data should be obtained on various aspects of the problem, particularly on the relative economic importance of the various interests affected by the reservoirs, such as recreational interests, wildlife, water conservation, wild rice production, municipal water supply, power interests, sewage dispersal, the economy of the areas directly involved and local taxing divisions.
- the appropriation of \$5,000 to the commission was adequate only for a cursory investigation of the problem and did not make possible thorough research on many subjects.
- the water resources of the upper Mississippi reservoirs are vitally important to the economy of a large and important area of central and northern Minnesota and the operation of those reservoirs has a tremendous impact on the economy of the State as a whole.
- the demands for navigation are minimal relative to the needs of the State and should be subordinated to the requirements of the State without imposing handicaps on navigation in the lower Mississippi.

—interested parties in the State overwhelmingly favor State control and operation of the reservoirs in the interests of the State with incidental navigational needs subordinated thereto.

In the light of these conclusions, the following recommendations were adopted by the Commission:

1) The Upper Mississippi Reservoirs Commission strongly urges that the State of Minnesota take all steps necessary to insure that the reservoirs on the upper Mississippi River be operated primarily in the interest of residents of the State with the incidental navigational uses for the lower Mississippi subordinated thereto. The Commission recognizes that complete acquisition at this time may not be feasible but recommends that joint control be effected by the cooperation of the appropriate State and federal agencies, namely, the Minnesota Department of Conservation and the U. S. Army Corps of Engineers.

2) The Upper Mississippi Reservoirs Commission further recommends that a legislative committee be established forthwith, adequately financed, and directed to meet with the Congressional delegation from Minnesota for the purpose of formulating necessary national and State legislation to bring about control of the reservoirs in the interest of the people of this State with the navigational uses subordinated thereto.

3) The Commission recommends that the study of the upper Mississippi reservoirs be continued for a two-year period with an increased appropriation to allow for a more thorough examination of the problem and to assist in the establishment of new control procedures.

4) Enabling legislation to effectuate a basis for implementing the above recommendations at this session is highly recommended.