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A STATE/LOCAL LAKE REHABILITATION PROGRAM: A PROPOSED BILL AND COMMENTARY

by

Stephen Born
Jon Kusler
Douglas Yanggen
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An Inland Lake Demonstration Project Report

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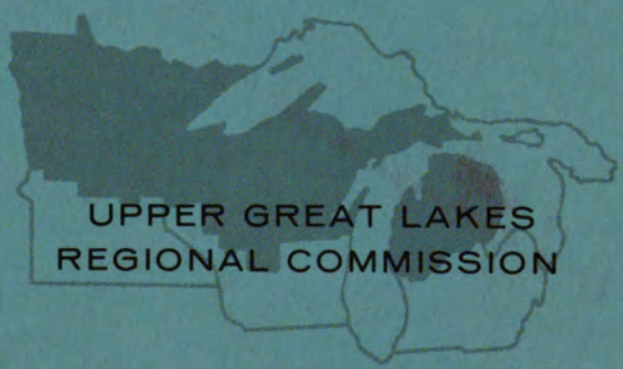

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PREFACE

This report contains a draft bill establishing a joint state-local program for lake protection and rehabilitation. The bill was prepared by the Inland Lake Demonstration Project and by other Wisconsin agency personnel, and has been introduced in modified form in the Wisconsin legislature. It embodies many of the conclusions and recommendations that have emerged from five years of work by the Inland Lake Renewal and Shoreland Management Demonstration Project, a joint venture of the University of Wisconsin and Wisconsin Department of Natural Resources. This project has, since its inception in May 1968, carried out a range of activities demonstrating techniques to protect, maintain, and restore a high quality environment within and adjacent to inland lakes.

The bill was drafted to meet the lake protection and rehabilitation needs of Wisconsin, a state with a long history of concern for its water resources. Lake protection is emphasized in several existing state statutes, including comprehensive pollution control laws (CH. 144 Wis. Statutes) and shoreland zoning [Wis. Stat. §59.961, 144.26 (1971)]. Any state considering establishment of a lake protection and rehabilitation program should supplement and modify the draft bill to reflect its own institutional framework and particular needs. For many states, this will require a strengthening of the shoreland planning and regulatory provisions. Yet, we believe that the underlying statutory rationale and most of the statutory provisions will have broad application.

The bill has been prepared, in part, to provide a legislative framework sufficient to meet the "clean lakes" provisions of the Federal Water Pollution Control Act Amendments of 1972 (Sec. 314, Pub. Law 92-500, 92nd Congress, S. 2770, Oct. 18, 1972). That Act requires that each state prepare and submit to the U. S. Environmental Protection Agency for approval:

(1) an identification and classification according to eutrophic condition of all publicly-owned freshwater lakes in such State;

(2) procedures, processes, and methods (including land use requirements), to control sources of pollution of such lakes; and

(3) methods and procedures in conjunction with appropriate Federal agencies to restore the quality of such lakes.

The Environmental Protection Agency is authorized to provide financial assistance to states to carry out lake restoration not to exceed 70% of the funds expended by a state. The Act appropriated $300,000,000 for such assistance over the fiscal 1973, 1974, and 1975 period. Hopefully, this federal support, in conjunction with complementary state legislation and programming, will provide the framework to directly and systematically address the rehabilitation and management of the nation's valuable lake resources.

Special appreciation is extended to Mr. David Stute and Mr. Jack Schairer, attorneys at the Wisconsin Legislative Council, who played a principal role in drafting the Wisconsin version of the bill; and to the many legislators who have given bipartisan support to the concept. Drs. Lowell Klessig, James

O. Peterson, and Stanley Nichols constructively criticized drafts of the report. We also wish to thank many other unnamed persons for their helpful comments and review.

I. INTRODUCTION

A. WHAT'S HAPPENING TO OUR LAKES?

Lakes are temporary features of the landscape. Even with careful use and management, lakes become extinct within a relatively short span of geologic time (thousands of years), filling with sediment and organic matter to become marshes and, finally, solid ground. Natural and man-made lakes are partially closed systems acting as receptacles or "sinks" for nutrients, sediments, and other materials. The activities of man which affect the influx of such materials can sharply accelerate the natural aging process, telescoping a lake's lifespan from thousands to tens of years. /Sediments, nutrients, pesticides, and other substances which collect in lakes as a result of waste disposal and residential, agricultural, and industrial activities have seriously degraded many lakes, in some cases irreparably. /

The principal water-quality problems encountered in lakes are accelerated eutrophication, sedimentation, and contamination. Eutrophication is the process of enrichment with nutrients, which when accelerated leads to overfertilization of lakes. Sedimentation is the process of deposition and accumulation of organic or inorganic sediment. These two processes are closely related and are the main elements of the lake aging process. Contamination is the process by which a health hazard is created by the addition of materials or energy to a water body. These dry, technical definitions of water-quality

problems are expressed more dramatically in lakes as rampant weed growth, nuisance algae blooms, declining fisheries and fishkills, sediment infilling, and the presence of potential health hazards posed by toxic substances such as mercury. In recent years, lake problems have received increasing attention, and the effects and causes of the lake aging process have been the subject of extensive research and review (Stewart and Rohlich, 1967; National Academy of Sciences, 1969; Vollenweider, 1968; Lee, 1970; Likens, 1972).

Lake deterioration has produced widespread societal impacts. Lakewater quality has been impaired for domestic and industrial as well as recreational and aesthetic uses. Shoreland development has frequently resulted in damage to the scenic quality of the shorelands and the loss of irreplaceable fish and wildlife habitat. Degraded lakes result in a declining tourist industry, decreased lakeshore property values, limited recreational opportunities, and dissatisfied citizens. The problems affect not only local lakeshore property owners, but users of public waters from across the nation.

A relatively fixed supply of lakes must meet skyrocketing user demands, and deterioration of that lake resource base markedly accentuates the demand-supply dilemma. Increased leisure time, higher incomes, and improved transportation have contributed to the rapid growth of water-based recreation (Outdoor Recreation Review Commission, 1962). Lakes and ponds are important water sport areas, and lake shorelands serve

as major recreational development sites. The growing numbers and categories of lake recreationists (fishermen, swimmers, boaters, water skiers, scuba divers, etc.), coupled with a diminishing number of usable lakes, have produced increasing and more visible user conflicts (Kusler, 1970a; 1972a). In short, intensified use of lakes and watershed lands, combined with exploding recreational demands, has created a critical resources management problem in many states. The situation has sensitized the public to the nature and dimensions of lake degradation problems, and has precipitated substantial public concern about and demands for action (see House Committee on Government Operations, 1967; Hasler, 1969; Born and Yanggen, 1972; Ketelle and Uttormark, 1971; Crossland and McCaull, 1972; and Bjork, 1972).

Even if new legislation is adopted to control watershed, shoreland, and watersport use to reduce new pollution and use conflicts, this will not cure the deteriorated condition of many lakes. New pollution control and land use efforts can be expected to minimize future problems, but not to solve many existing ones. In many instances, rehabilitation efforts are needed if water bodies are to be returned to a state suitable for recreational use.

B. SOLUTIONS

1. Lake Protection

New programs are needed throughout the nation to protect lakes from the multiple sources of man-made pollution, destruction of wildlife habitat, and loss of scenic beauty. Such

protection will require more effective federal, state, and/or local control of filling and dredging in navigable waters, shoreland alteration (grading, tree-cutting, and building construction), and control of water pollution sources, including nonpoint sources such as agricultural runoff. Such protective efforts are complicated by the wide range of watershed activities which relate to lake protection and by the fragmented governmental control over such activities. Often, several levels of government share responsibilities for control of activities relating to a single lake. Limited geographical size of cities and villages also results in multiple municipal responsibility for individual water bodies.

Even in states where a range of state and local lake protection activities has been authorized, efforts have been hampered by lack of consistent policies. One program may be directed at preservation of fish spawning grounds, while another program on the same water body may be aimed at maximum public shoreland development with minimal regard to its effect on fisheries.

a. Existing Programs

Both state and local government have exercised regulatory and management responsibilities in protecting lakes. State regulatory and management activities are often concerned with water uses or land uses that directly affect the water. Local activities are usually concerned with shoreland and watershed uses (Kusler, 1970b).

State regulatory programs pertain to private and local governmental uses. All states have some kind of pollution control agency, although most programs are concerned only with point discharges. Some states (e.g. Iowa) explicitly prohibit discharges of wastes into lakes; others prohibit discharges into certain lakes. Despite these efforts, few programs have addressed pollution abatement throughout a lake's entire drainage basin. Forty-eight states require permits for private and public dredging and filling and other alterations of navigable waters. A few states, like Nebraska and North Dakota, prohibit or regulate the draining of lakes. Thirty-five states authorize state agencies to investigate and make recommendations concerning lake water levels. Forty-nine states regulate the construction of dams. Forty-three states require permits for application of pesticides or chemicals for weed control.

Local regulations apply principally to private land uses. There is very little specific legislation authorizing local units of government to regulate land use for the protection of lakes. However, most cities, counties, and towns have authority to adopt zoning and subdivision control power, sanitary codes, and special codes to regulate the type of shoreland use, lot size, dwelling setback, grading of lands, tree-cutting, fill of wetlands, use of septic tanks, solid waste disposal, littering, construction of private roads and other activities. A number of states, including Wisconsin, Minnesota, and Vermont, have enacted legislation authorizing

local units of government to adopt special shoreland regulations for lake protection. While local units of government often possess sufficient statutory power under general or special statutes to adopt lake protection plans and regulations, few have done so./ This is due in part to a desire not to inhibit local land development and to maximize property tax base. It is also due to lack of planning and scientific expertise at the local level to evaluate lake problems and formulate technically sound controls./

b. New Programs

A wide range of new programmatic alternatives is available for lake protection.

(1) Strengthened state planning and regulation of critical areas, including lakes, lakeshores, and watershed areas which may contribute pollution to lakes. This recommendation forms the basis for a variety of land use bills in Congress which would give federal assistance to the states for such an effort (for example, S. 268, 93rd Congress). New laws would be needed in some states to consolidate state water regulatory functions in a single agency and to require the preparation and implementation of coordinated lake protection plans. Legislation could also authorize the state regulatory agency to exercise land use control functions. /The state might either directly regulate all land and water uses pertaining to lakes or set guidelines and standards for local regulation, as is done for shorelands in Wisconsin and Minnesota (Yanggen and Kusler, 1968; Kusler, 1970b). In these states,

state action occurs only if local units fail to adopt and enforce adequate controls.

(2) The authorization of counties, municipalities, or special purpose units of government such as lake protection and improvement districts to exercise new lake-protection powers. Effective programs by such general purpose or special purpose units would require state technical assistance and mechanisms to promote cooperation with state regulatory agencies and other local units of government.

To a considerable extent, the first recommendation has already been implemented in Wisconsin through the formation of a consolidated Department of Natural Resources with supervisory power for county shoreland regulation. The draft bill contained herein implements the second recommendation by establishing special lake protection and rehabilitation districts.

2. Lake Rehabilitation

Lake rehabilitation efforts at the state or local levels require more than the regulation of private and public activities which degrade water. Positive management programs are needed for weed control, water level management, dredging, and a range of other improvement activities. Most states have at least some powers to conduct such programs (Kusler, 1972b). Forty-two states permit state agencies to construct dams; forty-eight states authorize agencies to stock fish and maintain habitat; thirty-three states authorize agencies to

stabilize lake banks and erosion areas; forty states permit agencies to treat water for weed and algae control; and twenty-eight states authorize agencies to dredge or otherwise "reclaim" lakes.

Only a few states expressly authorize lake rehabilitation by local units of government (Kusler, 1972b). Several states, like Washington and Indiana, authorize local units of government to construct dams and control water levels. A few permit the beautification of waterways by counties and municipalities. Several states have granted soil and water conservation districts broad powers that could include dredging of lakes and powers to rehabilitate water bodies. Connecticut has adopted legislation authorizing special lake authorities to control and abate algae.

Where it is too late for preventive action, lake rehabilitation may be necessary and warranted. However, several problems complicate lake renewal and improvement efforts. Governmental policy and program options will be dependent upon lake conditions, economics, and the status of lake rehabilitation technology. Lakes are complicated ecosystems, and predictive abilities of scientists concerning the response of lake systems to various treatments are as yet somewhat limited (University of Florida, 1969). Each lake has its own "unique personality," which frustrates attempts to directly transfer results from one lake to another with apparently similar problems. There are also time constraints associated with lake renewal programs. The public wants

action and prompt results. However, in the scientific community, there is substantial disagreement as to how much information is required to adequately formulate a remedial program and evaluate its results. Natural variations in measured parameters may mask initial changes brought about by a lake treatment so that years may be required to demonstrate that real changes have taken place. The economics of a particular renovation effort may also be uncertain because the technology is in a fledgling state of development. In spite of these difficulties, several methods currently exist for upgrading and rehabilitating lakes, although some are still in a largely experimental stage (Born and others, 1972; Bjork, 1972; Tenney, Yaksich, and DePinto, in preparation; Dunst and others, in preparation).

The approaches for rehabilitating and improving eutrophic and other degraded lakes fall into two general categories: (1) limiting fertility by restricting nutrient inputs, accelerating nutrient outflows or minimizing nutrient cycling within the lake (diversion, waste treatment, dilution, land use controls, circulation systems, dredging, chemical treatment, harvesting, selective withdrawals, etc.), or (2) managing the consequences of over-fertilization (weed harvesting, basin modification, habitat manipulation, aeration, chemical treatment, biological controls, etc.). More detailed information on various lake rehabilitation and management techniques, along with appropriate reference citations, are provided in Appendix I.

II. A JOINT STATE/LOCAL LAKE PROTECTION AND REHABILITATION PROGRAM

A. THE NEED FOR A JOINT STATE AND LOCAL PROGRAM

In some states, lake restoration efforts are now undertaken by state level water resources, pollution control or conservation agencies. Direct state planning and plan implementation generally has the advantages of simplicity, accountability, and efficiency where state-wide interests are involved and a technically-staffed agency is in existence. But other states are prohibited by their constitutions from participating in works of internal improvement, including acts such as dredging and other rehabilitative activities. In these situations, lake rehabilitation efforts have been undertaken primarily by private citizens or local units of government.

Apart from possible constitutional problems, sound reasons exist for conjunctive state and local rehabilitation efforts as opposed to exclusive state or exclusive local projects. The lake renewal activities of the Wisconsin Inland Lake Demonstration Project have indicated the importance of local participation in such projects (Born, 1971; Born and others, 1973). Lakeshore property owners often are most interested in initiating a rehabilitation program; they are the ones most directly benefited. They can serve a primary role in organizing and formulating a project, can provide important services and labor, and can bear all or a substantial

portion of the financial burden (see Klessig and Yanggen, 1972; Klessig, 1973). Lake rehabilitation efforts can be coordinated with the adoption of land use controls, including subdivision regulations, building codes, and zoning ordinances for shoreland areas (traditionally local functions). Similarly, surface water regulations for swimming, boating, and water skiing can be adopted (Kusler, 1970a; 1973). Finally, solid waste disposal and installation of sewers is a local function. Once the initial aspects of a project are completed, local property owners may play an important role in monitoring on-site maintenance.

Despite the substantial advantages in involving local landowners in a rehabilitation program, such owners acting individually or even collectively (as a property owners association) usually cannot formulate or implement a technically-sound lake restoration project. The analysis of lake problems, development of alternative solutions, the analysis of solutions in terms of costs and environmental impacts, and the funding of necessary projects usually exceed the technical and financial capability of individuals or local units of government. A technically-staffed state agency can provide the technical review function, usually absent at the local level. It can coordinate the many federal, state and local programs which may relate to a given lake rehabilitation activity. Equally important, in this day of environmental concern, it can help insure that the project will not pose threats to the environment or violate state or federal laws

relating to dredging, fills, herbicide use, water-level manipulation, etc.

The Wisconsin Lake Demonstration Project experience suggests that a conjunctive state and local lake rehabilitation effort represents a desirable and effective approach. The state can serve primarily in data-gathering, data-analysis, planning and plan review functions. It can provide grants-in-aid for local action. Local general purpose or special purpose units of government can carry out implementation phases of a program, subject to state guidelines and approvals.

B. WHO WILL DO THE JOB AT THE STATE LEVEL?

Some states have combined natural resource planning and regulatory functions within a single agency. Other states separate pollution control, parks, land use planning, fish and game management, and other activities. Because of the broad range of technical expertise required for lake rehabilitation efforts, a state lake protection and rehabilitation program should, if possible, be located in an agency with a broad range of water and land management functions. Often a pollution control, water resources, or conservation agency will be the most appropriate designation, but other agencies may suffice if adequately staffed.

Adequate staffing for successful lake rehabilitation means a marked departure from traditional agency staffing philosophies and realities. A staff must be assembled that can deal with lake problems in an interdisciplinary manner

(see Bedrosian and others, 1972). Lake problems cannot be dealt with from a single disciplinary viewpoint, but instead call for integrated technical evaluation that acknowledges the complex interrelated nature of aquatic ecosystems. An agency lake management and renewal team should include not only the more traditional biological representatives, i.e. fisheries biologists and botanists, but should also include water chemists, soil scientists or geochemists, hydrologists/ hydrogeologists, hydraulic engineers, invertebrate biologists, and aquatic ecologists. As important as the composition of the team is the necessity for them to work in a genuinely interactive and interdisciplinary way. Problems in lake ecosystems are intricately interconnected; so must be the efforts of specialists who hope to solve such problems. The luxury of narrowly-defined conceptions of lake problems, followed by fragmented and frequently ineffective advice, can no longer be afforded.

Operationally, the functions of the lake rehabilitation team will likely include (a) preliminary determination of guidelines and criteria for data-gathering and evaluation, (b) preliminary selection and review of candidate lakes for rehabilitation, (c) problem definition and delineation of remedial courses of action for study lakes, and (4) coordination and direction of program implementation, where appropriate. Because lake rehabilitation efforts involve many complicated technical issues which must be explained to local groups prior to and throughout project development, there is a crit-

ical need for the team to encompass a strong educational/ informational capability. In many states with land grant colleges, University Extension personnel form an important bridge between the academic community and industry, local interest groups, and local government. Extension organizations are, in general, well established for facilitating a state lake rehabilitation program. The Wisconsin Inland Lake Demonstration Project experience has indicated the desirability of close liaison between state agency and University Extension personnel in implementing environmental action programs, and accordingly, two water resource specialist positions were provided for in the proposed Wisconsin legislation. These specialists would assume broad public educational responsibilities regarding lake-related problems (a prerequisite for long-term awareness and solution of such problems), and achieve a link with the wide scope of university research that will complement and support an ongoing lake protection and rehabilitation program. They would develop educational programs which would include local informational meetings for interested groups, organization and assistance in development of subsequent activities of lake rehabilitation and protection districts and preparation of informational publications and educational materials.

In recognition of the need for broad interagency expertise and cooperation, the draft bill contained in this report establishes an interagency lake protection and rehabilitation council. In any state, a group with comparable representation of interests

should supervise and set policy for whatever operational agency is chosen. This council can serve many purposes, including: the establishment of external and more accountable program review procedures; coordinating intra- and interagency decision-making; and buffering the technical team from the inevitable strong pressures of interest groups desirous of financial and other assistance for their lake problem.

C. WHO WILL DO THE JOB AT THE LOCAL LEVEL?

Not all persons benefited by lake management projects are willing to pay the associated costs if financial contribution is voluntary rather than mandatory. For this reason, a formal local governmental unit with taxing powers is the most effective and equitable local institutional alternative, in preference to voluntary local organizations (for a discussion of the role of lake property owners, their organizations and their role in lake management, see Klessig, 1972; 1973).

The two basic types of local government which might be authorized to carry out such functions include general purpose units of government and special districts. The special district approach was selected for Wisconsin and authorized in the draft bill based upon the following assumptions: (1) most lakes are located in rural areas and local general purpose units of government such as counties and towns are often unable or unwilling to assume responsibility for lake rehabilitation; (2) many shoreland property owners are seasonal residents without voting rights in local general purpose unit

elections and with little direct political influence over elected officials in the lake area; (3) some lakes are bordered by several political jurisdictions, both incorporated and unincorporated; and no effective single political unit is able to undertake restoration efforts; (4) owners have a strong incentive to take collective action since they are owners of shoreland property and are the most directly benefited by lake protection and rehabilitation efforts which appreciate the value of their land.

Special districts are in widespread use throughout the country, but they have been criticized on the following general grounds: (1) special districts performing special services cause fragmentation in programs which should be carried out by general purpose governments capable of dealing with a broad range of complex problems in a coordinated manner; (2) fragmentation results in inefficient and uneconomic performance of services where management functions are duplicated and economies of scale are not realized; and (3) the political responsiveness of special purpose units is low where the general public has no knowledge of their activities or where there is poor attendance of electors at district meetings.

To avoid overlapping powers, the draft bill contained in this report establishes a special district with powers limited to lake protection and rehabilitation -- powers not typically possessed or used by general purpose local governments. This means that the district can undertake a function not now being performed, but cannot provide services such as public water and sewerage facilities which may directly stimulate growth and

cause attendant problems for general local government. There are many ramifications of a policy establishing the intergovernmental relationships between lake protection and rehabilitation districts and other special purpose districts. An adjunct of the lake rehabilitation bill in Wisconsin calls for a study of relationships between lake improvement districts and other governmental units.

The portions of the bill authorizing creation of inland lake protection and rehabilitation districts contain a number of additional provisions designed to overcome some of the objectionable features of special districts. (1) The problem of governmental fragmentation is dealt with by requiring state and county board approval before the district is formed. Once formed, continuing liaison of the special district with general local government is ensured because the county board and the governing body of another local government must each appoint a member to the five-person district board. The board is required by statute to maintain "a liaison with those officials of state and local government involved in lake protection and rehabilitation." (2) Possible duplication of efforts and lack of economies of scale will be minimized by provisions authorizing districts to contract with other districts and units of government in the performance and receipt of services. Presumably the state agency which may provide grants-in-aid could require necessary coordination as a condition of cost-sharing. (3) Provisions are included to make the district politically responsive. Electors have the power at the annual meeting to elect commissioners, approve

the budget, and to vote on any project costing more than $5,000. The annual meeting is scheduled in the summer to permit seasonal residents to participate in the meeting and to serve on the board. The department (designated state agency) and local government are kept informed of the district's activities by requiring that they receive a copy of the annual report.

Existing governmental structure and the most appropriate institutional mechanisms for lake rehabilitation will vary from state to state. Some states may authorize existing units of general local government with appropriate jurisdictional boundaries, such as the county or New England Town, rather than special districts, to undertake lake rehabilitation. If so, the general purpose units could be given the authority to establish subordinate taxing areas in part of their territory. This power would permit the governing body to impose a special tax levy on that land which was benefited by lake rehabilitation. The local governing body would thus retain direct control over the lake rehabilitation program and could set basic policies, including changing the services or boundaries of the area or dissolving it when no longer needed.

D. FUNDING

1. Federal Level

As noted in the preface, the federal government, via Section 314 of the 1972 Amendments to the Federal Water Pollution Control Act (the "Clean Lakes" section) has taken a strong policy position regarding the condition of the nation's

lake resources. Along with requirements for the states to inventory and assess the condition of their lakes and potential approaches for dealing with deteriorated lakes, the Act provides major financial incentives through cost-sharing, for states to undertake lake rehabilitation activities. The Act appropriated $300,000,000 over a three-year period for the lake restoration cost-sharing program; this level of funding emphasizes the commitment of the public sector at the federal level to directly confront the need for financial assistance to launch such programs. Executive Department policies may preclude the immediate availability (1973-74) of these funds, but there is little doubt that in the relatively near future, the federal government will be making substantial financial contributions to lake restoration programs. The initiative, however, will rest with the states.

2. State Level

The state is trustee of the public waters of the state for the citizens-at-large. As trustee, the state has a primary responsibility for lake protection, maintenance, and rehabilitation. This responsibility is generally tied to public health and welfare considerations for the citizens of the state, as expressed in a variety of water-pollution abatement statutes (e.g., see Kusler, 1970b). For states with a lake heritage comparable to Wisconsin's -- where the more than 10,000 lakes and their shorelands undergird a $1.5 billion tourist/recreation industry and where the lakes are a central ingredient of the high "quality of life" -- "public

health and welfare" translate readily into more concrete economic and environmental terms. Therefore, the citizens of a state are the principal users, and to an inevitable degree, degraders, of the state's lake resources. The use of state revenues to help pay for lake reclamation, i.e., the "operational costs" of using lakes, is clearly justifiable.

Given the widespread public support for and commitment to "clean lakes," i.e., lake rehabilitation and management, the hard question, in view of the prevailing tight fiscal climate across the nation, is how to finance such programs. The funding should (a) provide for the kind of program continuity necessary for conducting environmental resources management programs, (b) to the degree possible, be derived from those most benefited, i.e., a user charge, and (c) not divert funds from, and thereby undermine, other programs of commensurate priority, but with less political visibility and appeal.

The general fund of most state treasuries is currently under extreme pressures, and in some states it may be difficult to achieve funding from that source without developing new, offsetting revenue sources. Increased fishing and boating license fees are one possible new revenue source, but these fees are going up sharply in many states for support of a variety of important natural resource management programs. Some have suggested that new or additional license fees be levied upon recreational camping vehicles, especially in view of the growth of this user category. Other possible

revenue sources include special sales taxes on outboard motors, or water-related commodities in general; such a separate taxing scheme, however, may pose formidable administrative difficulties. On the other hand, if such a tax system could be implemented, it would provide a highly equitable vehicle for apportioning costs of lake rehabilitation to users via their purchases of water skis, snorkels, anchors, canoe paddles, fishing gear, boating equipment, etc.

Some states have incurred bonded indebtedness for water pollution abatement and outdoor recreation programs. Wisconsin, for example, via the ORAP (Outdoor Recreation Action Program) bond issue, dramatically accelerated its programs in these areas. These funds, however, are unlikely sources of revenue for a lake reclamation program. They may be nearing exhaustion, and in any event, are declining as the debt service charges resulting from bonding grow. Moreover, using monies such as those provided for by ORAP would disrupt the orderly completion of that program. Of course, new state bonding programs for lake rehabilitation merit consideration. Some people have advocated a state property tax on shoreland property, which in some states might require a constitutional amendment.

In some states, gasoline tax revenues are placed in a segregated highway fund for use by the state highway commission or department of transportation. These tax revenues are so directed whether the fuel was used on the highway or not. Taxes paid on fuel used off the highway (e.g., motorboats) may

be refunded, but few refunds are actually claimed. Because motorboat users are a major group of lake users, and like other users are partly responsible for lake problems, diverting a portion of gasoline tax receipts for supporting a lake reclamation program is a form of user charge.* Such funding might represent considerably more revenue than is generated by motorboat fuel consumption alone. However, large numbers of people buy gasoline and drive the highways to get to lakes for a variety of recreational activities besides motorboating (swimming, fishing, canoeing, camping, nature study, or just plain relaxation). Diversion of a small amount of segregated highway funds for repairing and protecting lake resources would allow a form of user charge to be assessed against this clientele of lake users. For lake-rich states like those in the Upper Great Lakes region, New England, or Florida, gas revenues have one especially advantageous characteristic: they allow the "user charge" to be assessed not only against lake users from within the state, but also against those users from without, who would otherwise escape the costs of "operation and maintenance" for their recreational areas.

In states where this source of revenues appears both rational and realistic, the impact of such a diversion from a department of transportation must be carefully evaluated.

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*In Wisconsin, a diversion of 1% of state gasoline tax revenues (about $1.6 million annually) was suggested for supporting a state lake rehabilitation program. Bills introduced in the state legislature (AB 766, SB 37; 1973), however, rely on general fund financing.

Many such agencies are in the midst of serious financial difficulties, and are hard-pressed to even maintain the state's basic road network. The resistance of such agencies and their constituencies to even the most justifiable of monetary diversions is understandable. Where politically feasible, however, modest increases in state gasoline taxes could alleviate transportation-related funding inadequacies, as well as provide new revenues for a state lake rehabilitation program. Whatever funding source is finally proposed by a state, this aspect of lake rehabilitation legislation will likely be a controversial issue requiring careful analysis.

3. Local Level

Typically, lake improvement efforts have been initiated locally by civic groups, sportsmen's clubs, lake property owners associations, or other organizations. With few exceptions, the financial resources of these local groups have been largely inadequate to successfully undertake lake rehabilitation, even where supplemented by gifts and donations from general purpose units of government. These fiscal shortcomings commonly result in inadequate technical analysis of the problems, limit the range of choice in rehabilitative treatments, and preclude the possibility of scientifically documenting the results in a way that might render them transferable to similar situations elsewhere. Financial assistance from federal and state government will mitigate this problem. Still, those who will directly benefit most from lake restor-

ation are local lakeshore property owners, business interests, and nearby residents. Through the formation of the special purpose unit of government provided for in the bill -- "lake rehabilitation districts" -- a vehicle is created not only for involving those most concerned with lake renewal, but also for equitably apportioning costs. Property owners in the districts will be assessed for lake improvements. This provision for local cost-sharing, in conjunction with state and federal aids, thus insures that those benefited the most pay the most, but that the public-at-large shares in the costs of lake reclamation. The districts, of course, may receive contributions from less-directly affected units of government, such as counties and municipalities. The bill provides for municipalities, as well as special districts, to receive grants-in-aid for a portion of lake rehabilitation costs.

The minimum percentage of local cost-sharing must be closely related to a number of variables, including: the overall project cost and ability to pay; resultant public benefits; and technological uncertainties. The model bill requires a substantial local stake in the project by providing for a <u>minimum</u> local contribution of 10 percent of project cost (with the exception of high-risk, largely experimental projects). In most instances, the local cost-share would be substantially greater. Thus, the institutional arrangement of local "districts" provides for a reasonable division of costs among differentially-benefited levels of government. Tough decisions still remain at the local level with regard

to fairly apportioning that component of the total costs. Questions will arise about the boundaries of the district and the equity and efficacy of district assessment policies, such as: how should property which is zoned for conservancy or otherwise not to be developed be assessed; what is a reasonable formula for assessing non-frontage lands within the district; and what should be the limitations on district taxing authority? Answers to these questions will undoubtedly vary from state to state.

III. THE DRAFT BILL

A. HOW THE BILL WORKS

This bill establishes a joint state/local special district program to rehabilitate and protect publicly-used lakes of the state. It establishes an interdisciplinary technical team and advisory council within a state agency. This agency is authorized to inventory lakes, gather data, analyze and process data, develop and evaluate protection and rehabilitation proposals for particular lakes, and approve local lake restoration programs. It will undertake the technical studies necessary to develop and evaluate protection programs and supervise local programs to insure that environmental values and public rights in navigable waters are protected. Finally, the agency is authorized to provide grants-in-aid for local data gathering, planning, and plan implementation.

The first local step in the rehabilitation of a particular lake is the formation of a lake protection and rehabilitation district comprised of lands potentially benefited by a proposed rehabilitation activity. Local lake rehabilitation districts will, with state assistance (a) gather data to identify lake problems and causes, (b) define lake protection needs and rehabilitation approaches, (c) develop plans for lake protection and rehabilitation, (d) evaluate the feasibility of such plans, and (e) carry out the programs. Formation of a district requires a petition to the county board, hearing, and order by the board establishing the district. An initial board of commissioners is selected to commence the affairs of the district.

A district will hold an annual meeting to elect commissioners, adopt a budget and vote a tax for operational purposes. Municipalities are also eligible for financial assistance, and can pursue a course of action similar to lake rehabilitation districts.

The rehabilitation process involves three steps. The first step is a feasibility study. It involves scientifically defining the problems by gathering data about the lake. The district may do this by contract with private groups or in cooperation with state or federal agencies. After the data are gathered, they are forwarded to the state agency where an interdisciplinary team will analyze it, recommend appropriate protective and rehabilitative measures, and estimate the costs of alternative implementation approaches. A feasibility report is then returned to the district. Where private consultants have performed the data-gathering function, it is reasonable to anticipate that they will also analyze the data and suggest remedial programs. In most cases, this will facilitate the state agency's work and expedite the feasibility study phase.

The second step is more detailed project planning and plan adoption. The initial decision of whether to proceed on a feasible alternative is reserved to the commissioners (or municipal government). They are responsible for preparing specific plans for rehabilitation projects, and will identify those projects which the district has the capacity

to carry out. After the commissioners have established a plan of action, they must refer the plan to the appropriate regional planning agency for review. At the same time, they may apply for necessary state permits and desired financial aid, and request a hearing regarding the plan by the appropriate state agency or department. This supervisory state agency must then schedule a hearing in the area and at the hearing consider: (1) the comments of the regional planning agency, (2) permits that may be necessary, (3) whether required environmental impact statements have been prepared, (4) whether the project will cause long-range environmental pollution and (5) the application for financial aid. Within 60 days following the hearing, the agency must issue an order either approving, modifying or disapproving a plan, and rule on applications for permits and financial aids. If the plan is approved, the board may formally adopt the plan. Following the order, the district can make its final decision on implementing the plan, since it knows what activities will be permitted and the amount of aid available.

The third stage is plan implementation. This will involve funding through borrowing, gifts, grants, or special assessment. Work activities will be carried out by district personnel or contractors selected on a bid basis. The supervisory state agency will maintain continuing supervisory jurisdiction over the project to protect wildlife and other environmental values, as well as to assure the technical integrity of the rehabilitation activity.

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Section 1.00 TITLE

This act may be cited as the "Lake Rehabilitation Act of _____."

Section 2.00 FINDINGS OF FACT

The legislature finds that public rights in navigable waters, environmental values, wildlife, and the public welfare are threatened by the deterioration of public lakes; that the protection and rehabilitation of the public inland lakes of the state are in the best interest of the citizens of _____; that the public health and welfare will be benefited thereby; that the current state effort to abate water pollution will not overcome the eutrophic and other deteriorated conditions of many lakes; that lakes form an important basis of the state's recreation industry; that the increasing recreational usage of the waters of the state justifies state action to enhance and restore the potential of our inland lakes to satisfy the needs of the citizenry; and that the positive public duty of the state as trustee of waters requires affirmative steps to protect and enhance this resource and protect environmental values. To this end, the legislature declares that it is necessary to embark upon a program of lake protection and rehabilitation.

Section 3.00 PURPOSES

The legislature hereby authorizes a conjunctive state and local planning and management program for lake protection and rehabilitation to fulfill the positive duty of the state as trustee of navigable waters and to protect environmental values. This program will coordinate all state, federal, and local activities to provide effective lake protection and rehabilitation efforts. The program includes a new state effort of

research, analysis, planning, and financing of restoration projects and a local effort of planning and plan implementation by lake rehabilitation and protection districts or municipalities. The state efforts will aid and assist local efforts, insure that projects promote public rights in navigable waters, environmental values, and the public welfare, and administer a program of financial aids to support local projects with direct benefits to all state citizens. Local districts will be formed by persons directly affected by the deteriorated condition of lakes and willing to assist financially, or through other means, in remedying lake problems.

Section 4.00 DEFINITIONS

As used in this chapter:

(1) "Council" means the lakes protection and rehabilitation council created by s.5.00.

(2) "Department" means the department of _____ _____.

(3) "District" means any lake protection and rehabilitation district.

(4) "Lake rehabilitation" means the improvement or restoration of lakes from an undesirable or degraded condition to a former, less deteriorated condition or to a condition of greater usefulness.

(5) "Municipality" mears any city, village, town or county.

(6) "Public inland lake" or "lake" means a lake, reservoir, or flowage within the boundaries of the state which is subject to public rights consistent with the holdings of the Supreme Court of _____.

Section 5.00 INLAND LAKES PROTECTION AND REHABILITATION COUNCIL; DEPARTMENT DUTIES

5.10 INLAND LAKES PROTECTION AND REHABILITATION COUNCIL

There is created in the department of _____ an inland lakes protection and rehabilitation council consisting of:

(1) Four public members nominated by the governor, and with the advice and consent of the senate appointed, for staggered 4-year terms;

(2) The director of the university of _____ water resources center or his designated representative;

(3) The chairman of the board of soil and water conservation districts; and

(4) Three members representing the following departments and serving at the pleasure of the appointing authority:

(a) The department of natural resources, appointed by the secretary thereof;

(b) The department of agriculture, appointed by the secretary thereof; and,

(c) The department of local affairs and development, appointed by the secretary thereof.

5.20 COUNCIL DUTIES

The inland lakes protection and rehabilitation council shall advise the department on all matters pertaining to lake rehabilitation and preservation and the abatement of pollution of lakes. The council's duties include, but are not limited to:

(1) Undertaking a statewide inventory of lakes to determine rehabilitation needs, if any, based upon water quality, amount of public use and private development, special wildlife, scenic or other values, sedimentation and other problems, shoreland zoning, potential for adequate pollution and erosion controls within the drainage basin, potential for future successful management, and other factors.

(2) Establishing a ranking system for priority of lakes on a regional basis for research and rehabilitation projects, and state and federal financial aids, taking into consideration factors listed in (1) above, and the

public support for such a project, the willingness of local units with land use control powers to adopt adequate pollution and erosion controls, and the numbers of individuals who may be benefited by such projects.

(3) Recommending standards and guidelines for lake rehabilitation projects, to ensure that environmental values are protected, that rehabilitation efforts and expenditures yield maximum returns, and that rehabilitated lakes are protected from degradation to the maximum extent possible in the future.

(4) Making recommendations on the utilization of any federal or state funds available for lake rehabilitation and supporting research activities.

(5) Making recommendations on the qualifications of the personnel to staff the interdisciplinary subunit of the department created for the purpose of dealing with lake rehabilitation.

(6) Recommending to the department lakes to be used as benchmarks in measuring man-induced effects on lake environments.

(7) Recommending research programs and projects on lake degradation or rehabilitation.

5.30 DEPARTMENT; POWERS AND DUTIES.

(1) RULES. The department shall adopt such rules as are necessary to carry out this chapter, including rules on administration of financial aids to districts and municipalities. It shall prescribe data to be secured, methods of analysis and evaluation, duration of data-gathering, and other district activities.

(2) STUDIES, INVENTORIES. The department shall undertake studies and inventories to assist the Council in carrying out its duties under subsection (1).

(3) ASSISTANCE. The department shall assist districts and municipalities seeking technical aid in any phase of lake rehabilitation activity.

(4) CLEARINGHOUSE. The department shall serve as a clearinghouse for scientific data on lakes and information on accepted and experimental lake rehabilitation techniques.

(5) REVIEW OF PROPOSED INLAND LAKE REHABILITATION PROJECTS.

(a) Upon receipt of a formal application and preliminary plan for a lake rehabilitation project from an inland lake protection and rehabilitation district or a municipality pursuant to sections 6.30 (3), the department shall schedule a hearing in the area within sixty days. The department shall consider the following at the hearing:

(1) The environmental impact statement on the proposed project;

(2) The issuance of permits which have been applied for;

(3) Whether the implementation of the plan is likely to cause long-range environmental pollution;

(4) Comments made by the reviewing regional planning agency,if any; and,

(5) Such other subjects as the department by rule deems necessary for making the order required by subsection (6) including financial feasibility, consistency with broader land and water use plans, and other factors.

(6) Within 60 days following the hearing, the department shall by order either approve, approve with modification or disapprove the plan. The department shall concurrently rule on all permit applications and applications for financial aid.

(6) FINANCIAL AIDS. The department shall administer a program of financial assistance to districts and municipalities for data gathering, plan formulation, and plan implementation, using such funds as are appropriated by the legislature or made available from other sources:

(a) LIMITATIONS. No aids may be granted under this section for a lake which lacks public access. No aids shall be of such amount so as to reduce a district's or municipality's share of project costs to less than 10%, except that up to 100% funding may be allowed on high-risk experimental projects where eventual results are highly uncertain. Any grant made shall not exceed 10% of state funds available in any one year, and shall not be renewable in future years unless the council finds that a special situation exists and recommends renewal of a grant.

(b) A district or municipality desiring financial assistance shall apply to the department on forms provided by it prescribing the information to be submitted.

(c) The department shall review applications and in the course of review shall consider, without limitation because of enumeration, the following factors where appropriate:

(1) Whether the citizens of the state will reasonably benefit from any improvements made or information obtained, and the degree of benefit;

(2) Whether sufficient long- and short-term benefits will be derived from the project, in relation to its cost;

(3) Whether the project is financially viable, given the resources of the district and the possibility of financial and nonmonetary aid;

(4) Whether adequate steps have been or will be taken to ensure that the improved conditions resulting from the project will be sustained by adequate controls over potential sources of lake degradation;

(5) Whether the project reasonably conforms to any recommendations made by the department; and

(6) Whether experimental techniques involving a high risk of failure are being undertaken.

(d) The department shall approve or reject each application for financial assistance. Upon approval, the department shall certify to the district or municipality the amount of funds, if any, awarded to it.

(7) UNFUNDED APPLICATION TO CONTINUE.

(a) Aid applications approved but unfunded because of a lack of funds shall remain eligible for future funding, subject to such updating as the department may require. A lack of funding shall not preclude a district or municipality from implementing all or part of an approved plan.

(b) Applications rejected shall be returned to the district or municipality with a statement of

the reasons for rejection. Applications may be resubmitted at a future time.

Section 5.40. COOPERATION BY STATE AGENCIES.

All departments and agencies of state government shall make available to the council and the department such information and assistance as may be necessary to enable either to carry out its functions under this chapter.

Section 6.00. INLAND LAKE PROTECTION AND REHABILITATION DISTRICTS.

6.10 PURPOSES, POWERS

(1) PURPOSES. Public inland lake protection and rehabilitation districts may be created, pursuant to the procedures of this section for the purpose of undertaking a program for the protection and rehabilitation of a lake or lakes or parts thereof within the district, consistent with the public health and welfare including public rights in navigable water, scenic and ecological values. Such a program may include, without limitation because of enumeration, adoption of plans and regulations and the undertaking of operational programs including: (a) aeration, (b) diversion, (c) nutrient removal or inactivation, (d) erosion control, (e) dredging, (f) bottom treatment, (g) lake flushing, and

other measures. In addition, the programs may be used to compile basic scientific data on lakes and assess experimental and innovative techniques of rehabilitation and protection.

(2) DISTRICT POWERS. Any district organized under this chapter may sue and be sued, make contracts, accept gifts, purchase, lease, devise or otherwise acquire, hold or dispose of real or personal property, disburse money, contract debt and do such other acts as are necessary to carry out a program of lake rehabilitation.

Section 6.20. ESTABLISHMENT OF DISTRICTS.

(1) COUNTY BOARD MAY ESTABLISH DISTRICT. The county board of any county may establish lake protection and rehabilitation districts within the county, provided that the conditions stated in s. (3) are found to exist.

(2) PETITION.

(a) WHO TO MAKE. Before a county board shall establish a district under s. (3), a petition requesting establishment shall be filed with the county clerk, addressed to the board and signed by at least 51% of the persons owning lands within the proposed district. Governmental subdivisions, other than the state or federal

governments, owning lands within the proposed district are eligible to sign such petition.

(b) CONTENTS. The petition shall set forth:

(1) The proposed name of the district;

(2) The necessity for the proposed district;

(3) That the public health, comfort, convenience, necessity or public welfare will be promoted by the establishment of the district and that the lands to be included therein will be benefited by such establishment; and,

(4) The boundaries of the territory to be included in the proposed district.

(c) VERIFICATION, PLAT. The petition shall be verified by one of the petitioners, and shall be accompanied by a plat or sketch indicating the approximate area and boundaries of the district.

(3) HEARINGS, TIME, NOTICE, BOUNDARIES, APPROVAL, LIMITATIONS.

(a) Upon receipt of the petition the county board shall arrange a hearing to be held not later than 30 days from the date of presentation of the petition, and shall appoint a committee to conduct the hearing. At the hearing all interested persons may offer objections, criticisms

or suggestions as to the necessity of the proposed district as outlined and to the question of whether their property will be benefited by the establishment of such district. Any person wishing to object to the organization of such district may, before the date set for the hearing, file his objections to the formation of such district with the county clerk.

(b) Notice announcing the hearing and stating the boundaries of the proposed district shall be published in a paper of general circulation in the county in which the proposed district is located as a _____ (appropriate reference to notice requirements).

(c) Following the appropriate hearing procedures, the committee shall report to the county board. If it appears to the board, after consideration of all objections, that the petition is signed by the requisite owners as provided in s. 6.20(2), that the proposed district is necessary, that the public health, comfort, convenience, necessity or public welfare will be promoted by the establishment of the district, that the property to be included in the district will be benefited by the establishment thereof, and that formation of the proposed district

will not cause or contribute to long-range environmental pollution as defined, the board by formal order, shall declare its findings and shall establish the boundaries and shall declare the district organized and give it a corporate name by which it shall be known. Thereupon, the district shall be a body corporate with the powers of a municipal corporation for the purposes of carrying out the provisions of this chapter.

(d) If the board finds against the petition, it shall dismiss the proceedings, stating in writing its reasons for disapproval.

(e) The department shall be notified in writing of the hearing for the creation of the district at the time the hearing date is set.

(f) In establishing the district, the county board may change the boundaries from those originally proposed. However, lands not originally proposed for inclusion may not be included until a public hearing is held under this section.

(g) Any person or persons aggrieved by the action of the board may petition the circuit court for judicial review. A verified petition shall be presented to the court not more than 30 days after the decision of the board, and shall specify the grounds upon which the appeal is based.

(h) Copies of the order by the county board establishing the district shall be filed with the department and with the register of deeds in each county in which the district is situated.

(4) INITIAL DISTRICT BOARD OF COMMISSIONERS.

(a) The county board shall, at the time of making the order establishing a district, appoint 3 persons owning property and residing within the district to serve as initial commissioners until the first annual meeting of the district, and shall also make the appointment required under s.6.20 (5) (b).

(b) Within 30 days following the county board's order establishing the district, the governing body of the town, city or village having the largest portion by valuation within the district shall appoint one of its members to the initial district board under s.6.20 (b).

(c) Within the 60 days following the expiration of time for appeal to the circuit court, or following the final judgment in any appeal, the district board shall hold an organizational meeting, shall select officers to serve until the first annual meeting, and may commence conducting the affairs of the district.

(d) The initial board may make an initial assessment of all taxable property within the district to raise funds to pay organizational costs and operate the district until the receipt of the tax voted by the first annual meeting. The manner of making the assessment shall be within the discretion of the board.

(5) DISTRICT BOARD OF COMMISSIONERS.

(a) Management of the affairs of the district shall be delegated to a board of commissioners.

(b) The board of commissioners shall consist of a person appointed by the county board, a member of the governing body of the town, village or city within which the largest portion by valuation of the district lies, appointed by the governing body and owning property within the district if possible, and 3 persons owning property within the district elected by the electors and landowners within the district, for staggered 3-year terms.

(c) Three commissioners shall constitute a quorum for the transaction of business.

(d) Majority vote shall be required for adoption of resolutions.

(e) The board shall select a chairman, secretary and treasurer from among its members.

(f) Commissioners shall receive no remuneration by virtue of their position, but shall be paid actual and necessary expenses incurred while conducting business of the district.

(g) The board shall meet at least quarterly, and at other times on the call of the chairman or the petition of 3 of the members.

(6) BOARD OF COMMISSIONERS, POWERS AND DUTIES, OFFICERS.

(a) The board shall be responsible for:

(1) Initiating and coordinating research and surveys for the purpose of gathering data on the lake, related shorelands and the drainage basin;

(2) Planning lake rehabilitation projects;

(3) Adopting by resolution rules for carrying out their duties and plans for lake rehabilitation projects;

(4) Contacting and attempting to secure the cooperation of officials of units of general purpose government in the area for the purpose of enacting ordinances deemed necessary by the board as furthering the objectives of the district;

(5) Carrying out lake protection and rehabilitation projects and obtaining any necessary permits therefore; and,

(6) Maintaining liaison with those officials of state government and local government involved in lake protection and rehabilitation.

(b) The board shall have control over the fiscal matters of the district, subject to the powers and directives of the annual meeting. The board shall annually at the close of the fiscal year cause an audit to be made of the financial transactions of the district, which shall be submitted to the annual meeting.

(c) The board, immediately after each annual meeting, shall elect a chairman, secretary and treasurer, whose duties shall be as follows:

(1) The chairman shall preside at the annual meeting, all meetings of the board and all public hearings held by the board.

(2) The secretary shall keep minutes of all meetings of the board and hearings held by it, and shall file an annual report with the department.

(3) The treasurer shall receive and take charge of all moneys of the district, and pay out the same only on order of the board.

(7) ANNUAL MEETING OF DISTRICT.

(a) Every lake protection and rehabilitation district shall have an annual meeting. The first annual meeting shall be scheduled during the months of July or August, and shall be held annually thereafter unless changed by vote of the previous annual meeting.

(b) The annual meeting shall be preceded by written notice mailed at least 10 days in advance of the meeting to all electors within the district and all persons owning lands within the district and to the department.

(c) The annual meeting shall:

(1) Elect one or more commissioners to fill vacancies in the district board;

(2) Approve a budget for the coming year;

(3) Vote a tax upon all taxable property within the district for the costs of operation for the coming year, which tax shall not exceed a rate of 2.5 mills of equalized valuation, a report of which shall be delivered by the treasurer, by August 31, by certified statement to the clerk of each municipality having property within the district for collection.

(4) Approve or disapprove all proposed projects by the district having a cost to the district in excess of $5,000, by vote of the electors and property owners within the district.

(5) Take up and consider such other business as comes before it.

(8) RELATIONS WITH OTHER DISTRICTS AND UNITS. All districts are eligible to contract with other districts and units of government under (appropriate statutory section relating contractual arrangements between local governmental units).

(9) MERGER, ANNEXATION, DETACHMENT.

(a) MERGER. Any district may merge with a contiguous district.

(b) ANNEXATION. Contiguous territory may be annexed to a district upon petition by the owner or motion of the commissioners.

(1) Petition. A petition by an owner, directed to the district and requesting annexation, may be accepted by majority vote of the commissioners, upon which the annexation shall become effective.

(2) Motion. If the commissioners by motion initiate annexation proceedings, they shall notify the owners of the territory contemplated for annexation and the county board. The county board shall schedule a hearing on the motion, using the procedure of s.6.20(3) as far as is applicable. Following the hearing, the board shall make a finding on the necessity of annexation, using the standards of s.6.20(3)(c), and shall declare the territory to be either annexed or not annexed. Appeals of the board's decision shall be taken under s.6.20(3)(g).

(c) DETACHMENT. Territory may be detached from the district following petition of the owner or motion of the commissioners. Proposals for detach-

ment shall be considered by the commissioners, and territory may be detached upon a finding that such territory is not benefited by continued inclusion in the district. Appeals of the commissioners' decision may be taken under s.6.20(3)(g).

(10) DISSOLUTION. An existing district created pursuant to this chapter may be dissolved by the same procedures by which it was created.

Section 6.30. REHABILITATION PROJECTS.

(1) PURPOSES. Districts and municipalities may undertake rehabilitation projects to achieve the purposes of such districts specified in s.6.10. All projects shall be divided into feasibility study, planning and implementation phases. Projects may be undertaken in cooperation with the department, the University of _____, other government agencies, and public and private organizations.

(2) FEASIBILITY STUDY. Feasibility study work shall include:

(a) Gathering such data on the lake, drainage basin, sources of pollution or nutrients or such other information as is necessary to determine the causes of degradation and remedial courses of action to prevent continued degradation; the department shall prescribe data to be secured, methods of analysis and evaluation, and duration of data-gathering.

(b) Data gathered during this preliminary phase should be forwarded to the department, which shall analyze it on an interdisciplinary basis.

(c) The department shall formulate suggested alternative methods, including cost estimates, of rehabilitating the lake or portions thereof. Alternative rehabilitative schemes shall include steps necessary to abate continued degradation of the lake following implementation of a given rehabilitative plan.

(d) This preliminary work shall be eligible for financial assistance, subject to rules of the department establishing guidelines for funding of preliminary work.

(3) PLAN ADOPTION. Where specific lake rehabilitation measures developed pursuant to section (2) above appear feasible, the commissioners of the district or the municipality shall develop a preliminary plan based upon the recommendations of the department and the formulated alternatives.

(a) Prior to adopting the preliminary plan by formal resolution, pursuant to section 6.20(5)(d), the commissioners shall:

(1) forward a copy of the proposed plan to the department for review and comment within 60 days of receipt; or at such other time as agreeable to the parties; and

(2) refer the preliminary plan to the appropriate regional planning agency for the area, if any, for review and comment within 60 days of receipt; and

(3) then make application for any required permits.

(4) It may also file an application for financial aid, and a request for a hearing.

(b) Upon receipt of the proposed resolution, request and application, the department shall schedule a hearing in the area and review the proposed project pursuant to section 5.30 (5).

(4) IMPLEMENTATION. The implementation phase of a project shall include necessary activities to carry out the district or municipality plan consistent with powers stated in section 6.10.

(a) No plan shall be formally adopted for implementation by the district or municipality, until the department has approved the plans or whatever modifications it believes appropriate.

(b) Following receipt of the department's order, the district or municipality may adopt the plan by resolution, in which case it shall forward a copy of the resolution and plan to the department.

(c) The district or municipality may then proceed accordingly to carry out the adopted plan of implementation, consistent with the following provisions:

(1) Project Approval. No project shall be initiated until all required federal, state and local permits have been issued.

(2) Contractors. The district or municipality may contract or make agreement with state or federal agencies, local units of government, corporations, individuals or other groups or agencies to perform all or any part of the work for a rehabilitation project. The contracts or agreements may include any specific terms required by Congress, federal regulation, or the legislature.

(3) Bids, Letting of Contracts. All contracts for the performance of any work other than as staff for the district or the purchase of any materials exceeding $500 shall be let by the commissioners to the lowest responsible bidder in a manner they shall prescribe.

(4) Performance Bonds. The district or municipality may require that a contracting party give adequate security to assure

performance of his contract and to pay all damages which may arise from inadequate performance.

(5) Department Supervision. The department may intervene at any state in a project to protect and conserve natural resources of the state.

(6) Cooperation With Governmental Units Authorized to Adopt Land Use Plans and Regulations. The district or municipality shall cooperate with cities, villages, towns, counties, soil and water conservation districts and state or federal agencies with pollution control, water planning, or land planning powers to assist these governmental units in developing and administering plans, land use regulations, and other techniques to protect lakes from all potential pollution or environmental degradation, and to carry out the rehabilitation program.

(5) POWER TO BORROW MONEY AND ISSUE BONDS.

(a) Every district may borrow money or issue special assessment bonds for the financing of lake protection and rehabilitation projects. The commission in any district about to issue bonds shall adopt a resolution stating the amount of the proposed issue, the purpose or purposes of the issue and such other information as the commission deems necessary or useful.

(b) Every such resolution shall be offered and read at a meeting of the commission at which at least 4 of the commissioners are present and shall be published within the district as a _____ (appropriate reference to notice requirements), within the 30 days next following the reading, and in order to be effective such resolution shall be passed at a meeting of the commissioners at which 4 or more members are present. When any such resolution is passed, it shall be recorded by being copied at length in a record book kept for that purpose.

(c) Every bond issued by a district shall be a negotiable instrument, payable to bearer, but may be registered as to principal, and shall mature in a period not exceeding 10 years from

date thereof and bear interest at a rate not to exceed _____ (specify interest rate) per annum. It shall contain a statement of the aggregate amount of the existing bonded indebtedness of such district, and that the bonds are payable by special assessment of property owners within the district.

(d) The bonds shall be executed in the name of the district, by the chairman and secretary, and shall be sealed with the seal of the district, provided that such district has a seal. The bonds shall be negotiated and sold, or otherwise disposed of, for not less than par and accrued interest, by the commission, and such negotiation and sale or other disposition may be effected by disposition from time to time of portions only of the entire issue, when the purpose for which the bonds have been authorized does not require an immediate realization upon all of them.

(e) Any district, when in temporary need, is authorized to borrow money pursuant to the provisions and limitation applicable to cities under _____ (appropriate reference to debt limitations if one exists). The required tax levy therefore may be satisfied by a report

of tax issued in accordance with s.6.20(7)(c)(3), except that said tax reported in support of promissory notes shall be neither included nor includible in the operations tax limit of s.6.20(7)(c)(3).

(6) SPECIAL ASSESSMENTS.

(a) Special assessments for the purpose of carrying out district protection and rehabilitation projects under this chapter may be levied by the commissioners in the following manner:

(1) Upon approval of plans for any project by the district and by the department under s.5.30.(5). The commissioners shall determine the entire cost to the district of the work to be done.

(2) The commissioners shall then examine each parcel within the district, other than state or federal lands, and determine the benefits to each from the project, considering such factors as size, proximity to the lake and present and potential use of the parcel, including applicable zoning regulations. After benefits to each parcel are determined, assessments shall be made in an aggregate amount equal to the cost to the district of the project.

(3) The commissioners shall file in the office of the county clerk a report of the assessments

made. Notice shall also be given by the commissioners that the report is open for review at a specified place within the district for a space of 10 days after the date of the notice and that on a day named therein, which shall not be more than 3 days after the expiration of the 10 days, the commissioners will hear objections that may be made to the report.

(4) The notice shall be published within the district as provided in _____ (appropriate statutory section pertaining to notice).

(5) At the time specified for hearing objections to the report, the commissioners shall hear parties interested who may appear for that purpose and may review, modify and correct the report as they deem just and at the conclusion of the hearing shall make a final determination of assessments.

(6) When a final determination of assessments has been made, the secretary shall publish a notice as provided in (appropriate statutory section pertaining to notices) within the district that a final determination has been made.

(7) If the owner of any parcel affected by the determination feels aggrieved thereby, he may,

within 20 days after the date of such determination, appeal therefrom to the circuit court of the county in which the district is located by causing a written notice of appeal to be served upon the secretary of the district. The secretary in case such appeal is taken shall make a brief statement of the proceedings had in the matter and shall transmit the same with all papers in the matter to the clerk of the circuit court. Such appeal shall be tried and determined in the same manner as cases originally commenced in said court.

(b) The commissioners of any district may provide that special assessments as heretofore levied may be paid in annual installments, not more than 10 in number.

(c) For the purpose of anticipating the collection of special assessments payable in installments under this section, the commissioners of the district may issue special assessment improvement bonds under s.6.30(4).

(d) All municipalities owning real estate within a district shall be subject to special assessments.

(e) Outstanding unpaid assessments on privately owned lands shall be paid in full by any public body, including the state, which purchases such lands.

Section 7.00 APPROPRIATIONS

The legislature hereby appropriates the annual sum of _____to permit functioning of the council and department pursuant to section 5 and the annual sum of _____to permit financial aids to local districts as provided in section 5.30.

D. COMMENTARY ON THE BILL

The following section by section commentary highlights essential features of the draft statute and discusses some possible alternatives to permit tailoring of the statute to the needs of a particular state. Not all sections are discussed since much of the statutory material is self-explanatory or considered elsewhere in the report.

Section 2. FINDING OF FACT

This section establishes the factual underpinning for the act. The legislature finds that the protection and restoration of lakes is essential to the public welfare and that projects to restore such waters must be undertaken to protect public rights in navigable waters, recreation, the regional economy which is dependent upon water-related activities, and other values.

Section 3. PURPOSES

The legislature states a purpose to create a conjunctive state and local program to protect and rehabilitate waters. This program will fulfill the positive duty of the state as positive trustee of navigable waters. The program will coordinate the activities of all state, federal and local units. The rehabilitation program must be carried out in a broader context of protecting environmental values.

The purpose section briefly describes state and local roles. The program will be a partnership between local groups who will receive the most immediate benefit and

the state. See "How the Bill Works," above, and subsequent sections of the commentary for more detailed discussion of these functions.

The findings of fact and purpose sections, when read together, provide basic goals to guide state agencies and local lake rehabilitation districts in undertaking and implementing rehabilitation programs.

Section 5.0 INLAND LAKES PROTECTION AND REHABILITATION COUNCIL; DEPARTMENT DUTIES

This section defines state agency functions in the conjunctive state and local protection and rehabilitation program.

Subsection 5.10 creates an interdisciplinary interagency advisory council to formulate policy for implementation of the protection and rehabilitation program and to coordinate the many state and local land and water planning and management programs which relate to the program.

This council will primarily advise and make recommendations to the water resources agency chosen to be the principal state implementing agency for the purposes of this act. The section defines council membership to include individuals with desired expertise although the sources of such expertise will differ from state to state. The members include citizens, members who might come from any walk of life; University staff, who represent important research and education interests; the director of the state water resources center, who will be familiar with overall water

planning and research functions in the state; the chairman of the board of soil and water conservation districts, which play important watershed management roles in many states; and members from several technically-staffed state agencies representing conservation interests, agricultural interests, and broad-scale state budgetary and land use planning functions.

Subsection 5.20 authorizes the council to undertake a wide range of duties including the survey of state lakes in need of rehabilitation, the establishment of a priority ranking system on a regional basis for lakes in need of rehabilitation projects, the establishment of standards for rehabilitation projects, the formation of recommendations for grant allocations, the establishment of staff qualifications for personnel assigned in the designated state agency to a program role, the creation of "benchmark" lakes in order to measure and compare man-induced effects on lake environments, and the recommendation of research projects.

Subsection 5.30 authorizes the department to provide staff assistance to the council in carrying out its functions. In addition, a later section, 5.40, directs that all departments and agencies of state government make assistance and information available to the council and the department.

The department designated by the act to be the principal state implementing agency will differ from state to state. In Wisconsin, the Department of Natural Resources was selected because this agency has broad pollution control, water resources

planning and regulation, parks and recreation, wildlife protection, shoreland zoning and other broad functions relating to land and water use management. Whatever agency is selected in a particular state, it is critical that the staff possesses a sufficiently broad range of expertise in the numerous disciplines relevant to understanding lakes and lake problems, and that they function as an inter-disciplinary team.

The department is granted a wide range of powers to carry out the state portion of the conjunctive state and local rehabilitation effort. It is authorized to adopt rules and regulations applying to lake rehabilitation projects. It will carry out studies and inventories, and act as a clearinghouse for scientific data on lakes.

As noted above, the draft statute was designed to supplement broad existing land and water regulatory functions of the Wisconsin Department of Natural Resources. Another state with less comprehensive state control of shoreland areas and water quality may wish to authorize additional state agency powers dealing with comprehensive pollution controls throughout a watershed, shoreland zoning, control of fill or dredging in navigable waters, control of pesticides and aquatic weeds and other matters.

Department duties in relation to local lake rehabilitation projects are several in number. First, the department may analyze data submitted to it by a local lake rehabilitation district to determine the cause of lake problems, possible

alternative solutions to such problems, and the costs of such solutions. It may assist the local district in carrying out the data gathering on a contract basis or at its own initiative. The department has power to adopt rules prescribing the data to be secured by local units, methods of analysis and evaluation and duration of data gathering.

A state level technical data analysis function is provided primarily to assist local districts which will generally lack the technical competence to adequately evaluate lake problems, devise alternative solutions, and estimate costs. A technically-staffed state agency can provide assistance while, at the same time, evaluating alternative proposals in terms of state and federal laws and regulations pertaining to such programs and broader environmental considerations.

A free exchange of information between the district and the department in this feasibility study and planning process can give important technical assistance to the district, while assuring that the proposals under consideration comply with department standards and laws. Moreover, close cooperation with local interests is clearly the most effective way to produce realistic alternative corrective schemes with a high potential for implementation.

After receipt of a formal application and proposed plan for a lake rehabilitation project from a local district, the department will hold a public hearing in the local area on the proposed plan [5.30(5)]. At the hearing, the department will

evaluate the proposed plan in terms of pollution standards, comments by reviewing agencies, and compliance with standards promulgated by the department. It will also determine whether all necessary federal, state, and local permits have been applied for. Following the hearing, the department will, by order, either approve, approve with modification, or disapprove the plan. Legislation should require that the department, in the event of disapproval, enumerate its reasoning.

Under Subsection 5.30(6), the department will administer a program of financial aids to the districts. These aids may apply to data gathering and plan formulation but after program start-up, aids will be principally directed towards plan implementation. To qualify for financial assistance, a district or municipality must apply for aids on forms prescribed by the department and according to department procedures. No aids shall be given for a lake which lacks public access. The local share of any project must be at least 10 percent, except for a research project, and no project shall receive more than 10 percent of state funds available in any one year. The 10 percent minimum local contribution is intended to (a) insure that those benefited most bear a greater part of the cost than the public-at-large, and (b) enlist a tangible contribution of local concern and support. The rationale for limiting funding for any one project to no more than 10 percent of funds available annually is to preclude a single very expensive project from consuming a disproportionate share of the available aids. Furthermore, the 10 percent limitation could be used to initially direct financial assistance to smaller lakes, where the aquatic ecosystem

can be more readily evaluated and understood. This restriction might prove efficacious until scientific understanding of lake ecosystems improves, and larger, more complex lake environments can be successfully addressed. The act sets out criteria for granting of funds related to the public benefit of the proposed project, its financial viability, long-term benefits, and other factors. Unfunded applications are to continue. States may wish to provide for financial aids to also be dispensed in accordance with general geographic stipulations, so that rural areas with few year-round residents receive fair consideration.

It is to be noted that this statute does not authorize the state agency to implement lake rehabilitation projects. This approach reflects, in part, the judgment that most projects should be carried out only where local property owners are interested in such projects and willing to bear a portion of the financial burdens. As noted previously, in states like Wisconsin (with its constitutional ban against internal improvements) direct state lake rehabilitation activities are unacceptable from a constitutional standpoint. However, in many states, the water resources, park or pollution control agencies already possess sufficient powers to carry out rehabilitation projects. Where this is possible, direct state action may be considered a desirable alternative. In that event, many of the provisions contained in the next section of this statute dealing with local rehabilitation districts might be made to apply to state rehabilitation efforts, particularly the special assessment and contracting procedures.

Section 6.00 INLAND LAKE PROTECTION AND REHABILITATION DISTRICTS

This section authorizes the formation of rehabilitation districts. The introduction to this report discussed why there is primary reliance on the creation of special districts as a mechanism for local lake rehabilitation activities, rather than merely giving this power to general purpose units of government such as counties, cities, villages, and towns. Nevertheless, a given state may consider it desirable to provide general purpose units of government with such powers rather than a special purpose unit. For example, a county board may be authorized to establish a special tax and service area for the purposes specified in 6.10 and 6.30(1). Formation need not require a petition as specified in 6.20(2), but territory within a city or village should be incorporated only with the consent of the governing body of the municipality. Most other procedures of the act might be made to apply. However, the governing body of the area would be the county board or a committee thereof. The bonding and special assessment powers of such units may be substituted for those contained in this act or incorporated by reference.

The draft statute does not require state level approval for the formation of a lake protection and rehabilitation district. The statute could be modified to require such approval if fragmentation or duplication of lake rehabilitation powers were considered a particularly serious problem in a given state. This might involve a single approval by a state planning agency or department of administration responsible for evaluating annexation and municipal boundary changes in

other contexts. The agency should evaluate the proposed district in terms of the necessity to create a new district to carry out the proposed functions and the impact of such a district on other local units. A second approval might also be required by a state water resources, conservation, or pollution control agency which would decide whether the proposed district could provide a technical management unit capable of carrying out proposed activities with sufficient financial and personnel resources.

Subsection 6.10 PURPOSES, POWERS establishes the general objectives for lake protection and rehabilitation programs but must be read in conjunction with the findings of fact and purposes of the act as a whole. The subsection includes a partial list of rehabilitation techniques; additional information on lake rehabilitation approaches is given in Appendix I. General district powers are also listed.

It is to be noted that the district powers are largely concerned with lake restoration rather than protection. The districts do not have land use planning powers or the authority to adopt zoning, subdivision controls or building code regulations. They are not authorized to adopt pollution controls for erosion areas, septic tanks, urban runoff or other pollution sources; to undertake solid waste disposal; or to install sanitary sewers. All of these powers are related to comprehensive lake protection efforts, but the draft statute did not authorize the special districts to exercise such powers because, in a state like Wisconsin, these broader powers are now exercised by existing general purpose and special purpose units of government. Cities, counties, and villages are authorized to plan land uses, adopt a wide range of land use controls both for shoreland areas and broader areas, adopt sanitary codes, and undertake a range of waste disposal activities. Sanitary districts may undertake waste disposal projects and soil and water conservation districts may adopt watershed management controls. If the special districts were also authorized to undertake such activities, further overlapping and fragmentation of governmental functions would result. However, where a special purpose unit such as a sanitary district already encompasses a lake, it may be desirable to permit it to assume the power of a lake rehabilitation district. At some point in the future, comprehensive revision and consolidation of local governmental powers, both in urban and rural areas, may be advisable. Special districts' powers might at that time be incorporated into general purpose units.

Although special districts proposed by the draft statute do not specifically exercise broader land use control powers, several mechanisms are available to indirectly require the cooperation of counties, cities, and villages to adopt complementary controls. First, the state supervisory agency may refuse grants-in-aid to a district where a county has not adopted shoreland or watershed protection controls. /Since lake rehabilitation grants will benefit all county residents, such refusal may induce county action./

Second, for a state like Wisconsin or Minnesota with state supervised shoreland regulations, or a state like Florida with comprehensive state-supervised local regulations for critical resource areas, the state could require local adoption of appropriate regulations. Following the Florida approach, many states are likely to adopt statutes providing state supervised local regulations if the proposed National Land Use Planning and Assistance Act of 1973 (S. 268) is adopted and funded by Congress.

Third, the federal government and the states may indirectly induce local units of government to adopt adequate controls by withholding funds under Title II and section 314 of the Water Pollution Control Act Amendments of 1972, unless adequate land use controls are adopted. These provisions make funds available for areawide sewer and water grants and lake rehabilitation programs.

Fourth, the federal government might indirectly induce local units of government to adopt adequate controls by withholding funds under the Rural Development Act of 1972, unless

comprehensive watershed protection were considered in planning programs. This act, while not funded due to Executive policies, authorizes the U. S. Department of Agriculture to make grants of up to $10 million annually to "public bodies or other such agencies" to prepare comprehensive plans for rural development or aspects of rural development.

Finally, Subsection 6.30(4)(c)(6) requires the districts to cooperate with other general purpose and special purpose districts in planning and implementing comprehensive land and water management programs. Another state may wish to broaden the special district powers to include several or a whole range of additional planning and management functions.

Subsection 6.20 establishes the initial procedure in establishing a district by at least 51 percent of the persons owning lands within the proposed district. Governmental jurisdictions are included as eligible petitioners because lands owned by them will be assessed for and benefited by rehabilitation activities undertaken by the district.

Subsection 6.20(3) requires a hearing by a committee of the county board on a petition submitted by interested persons. The purpose of the committee requirement is to give the county board some flexibility in fulfilling this duty. The board may appoint itself as a committee of the whole to hear the petition. Most states have rules governing the publication of notice. Appropriate references should be included.

The subsection contains the standards which the county board must use in making its decision on the petition, including

possible pollution. The subsection allows the board to alter the proposed boundaries, but requires a hearing before any additional lands other than those originally proposed may be included.

The subsection provides for judicial appeal of the county board's action.

Subsection 6.20(4), (5), and (6) establishes the membership and duties of the governing body of the district. Representatives are appointed by the county and from the local government in order to establish permanent liaison with those bodies having general police powers in the locality.

The board is not given any rule-making power, but rather is directed to work with local governments if controls within the drainage basin are necessary. While this may not be the most effective approach, it is necessary since the basin may extend well beyond the boundary of the district.

Since the first annual meeting may be held only during the months of July or August, a time lag between organization and the first election may occur. Subsection 6.20(4) provides for appointment of an interim governing body so that the district may begin functioning immediately. The district is also given authority to make a one-shot assessment to raise money for operational purposes until regularly-voted taxes are received.

Subsection 6.20(7) establishes an annual meeting and lists those powers of the district which shall be exercised by the annual meeting. Designation of specific months within which the annual meeting may be held was done to give seasonal owners an oppor-

tunity to attend. The annual meeting will control the basic fiscal matters of the district by its power to approve the budget and set a tax to cover the cost of general operations. The maximum operational tax rate allowed by this section equals a tax of $50 on property having an equalized valuation of $20,000. Also, the annual meeting must pass judgment on all proposed projects having a cost to the district in excess of $5,000.

Subsection 6.20 (8) permits districts to contract with other units of government to undertake one or more phases of a rehabilitation program. Some states have adopted statutory guidelines pertaining to cooperative contracts between cities or other units of government. A reference to such procedures could be inserted in the act.

Subsection 6.20(9) provides means of altering district boundaries. Merger is accomplished by common consent of the governing bodies and members of both districts. Annexation proposals are measured against the same standards used for establishing the district, and are similarly appealable. Detachment proposals are decided upon the basis of whether the territory proposed for detachment is benefited by continued inclusion in the district.

Subsection 6.20(10) permits the dissolution of districts.

Subsection 6.30 sets out procedures for lake rehabilitation projects. These projects are divided into feasibility, planning, and implementation phases. Projects may be initiated to carry out the objectives of lake rehabilitation districts stated

in s.6.10. The sequence of project procedures and the role of the state supervisory agency are discussed in earlier sections of this commentary and report.

The feasibility study phase defines those activities which are necessary to develop a profile of the lake and drainage basin, formulate alternative remedial and protective measures, and estimate costs of the alternatives. This phase will be carried out by the district or municipality in close cooperation with the state liaison agency and any other available sources of information. The statute requires that district efforts conform to department rules for data-gathering. The purpose is to ensure that standardized data are properly collected over a sufficient length of time so that an accurate portrait of the lake and its problems can be developed. Feasibility study data-gathering is eligible for financial aid. Data gathered will represent an addition to the fund of knowledge already accumulated by the liaison agency, and enlarge the base for making regional and state-wide assessments of the condition of the state's lakes.*

The plan adoption phase requires the commissioners to develop a preliminary plan for rehabilitating and protecting a candidate lake. This plan will generally be the most feasible course of action (from the district viewpoint) selected from the alternatives emanating from the study phase. Prior to formal adoption of a final plan, the district or municipality

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* A recent study (Ketelle and Uttormark, 1971) indicated that with few exceptions, most states lack such basic data; such information is needed to comply with the 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500, Section 314).

must subject the plan to a variety of reviews, including review by the liaison state agency and regional planning agency in the area (if one exists). The state agency will hold a hearing on the plan. The purpose of the hearing is to determine whether all procedural steps have been followed, to consider comments of the regional planning agency, and to determine whether the implementation plan is in the public interest as it relates to the public trust in navigable waters and prevention of pollution. The department may require testimony on other matters if the information is deemed necessary in order to make the final order.

Before the district may adopt the final plan by resolution, the liaison state agency must approve the plan pursuant to Section 5. However, the final decision to proceeed is the district's. It is only after the hearing and order that the district will know what it can permissibly do and if financial assistance will be forthcoming. This information is particularly important if a project is costly enough to necessitate a decision by the annual meeting.

The third and final phase involves plan implementation. Districts may contract with local, state or federal agencies or private individuals to carry out the work plan. Bids are required for contracts exceeding $500. The district may require that a contracting party post a bond to assure performance of the contract and to pay all damages which may result from inadequate performance. The liaison state agency is permitted to intervene at any point in a project's execution to protect the natural resources of the state.

Project funding will ordinarily necessitate that the district borrow money. Both special assessment bonds and temporary direct borrowing are permitted. The statute sets out bonding procedures which will need to be tailored to the bonding procedures for a particular state.

The district may raise money for immediate operations or to pay a bond through gifts, grants-in-aid, or special assessments.

The statute sets out a procedure for making special assessments [Section 6.30(6)]. This subsection and the preceding subsection (5) comprise the basic methods for financing the local share of the cost of any large project. The use of special assessments and special assessment bonds was chosen for two reasons: (1) to make the cost to the individual owner commensurate with the benefits received, and (2) to avoid the necessity of a direct and irrepealable tax if general obligation bonds are used. Since an irrepealable tax would put further pressure on the local property tax level, special assessment bonds coupled with a required vote by the annual meeting on any project costing more than $5,000 is referrable. The effect is to allow to those persons paying the bill the decision of whether to proceed.

Municipally-owned property is made subject to assessment equally with privately-owned property because those persons using the public property will also benefit from any favorable changes in lake conditions. Some states, however, will not find this proposal acceptable, and may wish to exclude such property from assessment. This option may pose some difficult private-

public equity considerations.

The statute makes clear that any public body purchasing real estate which has an outstanding special assessment assumes the duty to pay the assessment.

APPENDIX I

Several technical papers and reports exist which summarize and evaluate lake restoration approaches and experiences (e.g., Bjork, 1972; Born and others, 1972; Tenney, Yaksich and DePinto, 1972; Lee, 1970; National Academy of Sciences, 1969; Stewart and Rohlich, 1967). A report being prepared by the Inland Lake Demonstration Project, supported in part by the U.S. Environmental Protection Agency, warrants special mention. This report includes a worldwide survey of lake rehabilitation experiences and a substantive summary of the status of various lake rehabilitation methods (Dunst and others, in preparation). It provides detailed information regarding specific techniques, and therefore, what follows is simply a brief outline of lake restoration methods.

Lake rehabilitation and management techniques basically fall into two general categories: 1) methods to limit the fertility and/or sedimentation in lakes, and 2) procedures to manage the consequences of accelerated lake aging. Table I is a generalized outline of lake rehabilitation approaches.

The objective of limiting fertility in lakes is to reduce the excessive and undesirable growth of algae and rooted aquatic vegetation. It is not the fertility per se which is of concern, but rather, it is the associated plant growth which results in objectionable consequences. Fertility can be reduced by in-lake schemes (accelerating nutrient outflows or preventing nutrient recycling) or by curbing nutrient inputs. Many of the techniques

for lake restoration are either operational or nearing operationality (although it should be stressed that continued intensive research on lake ecosystems will be a necessary concomitant for successful lake restoration projects). In particular, diversion (the rerouting of waters outside a lake's watershed), nutrient removal by in-lake chemical precipitation, and improved wastewater treatment have great potential for "renewing" lakes. The various techniques listed in Table I for managing the consequences of lake aging are by-and-large sufficiently well developed to use now.

TABLE I

I. Limiting Fertility and Controlling Sedimentation

A. Curbing Inputs

1. Diversion

2. Wastewater Treatment (including urban, agricultural and industrial)

3. Land-use Practices

4. Treatment of Inflows

5. Product Modification (e.g., removing phosphates from detergents)

6. Other

B. In-Lake Schemes to Accelerate Nutrient Outflow or Prevent Nutrient Recycling

1. Dredging

2. Nutrient Inactivation/Precipitation by Chemical Means (e.g., alum flocculation)

3. Dilution/Flushing

4. Harvesting (e.g., plankton, weeds, and fish)

5. Selected Water Withdrawals (e.g., bottom water discharge)

6. Sediment Exposure and Dessication

7. Lake-bottom Sealing (e.g., plastic sheeting, sand blankets, and chemical "barriers")

8. Other

II. Managing Consequence of Lake Aging (e.g., sedimentation, nuisance vegetation, dissolved oxygen depletion, and deteriorating fisheries)

A. Aeration and/or Circulation Systems (including total de-stratification and hypolimnetic aeration)

B. Deepening (including dredging and consolidation)

C. Other Physical Controls (e.g., harvesting, drawdown, light control, and bottom treatments)

D. Chemical Controls (e.g., chemical treatment for water quality improvement, herbicides, algicides, and fish toxicants)

E. Biological Controls (e.g., mammals, snails, viruses, and fish)

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