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APPENDIX S20
State Laws, Policies and Institutional Arrangements

GREAT LAKES BASIN FRAMEWORK STUDY

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APPENDIX S20

STATE LAWS, POLICIES, AND INSTITUTIONAL ARRANGEMENTS

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GREAT LAKES BASIN COMMISSION

Prepared by State Laws, Policies,
and Institutional Arrangements Work Group

Sponsored by State of Michigan

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This appendix to the *Report* of the *Great Lakes Basin Framework Study* was prepared at field level under the auspices of the Great Lakes Basin Commission to provide data for use in the conduct of the Study and preparation of the *Report*. The conclusions and recommendations herein are those of the group preparing the appendix and not necessarily those of the Basin Commission. The recommendations of the Great Lakes Basin Commission are included in the *Report*.

The material in this appendix is current through 1970. Because water and related land resources have been the subject of considerable attention recently, the statutes cited herein may have been repealed or amended, new statutes enacted, and judicial interpretations of statutory and common law revised.

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SYNOPSIS

The Great Lakes Basin has been transformed since its early settlement in the 17th century from a wilderness to the industrial heartland of North America. In the 19th century 300,000 people lived in the Basin. Today the population approaches 30 million, and it is predicted that by the end of the century the population will have doubled to 60 million people.

A basic but unwritten attitude has guided this transformation. That policy can be expressed in two words: development and freedom. The Lakes have been considered a great, essentially unlimited resource to be used. Public policy appears to have focused on what would speed the development of the Great Lakes. Freedom seems to have been the chosen instrument to encourage development. A host of independent agents (i.e., individuals, industries, and the public) have indulged their appetite for convenient transportation, power, abundant water supplies, and recreation. The people of the Basin individually and collectively have used the Lakes as the ultimate receptacle for their domestic, industrial, and now their general environmental wastes.

Gradually, however, governments have intervened with policies designed to influence, manage, or actually direct developmental activities. Governmental concern is manifested in recommendations concerning public policy, statutory authorities, and institutional arrangements.

This appendix focuses on those water and related land resource problems within the Great Lakes Basin whose solutions may ultimately hinge upon new legal or institutional management tools.

Jurisdictional Problems

Inter-Level

The Federal, State, and local levels of government each play an important role in water resources management. At times these roles conflict. Perhaps the most contested issue in politics is the relationship of these three levels of government to one another.

It is usually given under our system that all powers not specifically granted to the Federal government are reserved for the States. The powers delegated to local governmental units are generally strictly construed and may be withdrawn by the State legislatures through the process of statutory enactment or repeal, if such given powers are not constitutionally vested. Constitutional powers, however, can only be revoked by constitutional amendment. In some State constitutions there is a home rule provision. Such a provision changes the rule that delegations of power to local governments should be strictly construed and grants the broad power to carry on local government within a specified area.

The Federal government's powers are mostly limited to those enumerated in the Constitution. Generally they can be revoked only by constitutional amendment. From the standpoint of water resources development, the most important Federal power has been the power to regulate foreign and interstate commerce. In view of the construction that the Supreme Court has given the "commerce clause" in conjunction with the "necessary and proper clause" and the "supremacy clause," it can be said that the Federal government may interpret the power to manage water resources almost completely if the Congress chooses to do so. Despite the tremendous growth of Federal involvement in water resources development since Chief Justice Marshall first equated navigation with commerce in 1824, it is still the announced policy of Congress that water resources management should be a primary responsibility of the States.

Between Branches

The United States Constitution separates the functions of the legislative, executive, and judicial branches of government. This separation of functions also occurs at the State level and, to a much lesser degree, at the local level,

but the separation is far from perfect. Considerable overlapping of power and function occurs. The entire body of common law is made up of principles accepted by the courts. Executive agencies continually write regulations in their effort to carry out duties delegated to them by the legislatures. Executive agencies also have the power to judge. The hearings held by executive agencies are hardly distinguishable from hearings held by courts of law. The major jurisdictional problems arise from the fact that circumstances or the legislatures do not always make clear the relationship between courts of law and administrative agencies. Private litigants, for example, sometimes find that they must seek their remedies from a particular agency before they can get into court, only to have the court ignore the findings of the agency. Responsibility for resolving jurisdictional problems caused by conflict between branches of government rests primarily with the legislatures. Solutions lie within their grasp.

Inter-Agency

At all three levels of government, numerous agencies have varying degrees of responsibility in the area of water resources management. To the extent that their powers and responsibilities are not clearly defined or to the extent that they overlap, jurisdictional problems are created. To ameliorate these difficulties, there has been a trend toward consolidation. At the local level, many States have authorized the creation of multipurpose districts with powers to manage water resources. Many States have united agencies having authority over water resources into a single agency or have established new coordinating mechanisms. At the Federal level, heads of six Federal agencies having authority over water resources have been brought together to form the Water Resources Council. Its major function is to coordinate the activities of these agencies.

In the United States, governmental powers are divided vertically between three levels of government, horizontally between three branches of government, compartmentally between 50 States, and administratively between countless bureaus and agencies. These lines of division are not clear. Such a system of diffuse powers is not ideally designed for the efficient management of water resources.

Existing water resources organization should be simplified to eliminate duplication of functions, to provide for a more logical grouping of functions, and to facilitate coordination of the various aspects of water programs. Proposals to achieve these general goals will vary in scope as they reflect geographic differences, adequacy of existing administrative machinery, and the social and political traditions within each State. State-Federal considerations for such mechanisms are discussed in Appendix F20, *Federal Laws, Policies, and Institutional Arrangements.*

Other Related Actions

Correlation of Hydrologic Data with the Legal Machinery

Students of water resources management have been disturbed by the difference existing between the legal view of water (surface water, diffused surface water, percolating water, and underground water law) and the reality of the hydrologic cycle. The suggestion has been made that the law should be reformed to reflect the unity of the hydrologic cycle. However, reformation of the law at this point would be premature. This is because grave constitutional questions would be raised (States in the Great Lakes Basin view water rights as property), and because case law has produced few cases that are inconsistent with science, inasmuch as they speak on an individual basis at the same point in the hydrologic cycle. Another hindrance to reform is that scientific studies of the hydrologic cycle are still in their infancy.

The most prudent course at this time is to deepen the understanding of data presented by hydrology so that future laws and actions are not based on false assumptions.

Class Action Suits

All Basin States should consider adopting State legislation that would permit the initiation of class action by either damaged or nondamaged citizens or by local or State governmental agencies as an additional means for securing relief from actions that damage the environment. Provisions of such legislation should, however, include precautions that bar frivolous suits. Schedules established by State agencies for abating pollution should be protected from time delays, which could be evoked by such court action.

Federal Clearinghouse and Data Bank

There are thousands of products now in use that may adversely affect the environment. New compounds are being introduced daily without adequate knowledge of their environmental effects. We require extensive testing of medicines and pesticides before they are marketed. We must go farther and begin to systematically screen all new compounds used in industry and home before they are marketed. Products that contain unknown, untested, and possibly harmful pollutants may very likely be involved in interstate commerce, which would seriously limit the ability of an individual State to take effective action. Establishment of a national clearinghouse appears a logical way of achieving such protection.

States would then be able to use a data bank to obtain information as to the design, contents, and environmental impact of all products on the market. This would facilitate decision-making and keep the States abreast of the latest research on all products.

Public Waters

Traditionally public rights in the use and enjoyment of water have hinged upon vague definitions of public ownership and of navigability which were often difficult to substantiate. As the mobility of society increases and the resultant pressures for optimum use of this resource increase, decisions that determine public rights should be properly defined by statute. Legislated definitions of public waters should replace the past common law tie to navigability.

Citizen Education

Legislation supporting public school conservation courses that deal with the appreciation, alternative use, and management of our environment are recommended to enlighten future leaders as to our environmental problems. There is an urgent need for adequate citizen understanding of the environment, as the basic social, physical, economic, and ecological issues affecting it increase with population growth and technological advances.

Environmental Safeguards

All State and Federal legislation should be reviewed with an eye to better coordinating agencies and levels of government for optimum environmental protection and benefit from public expenditures.

Surface Water Use and Management Withdrawal and Nonwithdrawal

Costs and benefits of surface water withdrawal uses are tied directly to the quality of the water body used. In the Great Lakes Region this economic factor is magnified by the Great Lakes themselves. All of the water from the study area flows into the Great Lakes where it remains for the benefit or detriment of residents for generations to come. To avoid negative consequences of inappropriate controls or inaction itself, legislative considerations should be given careful review by each appropriate governmental entity operating within the Great Lakes Basin to ensure that their management tools include controls necessary to protect this most abundant but delicate of natural resources.

Recommendations concerning nonwithdrawal uses of waters cannot totally be separated from withdrawal uses. One either complements or impairs the other, especially in the area of pollution control. The topics of water for withdrawal and nonwithdrawal uses are therefore combined in the following recommended considerations:

(1) adoption of procedures to train and/or certify waste treatment plant operators

(2) granting of immediate pollution abatement powers to the State pollution control agency in emergency situations (i.e., mercury discharges, cyanide discharges, oil spills, etc.) without first going through the court process

(3) regulation at the State or Federal level to control the manufacture, sale, and use of hard and persistent pesticides

(4) establishment of a coordinated, comprehensive, possibly interstate, State-Federal, and internationally financed partnership for Great Lakes water quality monitoring

(5) adoption of uniform (interstate and State-Federal) regulations governing recreational and commercial watercraft waste treatment, and the related provision of adequate complimentary disposal facilities where needed.

(6) implementation of more attractive incentives for non-municipal waste treatment facilities. Such programs could include mutually favorable tax incentives or the establishment of regional utility authorities with tax exempt bonding powers that could be repaid through revenues.

(7) adoption of authorities to maximize selected nutrient removal from wastewater discharge

(8) statutory measures to insure preservation of significant wetlands, Great Lakes marshes, shoals, and river estuaries from drainage, filling, and pollution. Development of wetland preservation ordinances, wetland bank programs (similar to the soil bank program), and zoning enabling legislation could be employed.

(9) establishment of programs for the predetermination of sites that have high potential for recreational land and power plant development

(10) legislation permitting the designation and preservation of unique ecological areas and habitats for rare and endangered species

(11) legislative policy enactments to assure the protection of environmental areas and fish and wildlife habitat

(12) development of the necessary administrative or legislative actions to give ocean status to Great Lakes ports and the establishment of a more favorable toll structure on the St. Lawrence Seaway to permit fair competition with coastal ports

(13) strengthening of State laws regarding the protection of artifacts of public significance in Great Lakes waters

(14) increased funding for the U.S. contribution to the sea lamprey control program for protection of the Great Lakes fishery

(15) the requiring of logging of oil losses by ship masters for protection of the Lakes from such discharges. Recording of losses could become mandatory, with license revocation for repeated violation

(16) effective legislation in the area of water management (possibly an interstate task force) to prevent new pollution sources, to require the reporting of effluent content, to provide funds to monitor the waters to determine sources of pollution, to require the abatement of pollution by the pollutor, and to provide the necessary powers in emergency situations to prevent pollution disasters and to recover the costs incurred from the cause of the emergency

(17) development of off-shore drilling and mineral exploration regulations for each Lake, by State agreements or other agreed upon institutional arrangement for Great Lakes protection

(18) establishment of authorities for coordination, comprehensive program development, and management

(19) development of contingency plans for oil pollution clean-up in the Plan areas with mutual assistance pacts for industries.

Related Land Use and Management

A major limitation upon the effectiveness of water resources management in the United States is the decentralized authority over land use controls. Provisions for land use regulations in most instances are permissive rather than compulsory, disjoined rather than coordinated, oriented to political boundaries rather than watersheds, and fall under the jurisdiction of local political units, which often do not have the legislative, fiscal, or technical resources to perceive and provide solutions to the problems. Effective management and functional land use management must go hand in hand if each is to reach its ultimate objective of a quality environment at an economically acceptable price.

The following legislative considerations are presented to illustrate those areas in which land related regulatory measures could be strengthened or adopted to provide a more favorable climate for optimum water resource protection and management.

(1) development of a coordinated authority at the State level for the planning and regulation of related land use management and development practices

(2) merger of resource planning with comprehensive planning, i.e., relate land, air, and water aspects to the social and economic levels of planning and management at the State and Basin levels

(3) adoption of State Great Lakes shoreland management programs for protection against erosion, scenic and environmental damages, and waterfront blight

(4) adoption of legislation that would insure the implementation of proper flood plain management. Legislation should be left to the discretion of each individual State, but examples of courses of action would include State-imposed flood plain regulations, the option of local regulations developed within specified criteria, State regulation via a use permit system, State flood plain limit delineation, and disclosure laws

(5) legislation controlling sedimentation and erosion resulting from land development, and uses that require clearing and grading and/or other earth changes

(6) regulation of Great Lakes fills

(7) intensification of land management practices to minimize the amount of sediment and nutrients flowing to the Great Lakes

(8) amendatory legislation permitting the U.S. Army Corps of Engineers to construct protective works to prevent damages to public and non-public shorelands. Such legislation would be similar to that now provided—via local government sponsor—for flood control works on public and non-public lands.

(9) legislative incentives, possibly in the form of property tax relief, to encourage private land owners to permit hunting on their lands and/or possibly the initiation of some sort of user fee for non-consumptive users of lands

(10) zoning or similar regulations of public land as to time and place for use of off-road vehicles such as snowmobiles, trail bikes, and all terrain vehicles

(11) legislative or policy decisions to preserve and protect scenic and historic sites and areas situated on the Great Lakes shorelands.

Subsurface Water Use and Management

Problems in developing ground water resources are related to both natural and man-made conditions. The natural problems include those of poor quality and low yield aquifers. Man-made problems include pollution, overdevelopment and/or improper development of the ground water resource. The unregulated or uncoordinated mining of underground minerals and gases and the practice of deep well disposal can also have a detrimental effect upon the ecology of the region. Fortunately, with foresight and appropriate legislative support, man-made problems are manageable. Areas where legislative support should be considered within the Great Lakes Basin include

(1) regulation to prevent the overdevelopment of ground water resources in areas delineated by extensive technical study, i.e., well spacing and withdrawal volumes

(2) requirement that plugging, filling, and capping procedures be followed for well abandonment

(3) clarification of the extent of the right of municipalities to extract ground water from beneath property outside their municipal limits

(4) development of a stricter body of ground-water pollution control laws and legislation fostering greater research and record keeping including mapping capabilities, recharge data collection, and water movement

(5) development of provisions that would require State certification of and reporting by waste treatment operators discharging wastes into ground water

(6) regulation of sanitary landfill and solid waste disposal sites to include the protection of ground-water resources

(7) mine abandonment regulations for resource protections

(8) strict regulation of waste disposal wells

(9) establishment of rights to ground water.

FOREWORD

This appendix, prepared as a basis for comparative analysis of States and levels of government, was produced with the cooperation of staff from the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. The contribution of each State and Commonwealth was accomplished with its own funds and personnel. Without the sincere and persistent efforts of many individuals in State agencies, this appendix would not have been possible.

This compendium of State laws, policies, and programs, if periodically reviewed and updated, will serve indefinitely as a useful guide for future legislative policy decisions.

The information contained in this appendix was compiled through the cooperative efforts of the State Laws, Policies, and Institutional Arrangements Work Group under co-chairmen Karl R. Hosford, Michigan Water Resources Commission, and Walter Kiechel, Jr., U.S. Department of Justice. Other work group members are listed below:

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INTRODUCTION

The Great Lakes Basin States are actively involved with many problems of water and related land resources management. Numerous Federal, State, and local agencies are actively engaged in the planning, development, preservation, and management of water supply, pollution abatement, flood protection, fish, wildlife, and recreation areas. Although the Federal role in resource management has been expanding in response to the demands of an increasingly complex economic and social structure, most water-related functions of government remain primarily within the sovereign responsibility of the States and their political subdivisions.

State laws deal with many facets of water and related land resources. The powers and duties of State agencies, local municipalities, and special purpose districts have their origin in State constitutions and statutes. Similarly, the rights and obligations of individuals and private interests pertaining to these vital resources are regulated largely by State laws and court decisions. These regulatory means, however, often vary greatly from State to State, as do the administrative structures for their implementation.

In 1962 Senate Document No. 97 directed close cooperation in planning by Federal agencies "to the end that regional, state, and local objectives may be accomplished to the greatest extent consistent with national objectives." Further, with the passage of Public Law 89–80, the Water Resources Planning Act of 1965, it was declared to be the policy of the Congress to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by the Federal government, States, localities, and private enterprise with the cooperation of all affected Federal agencies, States, local governments, individuals, corporations, business enterprises, and others concerned. To this end, the Great Lakes Basin Commission was created under Title II of P.L. 89–80, and the State Laws, Policies, and Institutional Arrangements Work Group was formed to provide a concise overview of the water law and institutional arrangements for water use and management for each State and Federal agency involved in water and related resources management within the Great Lakes Basin.

The use, regulation, and preservation of water in the Great Lakes Basin is accomplished by a complex system of State and Federal court decisions, local, State, and Federal statutes, administrative policies and programs, and individual and corporate discussion, all of which is subject to the uncertainty of nature.

This appendix is not an inventory and compilation of the statutory and case laws that govern water resource administration in the Great Lakes Basin. Rather, it is a comparative regional analysis of these regulatory sources. It compares water rights and management in the Basin with those in other regions. The information contained here is not a legal guide to water resource administration, but a vehicle to convey the basis on which the people of the Great Lakes Region have chosen to use their water.

The appendix may serve as a ready reference to legislators and government officials interested in existing legal and institutional conditions governing the availability, use, and management of water and related resources within the Great Lakes Basin. It may also be used in comprehensive river basin planning as a basis for judgments regarding institutional approaches capable of solving both projected short- and long-term problems.

This appendix cites numerous rules, regulations, and statutes, intended solely as references. If detailed information is required, the specific statute of the concerned State or States and professional legal counsel should be consulted.

Section 1

CONSTITUTIONALITY OF WATER USE LEGISLATION

1.1 Introduction

The power of the States to adopt and revamp their laws is great, but it is not unlimited. Each State government is prohibited by both the United States Constitution and its own State constitution from doing certain things that derogate individual rights. The most important issue to be raised in connection with water use legislation is whether such legislation amounts to a taking of private property without due process of law, or whether it is a valid exercise of the State police power in the furtherance of public health, safety, and welfare. There is no clearly defined line between statutes that are confiscatory and statutes that are merely regulatory. Generally, the courts will uphold any statute that is designed to meet a legitimate public need in a rational fashion and falls within the constitutional guarantees provided by the Federal and State constitutional provisions.

Various sources enunciate the legal doctrines and principles that govern and regulate water and its uses. Those of primary importance are the Federal and State constitutions, common law decisions, and statutory enactments. None of these sources alone determine the legal right pertaining to water law. Each supplements the other. Each part of this body of water law will be discussed.

1.2 Jurisdiction

The government of the United States can claim no powers that are not granted to it by the Constitution. Powers actually granted must be expressly given, or given by necessary implication. Clauses of the United States Constitution that explicitly or interpretively have been applied to water include the Commerce, Proprietary, General Welfare, War, Treaty, and Compact Clauses. For a detailed analysis of these provisions, see Appendix F20, *Federal Laws, Policies, and Institutional Arrangements*. Beginning with the case of *United States* v. *Chandler Dunbar Company*, 229 U.S. 58, which grew out of the Federal governments's construction of the Soo locks under the Rivers and Harbors Act of March 3, 1909, and ending in the very late case of *United States* v. *Appalachian Power Company*, 311 U.S. 377, Federal supremacy over the waters of the nation became firmly established. Earlier cases and more detailed analysis are provided in Appendix F20.

In discussing the relative water rights of States and the United States government in the Appalachian case, the court said:

> The states possess control of the waters within their borders, "subject to the acknowledged jurisdiction of the United States under the Constitution in regard to commerce and the navigation of the waters of river." *St. Anthony Falls Water Power Co.* v. *Water Commissioners*, 168 U.S. 349, 366. It is this subordinate local control that, even as to navigable rivers, creates between the respective governments a contrariety of interests relating to the regulation and protection of waters through licenses, the operation of structures and the acquisition of projects at the end of the license term.
>
> In our view it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. By navigation respondent means no more than operation of boats and improvement of the waterway itself. In truth the authority of the United States is in the regulation of commerce on its waters. Navigability, in the sense just stated, is but a part of this whole. Flood protection, watershed development, recovery of cost of improvements through utilization of power are likewise parts of commerce control.
>
> The Federal Government has dominion over the water power inherent in the flowing stream. It is liable to no one for its use or non-use.
>
> So long as the things done within the states by the United States are valid under that power (Commerce Clause), there can be no interference with the sovereignty of the state. It is the non-delegated power which under the Tenth Amendment remains in the state or the people.

Consequently, so long as the use and authority asserted by the United States under authorization of Congress are in some way related to commerce, the exercise of such authority is supreme and in fact superior to that of the States.

So long as Federal works confine themselves to within the natural boundaries of a stream or other body of water, there is no compensa-

tion due to the riparian owner. For, as was said in the Chandler-Dunbar case:

> The broad claim that the water power or the stream is appurtenant to the bank owned by it, and not dependent upon ownership of the soil over which the river flows has been advanced. But whether this private right to the use of the flow of the water and flow of the stream be based upon the qualified title which the company had to the bed of the river over which it flows or the ownership of land bordering upon the river, is of no prime importance. In neither event can there be said to arise any ownership of the river. Ownership of a private stream wholly upon the lands of an individual is conceivable; but that the running water in a great navigable stream is capable of private ownership is inconceivable.

While recognizing the supremacy of the Federal government over water when Congress acts with respect to the above listed constitutional powers, the States do have numerous specific rights and responsibilities with respect to the waters lying in their boundaries. These rights and responsibilities have been expressed in State constitutions, statutory enactments, and court decisions. The remainder of this Section is concerned with the State constitutional phases of the law as it exists in the Great Lakes Basin.

1.3 State Constitutions

1.3.1 Illinois

Although the Illinois constitution of 1970 with its subsequent amendments does not contain a water policy statement for the State, it does have two provisions relative to the use and regulation of waters within the State.

The first is found in Article IV, Section 31:

> The General Assembly may pass laws permitting the owners of lands to construct drains, ditches, and levees for agricultural, sanitary or mining purposes, across the lands of others and provides for the organization of drainage districts, and vest the corporate authorities thereof with power to construct and maintain levees, drains, ditches, and levees heretofore constructed under the laws of this State, by special assessments upon the property benefited thereby.

The second provision is found following Article XIV, Amendments to the Constitution, under "Sections Separately Submitted":

> The Illinois and Michigan canal or other canal or waterway owned by the State may be sold or leased upon such terms as may be prescribed by law. The General Assembly may appropriate for the operation and maintenance of canals and waterways owned by the State.

1.3.2 Indiana

The only reference made to water in the constitution of Indiana appears in Article 10, Section 7, and Article 14, Section 2.

Article 10, Section 7, prohibits the General Assembly of the State of Indiana from recognizing any liability to the State to pay or redeem any certificate of stock issued for the Wabash and Erie Canal to Evansville, Indiana.

Article 14, Section 2, gives the State of Indiana concurrent jurisdiction, in civil and criminal cases, with the State of Kentucky on the Ohio River and with the State of Illinois on the Wabash River, so far as those rivers form the common boundary between Indiana and the States.

1.3.3 Michigan

The Michigan constitution of 1963, which became effective on January 1, 1964, contains two provisions directly concerning the waters of the State of Michigan.

Section 52 of Article IV:

> The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety, and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.

Section 12 of Article VII:

> A navigable stream shall not be bridged or dammed without permission granted by the board of supervisors of the county as provided by law, which permission shall be subject to such reasonable compensation and other conditions as may seem best suited to safeguard the rights and interests of the county and political subdivisions therein.

The clause providing that "a navigable stream shall not be bridged or dammed without permission granted by the board of supervisors of the county" had its genesis in the Michigan constitution of 1850, Article 18, Section 4, which was understood as adopted in furtherance of the policy of the Ordinance of 1787. The Ordinance provided that "the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free" (*Shepard* v. *Gates*, 50 Mich. 495, 497; *People* v. *Grand Rapids-Muskegon Power Co.*, 164 Mich. 121). This power of the county is subordinate to that of the sovereign however, as Article VII, Section 16, states that

"the legislature may provide the powers and duties of counties in relation to highways, bridges, culverts and airports. . . ."

The constitution also contains the following pertinent provisions.

Article III, pertaining to the general government:

Inter-governmental agreements. . . .

Sec. 5. Subject to provisions of general law, this state or any political subdivision thereof, any governmental authority or any combination thereof may enter into agreements for the performance, financing or execution of their respective functions, with any one or more of the other states, the United States, the Dominion of Canada, or any political subdivision thereof unless otherwise provided in this constitution. Any other provision of this constitution notwithstanding, an officer or employee of the state or of any such unit of government or subdivision or agency thereof may serve on or with any governmental body established for the purposes set forth in this section and shall not be required to relinquish his office or employment by reason of such service. The legislature may impose such restrictions, limitations or conditions on such service as it may deem appropriate.

Internal improvements.

Sec. 6. The state shall not be a party to, nor be financially interested in, any work of internal improvement, nor engage in carrying on any such work, except for public internal improvements provided by law.

Common law and statutes, continuance.

Sec. 7. The common law and the statute laws now in force, not repugnant to this constitution, shall remain in force until they expire by their own limitations, or are changed, amended or repealed.

Article IV, pertaining to the legislative branch of the government:

Ports and port districts; incorporation, internal.

Sec. 42. The legislature may provide for the incorporation of ports and port districts, and confer power and authority upon them to engage in work of internal improvements in connection therewith.

Article VII, pertaining to local government, particularly cities and villages:

Public service facilities.

Sec. 24. Subject to this constitution, any city or village may acquire, own or operate, within or without its corporate limits, public service facilities for supplying water, light, heat, power, sewage disposal and transportation to the municipality and the inhabitants thereof.

Services outside corporate limits.

Any city or village may sell and deliver heat, power or light without its corporate limits in an amount not exceeding 25 percent of that furnished by it within the corporate limits, except as greater amounts may be permitted by law; may sell and deliver water and provide sewage disposal services outside of its corporate limits in such amount as may be determined by the legislative body of the city or village; and may operate transportation lines outside the municipality within such limits as may be prescribed by law.

Metropolitan governments and authorities.

Sec. 27. Notwithstanding any other provisions of this constitution the legislature may establish in metropolitan areas additional forms of government or authorities with powers, duties and jurisdictions as the legislature shall provide. Wherever possible, such additional forms of government or authorities shall be designated to perform multipurpose functions rather than a single function.

Article VII, general provision on interstate cooperation:

Governmental functions and powers. . . .

Sec. 28. The legislature by general law shall authorize two or more counties, townships, cities, villages or districts, or any combination thereof among other things to: enter into contractual undertakings or agreements with one another or with the state or with any combination thereof for the joint administration of any of the functions or powers which each would have the power to perform separately; share the costs and responsibilities of functions or responsibilities to one another or any combination thereof upon the consent of each unit involved; cooperate with one another and with state government; lend their credit to one another or any combination thereof as provided by law in connection with any authorized publicly owned undertaking.

Article X, pertaining to property:

Eminent domain; compensation

Sec. 2. Private property shall not be taken for public use without just compensation therefor being first made or secured in a manner prescribed by law. Compensation shall be determined in proceedings in a court of record.

State lands.

Sec. 5. The legislature shall have general supervisory jurisdiction over all state owned lands useful for forest preserves, game areas and recreational purposes; shall require annual reports as to such lands from all departments having supervision or control thereof; and shall by general law provide for the sale, lease or other disposition of such lands.

1.3.4 Minnesota

Article II, Section 2, of the Minnesota constitution provides that the State of Minnesota shall have concurrent jurisdiction in all waters that form a common boundary with other States.

This section further provides that navigable waters leading into the State shall be common highways and forever free to all citizens of the United States from any tax, duty, import, or toll. Such language of the State constitution is taken from the Federal Enabling Act of February 26, 1857, under which Minnesota was admitted to the Union (11 Stat. 166–1857). The State jurisdictional power over boundary waters is a regulatory right and is presently not impaired by any congressional preemption.

Specifically, Article 1, Section 8, of the United States Constitution grants the powers to the Federal government to regulate commerce among the several States. Judicial construction of this constitutional provision has permitted a State to exercise its jurisdictional powers over its boundary waters, absent complete Federal presumption (*St. Anthony Falls Water Co.* v. *Board of Water Commissioners*, 168 U.S. 349, 1897; *Cummings* v. *Chicago*, 188 U.S. 410, 1903; *State* v. *George*, 60 Minn. 503, 63 N.W. 100, 1895).

Regulatory matters that are proper subjects of State supervision range from criminal sanctions to public health controls to recreational projects (*State* v. *Kuliwar*, 266 Minn. 408, 123 N.W. 2d 699, 1963; *State* v. *George*, above). Article II, Section 2, of the State's constitution, then, gives Minnesota the power to adopt and apply substantive legal principles to all waters within or touching the boundaries of the State.

1.3.5 New York

The underlying principle of New York's water policies, as indicated in the following references to the State's constitution, its statutes, and case law, is that water is a natural resource, not to be conquered by man, but to be sought, recovered, processed, utilized, reclaimed, and reutilized.

The constitution of the State of New York is the basic written law of the State.

(1) Public Health

In Article 17, Section 3, the constitution provides that

> The protection and promotion of the health of the inhabitants of the state are matters of public concern and provision therefore shall be made by the state and by such of its subdivisions and in such manner, and by such means as the legislature shall from time to time determine.

(2) Financing of Sewage Treatment Works and Water Supply

The constitution enables counties, cities, towns, and villages in New York to meet one of the major problems of a heavily populated State in financing sewage treatment facilities, drainage systems, and water supplies.

Article 8, Section 2–a, of the constitution provides that the legislature by general or special law may authorize any county, city, town, or village or any county or town on behalf of an improvement district, to provide facilities, in excess of its own needs, for the conveyance, treatment, and disposal of sewage from any other public corporation or improvement district, and to provide facilities, in excess of its own needs, for drainage purposes from any other public corporation or improvement district.

Article 8, Section 2–a, also provides that the legislature by general or special law may authorize two or more public corporations and improvement districts to provide for a common supply of water, for the common conveyance, treatment, and disposal of sewage, for a common drainage system, and to contract joint indebtedness for these purposes.

Article 8, Section 2–a, further provides that debts contracted pursuant to that article shall be excluded from the constitutional limitation of indebtedness imposed on municipalities.

To encourage and stimulate local action by municipalities, New York State voters in 1963 overwhelmingly approved a referendum removing constitutional debt limitations to cover the costs of building sewage treatment plants. The exemption, which began January 1, 1964, covers any sewage facilities contracted for by a municipality during the eleven-year period between January 1, 1962, and December 31, 1972 (Article 8, Sections 5E and 7).

(3) Forest Preserve

A constitutional amendment of 1894 established the forest preserve and mandated that "The lands of the State . . . constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands" (Article 14, Section 1).

An amendment of 1913 to Article 14 deals with the construction of reservoirs in forest preserves (Article 14, Section 2):

> The legislature may by general laws provide for the use of not exceeding three per centum of such lands (forest preserve) for the construction and maintenance of reservoirs for municipal water supply, and for the canals of the state. Such reservoirs shall be constructed, owned and controlled by the state . . . and the expense of any such improvements shall be apportioned on the public and private property and municipalities benefited.

Related matters are covered in the Conservation Law, Sections 460 through 466, 618.

(4) Drainage

The constitution provides that general laws may be passed permitting owners or occupants of swamps or agricultural lands to construct and maintain necessary drains, diversions, and dikes upon the lands of others for

drainage purposes, under restrictions and on making just compensation (Article I, Section 7–d).

(5) Barge Canal System

The constitution also provides that the legislature may authorize by law the lease or transfer to the Federal government of the Barge Canal System (Article 15, Section 4).

(6) Conservation and Protection of Natural Resources and Scenic Beauty

Article XIV, Section 4, of the State constitution makes it the policy of the State to conserve and protect its natural resources and scenic beauty, improve agricultural lands, preserve air and water, protect shoreline and wetlands, develop and regulate water resources, and abate excessive noise.

1.3.6 Ohio

Laws for the conservation of natural resources of the State were given constitutional status in Ohio in 1912. Article II, Section 37, Constitution of Ohio, states

> Laws may be passed to encourage forestry, and to that end areas devoted exclusively to forestry may be exempted, in whole or in part, from taxation. Laws may also be passed to provide for converting into forest preserves such lands or parts of lands as have been or may be forfeited to the State, and to authorize the acquiring of other lands for that purpose; also, to provide for the conservation of the natural resources of the State, including streams, lakes, submerged or swamp lands, and the development and regulation of water power and the formation of drainage and conservation districts; and to provide for the regulation of methods of mining, weighing, measuring and marketing coal, oil, gas and other minerals.

Subsequent court decisions interpret the words "natural resources" broadly, making it clear that they include parks and recreation lands (*Menat* v. *Board of Park Commissioners*, 108 O.S. 497; *Snyder* v. *Board of Park Commissioners*, 125 O.S. 336).

1.3.7 Pennsylvania

Pennsylvania's constitution became effective January 1, 1968. It is the fifth such document in the Commonwealth's history, and it replaces the previous constitution of 1873. The current constitution is the consequence of several years of study for modernizing State government, and it embodies many earlier amendments of the public debt limitations for the improvement of the environment and the expansion of "home rule" principles to local governments.

The constitution insures protection of individual rights. In connection with the eminent domain powers of the State, Section 10 of Article I states ". . . nor shall private property be taken or applied to public use, without authority of law and without just compensation being first made or secured." Further, Section 11 specifies, "All courts shall be open; and every man for an injury done him in his land, goods, person or reputation shall have remedy by due course of law, and right and justice administered without sale, denial or delay . . ." Section 17 of Article I prevents the enactment of *ex post facto* laws or any law impairing the obligation of contracts, and forbids "making irrevocable any grant of special privileges or immunities."

The constitution makes no stipulations in connection with the administration and management of natural resources, but invests supreme executive power in the Governor for the execution of all laws. The General Assembly has the power to prescribe other executive officers through legislative procedures, and approves the Governor's appointments of agency heads in the Executive Department of State government.

The constitution authorizes the General Assembly to "establish standards and qualifications for private forest reserves, and make special provision for the taxation thereof; . . ." (Section 2(b) (i) of Article VIII: Taxation and Finance). Section 7 of the same article defines and limits the Commonwealth indebtedness. Debt may be without limit if its purpose is itemized in the law, and if such indebtedness is approved by a referendum. For capital projects, debt may be incurred without a referendum if such debt ". . . will not cause the amount of all net debt outstanding to exceed one and three-quarters times the average of the annual tax revenues . . . in the previous five fiscal years . . ." Also, capital project debts ". . . shall mature within a period not to exceed the estimated useful life of the projects as stated in the authorizing law, and when so stated shall be conclusive."

In addition to the public debt stipulations above, the constitution authorizes the Commonwealth to create debt and to issue bonds to the amounts listed below for two Statewide projects for the enhancement of environmental qualities:

> Project "70"–$70,000,000 . . . for the acquisition of law for State parks, reservoirs and other conservation and recreation and historical preservation purposes,

and for participation by the Commonwealth with political subdivisions (for the same purpose). . . Land and Water Conservation and Reclamation Fund or Project

"500"–$500,000,000 . . . for the conservation and reclamation of land and water resources of the Commonwealth, including the elimination of acid mine drainage, sewage and other pollution from the streams. . ., the provision of State financial assistance to political subdivisions and municipal authorities . . . for the construction of sewage treatment plants, the restoration of abandoned stripmined areas, the control and extinguishment of surface and underground mine fires, the alleviation and prevention of (mining) subsidence . . ., and the acquisition of additional lands and the reclamation and development of park and recreational lands. . . .

In May, 1971, an amendment to the constitution was ratified that guarantees the right to "clean air and pure water" for the citizens of the State.

1.3.8 Wisconsin

The Wisconsin constitution has a number of provisions that bear on the State's ability to deal with water and related problems. These will be dealt with in the order of their appearance.

(1) Article 1, Section 13, dealing with the inherent rights of a sovereign to take land for a public purpose, stipulates that "The property of no person shall be taken for public use without just compensation therefor." This provides a constitutional reinforcement of that aspect of the doctrine of eminent domain which also requires the payment of compensation for a public taking of private property.

(2) Article 8, Section 4, provides that "The state shall never contract any public debt except in the cases and manner herein provided." Though the constitutionally permitted exceptions to this injunction are few and limited as to dollar amount, this provision of the constitution presents no serious problem in that State-controlled dummy corporations have borrowed heavily for many years to finance a wide range of State-level capital expenditures.

(3) Article 8, Section 10, prevents the state from carrying out "works of internal improvement. . . ." However, recent amendments now permit exceptions to this broad prohibition for "the construction or improvement of public highways or the development, improvement and construction of veterans' housing or the improvement of port facilities." State forests may also be acquired and improved. These exceptions do not reach broadly into the area of water and water related capital improvements.

(4) Article 9, Section 1, gives the State jurisdiction over all waters bordering the State and all navigable waters within the State. The liberal definition of navigable, adopted first in the saw-log test, and more recently in *Muench* v. *Public Service Commission*, 261 Wis. 492, 53 N.W. 2d 514 (1952), states ". . . any stream is navigable in fact which is capable of floating any boat, skiff or canoe of the shallowest draft used for recreation purposes. . . ." This means that the State potentially has a far reaching power to deal with water-related problems. The State has used this power to impose a wide range of controls, including the regulation of dam construction, irrigation, channel encroachments, discharge of wastes, construction of water supply facilities by private and municipal entities, and level and rate of flow.

Section 2

THE COMMON LAW RELATING TO WATER RESOURCES

2.1 Introduction

A source of legal rights affecting water and related land resources arises from a body of law generally referred to as the common law. Common law has been defined as:

> the body of those principles and rules of action, related to the government and security of persons and property, which derive their authority solely from usages and customs of immemorial antiquity, or from the judgments and decrees of the courts recognizing, affirming and enforcing such usages and customs; and, in the sense, particularly the ancient unwritten law of England.[1]

A Washington Federal district court has defined common law:

> The common law consists of those principles, maxims, usages, and rules founded on reason, natural justice, and an enlightened public policy, deduced from universal and immemorial usage and receiving progressively the sanctions of the courts. Common law is generally used in contradistinction to statute law.[2]

Case law emanates from the judiciary when asked to resolve an actual dispute between two or more parties.

The court is free in such instances to choose a rule in harmony with the State's legal system and conditions when there is no applicable statutory or constitutional provision or preestablished applicable common law rule. In these instances, the courts may draw upon decisions of sister States, early English common law decisions, or analogize from its own decision in related matters.

Common law rules are those court-made rules governing water resources that have evolved on a case-by-case basis over centuries of Anglo-American history, custom, and precedent. These rules are given prototypical treatment, which is to say they represent the common law rules followed by the courts of most of the Basin States in the absence of statutory modification. Unless otherwise indicated, the following is a discussion of the general common law uncomplicated by contractual agreements, legislation, prescriptive rights, or various other factors.

2.2 Doctrine

A review of water law in force in the United States reveals that there is a great difference between the western States and the eastern States in basic doctrine. The dividing line between east and west coincides quite generally with a line through the prairie States, separating those States with 20 inches or less of rainfall from those States with more than 20 inches.

The group of States west of a line running from North Dakota to Texas, a water "shortage" region, operates its water laws under one form or another of what is called an "appropriation" doctrine. This doctrine emphasizes exclusive right of use of specific quantities of water at a prescribed time and place subject to the rule of beneficial use. Right of use in this case is not dependent upon ownership of land contiguous to the water supply, or even upon ownership of any land in some cases.

The eastern States, which include Great Lakes Basin States, are generally referred to as a water "excess" region and are governed by the riparian doctrine. This sytem emphasizes the rights of water users in common without regard to specific quantities, times, or places of use. Rights under the riparian doctrine are dependent upon ownership of land contiguous to the water supply. The rule of reasonable use applies here.

Riparianism is the only doctrine used by the Great Lakes Basin States.

2.3 Riparianism

The word "riparian" is derived from the Latin *ripa,* meaning banks of the river, or the place beyond which the waters do not in their natural course overflow. A riparian owner or proprietor is defined as one who owns land bounded by a natural watercourse.

The riparian doctrine is the doctrine used by the Great Lakes Basin States. It forms the primary basis for the laws governing the use

of natural surface watercourses in the States of the Great Lakes Basin and all other States east of the Mississippi, together with the humid States bordering that river on the west.

The principal feature of riparianism is that private rights in water arise only from ownership of land that adjoins a natural body of water. All such owners have equal right to co-share in the use of the waters, so long as each riparian is reasonable in his use. Riparian rights are further considered usufructuary in nature. That is, they are rights of use, not ownership, of the flowing waters.

The extent of a riparian land owner's rights to use the water depends to a large degree upon the class to which the water in question belongs. For the purposes of this discussion, the classes of water will be placed in three categories: watercourses, lakes, and ponds; ground water; and diffused surface water.

2.4 Natural Watercourses, Lakes, and Ponds

Generally the controlling distinction between a stream (watercourse) and a lake or pond is that a stream has a natural motion or current while a lake or pond in its natural state is at rest. It has been said that riparian landowners have "correlative usufructuary rights in the natural condition, level, and purity" of watercourses, lakes, and ponds to which their lands are riparian.[3]

2.4.1 Riparian Land

Riparian land must adjoin the watercourse, lake, or pond, and probably must lie within the watershed of the watercourse. Riparian rights rest upon ownership of the bank or shoe in lateral contact with the water, and not upon title to the soil under the water.

In administering this doctrine, the Great Lakes States generally follow one of two tests in determining which tracts of land are riparian and which are non-riparian. Under the so-called "source of title test," riparian lands are limited to those lands bordering on a lake or stream that have been in the same ownership in an uninterrupted chain of title from the original government patent. Seven of the Basin States follow modified interpretations of the source of title test. Under this test, a conveyance by "A" of a back parcel of his riparian land to "B" renders the transferred parcel non-riparian, unless the deed provides otherwise. It remains so even though "A" subsequently repurchases it. Thus a riparian cannot "assemble" non-riparian land and make it riparian; a non-riparian cannot convert his land to riparian status by buying a riparian tract. Under this rule, there is a continual dwindling of riparian land. The broader "unity of ownership" test, which is followed by Ohio, permits the assembling of land so as to create a larger riparian tract than was originally present. This "unity" test regards all land under single ownership as riparian if it is contiguous to a tract of land under the same ownership that abuts a watercourse.

It should be noted that the opportunity for acceptance or rejection of the "source of title test" or "unity of ownership test" has not presented itself to all of the Basin States' courts.

2.4.2 Allocation

The natural flow theory and the reasonable use theory are the two principal theories of how to allocate water to riparian owners on a given watercourse. The natural flow theory, an absolutist concept, gives the owner of land abutting a watercourse the right to have the water flow past his property in its natural condition, unaltered in quantity or quality. Under the reasonable use theory, each riparian is entitled to make a reasonable use of the water in that at least a certain amount of consumptive use in addition to domestic use is permissible, taking into consideration the needs and uses of other riparians. It can be said that the Great Lakes Basin States generally adhere to the reasonable use theory.[4]

For the most part, what is reasonable is decided on a case-by-case basis, but over the years certain uses have become regarded as being "reasonable per se" or "unreasonable per se." In such cases there is no careful weighing of factors to determine whether the use is reasonable under the particular circumstances. Such cases are decided in a mechanical fashion as a matter of law.

The "reasonable per se uses" are sometimes called natural uses. The most important natural use is the use of water for domestic purposes, such as household use for cooking, drinking, washing, gardening, and perhaps livestock watering. All other uses, such as the use of water for irrigation or manufacturing, are deemed artificial. That is not to say that artificial uses cannot be reasonable. It is merely to say that artificial uses are never

reasonable per se, and that each case is judged according to its special circumstances. Because circumstances change over time, a use that is reasonable today may well be unreasonable tomorrow.

The nebulous nature of this reasonable test is aggravated by the fact that there is no forfeiture of unexercised water rights under the riparian doctrine. That is, riparian owners who are not making full reasonable use of their water rights at present may begin to do so at any time in the future. This makes it difficult to ascertain the amount of water available to any riparian owner for any given use over time. Many persons believe this feature of the riparian doctrine tends to discourage capital investment, and the doctrine is therefore an obstacle to optimum use of water resources.

Another feature of the riparian doctrine that many persons believe to be undesirable is the fact that it limits the use of water to riparian lands. That is, it is unreasonable per se to use water for any purpose, no matter how worthy or beneficial, on lands that do not abut the watercourse and that do not lie within the watershed. By statutory enactments, Indiana, Michigan, Minnesota, Pennsylvania, and Wisconsin have modified to a limited extent this strict application of the riparian doctrine, and have made provision by permit for water use on non-riparian lands.

Where the public, either directly or through a governmental body, owns lands abutting a watercourse, its use of those waters is governed by the same rule of reasonableness that governs use by private riparian owners. This is particularly important in its repercussions on municipal water use, for municipal use usually includes the use of water on non-riparian lands. Often a municipality is located away from the watercourse or most of the various lots within the municipality are not adjacent to the watercourse.

It should be noted, however, that as urbanization has progressed the courts have been inclined to view municipal uses as reasonable and, conversely, to view as unreasonable any use that interferes with municipal water needs.[5]

2.4.3 Ownership of Streambeds and Lakebeds

Separate and apart from its riparian rights, the public has certain rights to use navigable watercourses or watercourse beds that are owned by the State in trust for the public. Determination of the extent of the public's rights to use water bodies for non-consumptive uses such as swimming, fishing, boating, and general recreation is largely dependent upon whether or not the water body is navigable under the State test of navigability. There is another test of navigability, the Federal test articulated in the Daniel Ball case[6] (77 U.S. (10 Wall) 557, 563, (1871)). It is important for the reason that the commerce clause of the United States Constitution (article 1, section 8) has been construed to give the Federal government final authority over the uses to which a Federally navigable water body may be put.[7] The public has common rights in the use of the surface of navigable waters. These rights are based on a trust theory. When the States were admitted to the Union they took title to the beds of navigable watercourses and lakes (navigable under the Federal test) subject to a public trust. The owner of the soil under a non-navigable water body has exclusive rights in the use of its surface. Where a non-navigable lake has more than one riparian landowner abutting the water, depending on the jurisdiction, the riparian either has exclusive right to use the surface over his portion of the bed or the riparian must share with other riparians the whole surface of the lake.

Where the bed of a watercourse is owned by the State in trust for the public, the public has a right to remove resources from the bed or waters, as in fishing, trapping, and mining. Of course, the State can regulate or even prohibit such uses by the general public, and riparian owners must use public waterways in ways that are consistent with public rights.

Determination of ownership of a stream- or lakebed, as mentioned, may have various consequences. If the bed is privately owned, removal of material from the bed may be authorized so long as there is no interference with the exercise of possible public rights (determined by navigability) to use the water. Private ownership of the bed of a navigable stream or lake is always subject to the overriding public servitude of navigation and to other public rights that adhere to navigable waters. If the bed is publicly owned, removal may be more strictly regulated by the State and payment required.

Information about ownership of streambeds and lakebeds in each Basin State is presented in Table S20–1.

TABLE S20–1 State Ownership of Streambeds and Lakebeds

	ILL.	IND.	MICH.	MINN.	N.Y.	OHIO[1]	PENN.	WISC.
Great Lakes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inland Lakes								
Navigable[2]	Yes[3]	Yes[5]	No[6]	No	Yes[7]	Yes	Yes	Yes[8,9]
Non-Navigable	No	No	No[6]	No	No	No	No	No
Streams								
Navigable[2]	No[4]	Yes[5]	No[4]	No	Yes[7]	No	Yes	---[10]
Non-Navigable	No[4]	No	No[4]	No	No	No	No	No

[1] A ditch for agricultural drainage becomes a public watercourse 7 years after construction, to the same extent as if it were a natural watercourse.

[2] Navigable according to the State definition.

[3] Yes, as a general rule.

[4] The riparian owns the stream bed to the center of the stream. The State owns the beds in those instances where it is the riparian.

[5] Only those that meet the Federal test of navigability, applied as of 1816, the year of Statehood.

[6] The riparian owns the lake bed to the theoretical center of the lake. The State owns the beds in those instances where it is the riparian.

[7] As a general rule, the beds of most of the larger navigable inland lakes and streams are owned by the State.

[8] Natural navigable lakes.

[9] The Wisconsin recreational boating test of "navigability" virtually includes all lakes and ponds in the State.

[10] Both State and private own qualified title. The State owns the beds in those instances where it is the riparian.

2.4.4 Rights in Navigable and Non-Navigable Watercourses

Riparians enjoy the right of reasonable use of water in natural surface watercourses, unless that right is qualified by regulating statute.

In the case of a non-navigable stream or lake, the extent of a riparian's reasonable use is measured by the relationship of his use to the rights of other riparians on the same watercourse. When a riparian uses navigable water, however, his rights are also subject to public rights to the water.

Private water use is often completely consistent with the exercise of public rights in navigable streams and lakes, but serious conflicts may arise between private riparians and those seeking to exercise public use of a given watercourse. In this event, the public rights will likely prevail.

This does not mean that certain riparian rights may be taken or substantially abridged without compensation. It has long been recognized that such rights are property rights, which cannot be taken for a private purpose or for a public purpose without compensation. The exercise of water use rights, however, might be substantially impaired by the exercise of public rights without compensation. This simply means that public rights operate as a "burden" on riparian land in the sense that a riparian may be prevented from exercising rights that conflict with the public use of the watercourse.

Where watercourses are navigable or where their beds are publicly owned, private rights to use watercourses are circumscribed by public rights to use waters for fishing, swimming, and navigation.

The public rights cover water uses permitted to persons who own no portion of the banks

of watercourses or who may own no land at all. In Indiana only persons who are citizens of the State have these public rights, and the rights only pertain to use of those watercourses useful to the public for commercial navigation; however, it is felt that the rights of recreational boating and fishing exist as well. It should be noted that the public has private rights to use water if the public is a landowner. Such rights are to be distinguished from those true public rights, which inhere in watercourses that are navigable or whose beds are publicly owned.

2.4.5 Navigable Waters

The State test of navigability in common law was dependent upon determination of transversibility for general public purposes. Because the public purposes were usually commercial in nature, the test became known as the commercial test of navigability. A watercourse was declared navigable if it was capable of floating substantial commercial traffic in its natural condition, or with relatively slight improvement of its channel. Under this procedure, a watercourse that is only able to support small recreational craft could not be used by the public for canoeing, boating, or swimming, no matter how ideally suited it is for recreational activities, because navigability is a prerequisite for public rights. To remedy this problem some Basin States have supplanted the common law commercial test with a test of "floatability" or "recreational navigability,"[8] as noted in the following State interpretations.

2.4.5.1 Illinois

A stream must, in its ordinary, natural condition, furnish a highway over which commerce is or may be carried on in its customary modes. If a stream cannot be navigated in its natural state and is not meandered (outlined in the Federal surveyor's map as a navigable body of water), no amount of deepening, widening, or other improvement will make it navigable in the eyes of the Illinois courts.

2.4.5.2 Indiana

The State does not assume ownership of the bed of a stream declared navigable by the General Assembly or by the Boards of County Commissioners. The General Assembly can declare a stream to be a public highway allowing the citizens of the State to use the waters for such purposes. The boards of commissioners in the several counties in this State are authorized to declare any stream or watercourse in their respective counties navigable, on the petition of 24 free holders of the county, residing in the vicinity of the stream that is intended to be declared navigable.

2.4.5.3 Michigan

In the absence of a statutory definition, the Michigan Department of Natural Resources has established a policy to define a public watercourse. According to this policy, a river, stream, creek, or channel is public if it has been used, is being used, or is capable of being used in its natural and ordinary condition for floating any boat, canoe, skiff, or craft with at least one person aboard, during any state, including ordinary high-water stages.

Three Michigan court cases deal with navigability.[9]

2.4.5.4 Minnesota

Subject to existing rights, all waters in streams and lakes within the State that are capable of substantial public use are public waters subject to the control of the State. The public character of water is not determined exclusively by the proprietorship of the underlying, overlying, or surrounding land, nor is it determined by whether it is a body or stream of water that was navigable or susceptible to being used as a highway for commerce at the time this State was admitted to the Union. This section of the law is not intended to affect determination of the ownership of the beds of lakes and streams.

2.4.5.5 New York

Navigable waters of the State include all lakes, rivers, streams, and waters within the boundaries of the State that are not privately owned, that are navigable in fact, or upon which vessels are operated. The exception is all tidewaters bordering on and lying within the boundaries of Nassau and Suffolk counties.

Navigable in fact means navigable in its natural or unimproved condition, affording a

channel for useful commerce of a substantial and permanent character conducted in the customary mode of trade and travel on water. A theoretical or potential navigability, or one that is temporary, precarious, and unprofitable is not sufficient. To be navigable in fact, a lake or stream must have practical usefulness to the public as a highway for transportation.

2.4.5.6 Ohio

A body of water is navigable if it is susceptible to being used, in its ordinary or improved condition, as a highway for commerce. In addition, consideration may be given to its availability for boating or sailing for pleasure and recreation as well as pecuniary profit.

2.4.5.7 Pennsylvania

During the colonial period of Pennsylvania the streams were, of course, the principal means of commercial transportation. In 1771, the colonial government of Pennsylvania declared the Delaware River and its principal tributaries (Schuylkill, Lehigh, and Lackawaxen Rivers) to be public highways. This action, which included several other streams outside the Delaware Basin, was the first modification of the common law doctrine of riparianism within the Commonwealth.

During the canal era in Pennsylvania (about 1870), the General Assembly continued to designate specific reaches of streams as public highways. Most designations were for commercial reasons, but not in all cases. For instance, Conestoga Creek, in Lancaster County, was so designated ". . . from (its) mouth up to the intersection of Muddy Creek, for the protection of fish" (Act of April 2, 1870, P.L. 821). The use of the designation apparently grew in application to mean general public usage.

2.4.5.8 Wisconsin

All lakes wholly or partly within the State that are navigable in fact are declared to be navigable and public waters. All persons have the same rights therein and thereto as they have in and to any other navigable or public waters.

All streams, sloughs, bayous, and marsh outlets that are navigable in fact for any purpose whatsoever are declared navigable to the extent that no dam, bridge, or other obstruction shall be made in or over the same without permission of the State. (Refer to Article 9, Section 1, Wisconsin State constitution.)

2.4.6 Access

One of the important riparian rights associated with land bordering navigable lakes and streams is the right of access to the water. It is recognized that a riparian has a right of access from the front of his land to the navigable part of the stream or lake and the right to construct landings, wharves, or piers subject to legislative regulation designed to protect public rights and the water resource. This right is subject to State consent and the right of the State to improve the stream to aid navigation.

The riparian's exclusive right to use the water arises directly from the fact that non-riparians may have no access to the stream without trespass upon riparian lands.

The mere fact that non-riparians do have certain important rights to use navigable waters as members of the public does not necessarily mean the public is guaranteed access to it. The courts have generally agreed that the general public has no right to cross private property to reach navigable water.

Non-riparians must, therefore, gain public access for the use of navigable or public waters by such means as traveling on them from a public access point, the use of eminent domain to acquire public access, and the use of voluntary contractual agreements to acquire access by the public or by non-riparian landowners for private purposes.[10]

2.4.7 Waste Disposal

Generally speaking, every State has three sets of remedies for water pollution control actions. The first is the common law, by which individuals are given certain rights to relief where they are specially damaged by water pollution. The second is the law of public nuisance, as embodied in case law or statutory law, by which public police officers are empowered to seek relief from pollution on behalf of the citizenry as a whole. The third is legislation that authorizes the establishment of special administrative agencies with broad powers to implement and enforce a comprehensive program of water quality control, and legislation permitting private action suits in instances where damage is not sustained by the individual bringing suit.

2.4.8 Common Law Rights of Private Individuals Aggrieved by Pollution

The individual who is specially aggrieved by pollution can seek two types of relief from the courts in a suit against the offending party or parties. One is a money judgment and the other is abatement of the pollution. Such a suit could be based on one or more of three legal theories:

(1) If pollutants are actually deposited upon his lands, the suit can be for trespass.

(2) If the pollution interferes with the owner's right to use and enjoy his lands, as by the emission of offensive odors, the suit can be for private nuisance.

(3) If the pollution interferes with his rights to use and enjoy the water itself, the suit again can be for private nuisance.

The matter is greatly complicated by the fact that the riparian doctrine must be superimposed on the question of whether a private nuisance exists. For example, the use interfered with might be non-riparian, or the defendant's use might carry a priority over the plaintiff's use. While such factors would not necessarily determine the suit's outcome, they would certainly carry considerable weight in deciding whether the defendant's conduct unreasonably interferes with the plaintiff's use and enjoyment of his property. (The central issue in every private nuisance suit is whether the defendant's conduct unreasonably interferes with the plaintiff's use and enjoyment of his property.)

Assuming that the defendant's conduct in polluting a waterway can be shown to be unreasonable, there are still a number of obstacles that may defeat the plaintiff's efforts to attain judicial relief or that would be so imposing as to discourage him from bringing suit in the first place. The most important obstacles arise from the fact that pollution is seldom caused by one party. Ordinarily, there are a number of parties discharging pollutants into the waters. For the most part, the courts have insisted upon treating each discharge as a separate offense. Such an approach has several consequences. It makes it difficult to join all the defendants in one suit. Even under the liberal joinder provisions that many States have enacted in recent years, courts are still inclined to take the position that each defendant merits a separate trial. Not only is multiple litigation very expensive, but it makes it difficult to see the situation in its entirety. Moreover, the plaintiff who seeks a money judgment must define the portion of his total damage for which each defendant is responsible. If he cannot show this, he gets nothing. The courts will not risk having one defendant pay more than his share of the damage. Some courts have shown a willingness to assist the plaintiff. They do this by saying that each defendant who pollutes a waterway knowing that others are polluting the same waterway is acting in concert with those others. Hence, the defendants are jointly liable, and each one becomes responsible for the full damage suffered by the plaintiff. This obviates the necessity of apportioning damages. Indiana follows this approach if the defendants's pollution amounts to a public nuisance. The other Great Lakes Basin States and private nuisance suits in Indiana still place the burden of apportionment upon the plaintiff.

In most cases, the plaintiff petitions the court for an injunction or decree of abatement against further pollution. Although there is no need to show the proportionate responsibility of each polluter in a suit for abatement, as there is in a suit for compensatory damages, such suits offer obstacles of their own. The plaintiff will be barred from relief if he has waited an inordinate amount of time to bring suit. He may also have to show, particularly where lake pollution is involved, that he himself is not guilty of contributing to the pollution of the waters. Most important of all, the plaintiff must convince the court that the hardship of abatement upon the defendant is not greater than the hardship of pollution upon himself. (The Illinois courts have ostensibly eschewed this "balancing of hardships test" in favor of the notion that there should be a remedy for every wrong.) All of this adds up to the fact that no State can rely on private litigation to maintain water quality.

2.4.9 Pollution and Public Nuisance

Public regulation of water quality had its origins in the common law doctrine of public nuisance. A public nuisance existed where a person used his property in such a way as to interfere with the health, safety, or welfare of the public. The common law has been buttressed in all Basin States by statutes that specifically declare that water pollution is a public nuisance subject to abatement and penalties. Though these statutes are still in effect, for all practical purposes they have been superseded by the broad regulatory legislation invested in the State pollution abatement agencies.

2.5 Percolating Ground Water

2.5.1 English Rule

Two common law rules govern the use of ground water in the Great Lakes Basin States: the rule of absolute ownership and the rule of reasonable use.

Under the older of the two, the rule of absolute ownership, also known as the English rule, the landowner has dominion over the percolating ground water to the extent that he may apply all that there is to be found to his own use. Percolating waters are those that ooze, seep, or filter through the ground beneath the surface without a defined channel. (Underground streams are governed by the same laws governing watercourses.) If the landowner chooses to drain the entire supply, including that of his neighbor, there is no liability. The rule does not necessarily mean that the owner may use the water if his sole purpose is to maliciously interfere with the use of ground water by surrounding landowners. Also, a landowner may not directly or incidentally use his ground water to corrupt or make unfit for use the well or spring of another user. In a 1903 Wisconsin case[11] the court did, however, interpret the rule as permitting a landowner to take water maliciously and for the sole purpose of preventing his neighbor from using it. None of the other Great Lakes Basin States following the absolute ownership rule (Illinois, Indiana, Ohio, New York, and Pennsylvania) allow a malicious use of the water. It is also unlikely that these States require the pumper to use the water on his own land.

2.5.2 American Rule

Under the reasonable use rule, or so-called American rule, one overlying landowner may freely take ground water from beneath his land, though he thereby deprives an adjoining landowner of the use of the water, as long as the use is reasonable. In determining reasonableness the courts often consider only the use that the pumper makes of the water without examining the effects such use may have on other landowners. Although a Minnesota decision[12] also considers the rights of other landowners, more recent decisions in Minnesota and New York appear to follow the reasonable use rule.

The reasonable use rule discussed here in connection with percolating ground water is slightly different from the reasonable use rule discussed earlier in connection with the riparian doctrine. Under the American rule the courts look only at the single landowner and ask, "Is it reasonable for him to use the ground water on his land as he does?" Under riparian doctrine, however, the courts look not only to the one riparian owner but also to everyone affected by his use and ask, "Does this person's use of the watercourse interfere unreasonably with the rights of others to use the watercourse?" Michigan and Minnesota apparently adhere to the American rule for both ground water and surface water.

As in the riparian doctrine, non-exercise of the rights to use ground water does not result in a forfeiture of those rights. The landowner is not assured of a specific quantity of water, because other landowners may subsequently increase their withdrawal and deplete the ground water supply.

2.6 Diffused Surface Water

Diffused surface waters are waters from rain, springs, or melting snow that lie or flow on the surface of the earth but do not form part of a watercourse or lake.[13]

Because diffused surface water has historically been regarded as a nuisance rather than a valuable resource, most of the law deals with its disposal. Traditionally two property rules have been applied where a landowner diverts diffused surface water to protect his own property: the common enemy rule and the civil law rule. More recently a third rule has developed, the reasonable use rule.

2.6.1 Common Enemy Rule

Under this rule a landowner can take any measures necessary to keep diffused surface water from his lands, even to the detriment of other landowners. This means that an upland owner cannot insist that waters be allowed to follow their natural course from upland to lowland against his lowland neighbor. Furthermore, it means that a landowner can drain water from his lands onto his neighbor's lands without incurring liability for damages. Indiana, New York, and Wisconsin follow this rule; however, Indiana case law has established three exceptions to this rule.

2.6.2 Civil Law Rule

This rule declares that the landowner has

the duty to receive surface water from above his land, and he has the corresponding right to have the water flow from his land to land below him. Illinois, Michigan, Ohio, and Pennsylvania (rural only) follow this rule.

2.6.3 Reasonable Use Rule

Under this rule the landowner is allowed to act as he wishes as long as his act is reasonable in light of all the circumstances. Minnesota and Pennsylvania (urban) follow this rule.

The few cases in the Great Lakes Basin States that have dealt with the issue of beneficial use of diffused surface water indicate that such water should be approached in the same manner as ground water use under the absolute ownership rule.

2.6.4 Flood Waters

The common law distinction between watercourses and diffused surface water is relevant not only to water use but to drainage and flood control. The right of a landowner to protect his lands from, or to rid his lands of, diffused surface water as mentioned is governed by three different doctrines in the Great Lakes Basin. These are the common enemy rule, the civil law rule, and the rule of reasonableness. The right of a landowner to protect his lands from the overflow of waterways is governed by the doctrines of private and public nuisance.

Diffused surface water flows in accordance with the law of gravity, from areas of high ground to areas of low ground. Most of the cases at common law have involved the issue of to what extent a person can interfere with the natural flow of water to protect his lands from inundation. Two main doctrines govern this point, the common enemy rule and the civil law rule. Indiana (with exceptions), New York, and Wisconsin (with reasonableness stipulations) follow the common enemy rule, while Illinois, Michigan, Ohio, and Pennsylvania follow the civil law rule. Minnesota has rejected both rules and follows a rule of reasonableness.

The notion underlying the common enemy rule is that a landowner can take any measures necessary to keep diffused surface water from his lands, even to the detriment of other landowners. (A noted exception to this rule is Indiana.) This means that an upland landowner cannot insist that waters be allowed to follow their natural course from upland to lowland, as against his lowland neighbor. It further means that a landowner can drain water from his lands onto his neighbor's lands without incurring liability for damages. The civil law rule, on the other hand, attaches great significance to natural drainage. Under it a landowner cannot alter the manner of flow of surface water onto the lands of another against the objections of that other. Nor can a lowland owner prevent the natural drainage of water onto his lands from those of his upland neighbor. Finally, the rule of reasonableness is just what the name suggests. Each case is judged according to its own facts. This rule affords flexibility, but at the price of clarity.

These common law rules have been modified only slightly by the courts and the legislatures. States following the common enemy rule have softened its harshness by a proviso to the effect that water cannot be maliciously discharged onto the lands of another or with unnecessary force and volume. The common enemy States have also passed statutes that abrogate the rules in the case of highway and railroad construction by requiring the building of drainage ditches along the right of way. In all of the States there are statutory provisions for the establishment of special purpose districts through which landowners can cooperate in their efforts to protect and drain lands.

According to the doctrine of private nuisance, it is unlawful for any person to maintain an artificial condition upon his land that interferes unreasonably with the rights of other landowners to use and enjoy their property. Under the doctrine of public nuisance it is unlawful for a person to maintain a condition upon his land that endangers the health, safety, or welfare of the general public. These doctrines apply to flooding in that it is unlawful to maintain an artificial condition upon one's lands that will obstruct the flow of water in a floodway and thereby increase the velocity and height of the flood to the detriment of other landowners or of the public. An artificial condition is any condition brought about by the acts of men, including flood control structures such as levees and embankments. It is not unlawful per se to maintain an encroachment upon a floodway. Each situation is judged according to its own circumstances.

These rules do little to deter the placing or maintaining of encroachments in river channels and floodways.[14] This is partly because

persons who desire to build in a floodway generally do not consider the possibility that the envisioned structure might cause or aggravate flood damage to others. More importantly, the chances of an injured party recovering a judgment in a law suit are extremely remote, because the injured party has the burden of proving to what extent a given encroachment has caused or aggravated flood damage to his property. This is very difficult to prove in most cases. There is almost no precedent in common law for the prevention or removal of encroachments before they have caused flood damage. They are concerned only with redressing wrongs after they have occurred.

A far more efficacious approach to flood problems would involve two steps. The first would be to prohibit the presence of encroachments in floodways that are likely to aggravate flooding, and to provide for the removal of such encroachments before they can cause damage. The second step would be to prohibit or discourage the presence in flood plains of structures that are likely to suffer damage from floods of expected severity. Only a few of the Great Lakes Basin States have taken these steps to control flood damage through land use regulation.[15]

2.7 Interbasin Water Diversion

The traditional common law riparian doctrine, which for the most part is still in effect today, forbids the transfer of water between watersheds. States can and have legislated exceptions to this general doctrine within their own political boundaries.

2.8 Interstate Diversion—Lake Michigan

On December 23, 1957, the Great Lakes States of Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin filed an application for a reopening and amendment of the decree of the United States Supreme Court dated April 21, 1930. Their aim was to require the State of Illinois to return to Lake Michigan the treated effluent derived from domestic pumpage from the Lake. On November 3, 1958, the plaintiff filed an amended application for the same relief. The amended application did not question the right of Illinois to take domestic pumpage from Lake Michigan provided its effluent was returned to the Great Lakes Basin.

On June 29, 1959, the Supreme Court entered an order granting the amended application for a reopening of the decree of April 21, 1930, and appointed Albert B. Maris, Special Master. Hearings for the receipt of evidence were held beginning October 21, 1959, and ending July 11, 1963. The Special Master submitted his report to the United States Supreme Court for the October Term, 1966.

On June 12, 1967, the United States Supreme Court decreed that the State of Illinois may not divert water from Lake Michigan and its watershed in excess of an average of 3,200 cubic feet per second. The water is to be apportioned by the State of Illinois among its municipalities, political subdivisions, agencies and instrumentalities for domestic use or for direct diversion into the Sanitary and Ship Canal to maintain it in a reasonably satisfactory sanitary condition.

The decree further stated that the State of Illinois may make application for a modification of this decree to permit diversion of additional water from Lake Michigan for domestic use when and if it appears that the reasonable water needs of the northeastern Illinois metropolitan region cannot be met from the water resources available to the region. Available water resources include both ground and surface water and the water authorized by Act of Congress and permitted by this decree to be diverted from Lake Michigan. Additional water will be diverted if it appears that all feasible means reasonably available to the State of Illinois and its municipalities, political subdivisions, agencies, and instrumentalities have been employed to improve the water quality of the Sanitary and Ship Canal and to conserve and manage the water resources and water use in the region in accordance with the best modern scientific knowledge and engineering practice.

2.9 Common Law Modification

Three aspects of the common law cause an inefficient use of water resources:

(1) Generally, water can only be used on riparian land.

(2) Because reasonableness is a nebulous concept and because riparian water law rights are not forfeited by non-use, the common law affords no assurances to water users that a given quantity of water will be available to them.

(3) In many Great Lakes States nonconsumptive public water rights inhere only

in those waters that meet the Federal test of navigability. This limits the resources available to the public for recreational and aesthetic needs. (Michigan, Minnesota, New York, Wisconsin, and in some cases Ohio, are notable exceptions.)

To some extent, the common law itself affords ways to circumvent these difficulties. Courts will not enjoin or penalize non-riparian use where it does not cause actual damage to riparian owners. Uncertain water rights engendered by common law rules can be firmed up by purchasing the water rights of other riparian landowners or through prescription, i.e., through open and adverse use of waters to the detriment of other landowners for a period of years (20 years in most States, 10 years in Indiana since 1951). Courts in Wisconsin, Minnesota, and Michigan have supplanted the commercial test of navigability with a recreational test, which will allow more non-consumptive uses.

Although the common law has the capacity to grow and change as the needs of society demand, the process of judicial evaluation is slow and uncertain at best. To accomplish the needed changes, the Basin States have turned to the faster and more certain process of legislation to effect needed changes and modifications. The public can acquire rights to riparian land and water rights through condemnation, as previously noted. Generally, the following modifications of the common law have been made by Basin States:

(1) Statutes have been enacted that require approval of an administrative agency before water can be withdrawn from whatever water sources are covered by the statute.

(2) Some statutes permit the use of water on non-riparian lands or lands that do not overlie a ground-water source.

(3) Some statutes help to firm up water rights by establishing priorities or preferences, or by providing for forfeiture of unexercised use of water rights.

(4) Some statutes enlarge or protect public rights to use water resources for water supply.

These statutory modifications, developed to better manage and clarify rights with regard to public and private use of our water and related resources, will be categorically discussed in Section 4, a comparative survey of State powers, programs, and policies.

2.10 Legislated Modifications

The previous discussion of common law illustrates that certain judicial principles may be abrogated or modified by statutory enactments. These changes are apparent in the many statutes that in some manner affect the waters of the Great Lakes Basin.

For clarity and convenience, this report discusses common law and statutory law separately. However, to understand the principles and concepts that regulate the use and enjoyment of waters in the Great Lakes Basin, one must not rely solely on one source of law to the exclusion of the other in an attempt to announce the applicable rule of law. The common law and the statutory law may abrogate, define, restrict, complement, expand, or otherwise clarify the interpretation of construction placed on the other. Important legislated modifications to the preceding riparian doctrine are summarized by State in the following subsections.

2.10.1 Illinois

Illinois has a law that authorizes the issuance of permits for the diversion of public waters for industrial, manufacturing, or public utility purposes. The courts have indicated that the term public waters is to be narrowly construed to mean waters that are commercially nagivable. The Illinois statute makes it clear that no permits should be issued where water diversion would interfere with public rights to use the waters. No procedure is provided for the revocation of permits once issued, and no priorities or preferences are established by the Statute.

2.10.2 Indiana

In 1955 the Indiana legislature (Act of 1955, Ch. 251) declared that all surface waters of Indiana are public waters and subject to regulation by the Indiana General Assembly.

Indiana law (Acts of 1951, Ch. 29) regulates the use of ground water in restrictive use areas. It is a function of the Department of Natural Resources to declare what areas of the State should be subject to restricted ground-water use. No ground-water user in a restrictive use area can increase his withdrawal of ground water by more than 100,000 gallons per day (gpd) without first obtaining a permit. There is, however, no procedure provided for revocation of such permits, and there is no indication that non-use results in forfeiture.

Another Indiana statute (Act of 1947, Ch. 181) makes it unlawful to do anything that would affect the natural resources, the natural beauty, or the water levels of a public freshwater lake without prior approval of the Department of Natural Resources. A public freshwater lake is any lake, other than Lake Michigan, that has been used by the public with the acquiescence of any riparian owners.

2.10.3 Michigan

Michigan law provides for the issuance of permits to use water on non-riparian lands for the mining of iron ore.

Another statute provides that by permit and upon determination by the State of optimum flow, the County Boards of Supervisors may impound and dispose of surplus flood waters.

Michigan law also allows Irrigation Districts with State permits to withdraw Great Lakes waters for irrigation purposes. Other regulatory permit systems have also been enacted to better manage and protect both private and public water use rights.

The Michigan legislature has declared that the fee in the bottom lands of the Great Lakes is in the State and that the public trust extends to the ordinary high-water mark as defined by the legislature.

Statute further states that a riparian cannot make use of the bottom lands lakeward of the ordinary high-water mark, as defined by the legislature, without a permit from the State regulatory agency.

Great Lakes shorelands may not be channeled without explicit permit from the State regulatory agency.

Inland waters below the ordinary high-water mark may not be altered by dredging or filling without a permit from the State. Upland channels leading into a lake or stream may not be dredged without a specific permit from the State.

Persons requiring a new or substantial increase over and above the present use now made of the waters of the State for sewage or waste disposal purposes must receive an order from the State that specifies the minimum restrictions necessary to guard against unlawful uses of the waters.

Dam construction is also regulated by the provisions of Act 184, P.A. 1963, as amended.

2.10.4 Minnesota

Minnesota established a comprehensive water use permit system in 1937, but it has not been interpreted as authorizing the issuance of permits to use water on lands where water could not be used at common law. The exemptions from the Act are so broad that relatively few important water uses are actually subject to regulation. The three exemptions are:

(1) beneficial uses originating within municipalities on July 1, 1959

(2) domestic uses by less than 25 persons

(3) all beneficial uses existing prior to the effective date of the statute, July 1, 1937.

There is one exception to the agency-made rule that water cannot be used on non-riparian lands. The act expressly provides for the diversion of water for use in certain specified mining operations in the public interest, even if the mines are located on non-riparian lands.

Water permits are not limited to any particular duration, but they are subject to revocation where revocation would be in the best interests of the public.

2.10.5 New York

New York State requires applicants for new or additional public supplies of water to obtain the approval from the State Department of Environmental Conservation, successor to the Water Resources Commission. Diversions can be permitted. The Department also regulates ground water pumping on Long Island.

2.10.6 Ohio

The State of Ohio strictly adheres to the doctrine of riparian rights. Water use permits are required only for withdrawals from State-owned canal lakes and reservoirs. Permits must be obtained for any dams more than 10 feet high constructed on intrastate waterways. Except for these, Ohio has not modified common law rules governing water use and withdrawal.

2.10.7 Pennsylvania

Legislative modifications to the riparian doctrine in Pennsylvania have affected all aspects of water uses to some degree. Only a few modifications are concerned with ground water. These are only indirect because they deal with certain aspects of well-drilling, septic

tank spacing, and solid waste disposal. Most of the modifications are, therefore, concerned with surface waters. These are administrative powers delegated by legislation to the executive branch of State government. In Pennsylvania, this administration is done through the Department of Environmental Resources. The extent or degree of such modifications is outlined below in terms of related powers:

(1) water supply: power to grant water rights to municipalities and to investor-owned companies for the purpose of providing public water supplies from streams and impounded reservoirs

(2) water impoundments: power to impound surface waters for purposes of water supply, conservation, and recreation, and the power to set minimum release rates from water impoundments located in the State

(3) dams: power to regulate the site, design, construction, and maintenance of dams on all streams in the State

(4) encroachments: power to prevent or to remove any structure or fill within the channel or along the banks of any stream in the State. In the case of bridges and culverts, such power includes the authority to insure adequate waterway capacities for future floods.

(5) stream channels: power to control and regulate the location and cross section of any stream channel within the State for flood control and conservation purposes

(6) water diversions: power to control the transfers of water between watersheds, regardless of purpose

(7) water quality: power to protect any surface waters within the State from any active or potential source of pollution.

2.10.8 Wisconsin

Wisconsin law provides for the issuance of permits to use water on non-riparian lands for the mining of taconite (107.05 WSA) if such use is found to be in the best interests of the public. This is very similar to Minnesota's mining division law.[16] If necessary, mine operators are authorized to buy up riparian rights through inverse condemnation proceedings. (Riparian owners are entitled to compensation, but they cannot enjoin the diversion.)

Another statute provides that permits can be issued for the diversion of water from one water course to another under certain circumstances. The first watercourse must have surplus water, while the second watercourse must be too low in level to sustain ordinary navigation, ordinary fishlife, and other ordinary demands of public importance.

Wisconsin also requires by statute a permit from the Department of Natural Resources for new or reconstructed wells or well fields that have a capacity of yielding more than 100,000 gallons per day.

Wisconsin also possesses a unique "wild rivers" act. Stretches of two rivers in Wisconsin have been placed off bounds to all uses that will alter the natural conditions of the rivers. Although other States have designated "wild rivers" (Minnesota Boundary Waters Canoe Area), these other "wild rivers" flow through public lands and parks. The rivers in Wisconsin are largely adjacent to privately owned lands. It is not yet clear whether compensation must be paid to riparian owners where their use of watercourse is curtailed to such an extent.

2.11 Eminent Domain

Eminent domain is power that ensures that Federal, State, or local governmental units or privately owned utilities can secure particular tracts of land necessary to a public purpose. This power enables private property to be taken upon payment of reasonable compensation without regard to its present use or the desires of the present owner. Proceedings in eminent domain are well defined by statute in each of the Great Lakes States. Such powers have been conferred upon State, local, and special district authorities for purposes of water and related land management in all of the Great Lakes Basin States.

Eminent domain proceedings usually aim at acquisition of fee simple title to a piece of land. However, it is possible to secure via eminent domain any group of rights less than the "fee" that satisfies the public need. Such an interest is usually referred to as an easement.

Eminent domain powers of Ohio conservancy districts are greater than those of the State in that they may acquire property by placing it on the appraisal roll. If there is no objection properly filed by the owner, the district takes title when the appraisal roll is approved by the court and payment is made. Through this method a conservancy district may acquire many parcels without individual negotiation and procedure.

2.12 Permit and License Systems

All States within the Great Lakes Basin

have established numerous water use permit systems to aid in more comprehensive water use management, planning, and pollution protection. Actions requiring such special permits or licenses are indicated in Table S20–2.

TABLE S20–2 Actions Requiring Permit or License from a State Regulatory Agency

Action	ILL.	IND.	MICH.	MINN.	N.Y.	OHIO	PENN.	WISC.
Water Well Drilling	R	R	R	NR	R[1]	NR	R	R[2]
Impoundments	R	R[3]	R[4]	R	R[5]	R[5]	R[6]	R[7]
Channel Encroachments	R	R	R	R	R	NR	R	R[7]
Development in Flood Plains	NR	NR	R	NR	NR	NR	NR	R[7]
Discharge of Wastes (Use Permits)								
Municipal	R	R[8]	R	R	R	R	R	NR
Industrial	R	R[8]	R	R	R	R	R	R[9]
Public Water Supplies	R	R[8]	R	R	R	NR	R	R[10]
Licensing of Liquid Industrial Waste Haulers	NR	NR	R	R[11]	NR	NR	NR	R
Licensing of Industrial Waste Treatment Plant Operators	R	R	R	R	R[12]	NR	NR	R
Licensing of Municipal Waste Treatment Plant Operators	R	R	R	R	R	R	R	R
Use of Great Lakes Bottomlands (Piers, Wharves, etc.)	R	R	R	R	R	NR	R	R
Waste Disposal Wells	NR	R	R	R	R	R	R	NR
Septic Tank Cleaners	NR	R	R	NR	R	NR	NR	R
Oil, Gas, & Mineral Well Drilling	R	R	R	R	NR	R	R	NR
Dredging and Bottomland Filling								
Great Lakes	R	R	R	NR	R	NR	R	R
Inland	R	R	R	NR	R	NR	R	NR
Diversion	R	R	R	R	R	R	R	NR
Well Abandonment								
Water	R	R[13]	NR	R	R	NR	R	NR
Other	R	R	R	R	NR	NR	R	NR
Commercial Pesticide Applicators	NR	NR	R	R	R	R	NR	NR
Dumps and/or Sanitary Landfills	R	R	R	R	R	R	R	R
Certification of Public Water Supply Operators	R	--[11]	R	R	R	R	R	R
Dam Abandonment	NR	NR	R[14]	R	NR	NR	R	R
Irrigation Withdrawals	NR	R[15]	NR	R	R[16]	NR	NR	R
Mine Abandonment	R	NR	NR	R	NR	NR	R	NR
Drainage Projects	NR	NR	R	NR	R[17]	NR	NR	NR
Septic Tank Installation	NR	NR	NR	NR	NR	NR	R	NR

R: Permit or License Required
NR: Permit or License Not Required

[1] On Long Island only.

[2] Well drillers must be licensed; high capacity wells yielding more than 100,000 gallons per day must have permit.

[3] Dams with more than one square mile of drainage area, 100 acre-feet of storage, or 20 feet high.

[4] More than five acres in size or dam with head of five feet or more.

[5] Dams more than 10 feet high.

[6] More than 1/2 square mile of drainage area.

[7] Local units of government require permit.

[8] Approval of plans and specifications.

[9] All new sources of industrial waste must be approved by the Department of Natural Resources.

[10] Plans for all new construction of water supply and distribution must be approved by the Department of Natural Resources.

[11] Voluntary.

[12] Where combined with sewage only.

[13] Public water supply wells.

[14] Permit required for removal.

[15] From navigable streams.

[16] On Barge Canal only.

[17] Drainage improvement districts only.

Section 3

INFORMAL INTERGOVERNMENTAL RELATIONS AND WATER POLICY

3.1 Introduction

Before reviewing the subsequent section on regulatory measures employed to manage and protect water and related land resources by the various State agencies within the Basin, a brief overview of informal intergovernmental arrangements and implied policies is in order. The policy of a State toward centralized or decentralized responsibilities, or strong State government versus local home rule for problem solution, has a substantial bearing upon approaches indicated in the tables in Addendum A.

Examples of specific agency-level responsibilities are included to complement Section 4, A Comparative Survey of State Powers, Programs, and Policies. By reviewing these in total the reader should obtain a comprehensive and concise overview of State management attitudes, authorities, and administrative structures as they currently exist within the Great Lakes Basin.

3.2 Illinois

3.2.1 Informal Intergovernmental Relations and Water Policy

3.2.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

Although water management and regulation remain a decentralized function in Illinois, broad policy, goals, and objectives are becoming centralized through establishment of the Natural Resources Development Board. Water management functions are carried out by several agencies, but the coordination efforts of the Board (made up of members from these various agencies), provide a centralization through a review process based upon common policy.

3.2.1.2 Home Rule

Illinois does not have home rule in the total sense, but it provides enabling legislation to local governments and the State on specific issues. All powers not ceded to the State through the Illinois constitution or enabling legislation generally remain with the municipality.

Following are excerpts from Article VII, Section 6, Powers of Home Rule Units:

> (a) A county which has a chief executive officer elected by the electors of the county and any municipality which has a population of more than 25,000 are home rule units. Other municipalities may elect by referendum to become home rule units. Except as limited by this Section, a home rule unit may exercise any power and perform any function pertaining to its government and affairs including, but not limited to, the power to regulate for the protection of the public health, safety, morals and welfare; to license; to tax; and to incur debt.
>
> (b) A home rule unit by referendum may elect not to be a home rule unit.
>
> (c) If a home rule county ordinance conflicts with an ordinance of a municipality, the municipal ordinance shall prevail within its jurisdiction. . . .
>
> (h) The General Assembly may provide specifically by law for the exclusive exercise by the State of any power or function of a home rule unit other than a taxing power or a power or function specified in subsection (l) of this Section.
>
> (i) Home rule units may exercise and perform concurrently with the State any power or function of a home rule unit to the extent that the General Assembly by law does not specifically limit the concurrent exercise or specifically declare the State's exercise to be exclusive. . . .
>
> (l) The General Assembly may not deny or limit the power of home rule units (1) to make local improvements by special assessment and to exercise this power jointly with other counties and municipalities, and other classes of units of local government having that power on the effective date of this Constitution unless that power is subsequently denied by law to any such other units of local government or (2) to levy or impose additional taxes upon areas within their boundaries in the manner provided by law for the provision of special services to those areas and for the payment of debt incurred in order to provide those special services.
>
> (m) Powers and functions of home rule units shall be construed liberally.

3.2.1.3 Financing

For purposes of flood control, pollution abatement, water supply, sewage treatment, drainage, recreation, and other water or water-related projects, the State of Illinois and its political subdivisions have taxing and bonding powers to provide necessary funds. State agencies, counties, municipalities, and special districts are empowered under specific legislation, too numerous to mention, to tax or receive grants and donations for such projects. State and Federal grant-in-aid programs are normally available to support financing when necessary.

3.2.2 Cooperation and Coordination

3.2.2.1 Federal Programs

Illinois has maintained a policy of close, cooperative effort with all Federal agencies, particularly those involved in water and natural resource programs. An example of this cooperation is given in the recently published State Outdoor Recreation Plan, which was approved by the Bureau of Outdoor Recreation. Another example is the review and comment by the Natural Resource Development Board of all Federal multipurpose projects within the State. (The Natural Resource Development Board, its membership, and policies are discussed in a following section. Review of single-purpose projects is handled by the agency whose particular jurisdiction is involved.)

3.2.2.2 Interstate Cooperation

It has been the policy of the State of Illinois, as articulated by the Governor, to cooperate financially, technically, and by whatever other means necessary in the formation with other States of regional or Basinwide commissions to solve common water and natural resource problems. Active in many interstate compacts, Illinois participates in the Great Lakes Commission, Ohio River Valley Water Sanitation Commission, Wabash River Bi-State Compact, and the Great Lakes Basin Commission, among others.

3.2.2.3 Political Subdivisions

The Natural Resource Development Board, primarily under the guidance of the State Division of Soil and Water Conservation, reviews and recommends approval or disapproval of proposed local projects under the P.L. 566 program. The applications for assistance and the Board's recommendations are then forwarded to the Governor for final action.

3.2.2.4 Multiple-Purpose Operations

Illinois places a high priority upon multiple-purpose planning in the development of all water and related land resources programs. This emphasis is especially evident in the development of reservoirs in the State. With few exceptions, it is no longer considered sufficient to justify reservoir construction on the basis of water supply or flood control alone. Other benefits, such as recreation, wildlife habitat, and the provision of high quality environment, must be examined carefully in any proposal of reservoir development.

Again, the Natural Resources Development Board is charged with the responsibility of reviewing all proposed Federal reservoir construction within the State. By working closely with the U.S. Army Corps of Engineers and the Soil Conservation Service on proposed reservoir programs, a system of State, local, and Federal inputs is activated providing a comprehensive examination of potential reservoir problems and benefits. Examples of such a planning system successfully implemented within the State are the multiple-purpose reservoirs at Rend Lake, Carlyle, and Shelbyville, as well as the proposed Lincoln, Helm, and Louisville Reservoirs.

3.2.3 Natural Resources Development Board—Goals and Objectives

To promote and coordinate more fully the activities of State agencies involved with natural resources planning or development, the Natural Resources Development Board, in January 1970, adopted a general set of goals, objectives, and policy statements for water resources in Illinois. These goals, objectives, and policies are a composite of these supported by the eight member agencies of the Natural Resources Development Board. Generally these positions consider the overall improvement of the State's air and water quality, flood control, water supply, and recreation environment.

3.2.3.1 State Goals

The four major state goals are listed below:

(1) to assure the efficient use, both socially and economically, of the State's natural resources

(2) to develop and maintain a high quality environment in Illinois

(3) to assure the safety, adequacy, and potability of public water supply

(4) to provide for the conservation of soil, water, wildlife, forests, and other natural resources of Illinois.

3.2.3.2 Objectives

The objectives adopted by the Natural Resources Development Board are outlined below:

(1) air and water quality

(a) control air and water pollution and its deleterious effect on the people and environment of Illinois

(b) protect the surface and ground water resources from pollution

(2) water supply

(a) provide for proper treatment and disinfection of water supplies

(b) provide for adequate and proper water storage facilities

(3) reduction of flood, drainage, and soil erosion damages

(a) establish a controlled and wise pattern of land and water use and development across the State

(b) protect the land against soil deterioration

(c) rebuild damaged lands so that they might be used efficiently and profitably

(d) improve croplands, grasslands, forests, recreation areas, and wildlife habitat in an economic and efficient manner

(e) reduce flood water, drainage, and sediment damages in the most efficient and economical manner

(4) recreation and environmental enhancement

(a) provide the lands and facilities for outdoor recreation and education to meet the growing needs and demands of the people

(5) other objectives

(a) recommend legislation for the most feasible method of conserving and using natural resources

(b) maintain a quantitative and qualitative inventory of natural resources throughout the State

(c) carry out broad research programs on air, water, and land resources, anticipating and preparing for future demands.

3.2.3.3 Policy Statements

Policy statements for the planning and development of water resources in Illinois are presented below:

(1) Air and Water Quality

(a) Water quality standards enforcement requires surveillance and often legal action to assure that Illinois waters are protected from discharges and pollutants. Compliance is required within specified time periods for all standards outlined in the Environmental Protection Act rules and regulations publications.

(b) Installations threatening to produce thermal pollution must be reviewed critically.

(c) Low-flow discharges from storage are evaluated in relation to aquatic life and recreational use enhancement, and are not accepted as substitutes for waste treatment.

(d) The removal of nutrients from waste discharge shall be accomplished as practical methods are developed in accordance with protection essential to maintaining the quality of surface waters.

(e) Acid mine drainage must be kept under constant surveillance and reasonable control.

(f) The Natural Resource Development Board will keep abreast of the economic factors affecting the financing of waste collection and treatment works, and will encourage advantageous State fiscal participation in Federal programs relating to water supply and water quality.

(g) The collection, handling, and disposal of solid wastes should be conducted so as to avoid public nuisance and air and water pollution.

(2) Water Supply

(a) Any built-up community should provide a public water supply rather than rely on individual or small group systems that frequently are subject to contamination. Such systems are generally inadequate and are not properly maintained.

(b) The Board encourages the inclusion

of water supply for municipal use and/or industrial uses in multipurpose Public Law 566 reservoir development whenever feasible or when such need is apparent.

(c) The Board is concerned about the limited number of major reservoir sites in the State and encourages the State to either acquire or zone these sites for future use.

(3) Reduction of Flood, Drainage, and Soil Erosion Damages

(a) Each acre of land in the State should be protected and developed according to its capability, taking into account the economic, aesthetic, and ecological needs of the people. To accomplish this, land treatment is necessary.

(b) Flood and drainage damage problems must be alleviated using the concepts of total flood-plain management. Three means of dealing with these problems may be used:

(i) flood-plain zoning

(ii) structural methods such as dams, channel improvements, and levees

(iii) flood proofing and flood-warning systems.

(4) Recreation and Environmental Enhancement

(a) The objective of recreational and environmental enhancement is to provide the lands and facilities for outdoor recreation and education to meet the growing needs and demands of the people.

(b) policy statements:

(i) The Board does not feel that State responsibility lies in providing "local" recreation to a small geographically concentrated group of people. It will continue to encourage local recreation through State administration of land and water conservation funds and by providing some technical services. The Board feels, however, that local recreation should be a local government responsibility whenever possible.

(ii) The Board wishes to provide recreational facilities within easy driving time of the large population concentration areas throughout the State. The location of new developments for recreation should be within 100 miles of large population concentrations but should be far enough away and designed in such a manner as to keep them from becoming local parks which, for various psychological and social reasons, prohibit their use by people from all over the State.

(iii) The Board encourages development of areas formerly used for farming, mining, etc., into aesthetic open space when possible. The Board encourages private land owners to participate in these programs. Such areas may also be used for needed recreation areas.

(iv) The Board realizes the need for more land for various recreational pursuits. To meet this need, the Board encourages the acquisition of lands outright or easements for the use of lands and associated water. The Board further encourages private land owners to donate open lands for the development of recreation areas.

(v) The Board is concerned about the encroachment of urban areas, mining, agricultural interests, and highways on areas of ecological and historical importance. The Board encourages the protection of these areas whenever possible. It encourages incorporation of them into its educational program, which will attempt to make the people of the State aware of their past and their environment.

(vi) The Board is aware of the people's increased affluence, mobility, and leisure time and their desire to participate in various forms of outdoor recreation. The Board encourages educational programs so that the people might be more able to pursue these forms of recreation in a more meaningful and safe fashion.

(vii) Soil surveys, geologic, and other pertinent physiographic information should be used in guiding the sound expansion of housing, recreational and industrial developments, the protection of agricultural areas against unwise and unnecessary encroachment, location of roads and highways, and the improvement of the natural beauty of the countryside.

(viii) The Board encourages the inclusion of recreation in the planning of multiple-purpose reservoirs. It also encourages farmers, especially those farming marginal lands, to develop recreational opportunities for the benefit of the people and for personal profit.

(ix) The Board encourages the development of areas for wildlife and aquatic habitat subject to the principles of sound wildlife management.

3.3 Indiana

3.3.1 Informal Intergovernmental Relations and Water Policy

3.3.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

Since 1920 Indiana has experienced a shift in water policy making from local to State units of government, with the basic philosophy being one of control for maximum benefit to the entire State economy.

Before 1920 Indiana statutes reflect almost no Statewide policy with respect to water resources. The pre–1920 statutes are almost entirely of the following types:

(1) prohibitions, the intent of which was to protect waterways as a means of transport (See Acts of 1905, Chapter 169)

(2) permissions of local units of government to improve waterways for purposes of transport (for example, Acts of 1873, Chapter 15)

(3) authorization permitting drainage, flood protection, and fixing of lake levels (Acts of 1905, Chapters 152 and 157).

In 1923 the legislature created the Indiana Deep Waterways Commission "for purpose of connecting the Great Lakes with the Atlantic Ocean by means of the Welland Canal and the St. Lawrence River . . ." (Acts of 1923, Chapter 131). This is one of the earliest recognitions that water presented issues for Statewide policy making. Also in 1931 Indiana participated with Illinois in interstate activities relating to water (Acts of 1931, Chapter 158). However, adjustments and mediation between advocates of centralized government and extreme local democracy delayed State-conceived and announced water resources policies until the mid–1940s. Since that time nearly twice as much legislation relating to water law has been enacted than in the entire history of the State. Almost all of the post–1940s statutes are of greater significance with reference to water policy than pre–1940 legislation. By 1945, construction on flood planes and construction of flood control works were controlled at the State level with participation by local governments.

Basic State water resource development policies and doctrines, as defined by the Indiana General Assembly, are set forth in the Indiana Flood Control Act (Acts of 1945, Chapter 318, as amended), the Indiana Water Resources Law (Acts of 1955, Chapter 251, as amended), the Act to Conserve and Protect Ground Water Resources (Acts of 1951, Chapter 29, as amended), and the Indiana Conservancy Act (Acts of 1957, Chapter 308, as amended). Excerpts from these acts are below:

Acts of 1945, Chapter 318, Section 2:

It is hereby declared (a) that the loss of lives and property caused by floods, and the damage resulting therefrom, is a matter of deep concern to the State affecting the life, health and convenience of the people and the protection of property; that to prevent and limit floods all flood control works and structures, the alteration of natural or present watercourses of all rivers and streams in the State should be regulated, supervised and coordinated in design, construction and operation according to sound and accepted engineering practices so as to best control and minimize the extend of floods and reduce the height and violence thereof; (b) that the channels and that portion of the flood plains of rivers and streams, which are floodways, should not be inhabited and should be kept free and clear of interference of the capacity of the floodways; (c) that the water resources of the State, which have been diminishing, should be accumulated, preserved and protected to prevent any loss or waste beyond the reasonable and necessary use thereof; and (d) that a master plan or comprehensive plan for the entire State, to control floods, and to accumulate, preserve and protect the water resources, should be investigated, studied and prepared; policy and practices established, and the necessary works constructed and placed in operation.

Acts of 1955, Chapter 251, Section 1:

It is hereby declared that the general welfare of the people of the State of Indiana requires that surface water resources of the State be put to beneficial uses to the fullest extent and that the use of water for non-beneficial uses be prevented, and the public and private funds, for the promotion and expansion of the beneficial uses of surface water resources, shall be invested to the end that the best interests and welfare of the people of the State will be served.

Acts of 1955, Chapter 251, Section 2:

Water in any natural stream, natural lake, or other natural body of water in the State of Indiana which may be applied to any useful and beneficial purpose is hereby declared to be a natural resource and public water of the State of Indiana and subject to control and/or regulation for the public welfare as hereinafter determined by the General Assembly of the State of Indiana. Diffused surface water flowing vagrantly over the surface of the ground shall not be regarded as public water and the owner of the land on which such water falls, pools, or flows, shall have the right to its use.

Acts of 1957, Chapter 308, Section 1:

It is recognized that as the State develops, serious problems of water management are arising in many areas. The locations of these areas are the result of natural conditions of population distribution; con-

sequently, they may overlap the boundaries of existing political subdivisions of the State. Although problems of various areas may be similar they are yet unique because of local existing conditions. The General Assembly of Indiana is, therefore, enabling its citizens to organize so that they can effectively solve their respective area problems by local public improvement.

More particularly, it is recognized that the increased population, together with modern technologies, demands more water for the State's growing industry, the expanded production of farms, and the functioning of the modernly equipped home. But the supply of water has not increased. Water that was formerly wasted must be conserved by storage in periods of excess and made available at other times to supplement a reduced supply.

It is also recognized that a more intensive use of land has resulted from increased population. As a result many areas may need

(1) new drainage projects to make land suitable for agriculture or for homes, stores, or factories

(2) facilities to dispose of sewage and other liquid wastes that are produced in such large quantities that they pollute rivers and streams or overtax the natural filtering process of the soil, and facilities to provide adequate supplies of water and the treatment thereof for domestic, industrial, and public use

(3) reestablishment of ground cover to protect vital top soil from being washed away, to prevent siltation of rivers, lakes, reservoirs and streams, or to provide a natural habitat for wildlife

(4) reestablishment of the natural recreational facilities associated with water, intensively developed so that more of the public may enjoy it. The following act permits establishment of Conservancy Districts to attain such goals (Acts of 1951, Chapter 29, Section 2):

It is hereby declared a public policy of this State in the interest of the economy, health and welfare of the State and its citizens, to conserve and protect the ground water resources of the State and for that purpose to provide reasonable regulations for its most beneficial use and disposition.

The present philosophy of Indiana continues to be that of control at the State level but with local government assuming a key role in water resources development. Although the State has the power to build flood control structures, it generally loans money to local governments through the Flood Control Revolving Fund (Acts of 1959, Chapter 95, as amended), so that they may build structures. Under this technique, local governments assume an important role in flood protection for the State. While State agencies influence the projects in the sense of determining what projects to support, the local people initiate the projects (Acts of 1959, Chapter 95, as amended) and ultimately pay for them with local funds.

In 1963 the General Assembly recognized that many of the small rural communities throughout the State were unable to secure the necessary funds in the commercial money market to construct an adequate water supply system, or to enlarge existing water supply systems, so that the community need of public health protection could be adequately served. Therefore, it was declared a policy of the State to aid communities with populations of 1,250 or less to establish and modernize water supply systems for domestic, commercial, and industrial use of water (Acts of 1963, Chapter 291, as amended). The General Assembly also recognized the need to acquire reservoir sites for storage of water and provided the means by which the State, municipalities, special taxing districts, and public utilities might secure needed reservoir sites to meet both the present and the future needs for storage of water (Acts of 1963, Chapter 322).

With the enactment of the Soil and Water Conservation Districts Act (Acts of 1965, Chapter 171, as amended), it was declared to be the policy of the General Assembly to provide for conservation of the soil and water resources of the State, and for prevention of flood water and sediment damage, and for the conservation, development, utilization, and disposal of water in the watersheds of the State, thereby to preserve natural resources, control floods, prevent impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, preserve wildlife, protect the tax base, protect public lands, and protect and promote the health, safety, and general welfare of the people of the State. In keeping with the philosophy of State control, realizing that local citizens have the best understanding of their problems and the solutions necessary to solve these problems, this act also allows 25 landowners to file a petition with the State Soil and Water Conservation Committee asking that a soil and water conservation district be organized in the interest of the public welfare.

As early as 1955, and again in 1957, 1959, and 1969, the General Assembly recognized that the unregulated flow of the rivers and waters of the State constitutes a menace to the general welfare and economy of the people of Indiana, and that regulation of this flow is a proper activity of the State of Indiana, inde-

pendently or in cooperation with the United States, municipal corporations, or political subdivisions of the State. The General Assembly authorized the State to cooperate with the United States in the construction, operation, and maintenance of multiple-purpose reservoirs for flood control, water supply, water quality control, recreation, and related water resources purposes.

3.3.1.2 Home Rule

Indiana does not have home rule in any real sense. It makes substantial use of permissive legislation, which is available to local areas or local units of government, but it does not permit cities to draw up their own forms of government. City government is simply mayor-council government, with some variations in organization among classes of cities. There are similarly fixed forms of government for towns, townships, and counties. One noteworthy variation is the reorganization of government in counties containing a city of the first class, such as Indianapolis in Marion County (Acts of 1969, Chapter 173). The "consolidated city" has all the powers that are not prohibited under the State constitution. All such powers are subject to regulation by State agencies in accordance with applicable law.

The municipal code for Indiana dates from 1905 when a recodification of city and town laws was enacted (Acts of 1905, Chapter 129, as amended). It is still the basic source of municipal authority.

Although the General Assembly has delegated a variety of powers over watercourses to State agencies since 1905, it has not automatically deprived cities and towns of their broad powers. In all probability, local units continue to be in a position to exercise these powers until the appropriate State agency moves in and exclusively occupies the field by a particular and specific regulatory action.

The Indiana General Assembly has also passed extensive laws delegating broad flood control powers to cities because some Indiana cities have repeatedly suffered flood disaster, e.g. Acts of 1933, Chapter 26. In practice the local unit is encouraged to take flood control measures within regulatory limits set by the State agency. This is typical of Indiana's approach to many State-local problems.

3.3.1.3 Financing

State debt, with certain exceptions, is prohibited by the Constitution of Indiana, Article 10, Section 5:

> No law shall authorize any debt to be contracted, on behalf of the State, except in the following cases: To meet casual deficits in the revenue; to pay the interest on the State Debt; to repel invasion, suppress insurrection, or, if hostilities be threatened, provide for the public defense.

It is the policy of each General Assembly to enact the operation and construction budgets each biennium. The approved budgets are appropriations for the conduct of State government and its departments, and appropriations for the construction and repair of State properties. From time to time, as required, the General Assembly has appropriated, out of the general fund, monies to the Department of Natural Resources to pay a share of the project cost of multiple-purpose reservoir, built in cooperation with the Federal government. The State's share of the cost of such reservoirs is computed on the basis of the laws of the United States pertaining to such projects.

In addition to the above appropriations, the 1965 amendment to the Cigarette Tax Act (Acts of 1947, Chapter 222) provides funds to the Department of Natural Resources for investigations and development of plans, designs, purchase of lands where needed, and construction of flood control and water resources projects, including multiple-purpose reservoirs and related subjects. It is also provided that an amount not to exceed 5 percent of these appropriated funds may be used to conduct applied research to solve technical problems involving the water resources of Indiana, either independently or in cooperation with agencies of the State or of the United States.

The 1959 General Assembly created the Flood Control Revolving Fund, Acts of 1959, Chapter 95, as amended. Cities, towns, counties, and special taxing districts created by law may borrow from the Flood Control Revolving Fund for such purposes as building or repairing levees, creating new and enlarged stream channels, and other flood protective works. The Acts of 1963, Chapter 291, authorizes loans from this fund to small communities for the construction, modernization, enlargement, or alteration of a water supply system, or any part thereof.

The 1963 General Assembly created the Water Resources Development Fund, Acts of 1963, Chapter 342. Under the provisions of this Act, the Department of Natural Resources is authorized to contract to provide certain minimum quantities of stream flow or to sell water

on a unit price basis from water supply storage in reservoir impoundments that have or may be financed by the State. The proceeds from these contracts constitute the Water Resources Development Fund which is used to investigate and develop reservoir sites and to acquire easements or purchase lands for those sites. The funds are also used for financing, construction, and/or operation and maintenance of reservoir impoundments or portions thereof used for water supply storage.

3.3.2 Cooperation and Coordination

3.3.2.1 Federal Programs

The Department of Natural Resources is authorized by the Indiana Flood Control Act (Acts of 1945, Chapter 318, as amended) and subsequent acts to cooperate with the United States or an agency of the United States in the development of multiple-purpose reservoir projects. The Governor has designated the Director of the Department of Natural Resources as his representative in matters of mutual interest to the State, the U.S. Army Corps of Engineers, and the Soil Conservation Service. The Department of Natural Resources, as created by the Natural Resources Act of 1965, is to represent and act for the State, subject to the approval of the Governor, in all matters of flood control and water resources development with other States and the United States. Also, the State participates with the United States Geological Survey in cooperative stream gaging and ground-water programs, a cooperative lake mapping program, and a cooperative lake level gaging program.

The Stream Pollution Control Board is the designated State agency to cooperate with the Environmental Protection Agency on programs provided for by Public Law 660. Under this Act, monies are made available to the State for its water pollution control program and to local units of government to assist in the construction of municipal pollution abatement facilities. This Act also provides for making grants to public or private agencies and institutions and to individuals for research, training, and demonstrations relating to the control of water pollution.

The State participates in the water and related land resources planning program under Title III of the Water Resources Planning Act (P.L. 89–80). This is a 50–50 fund matching program between the State and the Federal government. The Department of Natural Resources is the designated State agency that administers the fund, coordinates efforts, and acts as liaison with the Water Resources Council. The purpose of the program is to provide financial assistance for comprehensive planning of water and related land resources. The program will also be coordinated with the State Water Plan, which is conceived as a program for the timely conservation, utilization, and management of the State's water and related land resources.

3.3.2.2 Interstate Cooperation

The State participates and/or is a member of the Great Lakes Commission and the Great Lakes Basin Commission.

3.3.2.3 Political Subdivisions

Local governmental units have participated or are participating in a number of local protection and agricultural levee projects in accordance with the provisions of Public Law 566. The State is authorized under the Flood Control Revolving Fund Act (Acts of 1959, Chapter 95, as amended) to loan monies to local governmental units for such projects. Also, the Department of Natural Resources is authorized to use the Water Resources Development Fund (Acts of 1955, Chapter 251, as amended) to investigate and develop reservoir sites, to purchase lands to be used as reservoir sites, and to operate and maintain reservoir impoundments for water supply storage in cooperation with any local or county government or any special district created and authorized by law. In general, it is the policy of the Department of Natural Resources to use these funds only when local support is sufficient to create an area demand for water supply development.

The Governor, by Executive Order dated October 31, 1955, established a comprehensive plan and program for Civil Defense in Indiana and assigned to the Indiana Flood Control and Water Resources Commission (now the Department of Natural Resources) the responsibility for natural disaster assistance. In accordance with the assigned responsibilities, the Division of Water maintains continuous contact with such public agencies as the State Board of Health, State Police, State Highway Commission, Stream Pollution Control Board, State Civil Defense, County Civil Defense, of-

ficials of county and city governments, organized groups, and individuals for the purpose of exchanging information and obtaining local cooperation during natural disasters such as floods, droughts, and tornados. The Indiana State Board of Health and the Streams Pollution Control Board handle emergency work and planning as related to public water supplies, sewage works, and other public health aspects in natural disasters.

Technical data are continuously exchanged between the Department of Natural Resources, State Highway Commission, county surveyors and highway engineers, city engineers, and consulting firms with respect to project planning of any nature in or along the rivers and streams of the State. Planning for flood plain regulation involving zoning for various uses and subdivision regulation is conducted by the Department's professional staff in cooperation with local or county plan commissions and the Federal Housing Administration and Veterans Administration. The results of planning studies are published in reports, which are made available to all interested parties.

3.3.2.4 Multiple-Purpose Operations

It is the philosophy of the State that each water resources project be developed to its maximum potential. The State continues to invest in the provision of water supply storage in reservoir projects to enhance and promote the economic development of the area within the zone of influence of the project. This is done by making water available at fair and reasonable rates and by endeavoring to make provision for serving as many uses and users as possible, including multiple uses of water. The Department of Natural Resources also enters into lease agreements with the U.S. Army Corps of Engineers for the operation of recreational features at its reservoir projects.

3.4 Michigan

3.4.1 Informal Intergovernmental Relations and Water Policy

3.4.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

To a considerable extent, natural resource management responsibilities have been maintained, at least at the superintendent level, with State government. This is particularly true with water supply, pollution control, and oil and gas development. In other areas of resource management, where responsibilities have been delegated or where no particular governmental authority has been assumed, i.e. flood plain management, dam controls, and erosion control, the State has recently either begun to exercise or has taken back authority. New programs for administering wild rivers programs and Great Lakes shoreland provide opportunities for local controls, but if they are not exercised, statutes direct the Department of Natural Resources to take control.

The State of Michigan water management policies and programs are influenced by the unique character of the State's hydrology. In general, Michigan does not have major flood problems. Both the river and drainage areas are relatively small and the relief is rather gentle. Consequently, the State programs are aimed at flood damage prevention rather than protection.

No part of Michigan is more than 80 miles from one of the Great Lakes, and ample supplies of ground water lie under much of the State. There is no State program of developing water supply facilities. Instead, the program attempts to assure that drinking water comes from all public systems. Land drainage is primarily a local responsibility with the State controls covering intercounty drainage projects. There are several other examples of relationships between natural conditions and administrative programs.

At the State level, within the past decade, water and related land resources management and regulation in Michigan have been increasingly centralized. Although various agencies are charged with the preparation and administration of water management programs, many of these activities have been grouped within the Bureau of Water Management of the Department of Natural Resources. Coordination of water management responsibilities of other State departments occurs through several mechanisms, the principal one being department representation on the Water Resources Commission. Heads of the Departments of Agriculture, Health, Highways, and Natural Resources act as ex officio members of the Commission. Cooperative agreements and interdepartmental committees provide additional coordination.

Water management functions of Bureau of Water Management are grouped into three

divisions covering water quality control, hydrological studies, and water development services for local units of government.

3.4.1.2 Home Rule

Article VII, Section 24, of the Michigan constitution provides that any city or village may acquire, own, or operate public service facilities for its inhabitants, and may sell and deliver such outside its corporate limits, within specified limits.

Article VII, Section 28, further contains provisions for local governmental units to enter into intrastate contractual undertakings for service and within their powers.

As stated later, Michigan has delegated considerable regulatory power to local governments. Local units operating within the purview of permissive State enabling legislation have the powers to maintain water supply and waste disposal systems, to provide access to public water, to undertake water improvements, to zone and establish waterside parks and recreational facilities, to control waterside land development, and to comprehensively plan.

Local municipal governments may also, within defined limitations, contract with State and Federal agencies for purposes of flood control and beach erosion protection.

Special purpose districts may also be created within Michigan to accomplish many of the same water-related objectives as individual political subdivisions. Such districts may, for example, consolidate for drainage projects, soil and water conservation measures, provision of water supply, and the collection and treatment of sewage.

3.4.1.3 Financing

Michigan has committed State funds to most aspects of water management, pollution control and prevention, and water research and planning.

The voters of the State on November 5, 1968, gave overwhelming approval of a bond issue of $335 million to finance water pollution abatement in Michigan. This bond issue money goes to local units of government to be matched with Federal and local dollars to finance waste treatment and collection works. These monies are divided into two segments: $285 million to assist in dealing with waste treatment works and $50 million to help finance the cost of collecting sewers.

Article III, Section 6, of the Michigan Constitution does, however, greatly restrict State participation in the solving of purely local water related problems. This section specifically stipulates that the State shall not be a party to, nor financially participate in, any work of internal improvement except as provided by law.

Municipalities, special purpose districts, and corporations are in most instances vested with the power to provide water services and related land improvements through the establishment of special benefit assessments and/or the issuance of revenue bonds.

Local municipalities are further authorized, either voluntarily or via court order, to issue bonds for the provision of waste treatment facilities.

3.4.2 Cooperation and Coordination

3.4.2.1 Federal Programs

Michigan maintains a policy of close cooperation and coordination with those Federal agencies involved in water and related land resources programs. The responsible State agencies are members of coordination committees of the U.S. Army Corps of Engineers and the Department of Agriculture basin studies.

The U.S. Army Corps of Engineers has embarked upon a long-range comprehensive planning program for Michigan's largest and most significant river basin and is currently engaged in studying the State's Great Lakes shoreland. The U.S. Soil Conservation Service is expanding its watershed program (P.L. 566) with increasing emphasis being placed on recreational values to be derived from watershed management. The Bureau of Outdoor Recreation and the National Park Service of the U.S. Department of the Interior are making studies and recommendations regarding the establishment of additional Federal recreation areas centered upon water in Michigan.

Further focusing of Federal participation in Michigan's resource planning and development is represented by the Accelerated Public Works Program, the Open Space Program, and the State and local planning assistance grants of the U.S. Housing and Home Finance Agency. The Area Redevelopment Administration of the U.S. Department of Commerce

and the Rural Areas Development program of the U.S. Department of Agriculture are indirectly or directly dealing with some phases of water resources in certain areas of the State. Sizeable grants to the Land Grant Colleges and Universities (Michigan State University) are being made for water research.

In addition, there are the older Federal functions in connection with rivers and harbors, marinas, flood control, geological mapping and research, the farm conservation planning and subsidy programs, watershed management, fish and wildlife habitat improvement and public access acquisition programs, and the traditional programs of the U.S. Forest Service, plus its intensification of recreational development on lakes and streams within national forests.

All of the above programs are coordinated through State counterpart agencies either through joint participation or through the mechanisms of review, approval, or technical input.

3.4.2.2 Interstate Cooperation

It is the policy of the State of Michigan to cooperate with the other Basin States in seeking solutions to mutual water and related land resources problems. This policy and the cooperative attitude of the State are reflected by Michigan's extensive participation in those compact agreement and enforcement conferences noted later in this report. The State also maintains open lines of informal cooperation and information sharing with all States having mutual water management interests.

3.4.2.3 Political Subdivisions

Technical services in the form of project and program reviews and data input are continuously provided to local municipalities and special purpose districts of local water management activities. Planning, flood plain delineations, and zoning and plat reviews are prime State agency responsibilities for serving local entities.

The Department of Natural Resources works closely with local governmental units in carrying out joint projects for creation and management of flowage, waterway rehabilitation, and fisheries improvement. The State Department of Agriculture works closely with county officials in the carrying out of its programs and in its review of P.L. 566 projects. The Department of Highways works closely with local units through an extensive hearing process to obtain local insights and desires for highway routes. The Michigan Department of Public Health provides numerous technical services and review in the area of water supply and sanitation for the benefit of local officials.

3.4.2.4 Multiple-Purpose Operations

Michigan subscribes to the policy of multipurpose comprehensive planning for water and related land resources development.

Enforcement of this policy is evidenced by the State's interstate and intrastate river basin planning activities. Further, the State has legislated responsibilities to review and carefully investigate all Federal water and related land project proposals within the State. Comprehensive, related land use planning is coordinated through the State's Executive Office, and interagency views and reviews are provided for by the Inter-Departmental Committee on Water and Land Planning as created by Executive Order.

3.5 Minnesota

3.5.1 Informal Intergovernmental Relations and Water Policy

3.5.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

Minnesota contains more than 15,000 lake basins, more than 25,000 miles of rivers and streams, approximately 200 miles of shoreline on Lake Superior, and more than 10 million acres of swamp and marsh land. Corresponding to the abundance of her water resource, Minnesota's State government is likewise blessed with an abundance of departments, agencies, boards, commissions, and committees with responsibilities in the water and related land resources field—a total of 46 or more.

Major functional areas and associated State agencies are listed below:

(1) water supply—State Board of Health and Department of Natural Resources

(2) pollution control—Pollution Control Agency

(3) recreation, fish, and wildlife—Department of Natural Resources

(4) flood control—Department of Natural Resources, Soil and Water Conservation Commission, and Water Resources Board

(5) waterborne transportation—Department of Natural Resources and Water Resources Board

(6) land drainage, treatment, and irrigation—Soil and Water Conservation Commission, Department of Natural Resources and Water Resources Board

(7) power—Department of Natural Resources

(8) forestry and minerals—Department of Natural Resources.

The State Planning Agency is responsible for comprehensive water and related land resources planning.

The Department of Natural Resources is by far the largest State agency with major responsibilities in water and related land resources planning, development, and management. However, no formal State mechanism exists for effectively coordinating the activities of all the affected departments, agencies, boards, commissions, and committees. More than one State agency has responsibilities in most functional areas and the responsibilities of State agencies overlap.

The most ambitious attempt by the State legislature to require coordination has been the establishment of the Water Resources Board, which was created with the declared power of resolving contradictions in the existing programs when applied in a specific proceeding. Its objective is to establish a forum where conflicting aspects of the public interest can be presented and considered, the inconsistencies resolved, and a controlling State water policy determined. The Water Resources Board has an excellent assignment, but there is no requirement imposed upon agencies to present problems to the Board. As a result, there have been few if any Statewide water policies enunciated by the Water Resources Board since its creation in 1955.

Recent proposals to place the Water Resources Board and the Soil and Water Conservation Commission within the Department of Natural Resources would provide much of the needed functional centralization. Other proposals to transfer the Pollution Control Agency and Water Resources Coordinating Committee functions into the Department of Natural Resources would complete the centralization process.

3.5.1.2 Home Rule

In Minnesota the planning, development, and management of water and related land resources in the past have been largely the responsibility of special purpose districts and local units of government such as counties, cities, and villages. A considerable part of the administrative system remains in local hands, but a larger (and increasing) share falls to State and Federal governments. In addition to controlling land use through zoning and other means, the local governmental units (counties and municipalities) have been granted broad powers to improve management of water resources. These powers are restricted by the condition that the public must have access to some portion of the shore of such waters and that a permit must have been previously obtained from the Commissioner of Natural Resources.

The district courts of the various counties are authorized to establish, construct, and maintain public drainage systems involving lands in more than one county and construct and maintain flood control structures. The Water Resources Board may establish watershed districts, upon petition, having board powers to undertake water management improvements.

A sanitary district may be created in any case where the Pollution Control Agency finds there is a need that cannot be met by an existing agency. Regional sanitary sewer districts having municipal powers permit municipalities in a drainage area designated by law to join together for pollution abatement purposes. An act passed by the 1971 legislature authorizes county boards and district courts to establish a water district, sewer district, or combined water and sewer district to operate a central water supply or sewage disposal system in unincorporated areas.

The recently established Statewide flood plain and shoreland management programs in Minnesota will be based on State-local cooperation. In each of these program areas, the State has adopted minimum standards and criteria for review of local flood plain and shoreland management ordinances and will provide technical assistance to the local governments upon request. It will be the responsibility of the localities to adopt and administer the ordinances as required by State law.

3.5.1.3 Financing

Watershed districts may obtain up to $75,000 per year for administrative expenses by means of property tax levy up to three mills. Works of improvement undertaken by watershed districts, county boards, and district courts are generally financed by special assessments. Sanitary districts have village powers, and regional sanitary sewer districts have municipal powers. Cities and villages may issue bonds to finance works of improvement.

The Department of Natural Resources receives funds through the Minnesota Omnibus Natural Resources and Recreation Act of 1963, financed by an additional penny-per-pack tax on cigarettes. Natural Resource Act funds have been used to provide Minnesota with State park lands, preserved historic sites, wildlife areas, and access to and improvement of lakes, rivers, streams, scenic areas, fish spawning areas, and campgrounds. The act has provided funds for State park development, expansion of reforestation efforts, tree nursery programs, provision of forest roads and campgrounds, planning, topographic mapping, hydrologic studies, and both ground- and surface-water research necessary for recreational and conservation purposes.

Using funds obtained largely from the sale of hunting and fishing licenses, the Division of Game and Fish within the Department of Natural Resources has been able to acquire marsh areas for fish and wildlife production and engage in habitat improvement projects. Future emphasis will be given to improvement of habitat on private lands by provision of technical assistance and cost sharing.

The 1971 Session of the Minnesota Legislature created the Minnesota State Water Pollution Control Fund to provide grants-in-aid and low interest loans to communities for construction of wastewater treatment plants and major interceptors. The legislature has also authorized the sale of $25 million of State general obligation bonds and the additional appropriation of $9.75 million from the general fund to finance this program through fiscal 1973.

3.5.2 Cooperation and Coordination

No single State agency is specifically charged with the responsibility of coordinating Federal, State, interstate, local, and nongovernmental activities pertaining to water and related land resources planning, development, and management. To fill this void, the Water Resources Coordinating Committee was created in 1967. The committee is comprised of representatives of 14 State, regional, and local agencies.

The various Federal agencies having land and water management responsibilities primarily coordinate with their counterpart agencies at the State level. Mandatory coordination and cooperation statements contained in the statutes pertaining to State agencies are, for the most part, weak expressions describing piecemeal cooperation, often on a voluntary basis. As a result, many State officials tend to communicate, in turn, with local government officials and special interest groups more often than with other State officials. Also, interfunctional coordination in water and related land resources government is weak in formulating plans, seeking revenues, and executing programs.

In the State there are 87 counties, 91 soil and water conservation districts, 25 watershed districts, and 4 conservancy districts in addition to lake conservation and sanitary districts all involved in the planning, development, and management of water and related land resources. These entities are to an appreciable extent independent of one another. Cooperation between special-purpose districts is limited. The management of water and related land resources by counties and special-purpose districts is not well coordinated. No State agency is responsible for reviewing activities on a comprehensive basis.

The 1967 legislature authorized Minnesota's participation in the Great Lakes Basin Commission and the Souris-Red-Rainy River Basin Commission. Minnesota also cooperates and coordinates with neighboring States through the Minnesota-Wisconsin Boundary Area Commission, the South Dakota-Minnesota Boundary Waters Commission, the Great Lakes Commission, and the Great Lakes Fisheries Commission.

3.6 New York

3.6.1 Informal Intergovernmental Relations and Water Policy

3.6.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

The sovereign power to regulate and con-

trol the water resources of New York State since its establishment has been vested exclusively in the State, except to the extent of any delegation to the United States.

Although various agencies have been charged with the preparation and administration of water management programs ranging from hydroelectric power generation to municipal water supply and navigation, the majority of water management activities have been grouped within the Department of Environmental Conservation. The principal agencies outside the Department of Environmental Conservation that have water management responsibilities are the Department of Health, for municipal water supplies; the Department of Transportation, for management of the State Barge Canal; the Office of Parks and Recreation, for recreational boating and other recreational uses of water; and the Power Authority of the State of New York, for hydroelectric power generation. The City of New York has been given special legislative authority to manage its municipal water supply.

The authorities are contained in the Conservation Law, Articles 5 and 16; Title I, Article 5, of the Public Authorities Law, as amended with respect to the Power Authority of the State of New York; Title K, Chapter 51 and Title D of Chapter 15 of the Administrative Code of the City of New York, as amended; and the Canal Law.

The following illustrates the departmental functions and authorities.

3.6.2 Synopsis of Principles and Concepts

The underlying principle of New York's water policies, as indicated in foregoing references (Section 2) to the State's constitution and following references to its statutes, is that water is a natural resource, not to be conquered by man, but to be sought, recovered, processed, utilized, reclaimed, and reutilized.

3.6.3 Statutes

3.6.3.1 Water Pollution Control Law

(1) Background and Public Policy

Beginning in 1902, New York State's water resources control laws began to evolve. The early legislation delegated separate areas of the State's water resources to the Conservation Department, the Health Department, and the Public Works Department. As early as 1903, the legislature enacted its first water pollution control law.[17]

The experience of these departments in administering their concurrent regulatory functions in the field of water resources demonstrated a need for a broad-based, multipurpose program that would unite the interest of the various State administrative units into a "concert of cooperation."

This copartnership between the different agencies of the State was achieved with the enactment of the Water Pollution Control Law of 1949 (Public Health Law, Article 12).

The Public Health Law, Article 12, Section 1200, declares that it is the public policy of the State of New York

> to maintain reasonable standards of purity of the waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of fish and wildlife, including birds, mammals, and other terrestrial and aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods to prevent and control the pollution of the waters of the State of New York.

The purpose of Article 12, as defined in Section 1201, is

> to safeguard the waters of the state from pollution by: (a) preventing any new pollution, and (b) abating pollution existing when this chapter is enacted, under a program consistent with the declaration of policy above stated in the provisions of this article.

(2) Administrative Procedure

Under this law, the former Water Resources Commission adopted standards of quality and purity and classified the State's waters in accordance with considerations of "best usage" in the public interest.[18] (Succeeded by the Department of Environmental Conservation, the former Water Resources Commission consisted of seven regular members: the Commissioners of the State Departments of Health, Conservation, Transportation, Agriculture and Markets, Commerce, the Office for Local Government, and the Attorney General. There were also four advisory members representing industry, political subdivisions, agriculture, and sportsmen of the State.[19] Chapter 663 of the Laws of 1965 increased the number of regular members from six to seven by adding the Commissioner for Local Gov-

ernment.) The "Rules and Classifications and Standards of Quality and Purity for Waters of New York State" were originally adopted by the Water Pollution Control Board and were subsequently readopted by the former Water Resources Commission (Public Health Law, Section 1205, subd. (7) (a); NYCRR, 6th Off. Supp., 1951, p. 208, et seq.).

Pursuant to the Public Health Law, Section 1205, the procedure of the Department of Environmental Conservation is as follows:

(a) A classification survey is made on the basis of drainage basin areas, including all sub-basins and tributaries to a major drainage outlet.

(b) A report of the survey is published containing tentative classification recommended by the Department staff.

(c) The tentative classifications are discussed at public hearings held at convenient locations within the drainage area.

(d) Classifications are adopted by the Department. The Department may modify tentative classifications as a result of the hearing, but once the waters have been classified,

> it shall be unlawful for any person, directly or indirectly, to throw, drain, run, or otherwise discharge into such waters organic or inorganic matter that shall cause or contribute to a condition in contravention of the standards adopted by the Water Resources Commission pursuant to section one thousand two hundred five of this article (Public Health Law, Section 1220).

(e) Comprehensive pollution abatement plans are developed, consisting of a description of each pollution problem within the area and the procedure to be followed in each instance to comply with the classification. Reports of progress in achieving compliance are required, and a reasonable time for correction is provided.

(f) The comprehensive plan is then enforced by the Department. Initially, cooperation is sought on a voluntary basis. If the results are unsatisfactory, the Department, in accordance with its administrative procedures, conducts public hearings prior to the issuance of formal enforcement orders (Public Health Law, Section 1242).

The Department is given administrative jurisdiction to abate and prevent the pollution of waters of the State. The Commissioner is granted broad authority, powers, and duties to effectuate the provisions of Article 12. Acting through the Commissioner, the Department may adopt, amend, or cancel administrative rules and regulations governing hearings, filing of reports, and issuance of permits (Public Health Law, Section 1210).

Persons are required to apply to the Commissioner or his designated representative for permits to discharge sewage or industrial wastes through new outlets or to construct or operate and use new disposal systems (Public Health Law, Sections 1230, 1231, 1232). (Public Health Law, Section 1225, provides that the minimum degree of treatment required for the discharge of sanitary sewage into the classified surface waters of the State shall be effective primary treatment.)

In enforcing the comprehensive plan, "public hearings shall be conducted by the Commissioner, or his duly designated representative . . . prior to issuance of an order directing any person to discontinue discharge of sewage, industrial waste, or other wastes which contravene the standards established for any waters of the State" (Public Health Law, Section 1240; see also Sections 1241, 1242, 1243).

In 1965 the State legislature amended the Public Health Law concerning existing discharges of sewage and industrial wastes by streamlining the Department's administrative hearing procedures (Laws of 1965, Chapter 180). Under the Public Health Law, Section 1223, as amended, the Commissioner shall consider, among other matters, evidence at the hearing relative to

(a) the adequacy and practicability of various means of abating the polluting content of such discharge

(b) the financial ability of the polluter to so abate

(c) the engineering impossibility or impracticability to abate immediately such discharge.

After the hearing, if the Commissioner finds financial inability, engineering impossibility, or impracticability to abate immediately the discharge, his order shall establish the reasonable time or times within which the required steps are to be taken. The order of the Commissioner is absolute upon entry and service.

An aggrieved person may seek a court review of any order or determination of the Commissioner.

Violaters are liable to the payment of a penalty in a civil action brought by the Attorney General (Public Health Law, Section 1250), and willful violations are punishable by criminal liability in the form of imprisonment or a fine or both (Public Health Law, Section 1252).

(3) Financial Assistance

New York State has pioneered in programs for State aid for comprehensive studies and reports concerning the collection, treatment, and disposal of sewage by municipalities (Public Health Law, Section 1263–a), aid for construction of sewage treatment works (Public Health Law, Section 1263–b, as amended by Laws of 1965, Chapter 177), and State assistance for municipal operations and maintenance of sewage treatment works (Public Health Law, Section 1263–c). Other recent examples of action by the State are the Laws of 1965, Chapter 481, which amends the Town Law and empowers town boards to provide for excess sewer facilities, the Laws of 1965, Chapter 560, which creates the Hudson River valley scenic and historic corridor, and Laws of 1965, Chapter 661, which authorizes projects relating to the use of atmospheric water resources.

The culmination of New York State's efforts was realized in 1965 when a unanimous State legislature submitted to the electorate a proposition authorizing creation of a State debt in the amount of a $1.7 billion bond issue to combat water pollution by the construction of sewage treatment facilities. The voters of New York State approved the proposition by an overwhelming vote of four to one.

The law is called the Pure Waters Bond Act (Laws of 1965, Chapter 176). Governor Nelson Rockefeller outlined a seven-point clean waters program including

(1) State leadership in Federal-State-local sharing of the cost of constructing new sewage treatment plans and interceptor sewers. The State and Federal governments each assume 30 percent of the construction costs and the local communities assume the remainder of such costs. The Federal share can reach 55 percent when certain conditions are met. The $1.7 billion bond issue will be used to pay the State's share and to prefinance the Federal share, if necessary (Laws of 1965, Chapters 176 and 177).

(2) industrial incentives in the form of real property tax exemption for the entire added value of pollution control equipment (Laws of 1965, Chapter 179), and a tax reduction for expenditures in constructing or improving waste treatment facilities (Laws of 1965, Chapter 178)

(3) State and Federal action to eliminate water pollution by government institutions in New York State (Laws of 1965, Chapter 853)

(4) State aid to localities for one-third of the cost of operating and maintaining local sewage treatment plants (Public Health Law, Section 1263–c)

(5) an automated monitoring system for surveillance of the quality of the waters in our principal rivers

(6) an expansion of State research in water pollution control methods (Laws of 1965, Chapter 681)

(7) vigorous enforcement of the State's laws against water pollution (Laws of 1965, Chapter 180).

Aside from its jurisdiction to abate and prevent pollution of the waters of the State, the Department enforces portions of the provisions of the State Sanitary Code (10 NYCRR Chapter 1). The Department is also required to give its initial approval to the establishment of private and municipal sewage disposal corporations under Article 10 of the Transportation Corporation Law.

The Department of Health is responsible for the sanitary aspect of public water supply (Public Health Law, Article II, Titles I, II, and III). It may make rules and regulations for the protection from contamination of public water supplies, conduct investigations, and in any court of competent jurisdiction may enforce prompt compliance with the orders of the Commissioner of Health (Public Health Law, Sections 1100, 1101, 1107).

3.6.3.2 Water Resources Law

Although an outstanding beginning had been made in bringing together the interests of various State administrative units in the water pollution control program, this copartnership of governmental action was limited initially to one facet of the manifold problems of water resources, namely, quality control.

The present concept of partnership participation, which would weave the water pollution abatement program into the "whole fabric" of water resources management, planning, development, conservation, and water utilization, finally evolved. The new era in water resources management began in New York State in 1960 when the Conservation Law was revised, and a new Article 5, called the Water Resources Law, was passed by the Legislature.

The Declaration of Policy in Article 5 of the Water Resources Law sets the course to be followed by the State. It declares that the sovereign power to regulate and control the

water resources of this State has been, and now is, vested exclusively in the State of New York, except to the extent of any delegation of power to the United States. It is

> declared to be the public policy of the State of New York, in recognition of its sovereign duty to conserve and control its water resources for the benefit of all inhabitants of the State, that comprehensive planning be undertaken for the protection, conservation, and development of the water resources of this State to the end that they shall not be wasted and shall be adequate to meet the present and future needs for domestic, municipal, agricultural, commercial, industrial, recreational, and other public beneficial purposes.
>
> (3) It is further declared to be the public policy of the State of New York that:
>
> (a) the acquisition, storage, diversion, and use of water for domestic and municipal purposes shall have priority over all other purposes; and
>
> (b) in addition to other recognized public beneficial uses and control of water as provided by this Article 5 or by any other statute, the regulated acquisition, storage, diversion, and use of water for the supplemental irrigation of agricultural lands within this state is a public purpose and use, in the interests of the health and welfare of the people of the State and for their interest (Conservation Law, Section 401).

The Legislative findings set forth in the Laws of 1960, Chapter 7, are to be considered in the construction and administration of Article 5 of the Conservation Law.

The Department of Environmental Conservation is charged with the responsibility of administering the Water Resources Law (Conservation Law, Section 410). It is to

> exercise its powers and perform its duties in any matter affecting the construction of improvements to or development of water resources for the public health, safety, and welfare, including but not limited to the supply of the potable waters for the various municipalities and inhabitants thereof, operations, the developed and undeveloped water power of the State, the facilitation of proper drainage and the regulation of flow and improvement of the rivers of the State (Conservation Law, Section 404).

To exercise effectively its broad statutory powers and duties, the Department is granted the right to make investigations (Article 5, Section 420), the power of eminent domain (Section 423), the power to sue (Section 421), the right of access to any property, public or private, to investigate conditions (Section 422), the right to examine books, records, and accounts (Section 424), and the power to compel the filing of reports with the Department (Section 425). To protect the interests of the State, the Department is authorized to cooperate with appropriate agencies of the Federal government and with other governmental bodies and agencies (Section 426).

The Department "may adopt rules in conformity with the statute governing the procedures prescribed or authorized by Article 5" (Section 430). In administering its quasi-judicial functions, the Commission must act in accordance with the hearing procedures set forth in Section 431 of the Conservation Law. The right of judicial review is governed by Section 432.

The Department is to "integrate all policy-making and planning activities of the State with respect to water resources" (Section 410). The Department is authorized to undertake comprehensive planning for the protection, control, conservation, development, and beneficial utilization of the water resources of the State (Section 435). Article 5, Part V, of the Conservation Law introduces a new, modern concept of regional water resources planning and development on broad multipurpose, regional, Basinwide dimensions.

To stimulate and encourage local participation and cooperation, local people receive technical guidance from the Commission.

The Department acts as the clearing house for virtually all water resources matters in the State, not only in the field of water resources planning, but also in the equally important field of water resources management.

The broad scope of the Department's general jurisdiction is indicated by the following statutory responsibilities.

(1) Comprehensive Water Resources Planning

Conservation Law, Article 5, Part V, stipulates creation of Regional Water Resources Planning Boards upon petitions from counties, cities, towns, or villages to carry out comprehensive planning and studies at the local level, under the technical guidance and financial assistance of the Department. The State grants 75 percent of the cost of carrying out such local planning programs.

(2) Comprehensive Areawide Public Water Supply Studies

Conservation Law, Section 446, and Article 5, Part V-A, are administered by the Department of Health upon application approval by the Department of Environmental Conservation. The law provides for State grants to cover the entire cost of preparation of comprehensive areawide public water supply systems studies and reports.

(3) Water Supply

Conservation Law, Article 5, Part VI, Sections 450–480, deal with apportionment of the water supply resources of the State among the inhabitants of the State. This includes registration of well-drillers on Long Island (Section

475) and the control of commercial and industrial wells on Long Island (Section 476).

(4) Water Power

Conservation Law, Article 5, Part VII, Sections 500–524, stipulate in regard to hydroelectric power projects, the Department is charged with licensing, fixing, and collecting rental for certain water used for the generation of power.

(5) Drainage

Conservation Law, Article 5, Part VIII, Sections 530–575, state that drainage improvement districts are authorized to provide for drainage of agricultural lands with prescribed procedures for condemnation of rights-of-way for drainage outlet ditches.

(6) River Regulation

Conservation Law, Article 5, Part IX, Title A, Sections 580–600, state that river regulating districts may be created upon approval of the Department for the purpose of constructing storage reservoirs to regulate the flow of a stream or river. (The Hudson River Regulating District and the Black River Regulating District were consolidated into a single district to include the areas of both such districts, to be known as the Hudson River-Black River Regulating District, and a new board was created under that name [Conservation Law, Sections 598, 599, 600].)

(7) River Improvement

Conservation Law, Article 5, Part IX, Title B, Sections 610–620, state that river improvement districts may be created upon the approval of the Department for the purpose of initiating projects to improve the channel, construct dikes, or regulate the flow of a river for the protection from damage by floods. The governing body of the district is the Department.

(8) Joint River Regulating, River Improvement, and Drainage Improvement Regulating Districts

Conservation Law, Article 5, Part IX, Title C, Sections 625–627, stipulate that a river regulating district may be given extended powers and duties if joined together with a river improvement district or drainage improvement district, or both. The joint districts are subject to the general supervision of the Department.

(9) Pollution Control

Under Public Health Law, Article 12, the Department is required to adopt standards of quality and purity and to classify the State's waters in accordance with considerations of "best usage" in the public interest.

(10) County Small Watershed Protection Districts

In County Law, Article 5–D, provision is made for State aid to counties for construction costs of flood prevention work in conjunction with Federal aid available under the "Watershed Protection and Flood Prevention Act" (P.L. 566). The responsibility for initiating planning, constructing, and the operation and maintenance of projects under this Act is vested in county governments. Laws of 1965, Chapter 799, and Laws of 1966, Chapter 627, amend the County Law in relation to State aid for flood prevention and erosion control.

(11) Flood Control Projects

McKinney's Unconsolidated Laws, Title 4, Chapter 1, Sections 1301–1310, authorizes the Department of Environmental Conservation to assist in the institution and consummation of the Federal program of flood control.

(12) Stream Protection

Part III–A of Article 5 of the Conservation Law, Chapter 955 of the Laws of 1965, which became effective January 1, 1966, repealed Conservation Law, Section 948, and placed jurisdiction over the protection of streams, dams and docks, and structures for impounding waters with the Department.

3.6.3.3 Statutes Relating to Other Departments, Water Districts, and Interstate Water Compacts

(1) Department of Environmental Conservation

Title 4, Chapter 717 of the Laws of 1967, transferred to the former Conservation Department (now Department of Environmental Conservation), effective September 1, 1967, all the functions and powers and all the obligations and duties of the Superintendent of Public Works and the Department of Public Works pertaining generally to flood control, beach erosion, and hurricane protection more particularly described in Chapter 862, Laws of 1936, as amended.

The New York State Flood Control Law, Chapter 862, Laws of 1936 as amended, authorizes the State to participate in a Federal program of flood control. It empowers the Commissioner or the Department to sign all necessary agreements and to perform all acts required for implementing the State's participation.

Chapter 535, Laws of 1945, as amended, the

New York State Beach Protection Law, authorizes the State to construct protective works and improvements upon lands and lands under water owned by any municipality along the Atlantic shoreline of the State, the north shore of Long Island, and the easterly shoreline of Staten Island to arrest erosion, to alleviate or prevent resulting damage, and to protect the land from storms. This legislation also provides for State cooperation with the Federal government when Federal assistance is made available for the construction of projects authorized by this Act. The Commissioner is also authorized to cooperate with Federal and local authorities in the development of projects for the accommodation of recreational boating.[20]

(2) Department of Transportation

The Department of Transportation is responsible for planning, constructing, and maintaining waterways, including the canal system (Canal Law, Section 40; Public Works Law, Section 8). Its waterways activities consist of constructing improvements and operating locks upon the canal system, maintaining navigation and safety aids, dredging, bank repair, and other maintenance.

(3) Office of General Services

The Commissioner of General Services, exercising his sound discretion, may grant to adjacent owners State lands under water to promote the commerce of the State, or for enjoyment by the owners, or for agricultural purposes, or for public park, beach, street, highway, parkway, playground, recreation, or conservation purposes. Included also is construction of beach erosion and hurricane protection projects pursuant to Laws of 1945, Chapter 535, as amended.

The Commissioner may authorize the use and occupation by the United States of lands of the State under water for the purpose of improving navigation, including sites for lighthouses, beacons, navy yards, and naval stations (Public Lands Law, Section 75, Subdivisions 7 and 8).

If, after investigation and report by the Commissioner of Transportation to the Attorney General, it appears that a grantee has failed to comply with the conditions of the grant, it shall be the duty of the Attorney General to bring action for the annulment of the grant (Public Lands Law, Section 78).

(4) Department of Public Service

Privately owned water utilities with a property value of $30,000 or more are regulated by the Public Service Commission. Its jurisdiction covers rates, charges, rules and regulations for water service, the issuance of all forms of securities (except notes payable at period of not more than 12 months), and service.

Staff members review the books and records, make studies of the original cost of property, make estimates of depreciation, study and make recommendations on rates and charges, inspect and test water plant facilities and equipment for safe and adequate service, make engineering studies of efficiency and operation, investigate complaints, and inspect for compliance with Commission orders. They also advise water companies on operation and rate problems. (Public Service Law, Article 4–B, Sections 89–a to 89–0).

(5) Power Authority of the State of New York

The Authority was created by legislative enactment in 1931 as an agency of the State to develop the available hydroelectric power resources. The Public Authorities Law declares those parts of the Niagara and St. Lawrence Rivers within the boundaries of the State to be natural resources of the State for the use and development of commerce and navigation in the interest of the people of this State and the United States. The statute establishes the Power Authority of New York State for the purposes of providing for the most beneficial use of these natural resources, preserving and enhancing the scenic beauty of Niagara Falls and River, improving the Niagara and St. Lawrence Rivers for commerce and navigation, and developing the hydroelectric power resources of the two rivers. Chapter 294, Laws of 1968, which amends the Public Authorities Law, authorizes the Power Authority to construct hydroelectric pumped-storage projects (Public Authorities Law, Article 5, Title I, Sections 1000–1016, and Chapter 294, Laws of 1968).

(6) Local Water Supply, Sewer, and Drainage Districts

Cities, counties, and towns may establish water supply, sewer, and drainage districts.

The various statutes specify the local agencies that administer them (General City Law, Section 20; County Law, Article 5-A, Sections 250-276; Town Law, Article 12, Sections 190-208-a).

(7) Soil and Water Conservation Districts

The Soil and Water Conservation Districts Law permits the board of supervisors of any county to create a county soil and water conservation district when soil erosion and related problems are of sufficient concern to the public (Soil and Water Conservation District Law, Sections 5, and 9).

(8) Interstate Water Compacts

The State of New York is a party to the following interstate water compacts:

(a) Delaware River Basin Compact—Conservation Law, Article VII, Title I, Sections 801-812

(b) Great Lakes Basin Compact—Conservation Law, Article VII, Title II, Sections 815-822

(c) Atlantic States Marine Fisheries Compact—Conservation Law, Article 4, Section 325, which includes the following States along the Atlantic seaboard: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida.

(d) New England Interstate Water Pollution Control Compact—Public Health Law, Article 11-A

(e) Ohio River Valley Water Sanitation Compact—Public Health Law, Article 11-B. This compact includes the following States: Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.

(f) Tri-State Compact and Interstate Sanitation Commission—Public Health Law, Article 12-B. This compact includes the States of New York, New Jersey, and Connecticut.

(9) Use and Protection of Waters

The Conservation Law, Article 5, Part III-A, Sections 429-a to 429-g, Chapter 955, Laws of 1965, is generally referred to as the "Stream Protection Law." This statute makes provisions for control of the disturbance of stream beds, excavation or fill of navigable waters, and the erection of dams and docks.

(10) Private Rights in Waters

The Conservation Law, Article 5, Part III-B, Section 429-j, Chapter 598, Laws of 1966, holds that no action for nominal damages or for an injunction shall be maintained because of an alteration in the natural flow, quantity, quality, or condition of a natural watercourse or lake on the grounds that such alteration is an infringement of private right and privilege in the waters, unless such alteration is causing the plaintiff harm, or would cause him or it immediate harm if and when begun.

3.7 Ohio

3.7.1 Informal Intergovernmental Relations and Water Policy

3.7.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

In water management functions generally, the State has tried to encourage the local levels of government to accept a high degree of responsibility and authority over the many programs with which they are most intimately connected. A policy of decentralization of many functions to the political subdivisions of the State has been adopted. Exceptions to this general policy are notably in fish and wildlife and general recreation.

3.7.1.2 Home Rule

Municipal home rule[21] is contained in Article XVIII, Section 3, of the Ohio Constitution, adopted in 1912:

> Municipalities shall have authority to exercise all powers of local self-government and to adopt and enforce within their limits such local policies, sanitary and other similar regulations as are not in conflict with general laws.

Under these provisions municipalities may exercise all the powers of local self-government and may adopt and enforce regulations.

A municipality may not adopt a regulation

in conflict with a State law or regulation. The State, however, may enact law imposing regulations that conflict with those of a municipality.

The Ohio Supreme Court has established that a municipality's powers of self-government have precedent in management of local problems.

Municipalities do not need State enabling laws to tackle a local problem. Such State statutes would be superfluous, since the home rule section of the constitution grants municipalities the power to proceed in their own way to resolve a problem.

Municipalities may develop water supply and sewer systems, build pipelines and reservoirs, zone flood plains, acquire land, and construct local protection works.

However, municipalities are required by State law to submit plans for public water supply and sewers to the State for approval. Also, municipalities are subject to State control as regards the disposal of waste waters, and to submit plans for dams to the Ohio Division of Water.

3.7.1.3 Financing

Municipal water supply and sewage disposal programs are generally financed through the issuance of revenue bonds. Water superintendents in 275 municipalities surveyed by the Division of Water in 1957 indicated that money was the number one problem.

Conservancy districts have encountered numerous financial problems. Foremost of these is the availability of preliminary funds to cover the cost of organization, initial planning, and appraisal of benefits. The General Assembly in 1961 authorized the establishment of a fund from which loans may be made to conservancy districts upon recommendation of the Ohio Water Commission.

In recent years, it has been the policy of the State to make investments in special water projects where particular needs are demonstrated and where local financing appears difficult or inadequate. Notable in the water resources area have been recent State expenditures for six upground reservoirs in Northwest Ohio by the Department of Natural Resources and the provision of $100 million for prefinancing municipal sewage treatment facilities through the Ohio Water Development Authority.

The State has also undertaken a $5 million comprehensive water planning program for the entire State. The first phase of the water plan, the Northwest Ohio Water Development Plan, was completed in 1967 at a cost of $775,000. Plans for four other regions, covering the remainder of the State, are now under way.

Funds for the project construction and planning programs have been acquired through State bond issues approved by the voters in 1965 and 1968. In 1969 and 1970, the State sought Federal funds from seven agencies simultaneously in an attempt to supplement State funds and to make more efficient use of Federal agency programs and expertise. The consolidated application was approved by the Water Resources Council in June 1970, and arrangements have been made with many of the agencies to transfer the requested funds.

A $10 million Water and Sewer Rotary Fund is administered by the Department of Development and can be used to defer assessments against agricultural property adjacent to water and sewer lines being installed to serve new and expanded industry.

3.7.2 Cooperation and Coordination

3.7.2.1 Federal Programs

A policy of cooperation and coordination with Federal programs has been fostered by recent State administrations. The Governor has designated the Director of the Department of Natural Resources as his representative in matters of mutual interest to the State and the Corps of Engineers or the Soil Conservation Service. The Director reviews Corps of Engineers' proposals, coordinates these with other entities, and provides active liaison between State agencies, local governments, and the Corps of Engineers. The Ohio Water Commission reviews local applications for assistance under P.L. 566 and makes recommendations to the Director of Natural Resources for action on approvals and planning priorities.

A portion of the bond money mentioned in the last paragraph of Subsection 3.7.1.3, Financing, has been programmed for cooperation on selected Corps of Engineers and Soil Conservation Service projects requiring non-Federal cost sharing, or where additional development is deemed necessary to meet State needs. As mentioned previously, some is also available for preliminary sewage treat-

ment plants, which are eligible for Environmental Protection Agency construction grants.

3.7.2.2 Interstate

Within the Great Lakes Basin, the State participates in and supports the programs of the Great Lakes Commission and the Great Lakes Basin Commission. It is a member of both organizations.

3.7.2.3 Political Subdivisions

The State cooperates financially on some programs with local governments in addition to those already mentioned. There has been some special participation with financing of local Soil Conservation Districts through appropriations to the State Soil and Water Conservation Commission, formerly the State Soil and Water Conservation Committee. Matching participation on boat launching facilities is supported by funds that accrue from watercraft license sales and taxes on marine motor fuel. Under the Conservancy Act, a district may petition the Director of the Department of Natural Resources to determine the degree of State interest in a conservancy district, and for the General Assembly to appropriate monies for the district on this basis. To date, this portion of the Conservancy Act has not been used.

In certain special cases the State has assisted conservancy districts. A payment from wildlife funds is made annually to the Muskingum Watershed Conservancy District for use of its waters for public fishing purposes. The General Assembly has provided a special loan fund to assist conservancy districts in their organization and preliminary planning. The Department of Natural Resources has assigned an engineer from the Division of Water to assist the Maumee Watershed Conservancy District.

3.7.2.4 Multiple-Purpose Operations

The State has a policy to seek the greatest degree of over all development of each reservoir project in Ohio. The Department of Natural Resources enters into lease agreements with the Corps of Engineers on the operation of the recreational features at its newer reservoir projects. In exceptional instances it has sub-licensed these to local authorities. The same policy, but to a greater degree, exists in reference to Corps of Engineers launching sites. Projects planned and constructed by the State, such as the upground reservoirs prescribed by the State's Northwest Ohio Water Development Plan, are always designed for multiple-purpose use.

3.8 Pennsylvania

3.8.1 Informal Intergovernmental Relations and Water Policy

3.8.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

Pennsylvania's formal organization for administering its water resources development and regulation has been, until recently, a decentralized pattern of several State agencies. These agencies were assigned different administrative and technical aspects as water resources problems developed. However, a recent revision to the Administration Code, which became effective on January 19, 1971, was a major step toward centralizing water management functions. This legislation combined the powers, organization, and responsibilities of those agencies and bureaus concerned with natural resources into a Department of Environmental Resources. The details of this agency can be found under Pennsylvania's portion of Public Institutional Arrangements.

An informal group of management-level personnel was formed in 1966 as an aid in coordinating activities and decisions affecting water resources programs. This group, known as the Pennsylvania Water Resources Coordinating Committee, continues to function through representatives of those agencies whose responsibilities could be influenced by water resources. The Committee has broadly stated its role as follows:

> Water is vital to every segment of our society in every section of the Commonwealth. While Pennsylvania is richly endowed with natural water resources, there is an increasing demand for water by our growing population and a burgeoning industry. In addition to growing needs, we face natural hazards, such as floods and droughts, as well as man-made problems of pollution and wasteful exploitation of water.
>
> As a result of the growing needs for water, and in recognition of natural and man-made fluctuations of

water quality and quantity, many State agencies are responsible for various water related functions. The Pennsylvania Water Resources Coordinating Committee aims to permit close coordination and cooperation among all State agencies whose responsibilities or functions are concerned in any way with the surface or subsurface waters of the Commonwealth. It is intended that this will lead to efficient and effective planning, development, and management of the Commonwealth's water resources.

The Committee functions as a forum for the consideration of common problems in connection with usage programs. Many of the problems considered by the Committee are outside the realm of the official responsibilities of the agencies, i.e., problems not covered by legislation or conflicts of program purposes within a drainage basin or watershed. The Committee also serves as an excellent communications center for the exchange of information and policy viewpoints regarding current and proposed programs. Another important function of the Committee is the sponsorship of informational programs pertaining to water resources management and regulation. These include seminars to train the agencies' personnel, organizational meetings for interested citizens to form watershed associations, and reports of current water resources research activities at monthly Committee meetings.

3.8.1.2 Home Rule

A basic governmental philosophy of the Commonwealth is that of home rule by local communities. In relation to water resources regulation and development, this is the basic policy that decision-makers use as a guide. An exception to this policy has been indicated by the growing awareness of the pollution of our water and related land resources. Recent legislative actions have strengthened the centralized (i.e., State level) controls regarding regulations and enforcement . With regard to water supply, the approach is more toward the home rule policy. This problem concerns public water suppliers for small and economically depressed communities. In these communities, equipment and distribution systems are inadequate and deteriorated, yet must be used to meet rising consumer demands. The Water Resources Coordinating Committee is investigating this problem through the integrative activities of several involved agencies. It is expected that recommendations rather than directives will be made available to the involved local governments concerning local water supply problems. This procedure is typical of the home rule policy. Final decisions for programs and projects are made at the local level, usually by initiating a formal request, and the State agencies provide necessary technical assistance and funds following legislative approval.

Article III, Section 7 (Special and Local Legislation Limitations), of the Constitution of Pennsylvania indicates that the General Assembly shall not pass any special or local laws regulating the affairs of cities, townships, wards, boroughs, or school districts and, in addition, lists many other areas where local or special laws are outside the jurisdiction of State-level legislative consideration.

Further, Article XV (Cities and Cities Charters), Section I, "Home Rule," as amended, states in part that

> Cities, or cities of any particular class, may be given that right and power to frame and adopt their own charters and to exercise the powers and authority of local self-government, subject, however, to such restrictions, limitations, and regulations as may be imposed by the Legislature.

As noted previously, the home rule concept is the policy in Pennsylvania for political subdivisions. The application of State programs within this concept is the encouragement of local initiative for the use and application of such programs to local problems. To assist localities in accomplishing this, the Department of Community Affairs was established in 1966. This agency's aim is the enhancement of the capacities of localities to respond to their own needs and responsibilities, and to the needs and responsibilities of the regions of which they are a part. The final goal is the development of strong and viable local government and community institutions.

3.8.1.3 Financing

The financing of the operation of State water-related agencies is from appropriations of the General Fund. The source of revenue for this is the State tax structure. Two agencies, however, have independent revenue sources: the Fish Commission and the Game Commission. Their sale of fishing, boating, and hunting permits is ample for their operational needs. General Fund appropriations are also used for matching Federal grants-in-aid utilized by the various State agencies. This utilization of Federal grants is a part of the financial policy of the Commonwealth.

The financing of State-level capital projects, such as State park reservoirs and flood control projects, is made from the sale of revenue bonds. Although some agencies are able to use general fund monies for such purposes, this application is generally small. The General State Authority, a public corporation created by Act of March 31, 1949, administers the details of the financing process. The amount of bonds that the General State Authority may issue is limited by the General Assembly, and cannot exceed the limits set by the Constitution. The financing of two State-wide projects for the environmental enhancement in the State, Project "70" and Project "500," is also detailed by the constitution (See Subsection 1.3.7).

3.8.2 Cooperation and Coordination

3.8.2.1 Federal Programs

The Commonwealth has cooperated for many years with the Federal government on water and related land resources programs and has coordinated the efforts of its agencies with those of the Federal government. Examples are the cooperative programs with the U.S. Geological Survey and the Department of Environmental Resources in stream gaging, stream flow data, and compiling stream records, and the Federal-State River Forecasting Service, a joint, cooperative service of the U.S. Weather Service, U.S. Geological Survey, and the Pennsylvania Department of Environmental Resources. The Federal and State governments share the cost of these programs and both State and Federal personnel are utilized.

Within the past decade, however, this policy of cooperation and coordination has been reemphasized and expanded, and even closer working relationships have been developed for the exchange of data, information, and ideas, and for the joint study and development of water projects and programs. For instance, the various major river basin study coordinating committees furnish a medium for active participation by the Commonwealth agencies in the comprehensive studies and planning for the development of water and related land resources being carried out by the Federal agencies in those river basins.

Studies and plans for all Federal water projects of the U.S. Army Corps of Engineers and the U.S. Soil Conservation Service under P.L. 566 are reviewed by appropriate State agencies to determine whether additional purposes might be served and the project expanded to include participation by the State agencies concerned. For example, the Fish Commission, the Game Commission, and the Department of Environmental Resources, after such determination, may cooperate on a cost-sharing basis with the Federal government to develop the multiple-purpose potential of the particular project, to improve fishing, to develop wildlife and waterfowl habitat, to assure added storage for water supply, to add recreational facilities, or other uses pertinent to the site. Further, the Department of Environmental Resources personnel directly assist in the planning and hydrology studies on P.L. 566 projects as related to forest land.

In general, all water-related State agencies are actively engaged in Federal programs pertinent to their jurisdictions. This is the implementation of the State's policy of participating to an optimum degree in available Federal programs.

3.8.2.2 Interstate

Pennsylvania has long been aware of the advantages of interstate compacts for the solutions to common problems between States. As early as 1786, Pennsylvania joined with New Jersey to settle jurisdictional questions concerning that portion of the Delaware River separating the two States, including the islands in that stream. Since that time, Pennsylvania has joined in many interstate compacts having various purposes. In the Great Lakes Basin, the State is actively participating in both the Great Lakes Basin Commission and the Great Lakes Commission, a compact of the Great Lakes States. Both commissions are concerned with the planning of the Basin's water resources under the aegis of the Water Resources Council.

3.8.2.3 Political Subdivisions

The next political subdivision after the State is the county. In Pennsylvania, the county is subdivided into townships, of which there are two classes: first class, those that are generally urbanized and are found adjacent to cities, and second class, those that are generally rural. Incorporated urban centers are the cities, which are categorized by population into three classes, and boroughs, which

make up the remaining urban centers. In the County of Erie, which is Pennsylvania's only area within the Great Lakes Basin, the City of Erie is of the third class. The City of Corry is also of this class, although its population is only approximately six percent that of Erie. The county has 14 boroughs and 21 townships. All of the townships are of the second class.

Formal associations between political subdivisions and State water-related agencies are usually initiated by elected representatives, although at times local public petitions are used by smaller units, such as boroughs. Informal relations are usually limited to exchanges of information below policy-making levels. By far the largest share of formal relations is with urban centers, followed by first class townships. County governments are not organized to deal with water-related problems except for planning. Problems are handled in the townships. These units have frequently joined together and with urban centers to form public corporations called Authorities to simultaneously solve financing and regional problems. This approach to water-related problems is increasing in Pennsylvania.

3.8.2.4 Multiple-Purpose Operations

The Commonwealth subscribes to the policy of multiple-purpose planning and development of its water and related land resources. For example, in the matter of reservoir construction, the Commonwealth has long since realized that each reservoir and each reservoir site is now a valuable resource in its own right. Good storage sites are no longer plentiful and are fast disappearing, and it has, therefore, become imperative that all future reservoir projects, large and small, be studied from the standpoint of utilizing each one with maximum efficiency and including all possible uses. While there are still situations where single-purpose reservoirs may be utilized, and indeed, may furnish the most economical and efficient solutions, reservoirs of this type, each operating independently, generally do not contribute to efficient and economical watershed management.

In keeping with this policy, the Commonwealth now participates in river basin planning and development and carefully investigates each and every Federal water project in Pennsylvania to determine whether any additional purposes or uses can be added economically. For example, U.S. Army Corps of Engineers' flood control projects are studied for recreational potentialities.

Each proposed P.L. 566 project is reviewed, and the Commonwealth has cooperated with the U.S. Department of Agriculture, Soil Conservation Service, in expanding additional purposes where needed and where the drainage area above the structure is large enough to sustain additional storage. Prime examples of this policy of cooperation and coordination on multiple-purpose planning and development are the Brandywine, Codorus, and Neshaminy Studies and plans for the development of the water and related land resources of those basins. These studies involve a number of Commonwealth agencies, their Federal counterparts, and local people and organization.

3.9 Wisconsin

3.9.1 Informal Intergovernmental Relations and Water Policy

3.9.1.1 Centralized versus Decentralized Responsibility for Water Management Functions

Throughout its history, Wisconsin has centralized control over its surface waters in the State government. Its Supreme Court has ruled invalid any attempt to delegate to local units important discretionary decisions with respect to navigable waters, such as authority to determine whether or not a dam should be constructed. The Court has also ruled that towns may not enact ground-water regulations. Although local districts are authorized to drain and although soil and water conservation districts exist in each county, no irrigation or general purpose local or regional water conservancy districts exist in Wisconsin. No authorization for such agencies has ever been enacted.

The State has long managed dams, impoundments, spawning areas, waterside parks, water-related public hunting grounds, and other facilities in order to enhance and strengthen public rights and uses of these waters. In addition, the State administers Wisconsin's boating safety codes and registration laws.

Recently the State, through Chapter 614 of the Laws of 1965, has moved to guide, supervise, and if necessary replace, local zoning authority so far as concerns shorelands along lakes and streams, as well as flood plains.

Permit systems for irrigation diversions from streams, for high capacity wells, and for dams, private bridges, and other structures on or in navigable waters are all State administered, as are active programs of water pollution control and water studies and planning.

In a number of instances, as for example the Brule, the Popple, and the Wolf, the State legislature has designated selected streams as "wild rivers" and has zoned them against inconsistent developments.

As further evidence of the centralized concern of Wisconsin for its waters, and for public and private rights in these waters, the following recent actions of the State legislature are cited:

(1) an outdoor recreation program of lake and stream shoreland and easement purchases to protect the public trust in the water and to provide public access to navigable water

(2) a biennial appropriation of almost $700,000 for water studies and research, so that the State may more effectively manage its trust

(3) an annual additional appropriation of $460,000 for staff for improved State water pollution abatement and other State water regulatory programs

(4) mandatory creation of town sanitary districts by the State when necessary to abate pollution

(5) a State grant-in-aid program to encourage counties to enact and administer adequate shoreland protection controls

(6) a State-level septic tank permit law and authority in the State to bar installation or use of septic tanks where necessary to protect water quality

(7) a provision authorizing the State to construct public or private pollution abatement facilities where the polluter fails to carry out the State pollution abatement orders

(8) a State bonding program, which is to reach $300 million, supported currently by an annual appropriation of $6 million, to subsidize improvement of municipal sewage treatment facilities

(9) establishment of a $200 million bonding program for sewage treatment plant construction and outdoor recreation.

3.9.1.2 Home Rule

As indicated, cities, villages, and towns in Wisconsin maintain water supply and waste disposal systems. Their services, rules, and rate structures are, however, reviewed by the State Public Service Commission. These local units and counties also have powers to provide access to public waters and to establish waterside parks and recreational facilities. Their local zoning and subdivision controls have major impact on water uses and water quality. As indicated, local shoreland zoning is guided by the State. For many years the State has also reviewed subdivision plats. The subdivision reviews by the State assure, among other things, adequate lot size, adequate elevations above surface waters and ground water tables, and public access to waters. The Department of Natural Resources aids local units in the preparation of shoreland, flood plain, and water protection regulations, and in their administration.

In areas of regional similarity, local units may organize regional planning commissions with the approval of the Governor. These commissions may study regional water resources and problems and develop comprehensive plans. Water developments called for by regional plans such as dams, bridges, and bulkhead lines must, however, be approved by the State.

Wisconsin's special purpose districts implement drainage projects, carry out P.L. 566 projects, and aid in soil and water conservation practices. They also provide metropolitan sewerage treatment, local water supply, and local sewage collection and treatment. The State can encourage or even order the creation of town sanitary districts along lakes as a major element in a broader program of water quality management for Wisconsin's lakes. State supervision of plans for and operation of water supply and both municipal and private treatment facilities exists.

3.9.1.3 Financing

As already indicated, Wisconsin has committed sizeable State funds to programs of water pollution prevention and abatement and water study, research, and planning. In addition, it has set up grant-in-aid programs to induce local shoreland protective regulations and acquisitions of lands for public access and for parks.

Through its Department of Natural Resources, the State, using its so-called ORAP funds, derived from a cigarette tax, has purchased more than 134,000 acres of land for public use, including waterside land. ORAP funds have also been used to purchase wa-

terside lands and easements so that more than 561 miles of streambanks and lakeshores have been brought under public control in the last five years.

The State has acquired the Fox River navigational system from the Federal government. The Attorney General recently held that an appropriation to maintain and repair one of the structures does not violate the internal improvement or debt limitation of the State constitution. The State also maintains many small water holding structures in central Wisconsin and elsewhere. Maintaining these structures and more than 50 dams operated by the Department of Natural Resources does and will continue to involve substantial State funds.

3.9.2 Cooperation and Coordination

Close working relationships exist between State agencies and local units as far as water projects and problems are concerned. In exercising its subdivision plat review authority, the State confers with local officials. The Department of Natural Resources works closely with local units in carrying out joint projects to create and manage flowages, rehabilitate lakes and streams, and restock fishing waters. The Soil and Water Conservation Board, in the traditions of the Agricultural Extension Service, has for many years worked closely with county officials in carrying out its programs and in its review of P.L. 566 projects. Bulkhead lines along navigable waters are the joint product of local and State action. An active university extension programs aids in drawing State and local officials together on projects and problems of common interest. A recent legislative mandate requires the Department of Natural Resources to aid local units in shoreland protection regulation.

The State, through the Department of Natural Resources and other State agencies, works with the six regional planning commissions in the State and through them with the local units represented by these commissions. The recent Chapter 614, Laws of 1965, provides for the creation of regional staffs of civil servants and regional water resources advisory boards to communicate State water resources policy to local people, and to communicate local wishes and needs in the water field to State agencies.

State agencies in Wisconsin concerned with water have a long tradition of close cooperation. This relationship since 1953 has been formalized through the Natural Resources Council of State Agencies on which are represented all the State agencies concerned with water, including the University of Wisconsin.

The State of Wisconsin also cooperates with neighboring States with respect to water. It is a member of the Great Lakes Commission and has recently joined with Minnesota in setting up a boundary commission, which will be largely concerned with water problems involving boundary streams. The State, through its water pollution control agency, has entered into a number of cooperative agreements with the Basin States of Illinois and Minnesota for the administration of water pollution controls affecting interstate waters. Wisconsin has participated with other States, particularly Michigan, in litigation against the State of Illinois, to prevent increased diversions from Lake Michigan by the Chicago Sanitary District.

The Department of Natural Resources, Public Service Commission, Soil and Water Conservation Board, and Geological and Natural History Survey have long maintained contacts with counterpart Federal agencies with respect to a wide variety of water-oriented problems. A strong tradition of State concern for its waters has resulted in a high degree of State initiative concerning water programs and cooperative relations with Federal agencies.

Section 4

A COMPARATIVE SURVEY OF STATE POWERS, PROGRAMS, AND POLICIES

This section presents an overview of the powers, programs, and policies that the Great Lakes Basin States have established for the uses of surface water, ground water, and related land resources.

Any use of water, because of its essentially limited quantity, has been subject to certain rules and regulations. Through the use of specific questions, the 15 tables in Addendum A compare the powers, programs, and policies that each Great Lakes Basin State has established to regulate the use of water and related land resources. Some of the questions are answered by a simple yes or no, and other questions have more detailed answers. Sources are often given for more detailed information about a State's regulation of a specific use.

Table S20–3, the first table in Addendum A, summarizes water use doctrine in each Basin State.

4.1 Surface Water Use—Withdrawal

4.1.1 Introduction

Because of the many diversified uses of surface water, specific use functions have been divided into two general categories: withdrawal and nonwithdrawal uses. The withdrawal uses of water include all activities that require water to be taken out of a watercourse. In the Great Lakes Basin there are three primary withdrawal uses: water supply use, irrigation use, and power, processing, and cooling uses.

4.1.2 Summation

4.1.2.1 Water Supply

Community growth is contingent upon the continuous availability of an economical supply of potable water. Land use activities, whether they are residential, commercial, industrial, or public, possess certain unique and basic water requirements and, therefore, must locate where the supply is capable of satisfying this demand. Development generally occurs where water is economically available.

All water—wells, lakes, springs, or rivers—originates as some form of precipitation—rainfall, snow, dew, or hail. From the earth it returns to the atmosphere by evaporation from lakes, rivers, and streams and by transpiration from plants, only to return to the earth in an endless cycle, which has repeated itself for millenniums. Naturally, water is neither manufactured nor destroyed. In its various forms as a liquid, vapor, or solid, water is no more abundant now than it was a thousand years ago, and a thousand years from now there will be no more water than at present. Water is a fixed resource. As the demands made on quantity and quality approach the limits of the resource, it becomes increasingly necessary to evaluate the limits and demands and to plan control measures that reconcile the greatest practical use with adequate protection of the resource.

A major function of water resources planning is the maximization of the human benefits derived from existing waters. To facilitate future planning endeavors, a categorical assessment of present water use legislation should be compiled. It is the purpose of Subsection 4.1 to concisely survey surface water withdrawal legislation within the Great Lakes Basin by major use category. Additional information is contained in Table S20–4.

The Great Lakes Basin States, except Ohio, have enacted statutory regulations modifying to varying degrees the common law doctrine of water withdrawal for consumptive use. Jurisdiction of these modifying statutes do vary, however, as to specific water classes—ground, surface, navigable, non-navigable, and lakes.

Statutes in Illinois, Indiana, Michigan, New

York, and Wisconsin permit the use of water on non-riparian lands for specified purposes, and all States except Ohio have adopted various regulatory permit systems. Varying permit criteria provide considerations for navigation, pollution control, fish and wildlife protection, and in most instances, recreation and aesthetic use and value protection. Minnesota and New York are the two States that specifically provide for exemptions to their surface water use regulations.

The Great Lakes States, except Michigan, have authority to construct water supply reservoirs for local units of government. (New York's authority is qualified, however.)

Public water supply treatment operations must be certified in Illinois, Michigan, New York, Ohio, Pennsylvania, and Wisconsin by the State regulatory agency. Indiana has an established program of voluntary certification. Public water supply facility plans must be reviewed and approved, and completed works inspected and approved, in Indiana, Michigan, and New York. In Michigan an easement is required for water supply pipelines and related structures extending into the Great Lakes waters (Act 10, P.A. 1953 and Act 247 P.A. 1955 as amended). The definition of a public water supply system, as noted in Table S20–4, does vary throughout the Basin States. Public water supply sampling for reasons of public health, safety, and welfare, is required in Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania, and Wisconsin. Fluoridation treatment of water supplies is provided for by enabling legislation in Illinois, Michigan, and Ohio, and is recommended in New York under the Sanitary Code.

All States except Ohio permit public water supplies to be withdrawn from one intrastate basin and returned to another, although Wisconsin discourages such practice and Pennsylvania requires State approval.

4.1.2.2 Irrigation

The subhumid climate of the Great Lakes Basin generally provides ample precipitation for crop production. However, in drought years and during the growing season when natural precipitation is sometimes inadequate, supplemental irrigation may be carried out for the purposes of:

(1) increasing the soil moisture available for plant growth

(2) providing an insurance against crop failure and subsequent loss of income

(3) insuring that the aesthetic and functional qualities of public and private recreational facilities, such as golf courses, are maintained

(4) as a means of frost control to protect high-value fruit and specialty crops.

Although irrigation is only a very minor component of the Great Lakes Basin States' total water use, irrigational water use may be disproportionately of greater significance. At least 90 percent of the water used in irrigation is lost to the atmosphere through evapotranspiration, while consumptive losses for most other water uses is generally less than 10 percent.

For this very reason, if for no other, the legal factors that influence the demand for irrigation waters at particular times and locations and the institutional framework that conditions this water use merit careful analysis.

Wisconsin expressly controls irrigation water use by statute, while Indiana, Michigan, and New York have enacted permit provisions for specified waters. Indiana, New York (on the Barge Canal only), and Wisconsin regulate withdrawal amounts for irrigation purposes, while the remaining States rely upon the common law doctrine for control.

By statute, Indiana and Michigan permit diversion of excess flood waters for beneficial purposes, including irrigation, while Ohio, due to conflicting case law decisions, indicates that such diversion may be permissible.

Ohio is the only Great Lakes Basin State that may possibly participate in irrigation works construction costs at the State level. Local municipalities or special purpose districts may enter into irrigation projects under statutory authority in Indiana, Michigan, Ohio, and Pennsylvania.

For further information on irrigation in the Great Lakes States, see Table S20–5.

4.1.2.3 Power, Processing, and Cooling

Table S20–6 contains detailed information on regulations governing power, processing, and cooling in the Great Lakes States. These regulations are summarized below.

Hydropower facilities (other than dams) are subject to State regulation for construction and maintenance in the Great Lakes States, although Ohio authority is somewhat limited in that the appropriate State agency may respond only in disputes regarding service quality.

In all Basin States except Ohio a permit sys-

tem provides regulation of such facilities on all waters (inland and Great Lakes) within the jurisdiction of the Great Lakes States. Changes in thermal standards for Lake Michigan are under consideration jointly by Illinois, Indiana, Michigan, and Wisconsin.

Hydropower dams require State agency permit approval in Illinois, Indiana, Michigan, New York, Pennsylvania, and Wisconsin for construction and operation, while only a few States require a special permit for abandonment (Table S20–6, question 57). Power plant project approval by a designated State agency is required in all States except Ohio.

Power plant sites that extend lakeward from the ordinary high-water mark must obtain property by easement or lease from the State of Michigan. Conditions may be imposed on the structure to prevent sediment and erosion damages.

Water intake and discharge lines for cooling water from the Great Lakes must also obtain easements from the State of Michigan (Act 10, P.A. 1953 and Act 247, P.A. 1955 as amended).

4.2 Surface Water Use—Nonwithdrawal

4.2.1 Introduction

The in-stream use of rivers and streams played a very important role in the settlement of the Great Lakes Basin. The waterways were the primary means of transportation to bring the early settlers into the area and to transport their produce back to the markets. Soon other means of transportation were developed in the Basin and, except for the major lakes and rivers, the waterways no longer were used to transport people and produce.

In a sense, the river and stream channels were then ignored by man, probably because he was not able to develop them into any great economic gain except as a receptacle for his waste. This could account for the fact that many of the streambeds and banks are relatively undisturbed as compared to the rest of the landscape.

Now, man is beginning to realize the importance of the stream and river. Laws and regulations are being adopted in an attempt to abate pollution and to clean up the waters and preserve those areas that have not been degraded. He has realized that the trees and vegetation along the banks provide habitat for wildlife and a shield for the hustle and bustle of everyday life once inside this corridor. He has found scenic beauty and tranquility along the stream and the enjoyment of stream fishing and pleasure boating on its waters. He is now beginning to develop laws and programs to preserve such areas along the rivers and streams and to make these areas more accessible to all.

Some day the in-stream use of the rivers and streams may once again regain its importance to man, not as a means of transportation, but as a segment of the well-being of man.

4.2.2 Summation

4.2.2.1 Waste Disposal

(1) Administration

Each of the eight States in the Great Lakes Basin has established an administrative agency to regulate water pollution in the State. The enabling acts that create these agencies and that define their powers and duties are similar in their overall approach to water pollution control and abatement, but differ in some of the finer points of program effectuation. It is extremely difficult to gauge the strength or weakness of a particular statute from its wording alone. Words can usually be construed in several ways, and the absence of an express provision concerning a given point does not mean that such a provision could not be read into the statute by the courts and administering agencies. Further, States are granted rule-making authority in their statutes, which permits pollution abatement actions not specifically set forth in the statute proper.

With this in mind, it is nevertheless useful to compare the pollutions statutes of the Basin States with respect to such key pollution control parameters as

(a) agency composition
(b) jurisdiction
(c) water quality standard
(d) investigation and enforcement
(e) hearings and judicial review
(f) compliance
(g) preventive pollution control
(h) incentives.

As noted, State agency regulations carry the effect of law. However, as such regulations change periodically and are voluminous, a detailed analysis of such is therefore reserved for more detailed studies.

(2) Agency Composition

Pollution control in the Great Lakes States is the responsibility of boards or commissions in all of the Great Lake States, except in Pennsylvania where such responsibilities are handled within an executive department. In none of the Great Lakes States are such boards or commissions made up of entirely ex officio members, that is, ranking officers from other specified departments and agencies of the State. On the other hand, in Illinois, Minnesota, New York, and Wisconsin, none of the agency members are ex officio. In Illinois, Minnesota, and Wisconsin all members are appointed by the governor with the advice and consent of the State Senate. The agencies of Indiana, Michigan and Ohio are a mixture of ex officio and appointed members. In New York, the pollution control agency is the Department of Environmental Conservation. The statutes of Minnesota, New York, and Wisconsin in addition provide for the establishment of certain auxiliary bodies whose function is to advise the main agencies in matters of policy. Indiana utilizes the staff of the State Board of Health, Bureau of Engineering. Illinois statute provides for a technical agency to effect abatement through control measures or by presentation of violations to a separate quasi-judicial board that also serves in a rule-making capacity. A third agency promotes and guides research efforts. The remaining State agencies also receive technical guidance from other entities, although such are not prescribed by statute.

(3) Jurisdiction

By and large, the jurisdiction of all eight Great Lakes States is both complete and exclusive. That is, State agencies have ultimate responsibility for controlling pollution in all waters of the State, although there may be exceptions. As of July 1, 1970, Illinois statute places some limitations on certain laws relating to oil production operations and pesticides. The Indiana statute states that it is to have no effect on Indiana's drainage and ditch laws.

(4) Water Quality Standards

Although it is possible to regulate water quality on an ad hoc basis, matters may be simplified through the establishment of water quality standards. Once established, such standards may eliminate the necessity of weighing all the factors in every case to determine whether a particular activity is unreasonably polluting the waters.

The pollution control statutes of Illinois, Indiana, Michigan, Minnesota, and Ohio provide for the establishment of both receiving water standards and effluent standards. The statutes of Michigan, New York, Pennsylvania, and Wisconsin provide for stream quality standards.

The question raised with regard to water quality standards is, does compliance with the standards rest on the presumption that a given activity or discharge is not polluting the waters? Conversely, does noncompliance with the standards rest on a presumption that a given activity or discharge is polluting the waters unlawfully? Is there such a thing as lawful pollution?

To avoid such misunderstanding, three procedures have been employed:

(a) In Illinois, Indiana, Minnesota, New York, and Ohio a public hearing must be held before water quality standards can be established for any waterways. This is necessary because the standards are employed as the chief criteria for determining what is or is not lawful pollution. Although not stipulated by statute, Michigan Water Resource Commission and Pennsylvania Department of Environmental Resources policy requires that such hearings be held, while Wisconsin has convened such hearings on a voluntary basis.

(b) A non-degradation clause has been included in the water quality standards criteria in Illinois, Indiana, Michigan, and Ohio to prevent pollution of waters with an existing higher quality than the established standard designation. An anti-degradation statement was adopted by New York subsequent to adoption of its standards.

(c) Existing water quality must be raised to meet the standards in all Basin States if they are not in compliance at the time of application.

Ohio has provisions that exempt specified uses from operation of the State water quality standards. Illinois may grant variances through board hearings when requirements impose "arbitrary or unreasonable hardships." Compliance with regulations constitutes *prima facie* defense in actions brought by any person in Illinois.

(5) Investigation and Enforcement

The subject of investigation and enforcement involves a number of questions. First is

the question of who can invoke agency action. Private and Public parties or the State agency staff can cause the State agency to investigate reports of pollution. The pollution control agency then becomes a forum for the settlement of pollution problems, or if necessary, forwards violations to the courts for settlement. It may be doubtful whether an agency could order a polluter to make reparations to complainants, but the agency can order polluters to install treatment facilities or otherwise abate objectionable pollution. The statutes of Illinois, Michigan, New York, Pennsylvania, and Wisconsin make express provisions for the invocation of agency action from outside the agency. Apparently, in all other States the agency is only compelled to investigate complaints, while the issuance of orders or the holding of hearings is generally discretionary. In all States (with the possible exception of Minnesota), the pollution control agency staff monitors stream quality and conducts pollution investigations for action by the agency. In Illinois, the Environmental Protection Agency investigates, monitors, and presents the evidence to the Pollution Control Board for their action. It is the Board that issues orders.

Legislation (Act 127, P.A. 1970) recently enacted in Michigan provides that the Attorney General, any political subdivision of the State or agency of the State or a political subdivision thereof, any person, partnership, corporation, association, organization, or any other legal entity may maintain court action for declaratory and equitable relief against the State, any political subdivision thereof, any instrumentality or agency of the State or of a political subdivision thereof, any person, partnership, corporation, association, organization or other legal entity for the protection of the air, water, and other natural resources, and the public trust therein from pollution, impairment, or destruction.

In 1967 Wisconsin enacted Section 165.07 of its statutes to provide for a public intervenor. This position is designated as an assistant attorney general by the attorney general and acts as an ombudsman for public rights under Chapters 30, 31, and 144 of the Wisconsin statutes. The public intervenor receives written notices of all proceedings under the abovementioned chapters of the statutes and intervenes in all actions where he is called upon by the administrator of a division in the Department of Natural Resources, by any committee of the legislature, or where and when he feels justified. Further, the public intervenor has all the powers of a party in interest. He can subpoena, examine, and appeal where he deems it necessary and can also call on the Department of Natural Resources to conduct studies where pertinent. Finally, he only has the duty to intervene in water and other natural resources matters where such action is needed for the protection of the "public interest."

It is difficult for an agency to enforce pollution laws if it lacks the power to conduct effective investigations. All State pollution control agencies in the Basin are given an explicit power to enter upon and inspect the premises of putative polluters. All State pollution control agencies, with the exception of Michigan's, which must act through the courts, are expressly empowered to subpoena witnesses and records for hearings.

Landmark legislation was recently enacted in Michigan, which

(a) permits court enforcement of voluntary pollution abatement agreements

(b) requires all commercial and industrial dischargers to report annually the nature of the enterprise, materials used in manufacturing, and all by-products and waste products discharged

(c) provides for payment of a surveillance fee, based upon discharge volume and waste content. Such fee is for monitoring, however, and does not in any manner allow for discharge or improperly treated wastes.

New legislation in Illinois provides that judicial aspects and rule-making be exercised by a separate board, and that the agency investigate and present cases to the board. Fees for discharge of contaminants are expressly forbidden.

(6) Hearings and Judicial Review

The States vary with respect to when a hearing is necessary, the issues that must be heard, the scope of judicial review available, and the effect of emergencies on all these factors. Apparently, in all States but Illinois, Indiana, Michigan, and New York, the pollution control agencies can issue an order requiring a party to take steps to abate pollution without the necessity of holding a hearing. However, if the party to whom an order is issued wishes to dispute the order, he is at that point entitled to a formal hearing. Other hearing stipulations are also provided in most States.

When a party disagrees with the outcome of a hearing, it can refuse to obey the order and thereby force the agency to seek enforcement in the courts. In Illinois the appeal is not to the trial court, but to the appellate court. In either

case, two questions arise. First, are agency orders stayed until the court renders a decision? Indiana is the only State in which orders are stayed except for good cause shown by the courts. In Indiana, New York, Ohio, and Pennsylvania, agency orders can be stayed upon petition if the court finds the petition to show a reasonable probability that the order is illegal. The second question is, what is the scope of judicial review? Must the courts affirm the findings and conclusions of the agency if they are supported by substantial evidence on the record, or is *de novo* review available to polluters? That is, does the court rehear the entire case itself, with little or no deference being given to the expertise of the pollution control agency on technical matters? In Illinios, Michigan, New York, Ohio, Pennsylvania, and Wisconsin, agency orders must be affirmed if supported by substantial evidence on the record. In Indiana, this rule abstains where a polluter seeks review of an agency order, but the case is heard *de novo* where the agency is the party moving the court for enforcement of its order. In Minnesota, the findings and conclusions of the agency are presumed valid, but the entire case is apparently reheard *de novo*. In cases of emergency, all States except Indiana, Michigan, and Pennsylvania are authorized to issue orders without the necessity of holding any hearing at all, or at least not until the emergency is over. These three States may act through the judiciary, however. Wisconsin is the only Basin State to specifically require (within the pollution control statute) court enforcement of abatement orders. The Attorney General in Illinois has special authority to sue violators and seek penalties.

(7) Compliance

Some of the Great Lakes Basin States have provisions that are designed to effectuate compliance with agency orders where polluters are recalcitrant. Only in Wisconsin is the pollution control agency authorized to carry out its own orders and bill the polluters for whatever costs are thereby incurred. In Pennsylvania the costs may become a lien on the property of the polluter to recover costs incurred in abating a public health nuisance. In Indiana and Pennsylvania non-municipal parties subject to agency orders are empowered to condemn the property of others where such condemnation is essential to compliance, as where an easement is needed for purposes of laying a ditch or sewer. Other States have similar provisions, but they apply only to cities and towns or public utilities. Illinois, Indiana, Michigan, Minnesota, New York, and Pennsylvania all have provisions that permit municipalities or other local governmental agencies to raise the money necessary to build treatment facilities in compliance with agency orders (beyond the statutory limitation on powers of local government to incur debts or levy taxes). Minnesota, in addition, has a unique provision that authorizes the pollution control agency to assume the powers of local government insofar as it is necessary to assure the enactment of all measures necessary to achieve compliance with an order. Michigan law permits local municipalities to voluntarily issue court order bonds. All States except Minnesota provide for fines for violation of pollution control statutes. Illinois, Indiana, New York, Ohio, and Pennsylvania also provide for incarceration for violations. Illinois and Michigan statutes provide that the State may recover monetary retribution or replacement for losses of fish and wildlife.

Pollution control agencies in Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania, and Wisconsin also requires that treatment facilities maintain records. Illinois law provides that a seal may be placed on a facility contributing to an emerging situation. When a requirement would impose arbitrary or unreasonable hardship a variance may be granted for one year and may be coupled with a performance bond to insure compliance.

(8) Preventive Pollution Control

A truly effective program of water quality regulation should include measures to prevent, as well as to abate, water pollution. Preventive measures are of two types in the Great Lakes Basin States. The first is to eliminate situations that are not currently causing but may cause water pollution, such as dumping grounds located close to a waterway. The agencies of Illinois, Indiana, Michigan, Minnesota, Pennsylvania, and Wisconsin are expressly authorized to order the prevention of such "potential pollution." Ohio gains similar powers through its wastewater discharge permit system. A second preventive measure is the establishment of a use permit system, making it unlawful to install, modify, remove, or operate a disposal system or a treatment facility without a permit from the pollution control agency.

The statutes of Illinois, Michigan, New York, Ohio, and Pennsylvania provide for such a use permit system.

The statutes of Indiana, Michigan, New York, Pennsylvania, Ohio, and Wisconsin require State agency approval for the design of pollution control facilities. Permits for new or expanded use of public waters for discharge or intake must be issued in Michigan and New York. Wisconsin requires approval for new or expanded industrial waste discharges.

Other preventive measures, noted in the previous section on common law, include licensing or certification of septic tank and cesspool cleaners, persons applying pesticides, municipal, industrial, or commercial treatment plant operators, and liquid industrial waste haulers, and permit stipulations for well drilling, deep well disposal, well abandonment, stream impoundments, encroachments (Great Lakes channel and flood plain), water supply systems, dredging and filling, and diversions. They are discussed in greater detail under their appropriate categorical analysis.

(9) Incentives

The root of the problem of water quality regulation is the high cost of installing adequate treatment facilities. One suggestion that has been made is that those who discharge wastes into waterways be subjected to a use tax, or "effluent charges." The charges should be high enough to make capital investment in treatment facilities an attractive alternative. To date, none of the Great Lakes States have enacted such a tax system. In fact, Illinois law expressly forbids a charge or an assessment for the discharge of contaminant from any source. Seven of the Basin States have, however, taken a different track by offering tax incentives to those who invest in treatment works. Wisconsin permits taxpayers to deduct the entire cost of installing treatment facilities from their State income taxes in the year of installation.

Does the State provide any subsidy, tax deferment, rapid tax writeoff or other incentives to encourage industry to construct waste treatment facilities?

Illinois State laws provide for tax adjustment of real and personal property installed and operated as pollution control facilities. Sales tax exemption is provided for equipment and materials used with pollution control facilities.

Indiana has an act concerning industrial waste disposal property that is employed to abate pollution of streams and public bodies of water. It exempts certain tangible personal property so used from taxation.

Michigan provides exemption of water pollution control facilities from certain taxes. A facility covered by a tax certificate is exempt from personal property taxes. Tangible personal property that becomes affixed as a structural part of the real estate of such facility is exempt from sales and use taxes. Provisions are also made for modifications or revocation of the certificate under certain conditions.

Minnesota grants some tax relief by exemption (not directly as incentive) as part of a general real and personal property tax relief program based on supplanting some of these taxes by a broad range of excise taxes. In the case of joint treatment, many municipalities may provide hidden subsidies by imposing law service charges and/or tax levies.

New York's program of industrial tax incentives provides net operating loss deduction for cost of qualifying property during the year it was incurred, and tax exemption of qualifying property to the extent of an increase in value resulting from construction of industrial waste treatment facilities. Industries with wastes treated in joint municipal-industrial treatment facilities may benefit from construction grant programs if qualifications are met.

Ohio's tax exemption certificates are issued by the Water Pollution Control Board for industrial water pollution control facilities. Industrial waste treatment facilities shall then be exempted from personal property taxation, real property taxation, franchise tax, and sales or use tax. Industries may obtain a tax writeoff of up to 20 percent per year for cost of constructing waste treatment facilities.

In Pennsylvania, eminent domain authority may be granted a private corporation for the purpose of expanding pollution treatment facilities.

Wisconsin's statutes provide for rapid tax writeoff and for exemption from local tax of all facilities installed for abatement of pollution.

Table S20–7 contains further information about waste disposal and water pollution.

4.2.2.2 Navigation

The territory of the Northwest Ordinance of 1787, from which the States of Illinois, In-

diana, Michigan, Ohio, and Wisconsin were born, was ceded by Massachusetts and Virginia to the United States with the following provision with reference to waters in the area:

> The navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same shall be common highways and forever free as well to the inhabitants of the said territory as to the citizens of the United States and those of any other states that may be admitted into the Confederacy without any tax, impost, or duty therefor.

This provision of the Northwest Ordinance has been recognized in legal circles as imposing a trust upon the States affected to conserve and maintain forever the navigability of natural water courses of the territory. This trust is imposed for the benefit of the public and extends not only to past and present generations, but to future generations as well.

Subject to this ordinance, to the paramount rights of the Federal government, and to private property rights, the Great Lakes Basin States have full power to legislate the use of navigable waters within their respective borders for the betterment and protection of the public interest.

All the Great Lakes States to varying degrees have adopted provisions governing navigable waters, navigation, and, with the possible exception of Wisconsin, the development and operation of recreation navigational facilities.

These statutes grant to the States the powers to acquire, construct, and maintain channels and navigational facilities (harbors) for recreational vessels in navigable waters. Acquisition may be by purchase or condemnation in all Basin States, except Ohio and Wisconsin, where condemnation powers are not provided to the State for navigation purposes.

All of the Basin States to differing degrees either directly or indirectly play a role in managing port district development. Waterfront developments are subject to State agency review and regulation in all but Pennsylvania and New York. Port districts are further vested with the power of condemnation in Illinois, Indiana, Michigan, and New York.

Marinas located on the Great Lakes bottomlands must be licensed by or leased from the States of Michigan, Pennsylvania, and Wisconsin.

All of the Great Lakes States have the statutory authority to acquire, develop, and maintain public access sites on the Great Lakes and inland waters of their States. All States except Ohio, until July 1, 1973, have adopted varying regulations to prohibit the discharge of raw sewage from recreational watercraft on navigable waters. Michigan and Pennsylvania have also adopted rules to control the discharge of sewage from commercial watercraft operating within State boundaries.

Statutes in Michigan further hold watercraft owners responsible for oil spill clean-up and damage, as well as for State incurred costs for clean-up of such oil spills into the water of the State.

In Michigan (C.L. 1948, Section 254.22) and Wisconsin (Chapter 31, WSA) bridges over any navigable stream must be so constructed and maintained as to afford adequate means for passage of usual craft. County boards of supervisors in these two States are empowered to permit or prohibit the construction of any dam or bridge (except State highway bridges) over or across any navigable stream, subject to the paramount rights of the State. Watercourse channels of any sort cannot be legally altered without a permit from the State. This provides additional navigational protections.

Additional information about navigation in the Great Lakes States is contained in Table S20–8.

4.2.2.3 Fish and Wildlife

All Great Lakes Basin States regulate the commercial fisheries industry within the State by means of either a permit or licensing system. All management agencies are authorized to establish regulatory rules and standards, within the limits of their governing statutes, and all have fine provisions for violations.

It is of interest to note that Michigan by statute specifically prohibits nonresidents from being issued commercial licenses on Lakes Huron and Erie.

The goal of the Great Lakes fisheries program appears to be optimum development of both sport and commercial fishing. In some areas of the Great Lakes and for some species of fish, where conflicts between sport and commercial fishing interests arise, commercial interests are subordinate to recreational interests. Development of the Great Lakes sport fishery is the primary management goal when there is a choice.

Indiana, Michigan, New York, Pennsylvania, and Wisconsin further favor the introduction of new fish species where there are recreational, ecological, and economic benefits. Such policy is evidenced by the highly success-

ful coho and chinook salmon programs.

Michigan has further adopted a Great Lakes fishery zone management plan, which designates three principal types of water areas: sport fish development zones, rehabilitation zones, and commercial fishing zones. This is the new approach to better fisheries management in the Great Lakes.

All States favor control of lampreys through the Great Lakes Fishery Commission for Canadian and American waters of Lakes Superior, Michigan, Huron, and Ontario. Much of the salmon fishery is dependent on stocking by State and Federal hatcheries. The overall goal is to produce a Basinwide management plan complementary to all concerned, including Canadian interests.

Trout waters are specifically designated in Indiana, Michigan, New York, Pennsylvania, and Wisconsin. Such designated waters are governed by regulation specifically developed for protection of both the species and water resources. In Ohio, special coldwater fisheries standards have been adopted for some species.

Illinois, Indiana, Michigan, New York, and Wisconsin have developed programs for wildlife habitat or wetland preservation and acquisition. Indiana, New York, Ohio, and Wisconsin have further adopted wetland preservation ordinances, which apply to State lands or State managed private lands.

Wildlife preserves are financed and operated in Illinois, Michigan, New York, Ohio, Pennsylvania, and Wisconsin, although paid hunting and fishing are not financed or operated by the State. Indiana operates and maintains State hunting and fishing areas.

For further information on fish and wildlife regulations, see Table S20–9.

4.2.2.4 Recreation and Scenic Preservation

Programs for scenic preservation are in effect in each of the Great Lakes States. These programs are operated not only by State agencies, but in many instances in cooperation with Federal programs. Specific scenic river or area preservation statutes have been adopted in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

Priorities or preferences for scenic area attributes or locations have been adopted in seven of the States.

Indiana, Michigan, New York, Ohio, Pennsylvania, and Wisconsin have also adopted statutes establishing programs for historic site preservation. New York has an active program in this field.

All States have developed ongoing programs for public access site provisions that encompass both Great Lakes and inland waters. These programs provide for the development, maintenance, and operation of public access sites, as well as for State agency authority for financial participation and site acquisition.

Illinois has developed a program for public access sites that encompass Lake Michigan, the boundary rivers, the Mississippi, Ohio, and Wabash Rivers, the Illinois Waterway, and any other streams open to boating. Also included in the program are reservoirs owned by the Federal government or political subdivisions. Funds are provided through action of the State legislature, whereby certain monies are diverted from State Motor Fuel Tax receipts to the Department of Conservation as Boating Access Funds. The Illinois Department of Conservation is empowered to enter into agreements with political subdivisions to provide construction funds including engineering for boat access areas. The political subdivision in turn agrees to furnish necessary land and maintain and operate the completed facilities.

Indiana, Michigan, Ohio, and Pennsylvania have the legislated power to zone specific water surface areas for specific recreational uses for better resources and recreational management, although Ohio's authority is restricted to State owned lakes. Indiana, Ohio, and Pennsylvania may also restrict the number of participants. Indiana, Michigan, New York, Ohio, and Pennsylvania also favor the development of potential waterside oriented recreational sites (Great Lake and inland) over non-water oriented sites, where feasible and within the established need.

Although the bottom lands of the Great Lakes are owned by the respective States, such lands are leased (with strictly stipulated provisions) for recreational marina development in Michigan and New York.

Fees are assessed for the use of State park facilities in Indiana, New York, and Wisconsin. Fees other than entrance fees are also assessed for the use of some State park facilities in Illinois. Michigan, while not assessing an individual entrance or user fee, does charge a fee for motor vehicle entrance to such facilities. Pennsylvania has no fees for day-use of State parks.

Table S20–10 lists information on recreation and scenic preservation in the Great Lakes Basin States.

4.3 Related Land Use and Management

4.3.1 Introduction

Subsections 4.1 and 4.2 compared the statutory regulations and policies of Basin States with respect to the in-stream and the consumptive uses of water. This subsection focuses on those statutes and policies that regulate the activities of water with land. The land is man's habitat. His use of it has direct effects on land-water interactions. In the Basin States, regulation focuses on the problematic overabundance of water on the land. Use of the Great Lakes shorelands, which is of particular interest to the Framework Study, is very closely related to this interaction. Although most legislation, except in Michigan, focuses on larger inland areas when dealing with an oversupply of water on the land, the resulting statutes can normally be applied to shoreland uses as well.

This subsection, like the previous ones, is based on a questionnaire designed to cover specific areas of statutory regulations. The States' responses provide a comparative analysis of Basinwide regulations for those categories of surface land use and management in connection with the presence of water.

4.3.2 Summation

4.3.2.1 Great Lakes Shoreland Management

Each of the States bordering the Great Lakes has title to the portion of the Lake bed bounded by international or adjacent State boundaries. They have the title by virtue of their sovereign rights in navigable waters or by admission to the Union. Similarly, the riparian owner has certain rights, subject to statute and common law of each State and to local ordinances, to develop his Lake frontage.

Further defining the shoreward limits of the Great Lakes, most States have established certain rules or statutes delineating the line of separation between private and public rights. In some, the low-water mark is the boundary, while in others the ordinary high-water mark controls. Actually, this separation is not too important for small riparian docks but it becomes extremely important in attempting to properly evaluate the effects of dredging or filling on the shoreline and adjacent waters. In Michigan, for example, the ordinary high-water mark has been used in connection with its administration of the Great Lakes Submerged Lands Act. Lakeward of this contour, the State has authority over dredging and the placement of fills and commercial-industrial structures. Recently, the Michigan Legislature placed the ordinary high-water mark at an exact level based on International Great Lakes Datum for each of its Great Lakes. Their experience indicates that it is much easier to protect the shoreline from unlawful encroachments, especially in marshy areas where there are valuable wildlife interests, by using a permanent boundary. The following State statutes or legal interpretations define the shoreward limits as applied to the respective Great Lakes States.

(1) Illinois (Lake Michigan)

Common law states that the line at which the water usually stands when free from disturbing causes is "the boundary of land . . . for Lake Michigan as a line" (*Seaman* v. *Smith*, 24 Ill. 521).

(2) Indiana (Lake Michigan)

There are no statute nor common law decisions concerning shoreline separation between private and public rights. Generally, it is assumed that the ordinary high-water mark, as used in Federal court cases, would control.

(3) Michigan (Lakes Erie, Huron, Michigan, St. Clair, and Superior)

Act 247, P.A. 155, as amended, cites the ordinary high-water mark (in feet IGLD [1955]) for each Lake as: Erie, 571.6; Huron-Michigan, 579.8; St. Clair, 574.7; Superior, 601.5.

Use of the statutory ordinary high-water mark separates the upland owner's title from that of the State's. The riparian owner still enjoys trespass control to the water's edge wherever it may be, but must seek State approval for any project that would prevent the Lake from returning to the ordinary high-water mark. Projects below this contour that involve filling, dredging, and placement of commercial-industrial structures must be authorized by State permit, including work specifications and payment of fees.

In Michigan, Lake St. Clair has legal status, both by judicial and legislative designations, as one of the Great Lakes. This is seen in Act 247, P.A. 1955, as amended (the Great Lakes Submerged Lands Act), which is applicable to Lake St. Clair, but not to the other connecting waters. Act 291, P.A. 1965, as amended (the Inland Lakes and Streams Act), is applicable to the Detroit, St. Clair, and St. Marys Rivers and other inland lakes and streams. The Su-

preme Court gave Great Lakes status to the bottom lands of Lake St. Clair, specifically in *State* v. *Venice Land of America Company*, 160 Mich. 689.

(4) Minnesota (Lake Superior)

Common law suggests the riparian has absolute title to the ordinary high-water mark, with a qualified fee to the low-water mark. The State may make use of area between the ordinary high-water mark and the ordinary low-water mark for public purposes or as an aid to navigation without compensation to the riparian.

(5) New York (Lakes Erie and Ontario)

Common law says that the State owns the bed of Great Lakes up to the mean low-water line (*Wood* v. *Maitland*, 169 misc. 484; modified, 259 App. Div. 796). The State has determined the minimum low-water level to be 245.0 feet (U.S. Geological Survey) on Lake Ontario. Subtract 1.24 feet from USGS to obtain International Great Lakes Datum (1955) at Rochester, New York.

(6) Ohio (Lake Erie)

Ohio revised code, Section 123.03, declares that any artificial encroachments beyond the natural shoreline not authorized by the State shall not prejudice rights of the public. Ohio courts have found the State's title in the bed of Lake Erie lying below low-water datum, 568.6 feet IGLD (1955).

(7) Pennsylvania (Lake Erie)

Chapter 13, 55–362, 363, cites the low-water mark as the boundary.

(8) Wisconsin (Lakes Michigan and Superior)

There is no specific statute of the legal contour separating publicly owned lakebed from privately owned upland on the Great Lakes. The court has indicated that a delineation based on the limits of terrestrial vegetation be used.

Following is a summary of shoreland management controls.

(1) State and Local Laws Providing Authority to Cooperate in Federal Beach Erosion Projects

The laws of the State of Ohio provide for State participation in beach erosion projects either with or without Federal participation. The State laws provide for participation of up to two-thirds the cost of protection of public property and up to one-third the cost of protection of private property. In administering the law, the State requires that requests for protection of private property be made through a local public agency. State laws provide for establishment of conservancy districts for the purpose of beach erosion control. To establish a conservancy district, a petition signed either by 500 feeholders, a majority of the feeholders, or by the owners of more than half the property in either acreage or value within the limits of the proposed district must be filed in the office of the Clerk of the Court of Common Pleas of one of the counties containing territory within the proposed district. Up to now, no projects for protection of private property have been undertaken in Ohio.

Article XVI, Part I, Conservation Law, Section 661, authorizes the New York State Office of Parks and Recreation to participate in Federal beach erosion control programs for State-owned lands and on the Great Lakes. State laws also permit local governments to participate in Federal programs. The State of New York has no authority to participate in erosion control for private property on the Great Lakes.

The laws of Pennsylvania provide for State participation in beach erosion control for Federal projects on State lands. The State has no existing authority to participate in protection of other public property or private property. The State and local laws of the Commonwealth of Pennsylvania can be, however, readily amended so that the State may participate with local communities in erosion control projects.

There is adequate Illinois legislation relative to State cooperation in Federal programs for erosion control.

The water laws of the States of Indiana, Michigan, Minnesota, and Wisconsin do not specifically provide authority for State cooperation in Federal programs for erosion control.

Michigan does, however, have three statutes that enable local units of government to combat beach erosion.

Public Act No. 42, P.A. of 1952, enables County Boards of Supervisors of those counties fronting on the Great Lakes to establish appropriate setback or building lines in areas outside of incorporated villages and cities. This is for the purpose of protecting individuals or groups from building in locations that are subject to inundation or erosion.

Public Act No. 43, P.A. of 1952, permits the construction of beach and soil erosion control projects by townships and villages on a special assessment basis.

Public Act No. 44, P.A. of 1952, gives all polit-

ical subdivisions authority to make beach erosion studies, either independently or in cooperation with other political subdivisions or any agency of the Federal government.

(2) Laws Defining Public Shore Ownership and Transfer from Private to Public Ownership

All States that have shorelands on the Great Lakes are governed by common law. (Michigan, however, uses the ordinary high-water mark as defined by statute.) Generally, the common law extends the riparian and owner's absolute control to the water's edge. However, this ownership is subject to public servitude between ordinary low water and ordinary high water. Ordinary high water is defined as that point at which aquatic vegetation ceases and upland vegetation commences. This public servitude is primarily for navigational and water-related uses. It does not include any privilege by the public to use the area between ordinary low water and high water for land-related uses such as picnicking, camping, traversing, or similar uses. The Great Lakes States have affirmed or modified this doctrine by the following legislative statements or enactments.

(a) Illinois

Illinois regulations allow the Chicago Park District to acquire privately owned riparian rights and establish a line of ownership between private and public interests through court proceedings.

(b) Michigan

Michigan by common law and statute has control and ownership of Great Lakes bottom lands to the ordinary high-water mark. Rights of reasonable riparian use extend to the existing water's edge (Act 247, P.A. 1755, as amended, *Obrecht* v. *National Gypsum Company*, 361 Mich. 399). As mentioned previously, under Acts 42, 43, and 44 of P.A. 1952, mechanisms are provided for developmental control, study, and structural construction at the local municipal level.

(c) New York

Laws of the State of New York provide that, upon petition, a town board may establish a beach erosion control district and provide improvements or services, or both, in any such district wholly at the expense of the district. Real or personal property may be acquired by the town board for use by the district.

Underwater lands of the State are administered by the Commissioner, Office of General Services, who is authorized under certain conditions to issue grants of State underwater land to public agencies and individuals in perpetuity, or otherwise. Existing laws permit State and local government acquisition of private lands in fee or other title by purchase, appropriation, or gift. In general, underwater tidal lands held by the State are considered to extend to the high tide or ordinary high-water elevation.

(d) Ohio

Under laws of the State of Ohio, the State, or any county, township, municipal corporation, conservancy district, or park board cooperating with the State in constructing or maintaining projects to prevent, correct, and arrest erosion along the south shore of Lake Erie may acquire lands by gift or devise, purchase, or appropriation. Property may be acquired in fee or in any lesser interest as the State or cooperating agency deems advisable. A conservancy district has the dominant right of eminent domain over the right of eminent domain of utilities and other townships, counties, and municipal corporations.

(e) Pennsylvania

The Commonwealth of Pennsylvania owns the land under the waters of Lake Erie within its geographic boundaries. This ownership stems from colonial days, when the original colonies acquired title to all lands and water bottoms within their respective boundaries from the Crown of England. State ownership has been upheld by the courts.

The act of May 27, 1921, P.L. 1180, of the Pennsylvania Legislature, established the Pennsylvania State Park and Harbor Commission of Erie to manage and control Presque Isle Peninsula and portions of Presque Isle Bay, encompassing approximately one-sixth of Pennsylvania's Lake Erie shoreline. The current status of Pennsylvania law pertaining to the remaining five-sixths of the shoreline, landward, is that the land is owned individually or by local communities to the extent that title can be traced back to a valid patent from the Commonwealth, subject to a right-of-way for the use of the public to get to the water.

The Commonwealth of Pennsylvania has several laws pertaining to public shore ownership. Transfers from private to public ownership can be made in a number of different ways: by purchase, grant or donation, condemnation, or accretion.

(f) Wisconsin

The State of Wisconsin has set up grant-in-aid programs to induce local shoreland protec-

tive regulations and acquisition of lands for public access and for parks.

(3) Control of Shore Developments Including Needed Information for Land Use Planning, Regulation, and Zoning, Insurance, and Emergency Assistance

Illinois, Indiana, New York, Ohio, and Pennsylvania do not have State zoning laws regulating construction or development aimed at reducing or preventing future damages from shore erosion along the Great Lakes. There are local ordinances governing the type of development, such as residential, commercial, or industrial, but there are none governing the location of improvements on the water's edge or top of bluff to reduce future erosion damage.

The State of Wisconsin has recently moved to guide, supervise, and, if necessary, replace local zoning authority so far as it concerns shorelands along lakes (Chapter 614 of the Laws of 1965).

The State of Ohio may spend State funds to alleviate shore erosion on either public or private property without participation by any local subdivision if a shore emergency is declared by the Governor. Up to this time, this has not occurred.

The State of Michigan recently passed legislation, similar to that of Wisconsin and Minnesota, to provide measures for the protection and management of the Great Lakes shorelands.

Basically, the purpose of the Michigan program is to

(a) provide for the protection, effective management, and maintenance of the quality of Michigan's Great Lakes Shoreland

(b) require zoning of such shorelands

(c) establish the responsibilities of the Department of Natural Resources and the Water Resources Commission

(d) authorize engineering and special studies of the shorelands

(e) develop a comprehensive plan for shorelands use.

While Michigan does not currently exercise zoning powers relating to shorelands, it does participate in the Subdivision Control Act of 1967 by reviewing all proposed subdivision of Great Lakes shorelines. The Hydrological Survey Division reviews copies of all preliminary plats, computes the 50-year frequency high-water level contour, which must be clearly indicated on the final plat, and imposes minimum building restrictions to protect buyers from possible inundation damages.

(4) Other Shoreland Management Controls

Plat review and regulation, although provided for by statute in Indiana, Michigan, and Wisconsin, is primarily based upon public health and water quality criteria except in Wisconsin, which has the authority to establish developmental standards.

In addition to regulatory authority, legislation enabling the State to construct or financially assist in the construction of beach erosion control projects on other than the State owned land is in effect only in Illinois, New York, Ohio, and Pennsylvania.

Bulkhead levies may be established by the regulating State agency in Illinois, Michigan, and Wisconsin.

Michigan policy is generally opposed to the State divesting itself of any shoreline riparian properties, by sale or lease, that are now in its possession for the people of the State. However, the State may enter into exchanges of water frontage and bottom lands when such action is advantageous to the public interest.

The dredging of upland channels in Michigan that is to be connected with the Great Lakes is also under the statutory control of Act 247, P.A. 1955 as amended, and requires a permit and payment of fees (based on length and size of connection) to the State. Waters in such channels become public.

Further information about Great Lakes shoreland management is contained in Table S20–11.

4.3.2.2 Flood Plain Management

(1) Statutory Encroachment Laws

Of the eight States in the Great Lakes Basin, only Indiana, Michigan, and Pennsylvania have enacted a statutory floodway encroachment law. Wisconsin has established a Statewide program for flood plain regulation, which might achieve the same ends as would encroachment law.

(2) Flood Plain Zoning

All of the Great Lakes Basin States have zoning enabling legislation that authorizes

local levels of government to regulate land use in the interest of public health, safety, and welfare. One might argue that it is in the interest of public safety and welfare to prohibit certain land uses in areas likely to be inundated by floods and that these general zoning statutes are therefore broad enough to permit flood plain zoning.

Wisconsin, however, is the only State with a program of compulsory flood plain zoning. That is, every city and county in Wisconsin is required to enact zoning laws, and these must be approved by the State flood control agency. In the remaining Basin States, local units of government are authorized but not required to adopt flood plain zoning laws, nor must laws they do adopt be approved by a State agency.

(3) Platting Laws

When a person owns a large area of undeveloped land and wishes to subdivide and develop the land for sale, he must first file a map or plat with the local governmental unit to which the land is to be annexed. This map must show the location of all proposed streets, roads, sewers, and public utility lines. Upon filing the map, the local governmental unit acquires either an easement or full title to all lands where the streets, roads, and so forth are located. It has been suggested that laws be enacted requiring land developers to show on these plat maps all flood plain areas unsuitable for residential or other structures. Only Michigan and Wisconsin have such a requirement. Michigan further has the authority to prohibit platting in the flood plain.

Pennsylvania has statutory authority to carry on an active and complete flood control program, including the investigation, design, construction, and maintenance of flood control works for river basin systems, both on a State level and in conjunction with Federal agencies. The State-level program also includes designing and constructing justified flood control projects for local communities, cleaning State stream channels of accumulated silt deposits, and providing channel bank protection.

Four principal features should be noted about the Indiana and Michigan encroachment laws. They authorize the administering agency to establish floodways for all rivers and streams in the State. They declare it to be unlawful to permit any structure, obstruction, deposit, or excavation to be erected, used, or maintained in or upon any floodway that will adversely affect the efficiency of or unduly restrict the capacity of the floodway. They require all persons who desire to erect, use, or maintain any possible encroachment in a floodway to obtain a permit from the administering agency. They authorize the administering agency to bring court proceedings to enjoin the making or erecting of any structure, deposit, excavation, or other possible encroachment without a permit. Indiana and Pennsylvania are further authorized to remove or eliminate unlawful encroachments through condemnation or abatement proceedings.

The term "floodway" is defined by the Indiana statute as "the channel of a river or stream and those portions of the flood plains adjoining the channel which are reasonably required to efficiently carry and discharge the floodwater or flood flow of any river or stream." The key phrase is, of course, "reasonably required." It is probably reasonable to establish floodways that could carry floodwaters of a 100-year frequency flood, but no hard and fast lines can be drawn. The Indiana statute has no requirement that a public hearing be held by the administering agency prior to issuance of a permit. It makes clear that residential structures are to be deemed unlawful encroachments where they adversely affect the efficiency of any floodway. However, the Indiana statute expressly provides that any person who is adversely affected by an agency order establishing a floodway may obtain judicial review of the order. The Pennsylvania Statute does not explicitly define floodway, but implies the power of interpretation to the enforcing agency, the Department of Environmental Resources.

As noted above, the administering agencies are authorized to remove or eliminate unlawful encroachments through condemnation or abatement proceeding, but the statutes do not make it clear when the agencies are to bring an action for abatement rather than for condemnation. Where an encroachment is removed through condemnation it is necessary to compensate the owner of the encroachment for his loss, whereas no compensation is paid where an encroachment is removed through abatement. As most encroachments are declared to be public nuisance and therefore subject to abatement it would seem that the agencies could resort to abatement in every instance. Yet, if this were the intent of the statutes, they would not include a provision authorizing condemnation. Unfortunately, the

statutes suggest no criteria for determining which encroachments shall be removed by abatement and which by condemnation. Indiana, Michigan, and Wisconsin have legislative authority to establish the floodway.

(4) Flood Plain Regulation

The encroachment laws just discussed are a form of flood plain regulation. Among other types are zoning laws, platting laws, and laws that require disclosure of flood risks in sales of flood-plain property.

(5) Disclosure Laws

The law, by and large, applies the maxim of *caveat emptor*—let the buyer beware—to all sales of real estate. A seller is under no duty to disclose that his land lies in a flood plain. Even if a buyer expressly asks the seller whether the land lies in a flood plain, and the seller untruthfully says it does not, the courts will ordinarily give no remedy to the buyer once the deed is conveyed to him, unless there is an express statement in the deed itself that the property does not lie in a flood plain. This law could be changed by statute, at least in cases where the seller is a professional real estate developer, to require the disclosure of all pertinent flood information to a buyer. If the seller fails to disclose the truth, he could be held liable for all flood damage suffered by the buyer, or the sale could be made voidable at the option of the buyer. Illinois is the only Great Lakes Basin State having such a statute.

(6) Other Flood Control Laws

There are three other types of flood related laws. The first type is legislation enabling local groups of property owners to organize special purpose districts to effect soil conservation practices over a wide area. These groups generally work in conjunction with the U.S. Department of Agriculture's Soil Conservation Service. The second type is legislation enabling local groups of property owners to organize special purpose districts to erect and maintain flood control works, such as levees, dams, and embankments. The third type is legislation authorizing a State agency to undertake such flood control projects on a Statewide basis. All of the Great Lakes Basin States have the first two types of legislation. Many of the States have the third type, but it is believed that only in Illinois and Pennsylvania does the State, itself, actively carry on a program of flood control works construction. Indiana actively participated with Federal agencies in the construction, operation, and maintenance of multipurpose control structures. Wisconsin is notable in that its State constitution prohibits the State from undertaking any public works projects at all, especially at the State level and through State agencies. Michigan is also similarly prohibited.

Table S20–12 contains additional information on flood control in the Great Lakes Basin.

4.3.2.3 Soil Conservation

Through specific or inferred legislative authorities, all Basin States, with the possible exception of Indiana, have statutory provisions to safeguard against and abate sediment and erosion damages. However, Pennsylvania, although possessing such authority, exempted abandoned mines and strippings in existence at the time of statutory enactment. The Pennsylvania statutes initiated a program to abate erosion from abandoned mines and strippings. New York also is limited in that its statute applies only in cooperation with Federal programs and in areas where the State has fishing easements. Most States rely upon their adopted water quality standards.

Most Basin States do not actively engage in streambank stabilization projects other than on State lands or as a portion of a flood control program. Such actions are usually undertaken by local units or special purpose districts in cooperation with Federal programs. Pennsylvania has an active streambank stabilization program in connection with the stream clearance program.

Soil conservation districts may be formed under permissive enabling legislation in all of the Basin States to effect soil conservation practices. Such districts have the power to levy taxes in Ohio; to condemn needed lands in Ohio, Pennsylvania, and Wisconsin; and to purchase needed acreages in Michigan, Ohio, Pennsylvania, and Wisconsin. In Ohio these powers are exercised through the County Board of Supervisors of the county comprising the district.

To further abate and prevent sedimentation and erosion damages, Illinois, Michigan, New York, and Pennsylvania have by statute,

agency regulation, or executive order adopted standards to regulate pipeline construction and road building.

Local units of government, either individually or via special purpose districts, may invoke sediment control measures in Illinois, Indiana, Michigan, New York, Pennsylvania, and Wisconsin.

Sediment and erosion studies, to define and indicate solutions to related land management practices, are conducted by State agencies in Michigan, Ohio, and Pennsylvania.

Michigan, Ohio, Pennsylvania, and Wisconsin all have adopted criteria to protect against sediment pollution in their approved water quality standards.

Table S20–13 contains additional information about soil conservation measures in the Great Lakes Basin States.

4.3.2.4 Drainage

Six Basin States have enacted statutes expressly controlling land drainage. Ohio (in rural areas) and Pennsylvania, in the absence of statutes, rely upon the civil law doctrine to govern. The doctrine of reasonable use is applied in Ohio urban areas.

Permit provisions for drain construction and improvement have been adopted in Illinois and Wisconsin, and to a more limited extent in Indiana, Michigan, and New York.

In Indiana, a city may construct drainage works as a Public Works project, or the people may use the County Drainage Board or they may organize a conservance district for the purpose of improving drainage.

Water quality controls may be applicable to land drainage in Michigan, New York, and Wisconsin. Further, Michigan and Pennsylvania (urban) have held drains to be public waters and subject to pollution abatement laws. In Ohio, a drainage ditch becomes a public stream seven years after construction.

By statute, drainage districts must consider fish and wildlife values in evaluating the desirability of drainage projects in Illinois and New York. In Ohio there are no drainage districts but soil and water districts and conservancy districts must consider fish and wildlife.

Drainage districts are permitted to contract with the Soil Conservation Service for P.L. 566 projects in Illinois, Michigan, and New York, and further to enter into interstate agreements for drainage construction and maintenance in Indiana, and Michigan, and to a qualified degree in Ohio. In Ohio, P.L. 566 projects are typically handled by conservancy districts.

Drainage districts have been vested with the powers of taxation in Illinois and New York; condemnation in Michigan, New York and Wisconsin; and benefit-cost assessments in Michigan, Illinois, New York, and Wisconsin. Conservancy districts in Indiana have the same powers, while soil and water districts and conservancy districts have similar powers in Ohio.

Broader water management programs such as pollution control and flood control may be combined with drainage district projects in Illinois, Michigan, Minnesota, and Wisconsin. In Indiana programs may be combined by a conservancy district, and in Ohio by special districts. New York State also made similar statutory provisions.

Table S20–14 summarizes drainage regulations in the Great Lakes Basin States.

4.3.2.5 Dams and Lake Levels

Although regulatory powers vary, each of the Great Lakes Basin States exerts some degree of control over the construction of private dams. Exceptions are provided in three States for small dams located on waterways not meeting minimum specified criteria.

Permit systems have been adopted in all States to provide the needed control measure.

Dams may be abandoned, without a permit, in all States except Wisconsin and Pennsylvania, although in all instances damage liability for negligent action remains with the owner.

State agencies may construct dams for various purposes throughout the Basin and may cost-share in their construction, within defined limits (Illinois, Indiana, Michigan, New York, Ohio, and Pennsylvania).

Legal lake levels may be established for inland waters in Illinois, Indiana, Michigan, New York, and Wisconsin, and lake level regulatory project costs may be shared with local units in Illinois, Indiana, and Michigan. County Boards of Supervisors in Michigan are empowered to prohibit or permit the construction of any dam or bridge over or across any navigable stream.

No person may construct or permit construction of any dam in any stream or rivers impounding more than 5 acres, or with a head of more than 5 feet in Michigan, without a permit from the Department of Natural Resources approving plans for construction (Act 184, P.A. 1963 as amended). A permit may

be issued if, in the opinion of the Director of the Department of Natural Resources, the presence of an impoundment will not have a significant adverse effect on fish, wildlife, or recreational values in the watershed or infringe on the public rights in the waters of the State. This act does not apply to public utilities subject to regulation by the Michigan Public Service Commission. A permit from the State is also required for alteration of bottom lands, thus providing control on smaller structures on smaller streams.

In Ohio, the State has complete control over State-owned lakes. While not specifically mentioned in the law, the power to regulate the levels of impoundments on public streams is implied.

Table S20–15 contains further information on regulatory powers concerning dams and lake levels.

4.4 Subsurface Water Use and Management

4.4.1 Introduction

In many areas of the Great Lakes Basin ground water provides a significant, if not the only, supply for municipalities, subdivisions, industries, and agriculture. It is essential that the quality and quantity of these resources be unimpaired.

Depletion or degradation of aquifers can occur through over-pumping, through septic, mineral, and chemical contamination, and by unregulated mining and construction practices. In some areas, urban development inhibits recharge of aquifers by infiltration from the surface.

Aquifers do not respect political boundaries. Coordinated management is necessary, and all factors affecting the ground waters must be considered.

The unregulated or uncoordinated mining of underground minerals and gases can also have a detrimental effect upon the ecology of the region. Regulations should be so coordinated as to minimize these harmful effects.

4.4.2 Summation

4.4.2.1 Ground Water

There appear to be three principal purposes for legislation on water-well construction as enacted to date. These are

(1) protection of the public health
(2) administration of water rights
(3) collection of geologic and hydrologic data.

Methods enacted to achieve these ends within the various States of the Great Lakes Basin are noted in the following discussion.

All Basin States except Ohio require persons engaged in water-well drilling to obtain a license. In New York licenses are required only on Long Island. These licensing requirements normally have the prime purposes of controlling the industry to insure that persons drilling wells are competent, facilitating data collection, and providing that a responsible agency has control over the practice of drilling. An available register of competent water-well drillers, an aid in obtaining geologic and hydrologic data, is a corollary purpose of such requirements.

Michigan, Ohio, and Wisconsin have also enacted legislation or established standards pertaining to methods of construction of water wells and construction materials employed.

Indiana, Michigan, and New York have legislation requiring that a permit be issued before a public water supply well can be constructed. Regulations governing the location of wells safeguard the water resource from sources of contamination and protect limited ground-water supplies. Illinois, Indiana, New York (on Long Island only), and Wisconsin have further authority to designate restrictive use areas. These regulations specify allowable pumping capacities under various geologic and hydrologic locations. Michigan, by authority of Act 236 P.A. 1961, may specify the daily volume of water that may be used or allowed to flow where a nuisance occurs due to waste or unreasonable use of ground water.

Upon completion of drilling, well logs must be submitted by drillers in Illinois, Indiana, Michigan, New York (on Long Island), Ohio, Pennsylvania, and Wisconsin. The principal purpose of such well-log reporting is to provide data on geology and ground-water hydrology.

The conservation of artesian well pressures, which are of increasing concern throughout the Basin, are protected by legislation in Indiana.

Abandoned wells and test holes must be filled, capped, or plugged in every Basin State, except New York and Ohio, for protection of both the resource and public welfare. Ohio does require that oil and gas wells be filled, capped, or plugged.

Michigan and Pennsylvania are the only

Great Lakes Basin States that prescribe a specified minimum lot size for subdivision plats proposed in unsewered areas. Indiana requires a minimum of 15,000 square feet of lot size if the sewage disposal system is a septic system and five lots or more are developed along the shore of a public freshwater lake. Michigan and Wisconsin, however, have adopted rules and review procedures at the State level to insure that lot sizes are of adequate proportion and to provide protection of the resource and public health.

With the ever-increasing amount of refuse being generated today and the resultant demands for more and larger disposal sites, Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania, and Wisconsin have adopted regulations governing the location of such facilities to protect the ground-water resource.

Indiana (effective January 1, 1971), Michigan, and Pennsylvania have even banned the use of open dumps for, among other public health considerations, the protection of water supply sources. Ohio regulates all solid waste disposal practices and sites through an inspection and permit system.

See Table S20–16 for additional information about regulations governing ground-water supply.

4.4.2.2 Minerals, Oil, Gas, and Disposal Wells

Mining beneath the waters of the Basin States is controlled by specific legislative enactment in all States but Wisconsin (Table S20–17). Ohio, while providing specific protection for Lake Erie, permits mining beneath inland waters to be regulated by the common law riparian doctrine. New York also provides for exception to their controlling statute.

Minnesota, Pennsylvania, and Wisconsin have declared mining in specific regions of their respective States to be in the best interest of the public welfare and have enacted special legislation to enhance the water use capabilities of the industry. Although special provisions for such water uses as drainage and diversion are stipulated, protection of the rights of downstream riparians is also provided.

Like those for ground-water drilling, protective regulations for the preservation of ground-water supplies have been enacted in Indiana, Michigan, New York, Ohio, and Pennsylvania for oil, gas, and mineral well-drilling operations. Oil, gas and mineral well-drilling logs must also, by statute, be submitted to the regulating State agency in Indiana, Michigan, Ohio, and Pennsylvania.

All Basin States except New York and Wisconsin license or regulate by permit oil, gas, and mineral well-drillers. Indiana, Michigan, New York, and Pennsylvania have adopted spacing regulations for oil and gas wells to provide even greater protection.

Waste disposal wells, although not exceedingly common, do pose serious environmental concerns. Michigan, New York, Ohio, and Pennsylvania require State approval for such operation. Wisconsin prohibits such wells in Admin. Code R.D. 12.12. Statutory regulation prescribing operating procedures, construction standards, and surveillance are in effect in Michigan, Ohio, and Pennsylvania.

Only Pennsylvania in the Great Lakes Basin has enacted statutes specifically regulating the drilling and operating of dewatering wells.

The Michigan legislature recently adopted Act 92, P.A. 1970, to provide for the reclamation of lands subjected to the mining of metallic minerals. Provisions of the statute include controls for possible adverse environmental effects, the preservation of natural resources, and encouragement for good mining practices.

State policy in the drilling and mining area, although to a large extent reflected in existing legislation, can also be noted in Table S20–17.

Section 5

PUBLIC INSTITUTIONAL ARRANGEMENTS

5.1 Introduction

With the advent of new, complex problems occasioned by rapid economic and population growth, it has become increasingly difficult to demarcate the respective concerns and activities of the different levels of government.

Under our system, all powers not specifically granted to the Federal government are reserved for the States. State regulation of water use is specifically derived from their general police powers.

In turn, local governmental units may exercise only those powers delegated by their State legislature. Through such enabling legislation, municipalities, counties, and townships have received authorization to engage in varied water resources functions throughout the Basin. In addition, the various State legislatures have sanctioned the creation of special purpose districts with powers to furnish different water services.

All such special purpose districts and all units of local government operate under statutory enabling provisions which define their financial, ownership, and regulatory powers. These limitations affect the effectiveness of local governmental units in meeting the needs for water services and are detrimental to problem solution.

Because the structure, intergovernmental overlay, and limitations of State governmental water resources responsibilities are so numerous and varied, the following topical summary is provided as an index to guide future research activities beyond those of this study.

5.2 Illinois

Statutory responsibilities for water and related land resources in Illinois are listed in Addendum B, Table S20–18.

5.2.1 State Departments and Agencies

5.2.1.1 Department of Business and Economic Development

The Department of Business and Economic Development was established by legislative action in 1965, replacing and enlarging the activities of the Board of Economic Development. The new department is charged by law to develop programs designed to advance the State's economic growth. The 1965 General Assembly also created a Commission for Economic Development to review the State's economic development activities and advise the Department on programs to further economic growth.

The enabling legislation calls for the Department to continue to expand industrial development, tourism, and community planning programs and to undertake new assignments in export trade expansion, research and economic anaylsis, and water resources development and coordination.

(1) Division of Water and Natural Resources

This Division provides the State with the mechanism for coordinating its own efforts in water resource development. It also coordinates State and Federal water resource development programs. Studies begun under the State plan to develop a water resources planning program will continue in conjunction with the seven State water agencies. The study will include a broad analysis of the State's water resources and their current and future use.

Under the supervision of a Division Chief, the staff is involved in the programs and activities, which include preparing a State water resources development plan as a guide for

water management, coordinating the State's water programs through the Natural Resources Development Board to assure optimum water development, assisting this Board in reviewing proposed Federal water development projects in Illinois, and providing liaison and representing the State's interest in Federal water development programs. Special studies concerning the State's natural resources are coordinated through this Division for the Board.

(2) Natural Resources Development Board

The Board advises the Department on technical matters should a conflict exist that pertains to the maximum beneficial use of the water resources of the State. It reviews all proposed legislation concerning the water resources of Illinois and makes recommendations to the Governor. The Board also assists the Department in the formulation of a Statewide master plan for the maximum beneficial use of the water and natural resources of the State and allocates various phases of the work to each agency represented on the Board.

The Natural Resources Development Board consists of the Directors of the Departments of Business and Economic Development, Conservation, Mines and Minerals, Agriculture, Public Health, Public Works and Buildings, Registration and Education, and the Director of the Environmental Protection Agency. The Director of the Department of Business and Economic Development has been designated the chairman by the Governor, and another member is elected by the Board to be its secretary.

5.2.1.2 Department of Agriculture

The Illinois Department of Agriculture provides its services through a close relationship with the University of Illinois, the United States Department of Agriculture, and agricultural agencies within Illinois and other States. For the most part, the Department is a regulatory agency enforcing the laws pertaining to agriculture.

Under the guidance of a Director appointed by the Governor, the Department provides agricultural services to the people of the State through its 10 divisions. In addition, several boards are appointed by the Governor to act in an advisory capacity to the Director of the Department of Agriculture. These boards include the Board of Agricultural Advisors, the Board of State Fair Advisors, the Advisory Board of Livestock Commissioners, and the State Soil and Water Conservation Districts Advisory Board.

Programs and activities carried out by the Department in the area of water and related land resources are presented in more detail in the following description of the Division of Soil and Water Conservation.

(1) Division of Soil and Water Conservation

This Division administers the Soil and Water Conservation District law within the policies of the Illinois Department of Agriculture. The Division prepares a biennial budget, disperses State funds allocated for district use, provides instructions and materials for election of District Directors, reviews and expresses opinions on any rules, regulations, ordinances or other action taken by District Directors, seeks the cooperation of other State and Federal agencies in facilitating the work of the districts, keeps District Directors informed of experiences of other districts, requires that districts file copies of minutes of meetings, rules, regulations, ordinances, contract forms, etc., with the Division, provides information and advice on Watershed Development Programs and investigates and reports on applications to the Governor, assists Directors with Program Development on request, conducts administrative training programs for District Directors, and has assisted in and supervised the organization of Soil and Water Conservation Districts in Illinois.

(2) State Soil and Water Conservation Districts Advisory Board

The Board holds public hearings necessary for the execution of its functions and advises the Department in establishing policy for the administration of these functions. The Board keeps a full and accurate record of all its proceedings.

The Advisory Board is composed of seven members. The Director of the Department of Agriculture and the Director of the Agricultural Extension of the College of Agriculture of the University of Illinois serve as ex officio members of the Board. The remaining five members are appointed by the Governor with the advice and consent of the Senate. To be eligible for appointment, a person must own

and operate a farm in the State for a minimum of five years. Consideration is also given to geographical location and soil conservation district experience.

5.2.1.3 Department of Conservation

The Department of Conservation is responsible for the preservation, conservation, and enhancement of the State's renewable natural resources. The Department has the authority to enforce applicable game and fish laws, forestry laws, boating laws, and the Surface Mined Land Reclamation Act.

The Department provides outdoor recreation opportunities through its fish and wildlife program as well as through the operation and maintenance of State parks and recreation areas. The preservation of natural areas by the Department insures their availability for future generations.

An active and aggressive water resource enhancement program has been deemed essential for the Department to achieve its goals and objectives.

The Department of Conservation is administered by a director. Divisions within the Department include Parks and Memorials, Fisheries, Wildlife Resources, Forestry, Law Enforcement, Land Acquisition, Education and Information, and Engineering. The Systems Planning and Research Unit comprises the Divisions of Systems Research, Long Range Planning, and Site Planning. The General Office includes the functions of Accounting, Personnel, Federal Aid, Land Reclamation, and Boating Access. Programs and activities of the Department pertinent to water and related land resources are discussed under the appropriate authority.

(1) Systems Planning and Research Unit

This Unit is responsible for the planning and planning research efforts of the Department. The head of the Unit occupies the position of chief advisor to the Director in matters dealing with planning and planning research. Organizationally, this Unit is divided into three Divisions: Systems Research, Long Range Planning, and Site Planning. The overall duties and responsibilities of this Unit are as follows:

(a) gather data and information and make recommendations to the Director regarding considerations in establishing and reaching departmental goals and objectives

(b) provide leadership in initiating new and innovative programs aimed at improving the planning, management, and operations of the Department

(c) coordinate and review all planning and research aspects of the respective divisions of the Department and review planning and planning research contracts

(d) prepare systems plans, both site and long-range, and recommend priorities for acquisition and development for the respective divisions of the Department

(e) conduct evaluative research on planning, management, and operations of the Department and its areas, facilities, and services

(f) promote cooperative efforts between the Department of Conservation and various universities, State departments, Federal agencies, private agencies, local government, related professional organizations, and others deemed desirable to accomplishing the goals of the Department

(g) consult with the various universities in Illinois about their teaching, research, and service functions as they relate to the goals of the Department.

More specifically, the Systems Research Division is responsible for the development of survey, evaluative, and experimental research methods and designs, computerization, and preparation of research reports for use in long-range and site planning, as well as possible management operations.

The Long Range Planning Division is responsible for preparing and maintaining the official outdoor recreation plan for the State of Illinois. It is the responsibility of this Division to transform complex research data into a suggested action plan for the Illinois Department of Conservation. Such a plan should contain the socio-economic data and natural resources information necessary to recommend the specific types and locations of outdoor recreation lands to be acquired and developed. This Division also coordinates planning efforts between the Department of Conservation and the State, Federal, local, and private agencies involved in land use planning in the State of Illinois.

The Site Planning Division is responsible for transforming long-range regional and systems plans into site development. It operates by accepting the plans from the Long Range Planning Division as the necessary information for the base data for the master site planning process after due consultation with the Department's management agencies.

(2) Division of Fisheries

The Division of Fisheries should seek the proper utilization of the State's fishery resources. The Division has the responsibility for both the sport fishery and the commercial fishery of the State. The immediate goal is to provide more and better fishing by research, management, and education. Action programs are being implemented to maintain existing productive fish habitat, rehabilitate potential fish habitat, and reestablish productive fish populations. The Division of Fisheries also provides financing and/or technical aid for the creation of artificial sport fishing lakes, for the acquisition of existing productive fishing waters, and for access to fishing waters. It cooperates with other Federal and State governmental agencies and private organizations in water resource development.

The Department of Conservation is not the primary State pollution abatement and control agency. However, the Division of Fisheries is responsible for determining the fish and aquatic losses in pollution-caused fish-kill cases. The Division's pollution reports are turned over to the State Air and Water Pollution Board, through the Environmental Protection Agency, for proper action.

(3) Division of Wildlife Resources

The objective of the Division of Wildlife Resources is to determine the best possible use of all natural resources as they affect game numbers, distribution, and harvest. Wildlife research is aimed at gaining all possible knowledge about the major game species, fur-bearers, and predators of Illinois. Findings are applied to the various management programs.

Biologists on the Division staff are involved in waterfowl management, upland game, forest game, and population studies. Land-use practices include the manipulation of crops and cover to the best advantage of game. In addition to various State programs, the Shawnee Forest Project, in cooperation with the U.S. Forest Service, provides planning for forest openings, ponds, and other development within the national forest land to maintain and develop suitable habitat for game.

(4) Division of Forestry

The Forestry Division is responsible for the well-being of the 3,871,000 acres of existing native timber (more than 95 percent privately owned), the 2,000,000 acres of submarginal and idle land, and the individual trees in the communities occurring throughout Illinois. To fulfill these obligations, the Division works directly with landowners, forest products industries, town governments, and many others in the five basic programs of forest fire control, native timber management, forest utilization and marketing, rural reforestation, and urban forestry.

The Division also cooperates directly with the U.S. Forest Service (via five Federal aid programs), the Extension Service, the Soil Conservation Service, and numerous other groups and organizations. This agency administers three specific forestry laws:

(a) Forest Fire Protection Districts Act (burning permits)

(b) Forest Nurseries Act (use of State stock)

(c) Timber Buyers Licensing Act.

The Forestry Division provides the needed organization, technical expertise, equipment and materials, and personal leadership to individuals, groups, and other State agencies requesting their services.

Four State forests, covering more than 12,000 acres, are managed as public demonstrations of profitable timber production methods, multiple use (including recreation), and special research and projects (seed orchards).

Each year this Division grows and distributes 7 million plants to more than 2,200 clients; provides 2,000 landowners with technical guidance for 55,000 acres (resulting in timber sales of $500,000); fights an average of 250 fires on 5,500 acres (representing a loss of $20,000); gives 500 direct assists to forests industries; and provides 300 special programs to 50,000 people (distributing more than 300,000 pieces of literature).

(5) Division of Education and Information

The functions of the Division of Education and Information are to create a strong public awareness for the necessity of conserving all natural resources; to inform the public of the objectives, problems, accomplishments, policies, and philosophies of the Department; and to encourage public support of the Department's plans, objectives, and policies. The Division cooperates with all governmental agencies in programs of conservation in all

schools and institutions of higher learning, and it conducts informational programs to acquaint the general public with activities of the Department through all available media such as news releases, publications, and audio-visual aids.

To implement these functions, the Division

(a) includes conservation education representatives who gather, write, and issue news releases, give lectures (illustrated or otherwise), and maintain close, cooperative liaison with all news media sources as well as Department personnel

(b) employs a staff of four photographic and photolab technicians, with services in black-and-white, color, still photography, narrative color slides, 35 millimeter work, and 16 millimeter movie film projector material

(c) services requests for television film and provides the weekly radio feature "Outdoors in Illinois," which is used by 50 radio stations

(d) maintains a conservation film library of 165 topics with 550 prints, which services requests from a multitude of agencies, organizations, and individuals and sponsors a Statewide Hunter Safety Program, with qualified instructors in the field, training and educating instructors and youths in safe handling of firearms, proper apparel, and related subjects.

(6) Division of Parks and Memorials

This Division has responsibility for the care, control, supervision, and management of all the State's parks, nature preserves, recreation areas, and memorials. These areas are open for the benefit and enjoyment of all the people of the State, subject to rules and regulations of the Department.

Land and water areas that are managed by this Division are not intended to be of just local significance. State parks have scenic, historic, ecologic, and geologic values of Statewide significance. They are relatively spacious, usually containing at least 1,000 acres. Smaller units are considered only where unique natural assets are involved.

A State memorial must be of historical or archeological significance, possessing historical associations important enough to entitle it to a position of high rank in the history of the State or the nation. In the case of a structure, it must be in itself of sufficient antiquity and artistic or architectural significance to deserve a position of high rank even though not having other direct historical association.

State recreation areas have outstanding value as wildlife and game habitat or have a scenic or wilderness character. They should provide recreation opportunities consistent with the main reasons for their establishment, such as camping, hiking, hunting, fishing, and boating. They should be of at least regional interest.

(7) Division of Law Enforcement

The Division of Law Enforcement's main objectives are to enforce the hunting, fishing, and boating laws of the State of Illinois, over which the Department has jurisdiction, and all rules and regulations set forth by the Department including those relating to the protection of the flora, fauna, and other natural resources of the State; to secure public understanding and support of the Department's hunting, fishing, and boating law enforcement programs; to serve all the people of Illinois impartially; to enhance their enjoyment of hunting, fishing, boating, and other forms of outdoor recreation on both publicly owned and privately owned lands and waters; and to provide boaters with a safe and enjoyable boating environment.

(8) Surface Mined Land Reclamation

Staff within the general office is responsible for administering basic requirements of the Surface Mined Reclamation Act. The purpose of the Act is to require that effort be made by mine operators to reclaim lands affected by open-cut or surface mining and thereby encourage the conservation and use of such lands. After an operator has met the various requirements for permit, bond, and fees, he shall undertake reclamation for forest, horticulture, pasture, or row crop production or for recreation and wildlife development or other useful purposes which have been approved by the Conservation Department.

5.2.1.4 Department of Mines and Minerals

Among other duties, the Department of Mines and Minerals collects and diffuses information concerning the improvement of methods, conditions, and equipment of mines with special reference to health, safety, and conservation of mineral resources; makes inquiries into the economic conditions affecting

the mineral industries of the State; and promotes the technical efficiency of all persons working in mines.

Headed by a director, the Department carries out its functions through the State Mining Board, the Division of Oil and Gas, the Miner's Examining Board, and the Oil and Gas Advisory Board. All but the Miner's Examining Board are related to water resources.

The State Mining Board administers the Coal Mining Act and makes interpretations on the provisions of the Act, sees that all mines are operated so that they comply with the provisions of the Act, and sees that the health and safety of persons employed in the mines are protected to the fullest extent at all times.

The Mining Board has the authority to make any reasonable rules and regulations necessary to prevent the pollution of freshwater supplies by oil, gas, or saltwater. Permits must be obtained from the Mining Board for drilling all water, gas, and oil wells and for the plugging of wells. For those water wells which penetrate the glacial drift, a $10 fee permit is required. In addition, the Board is authorized to prevent wells from being drilled so that no pollution of freshwater supplies occurs from oil, gas, or other foreign substances.

5.2.1.5 Department of Public Health

In addition to its responsibilities for general supervision of the health and lives of the people of Illinois, the Department has definite functions relative to private water supplies, sanitary investigations, radiological health, swimming pools and bathing places, and laboratory tests and limited examinations of water and sewage. The Bureau of Environmental Health is responsible for the health factors of the environment. This is done by providing control programs to assure that the 1,700 pools that are covered under the swimming pool law are safe; that the 4,400 water wells drilled annually are properly constructed and the pumps on these individual drinking water wells are properly installed; and that the State plumbing code is enforced and the 2,300 plumbing contractors are certified. The Bureau also provides consultant services to other agencies of State government, to local government, and to individuals on environmental factors.

5.2.1.6 Illinois Environmental Protection Agency

The Agency is responsible for the protection of the public through the control of these environmental factors:

(1) maintaining the safety of public water supplies under the Public Water Supply Control Law

(2) assuring the proper operation of municipal, industrial, and institutional waste treatment plants to prevent stream pollution

(3) making stream surveys to determine the source and extent of pollution and maintaining a working knowledge of the water quality of all surface waters in Illinois through monitoring and surveillance

(4) controlling land pollution to prevent surface or subsurface water pollution

(5) conducting surveillance of radioactive discharges to waters and air.

The Agency also provides consultant services to other agencies of State government, to local government, and to individuals on environmental factors.

The Agency acts in a supervisory capacity relative to the sanitary quality and adequacy of proposed and existing public water supplies, water treatment, and purification works and prepares and enforces rules and regulations relative to the installation and operation of public water works. Besides routine checks of water supplies, sewage treatment plants, and industrial wastes, the bacteriological safety of more than 1,800 public water supplies is the responsibility of the Agency.

5.2.1.7 Pollution Control Board

In 1970 the General Assembly enacted a statute creating the Environmental Protection Act for the control, prevention, and abatement of pollution of the streams, lakes, ponds, and other surface and underground water in the State and to enhance the quality of the environment in other aspects as well. The Sanitary Water Board Act of 1951 was repealed for purposes and benefits of the Federal Water Pollution Control Act. The Environmental Protection Agency is designated as the water pollution agency of the State. The Pollution Control Board has the power to decide whether pollution exists in any of the waters of the State.

The Board is composed of five technically qualified members, no more than three from

one political party, appointed by the Governor with the advice and consent of the Senate.

The Board members have secretaries and assistants. The technical staffs of the Bureau of Water Pollution Control, the Bureau of Public Water Supplies, and other bureaus in the Environmental Protection Agency present the technical information as evidence before the Pollution Control Board.

The Agency has rather broad powers for controlling pollution of the State's waters through rules adopted by the Board. Permits must be obtained from the Agency before persons may undertake the following activities:

(1) constructing, installing, or operating any equipment, facility, vessel, or aircraft

(2) increasing the quantity or strength of any discharge of contaminants or installing sewage works or new outlets for contaminants.

The Act makes it illegal to discharge any contaminant into the environment that causes or tends to cause pollution or violates standards.

The Board is empowered to issue one-year variances in probable cases in which an order would impose an arbitrary and unreasonable hardship, but such variance may be accompanied by the requirement of posting a bond, submitting periodic reports, and other restrictions.

The Board may cause issuance of cease and desist orders for violations of the Act or of the Board Rules and Regulation, specifying the condtitions and time for enactment. It may also impose financial penalties or revoke permits.

5.2.1.8 Department of Public Works and Buildings

The Department of Public Works and Buildings, on behalf of the State, has jurisidiction and supervision over all of the rivers and lakes of the State wherein the State or the people of the State have any rights or interests. As defined by statute, the terms "public waters," "public bodies of water," or "streams and lakes" are rather comprehensive and seem to include a wide range of types of waters.

Headed by a director, the Department is divided into three divisions, with the Division of Waterways having primary responsibility of regulation and control over the watercourses of the State. Duties and activities of this Division are given in detail.

The Division has statutory duties that relate to the conservation, regulation, control, and use of the surface-water resources in Illinois. The statutory authority extends to five general areas:

(1) surveying, investigating, and compiling reports on surface-water problems including such phases as flood and low-flow contol, recreational navigation, and power and erosion control

(2) designing, constructing, and maintaining projects designated by the General Assembly

(3) issuing permits and regulating construction affecting public waters

(4) operating and maintaining 15 movable bridges, 2 ferries, and 1 recreational navigation lock and maintaining navigation lights on 24 fixed bridges on the Illinois Waterway

(5) operating and maintaining the Illinois and Michigan Canal.

The Division investigates attempts to interfere with navigation, access to docks and landings, or free access to navigable waters. It checks for water encroachments, receives complaints concerning encroachments on rights of the State or its citizens with reference to public waters, and, within its discretion or upon request, holds public hearings, takes evidence, and enters orders defining the rights and interests involved. Before any structure is erected or any fill is deposited in public waters, the plans must be submitted to the Division. The Division then reviews the plans and decides whether or not to grant a permit. The Division can order proper maintenance and modifications of existing dams to attain the proper control of water levels in the disposal of flood waters and at normal stages. Non-riparians must obtain permits from the Division to use water from public bodies or water for industrial, manufacturing, and public utility purposes.

The Division maintains an inventory by county of all waters of the State, showing if they are navigable or non-navigable, the extent of shorelines, and the amount, extent, and area of surface. It also collects and makes available data on navigability, deep waterways, and any other data on the waters of the State. In cooperation with the U.S. Geological Survey, the State Geological Survey, and the State Water Survey, the Division maintains stream-gaging stations on many State streams. It also gathers data on the availability of streams for water power and furnishes, at cost, data and advice on reclamation and drainage of lands.

When so authorized by the General Assembly, the Division may cooperate with proper agencies of the U.S. government, local governmental units, and persons and associations in the planning and construction of improvements for flood control and the conservation, regulation, development, and utilization of water resources.

The Division controls and manages the Illinois and Michigan Canal, and locks and dams and other navigation improvements on the Illinois and Little Wabash Rivers. As such, the Division has extensive regulatory power over these rivers. The construction, maintenance, control, and operation of the Illinois Waterway and its appurtenances are also under the responsibility of the Division and are subject to any limitations imposed by the Federal government.

The Division makes examinations and surveys, prepares plans and estimates, and constructs, maintains, operates, or supervises all works for the control of floods, the improvement of upland and bottom-land drainage, and the conservation of low water flows in the rivers and waters of the State.

Miscellaneous projects for the enhancement of public bodies of water are assigned by the General Assembly to the Division. Studies are also carried on concerning the level of Lake Michigan, and recommendations dealing with diversions from the Lake are prepared.

5.2.1.9 Department of Registration and Education

The Department of Registration and Education is a highly diversified department which, through its research and educational agencies, contributes much to municipalities, industries, and agriculture. The State Scientific Surveys perform numerous research and educational duties pertinent to water and related land resources. The Geological, Water, and Natural History Surveys, located at the University of Illinois campus at Urbana, make the findings of their research and investigations available to the public through the usual news media and by published reports and bulletins. The Board of Natural Resources and Conservation, which reviews and approves the programs and personnel of the Surveys, is composed of the Department director, representatives of the University of Illinois and Southern Illinois University, and eminent scientists and professional persons appointed by the Governor.

(1) State Water Survey Division

Established in 1895, the Water Survey is responsible for the scientific study of the water resources of the State. The Water Survey studies the available amount and chemical quality of waters. It develops methods of water use, measurement, and conservation and studies ways to extend water sources that are becoming inadequate. To facilitate activities, the Survey is departmentalized into five sections: Hydrology, Hydraulic Systems, Chemistry, Atmospheric Sciences, and Water Quality. The Chief of the Water Survey is responsible for coordination of its functions.

Fluctuations of ground-water levels in Illinois are studied through a network of 220 observation wells in 42 counties representing all areas of the State. This program includes special studies at East St. Louis, Peoria, and Chicago, where there are concentrations of population and industry and heavy pumpage of ground water. The entire State has been studied for possible artificial ground-water recharge sites, and estimates of potential recharge amounts at various locations are in progress.

Because many sections of the State rely on surface water for supplies, a study of suitable reservoir locations throughout the State has been initiated. Sedimentation surveys, which have been conducted for the past 20 years, are an aid in planning dependable reservoirs. Records for more than 90 lakes and reservoirs are on file at the Survey for reference and continued comparative studies. Continuing research projects on reducing evaporation and plant transpiration are also an important program of the Survey.

The Survey's model spillway is used for experimental research on the hydraulic design of drop-inlet spillway structures on small lakes or reservoirs. An experimental apparatus has also been designed and set up for a research project concerning prevention of corrosion in pipelines.

The Water Survey has undertaken a long-range study of water temperatures and heat loads and the development of a research program directed at identification of organic acids in natural waters.

Chemistry laboratories of the Survey analyze more than 3,000 water samples each year to determine mineral qualities of water for public and private supplies and for research on ground and surface waters of the State. Meteorologists have initiated a major study of radioactivity in rainfall over the

State. Field surveys and detailed analyses of severe rainstorms in the State are also part of the meteorological research program.

(2) State Geological Survey Division

The Geological Survey is responsible for research and service in the area of geology and geologic mapping, mineral resources and their use, and topographic mapping. The survey is the designated State depository for geologic data including approximately 200,000 well records, drill cuttings, or cores for more than 50,000 borings.

The Geological Survey program of research and public services covers all aspects of the State's mineral resources. The annual production value of these resources totals more than $6 million. The Survey investigates the use of these rock and mineral materials, the development of new uses, and the discovery of formerly unused types of rock and mineral materials. With regard to water, research is directed at geologic aspects of the hydrologic cycle and of water resources development and management. A major activity is the study of the distribution and nature of aquifers and associated beds for areal ground-water resource evaluation. These and other studies are commonly carried on in cooperation with other State agencies such as the Illinois Water Survey and the Northeast Illinois Planning Commission.

Other studies relate to the geologic feasibility of sites for artificial recharge and induced infiltration, dams, reservoirs, and sewage and refuse disposal. Geophysical methods, including electrical earth resistivity, gravity, and seismic studies, are employed to obtain information on potential water-bearing beds or to refine the geologic or structural framework.

(3) Natural History Survey Division

The Natural History Survey is a scientific research organization charged with investigating the following: pests that are destructive to crops, livestock, renewable natural resources, homes and gardens, or that transmit human disease or cause human discomfort; and the various kinds of wildlife in Illinois that have a high commercial or recreational value. In addition, the Survey is concerned with pollution as it affects fish and wildlife populations.

5.2.1.10 Illinois Commerce Commission

The primary duty of the Illinois Commerce Commission is to make certain that residents of the State using utility services receive continuously safe, efficient, and uninterrupted service at reasonable rates. The Commission regulates several thousand utility companies, including electric, water, water pipeline, and sewerage companies. However, municipally owned and operated utilities are not under the jurisdiction of the Commission.

The Commission consists of five members, not more than three of whom are to be from the same political party. The Governor appoints the members with the advice and consent of the Senate and designates the member who is to be the Chairman of the Commission.

The Commission has jurisdiction regarding rates and other charges, services provided, management of property, and issuance of stocks and bonds. Before a new plant, equipment, property, or facility can be constructed, a public utility certificate must be obtained from the Commission showing that public convenience and necessity require such construction.

5.2.1.11 Water Resources Center

In 1963 the Water Resources Center was established as part of the Graduate College of the University of Illinois on the campus in Urbana. Soon after passage of the Water Resources Research Act of 1964, the Center was designated by the Governor as the participating institution under Title I of the Act. The purpose of the Center is the administrative coordination of the broad range of interdisciplinary programs now in operation at the University. The scope of research and graduate training programs in the water resources field at the University is impressive.

A Statewide advisory committee consisting of representatives of other universities within the State and officials of various State agencies intimately involved in water resources development advises the Center on research needs.

5.2.1.12 Agricultural Experiment Station

With the passage of the Hatch Act in 1887, the land grant colleges and the U.S. Department of Agriculture became partners in advancing scientific agriculture. In this Act,

Congress authorized Federal funds for the establishment and support of agricultural experiment stations in every State. Principal financial support for the experiment stations comes from annual appropriations made by the State legislature and from Federal grants under the Hatch Act. Additional funds are made available by industry, farmer groups, cooperators engaged in businesses related to agriculture, and direct grants from the U.S. Department of Agriculture and other Federal agencies. Since the Hatch Act, Federal legislation has extended the scope of activities to include research in all aspects of agriculture, home economics, and rural life and dissemination of the results.

The various projects constituting the research programs are combinations of basic and applied research. The Station is equipped to make inventories of human and natural resources and to study population movements, rural health and education facilities, and marketing and credit facilities. In addition, they gather and disseminate detailed information on weather and crop growing conditions, crop and livestock market outlets, and practical soil and water conservation methods. Such projects as water requirements and use, watershed hydrology, soil compaction, drainage, irrigation, and minimum tillage are continually under investigation.

5.2.1.13 Cooperative Extension Service

The Cooperative Extension Service of the University of Illinois College of Agriculture has offices in every county of the State. It is an educational system that makes available new and useful information about agriculture, home economics, and related subjects. The Service is the off-campus extension of the College of Agriculture and is conducted under the authority of both Federal and State laws.

Cooperative Extension staff members conduct educational programs on a direct person-to-person basis through public meetings, demonstration plots and projects, farm and home visits, farm and home tours, conferences, and office calls. In addition, they answer questions by telephone, radio, and television and through publications, direct mail letters, circulars, and personal mail. They also hold training sessions for thousands of local leaders each year. The educational programs of the Cooperative Extension Service are aimed at broad clientele groups within five major areas: production, management, and use of natural resources; marketing of agricultural products; public affairs and community and area resource development; 4–H and other extension youth work; and home economic and family living. Each of these areas is in some way related to water and related land resources including water and erosion control, trends in agricultural production, market developments, 4–H projects, and resource management.

5.2.1.14 Engineering Experiment Station

The University of Illinois Engineering Experiment Station was established in 1903, the first of its kind in America. The research program of the Station has introduced the use of advanced theoretical and analytical techniques in the solution of basic problems. Its present program includes work of immediate practical value in industry and national defense, but the emphasis is on fundamental studies that are significant in the development of future engineering projects. The work of the coordinated Science Laboratory and Materials Research Laboratory in particular is concerned with studies coordinating knowledge from the various fields of engineering and science for the study of fundamental engineering problems. Current research includes the hydrologic cycle, water quality and pollution, and socio-economic aspects of water resources.

Funds for the research of the Station come from direct sponsorship by the Federal government, private industry, State government, research grants by industry and private and governmental foundations, and appropriations of the State of Illinois within the recurring budget of the University of Illinois. Results of research are made available for the sponsors during and at the conclusion of the project. When appropriate, the faculty publishes research results in technical journals. However, as more complete and detailed reports of monograph length become desirable, the Bulletin Series of the Station is used.

5.2.2 Special Purpose Districts

Many types of special districts have been authorized by permissive legislation having direct or incidental powers for regulating the use of water. These include soil and water conservation districts, public water districts, park districts, mosquito abatement districts,

water service districts, surface water protection districts, forest preserve districts, conservation districts, river conservancy districts, water authorities, sanitary districts, and drainage districts.

5.2.2.1 River Conservancy Districts

The 1925 enabling act specifies nine general purposes for which a river (or lake) conservancy district may be organized:

(1) prevention of stream pollution
(2) development, conservation, and protection of water supply and provision of domestic, industrial, or public water supplies
(3) preservation of water levels
(4) flood control and prevention
(5) reclamation of wet and overflowed lands
(6) development of irrigation
(7) public liquid wastes
(8) provision of forests, wildlife areas, parks, and recreational facilities
(9) promotion of public health, comfort, and convenience.

One percent of the voters may initiate action on a district by submitting a petition to the circuit judge of the county containing all or the largest portion of the district with final approval required by a majority of the voters within the proposed district, as defined by several judges.

Before any work is undertaken by a district, the plans must be approved by the Department of Public Works and Buildings and the Pollution Control Board.

5.2.2.2 Water Authorities

Water authorities may be created to develop and regulate the use of waters within the boundaries of the authorities. Only one authority has been established under this Act.

A board of trustees is appointed as the governing body of an authority once the proper action has been taken on a petition filed with the circuit court of the county containing the major portions of the authority.

The board of trustees has regulatory powers to inspect and require registration of all wells and other withdrawal facilities and to require permits for all additional wells or withdrawal facilities or for the deepening, extending, or enlarging of existing ones. It regulates the use of water, especially during periods of shortage; acquires property and constructs and operates any facilities necessary to insure adequate water supplies; and collects a property tax and issues revenue bonds. Any facilities for water supply must be approved by the Sanitary Water Board and operated according to its rules and regulations.

5.2.2.3 Drainage Districts

Drainage districts may be formed to construct, maintain, or repair drains or levees or to engage in other drainage or levee work for agricultural, sanitary, or mining purposes.

Drainage districts may be formed for various purposes and by different procedures. The primary method is by petition to the circuit court of the county in which most of the proposed district lies. The activities of the district are coordinated and directed by a group of commissioners.

The commissioners have the power to adopt a plan of drainage, obtain lands and rights of way by eminent domain, let contracts for the surveying, construction, alteration, and maintenance of any drain or levee, widen, deepen, or straighten any ditch or watercourse, construct and maintain tile drainage systems, and cause railroad companies to construct or rebuild bridges or culverts where necessary.

5.2.2.4 Surface-Water Protection Districts

These districts provide facilities for the prevention and control of surface-water damage for all persons and property within the district.

Surface-water protection districts are organized and governed in a manner similar to that of the water authority, except that there are five members on the board of trustees instead of three.

The board of trustees has the power to make ordinances for protection from surface-water damage, to acquire property rights by eminent domain, if necessary, and to erect any structures necessary to carry out its purposes. If a proposed project will increase the flow in any stream, the district must first submit plans to the Department of Public Works and Buildings for approval. A district may issue bonds and borrow money if authorized to do so. At least four surface-water protection districts have been organized, primarily for purposes of drainage and flood protection.

5.2.2.5 Soil and Water Conservation Districts

These districts conduct a variety of functions relating to soil and water conservation and the control and prevention of soil erosion or floodwater and sediment damages. They may adopt land-use regulations or ordinances to govern the use of lands within their boundaries by referendum.

Districts are formed upon approval of a petition submitted to the State Department of Agriculture. The governing body of a district consists of five elected directors who own or occupy land within the district. Within the State of Illinois, 98 districts have been formed involving all the agricultural land of the State.

The districts are involved in providing various water management practices to prevent erosion and flooding. These include surface and internal drainage, channel improvement and maintenance, impoundment and regulation of streamflow, better crop sequences, and land treatment to retard water movement. To carry out these activities, the districts may engage the services of a work unit conservationist from the U.S. Soil Conservation Service and may apply for assistance under the Watershed Protection and Flood Prevention Act.

5.2.2.6 Subdistricts of Soil and Water Conservation Districts

The Watershed Protection and Flood Prevention Act provides that subdistricts of a Soil and Water Conservation District may be formed in a watershed. When duly formed, such subdistricts have the power to levy and collect taxes and make assessments against those who are benefited. They also have the power to develop and execute plans, programs, and projects relating to any phase of flood prevention, flood control, erosion control, and control of erosion, floodwater, and sediment damages. They may also enter into agreements with the U.S. Secretary of Agriculture and carry out, maintain, and operate works of improvements pursuant to the Watershed Protection and Flood Prevention Act of August 4, 1954, as amended.

5.2.2.7 Sanitary Districts

There are two general acts under which sanitary districts may be organized in Illinois. Under the 1917 Act, the territory to be organized must include at least one incorporated municipality, while the 1936 Act allows the formation of a district outside the corporate limits of a municipality, thus authorizing the organization of areas not included in the 1917 Act. The Act gives the districts authority to construct and maintain sewage treatment plants and their outlets for drainage so that contamination of water supplies is prevented.

The formation of a district is initiated by filing a petition with the circuit judge in the county where the greater portion of the district will lie. The governing body of the district is a board of trustees consisting of three members.

At least 102 sanitary districts have been formed: 72 in incorporated areas and 30 in unincorporated areas. These districts have the power to pass rules and regulations necessary to carry out their objectives; to maintain a police force to prevent pollution within 15 miles of water supply intake; to construct, operate, improve, and maintain sewage treatment facilities and associate works; to collect charges for treatment of industrial wastes; and to conduct financial affairs for the operation of and activities of the district.

5.2.2.8 Port Districts

At least eight port districts have been organized in Illinois which are widely distributed throughout the State. The organization and powers of all port districts are more or less similar except as influenced by regional differences. Each port district is under the direction of a board which has powers to locate dock and harbor lines, to prevent or remove obstructions, to issue permits for the construction or deposit of any structure or material in any navigable waters of the district, to acquire and operate port and water terminal facilities, and to enter into contracts for purposes of the district.

5.2.3 Political Subdivisions

5.2.3.1 Municipalities

Corporate authorities of all municipalities have jurisdiction over all waters within or bordering upon the municipality to the extent of three miles beyond the corporate limits. Municipalities are empowered to provide a supply of water for fire protection and for the

use of the inhabitants in construction, acquisition, and operation of a sewage system. They can also contract with the United States regarding flood control projects and can do the following:

(1) provide for a supply of water by boring artesian wells, constructing or regulating wells, pumps, or cistern wells, or constructing or regulating wells, pumps, cisterns, reservoirs, or waterworks

(2) borrow money for these purposes

(3) authorize any person to bore, construct, and maintain the same

(4) prevent the unnecessary waste of water

(5) prevent the pollution of water

(6) prevent injuries to the wells, pumps, cisterns, reservoirs, or waterworks.

The corporate authorities are also authorized to provide drainage and protection from overflow and may construct works in or out of the corporate limits, using the power of eminent domain if necessary for obtaining sites. Municipal systems are subject to referendum and may exercise only those powers specifically authorized by the statutes or implied by the statutes, subject to strict interpretation by the courts.

5.2.3.2 Counties

Counties may supervise, regulate, and control the flow of any stream or watercourse within their boundaries over and through any dams and other obstructions as long as they do not curtail any vested water power rights or other rights. They also have the power to prescribe reasonable requirements for water supply, sewage disposal, and street drainage. In addition, counties as well as municipalities are able to regulate or restrict the use of water for certain purposes under their zoning powers by regulating the use of lands adjoining a watercourse.

5.2.3.3 Townships

Townships of less than 500,000 population have the power to construct, purchase, and operate waterworks and sewerage systems and to make contracts with any industrial establishment for the operation of facilities for the abatement of pollution of waters caused by the discharge of industrial wastes. Townships may also construct, maintain, and regulate the use of certain public wells and other public watering places.

5.2.3.4 Regional Planning Commissions

Statutory legislation since 1957 has created several regional planning commissions, including the Northeastern Illinois Metropolitan Area Planning Commission (Chicago), and the Southwestern Illinois Metropolitan Area Planning Commission (East St. Louis). Such commissions have the following authority:

(1) to assist local governments in preparing plans, policies, and proposals and advise local governments of the relationship of their plans to those of other governments in the area

(2) to prepare and recommend to local governmental units generalized comprehensive plans including land use, water supply and distribution, flood control, sewage, and recreation

(3) to conduct research for planning, including data on population, socio-economic factors, and governmental characteristics affecting the development of the regional area

Regional planning commissions are authorized or created by the county board(s) of one or more counties involved, and expenses for such commissions may be appropriated from funds by the county boards. The commission staff and the county boards may administer and enforce building codes, ordinances, and zoning laws.

5.3 Indiana

5.3.1 State Departments and Agencies

Several departments and agencies of the State government have vested interests in or are concerned with some phase of water management.

5.3.1.1 Department of Natural Resources

The Department of Natural Resources was established on July 1, 1965, pursuant to Acts of 1965, Chapter 441, to bring together in one agency the functions and responsibilities of four former State agencies: the Department of Conservation, the Indiana Flood Control and Water Resources Commission, the Outdoor

Recreation Council, and the State Soil and Water Conservation Committee.

The Department consists of a Natural Resources Commission, a director, two deputy directors, and other personnel necessary to carry out the functions imposed on it by law. For administrative purposes, the Department is divided into two major bureaus, each under the direction of a deputy director: the Bureau of Water and Mineral Resources and the Bureau of Land, Forest, and Wildlife Resources. Each bureau is advised by a 12-member council.

The Natural Resources Commission is composed of 12 members, including 7 ex officio members:

(1) chief engineer of the State Highway Commission

(2) technical secretary for the Stream Pollution Control Board

(3) director of the Department of Commerce or his designated deputy

(4) director of the Department of Natural Resources

(5) chairman of the Advisory Council on Water and Mineral Resources

(6) chairman of the Advisory Council on Land, Forest, and Wildlife Resources

(7) president of the Indiana Academy of Science.

The remaining five members of the Commission, referred to as lay members, are appointed by the Governor, but no more than three such members are to be of the same political party.

All of the jurisdiction, authorities, rights, powers, property, duties, and causes of action or defense formerly vested in the Department of Conservation and the Indiana Flood Control and Water Resources Commission were transferred to the new Department. The responsibilities, organization, programs, and activities of the Department are described under the division responsible for carrying them out.

(1) Division of Forestry

The Division of Forestry has primary responsibility for the protection, management, and utilization of the forest resources of Indiana and for Statewide fire protection on both State and private forest lands. The Division provides technical advice and assistance to private woodland owners and primary wood-using industries. The Reforestation Section is responsible for the production and distribution of tree seed and seedlings for reforestation and reclamation work on both State and private lands.

The Division staff is divided into four sections: State Forest Management, Reforestation and Reclamation, Cooperative Forest Management, and Fire Control Division Management. The Division is headed by the State Forester and he has a staff of administrative assistants and foresters.

The Division program includes the operation and management of 126,000 acres of forest lands in 13 State forests, the operation of three forest nurseries, and the sale and distribution of planting stock. The Division also provides technical assistance to woodland owners and primary wood-using industries through 12 service forestry districts, operates a fire tower detection system with 22 towers in six fire districts, and administers the provisions of the act regulating surface mining. The Division also provides technical assistance in woodland management on Public Law 566 Small Watershed Projects.

(2) Division of Fish and Wildlife

The Division of Fish and Wildlife has the primary responsibility of supervising the harvest of fish and game resources in the State, and managing those resources for the good of the people of Indiana and of the resource itself.

The staff of the Division is divided into three principal sections: Fish Management, Game Management, and Property Management. The Division is headed by a director with a staff of assistants, biologists, and area managers.

A research program provides guidance and helps minimize problems in fish and wildlife resource management. Fisheries research has included inventory surveys of a number of lakes and streams. The Division operates eight fish hatcheries to provide fish to stock new lakes, reservoirs, and State-owned lakes. Game research is aimed at improving game management practices. A Game Management Program is carried out to provide better habitat for wildlife. The Farm Game Habitat Restoration Program furnishes seed, seedlings, and grain to aid rural landowners in wildlife development plans.

The Division acquires and operates lands and waters for fish or game management, outdoor activities, public fishing and hunting, and for flora and fauna preservation.

(3) Division of State Parks

The function of the Division of State Parks is to acquire, develop, and maintain a system of park and recreation areas for the people of the State. The Division is divided into the Park Management, State Park Inns, and Operations Sections. The Division is headed by a director who has a staff of assistants, State park superintendents, inn managers, and concession specialists.

The Division has the care, custody, and control of State parks and State recreation areas. Emphasis for outdoor recreation is on large acreage for camping and hiking, water for boating, swimming, and fishing, and facilities for overnight accommodations.

(4) Division of Museums and Memorials

The Division oversees the operation of the State Memorials, State Museum, and the Historical Site Survey which is being done by a private consultant. The Division also assumes the administrative duties of the Division of Nature Preserves. The Division is divided into the State Memorials and State Museums Sections. The staff includes a director, an assistant director, the director of the State Museum, and their staff of assistants. The Division has the care, custody, and control of the State Memorials and the State Museum, and it encourages and recommends the dedication of sites as State Memorials.

(5) Division of Outdoor Recreation

The Division has four major responsibilities:

(a) administration of the grant-in-aid portion of the Land and Water Conservation Fund Program

(b) administration of the Voluntary Private Campground Certification Program

(c) administration of the Ohio River Access Sites Program

(d) preparation and maintenance of the Indiana Outdoor Recreation Plan.

The staff of the Division consists of a Division director responsible for the overall direction of the Division, a projects officer responsible for administering the grants-in-aid program, and two recreation planners responsible for the Outdoor Recreation Plan.

The Division strives to coordinate the outdoor recreation programs of Federal, State, local, and private interests in a unified program for outdoor recreation. This is accomplished through a variety of coordination techniques, studies, recommendations, and the grant-in-aid program carried out by the Division of Outdoor Recreation.

(6) Division of Engineering

The Division of Engineering provides planning, architectural, and engineering services to the Parks, Forestry, and Fish and Wildlife Divisions. It is the Division's responsibility to assure that plans and specifications prepared meet all requirements of State laws and ordinances, such as the State Building Code and Fire Marshal's Regulations, and that designs of facilities are economical and meet general policy requirements. The Division staff checks plans and specifications prepared by private engineering and architectural firms contracted by the Department. They also supervise construction.

The Division staff is divided into the Planning and Design Branch and the Operations Branch. The Planning and Design Branch is composed of several sections: Planning and Landscape, Architectural, Civil and Structural, Sanitary, Construction and Supervision, and Maintenance and Rehabilitation. The Division chief heads a staff that includes engineers and other assistants.

Services provided by the Division include preparation of detailed master plans for parks and recreation areas; preparation of construction plans, specifications, and contracts for construction projects; and supervision of construction after contracts have been awarded. The Division inspects the buildings, utilities, roads, and other facilities on the properties of the Department and recommends appropriate maintenance. It also supervises the water supply, swimming pools and beaches, sewage disposal, electric power service, landscaped areas such as State Memorials and park inns, and reforestation of recreation areas for camping and picnicking.

(7) Division of Entomology

The Division of Entomology, which is the plant regulatory agency of the State, is charged with preventing the introduction and spread of diseases and pests injurious to horticultural and agricultural crops and with the detection and elimination of the diseases of

bees. Division responsibilities also include formulation of rules and regulations for inspectors who make inspections and investigations, regulation of all shipments of nursery stock into the State, and formulation and enforcement of necessary plant quarantine regulations. All these are subject to the approval of the Governor.

The staff of the Division is divided into three sections: Nursery Licensing; Survey, Quarantine , and Control; and Apiary. The Division is staffed by the State entomologist and his assistants. Division activities include the inspection and certification of the stock grown by nurseries, perennial growers, and small fruit plant producers, as well as surveillance of the stock of dealers in such materials. The Division is conducting a program to prevent the artificial spread of newly introduced and not widely disseminated insect pests and plant diseases. It also conducts apiary inspection and registration to protect, aid, and assist the development of the bee and honey industry within the State. It also prepares and distributes printed matter relating to fruit, horticultural, floricultural, and agricultural plants or plant products as well as information about bees and beekeeping.

(8) Division of Reservoir Management

This Division is responsible for the multipurpose development and management of State-operated outdoor recreation and wildlife management facilities on State-leased Federal reservoirs. The reservoirs are constructed by the U.S. Army Corps of Engineers for flood control, recreation, water supply, and water quality control. Pursuant to Section 4 of the Act of Congress approved December 22, 1944, as amended (76 Stat. 1195, 16 U.S.C. 460 D), the United States may lease reservoir lands and water to States for public park and recreational purposes.

Boating, swimming, fishing, camping, picnicking, and hunting are the primary activities offered on these reservoirs. The Division is responsible for the development of facilities for these activities and for the operation of the facilities after development.

The Division is headed by a director and has a staff of reservoir managers, assistant reservoir managers, and clerical assistants.

Presently the Division has the custody of four reservoirs. Its function is to develop and maintain public recreation areas on these reservoirs for water-oriented recreation and small game and waterfowl hunting.

(9) Division of Nature Preserves

The primary function of the Division is to establish and maintain a registry of natural areas of unusual significance and to maintain a wide variety of natural resource areas for the people of Indiana. These areas feature unusual flora, fauna, and biotic, geologic, scenic, or paleontologic features of scientific or educational value.

The responsibilities and activities of the Division are carried out by a director who is assisted by a secretary. In providing for the acquisition, control, use, management, and protection of nature preserves, the Division has the following programs:

(a) dedication of areas as nature preserves

(b) maintenance of registries and records of unique natural areas within the State

(c) continuance of interpretive programs and publication and dissemination of information pertaining to nature preserves and other areas within the State.

(10) Division of Water

The Division of Water has primary responsibility for basin and project planning and for the regulatory, construction, and administrative phases of the water resources functions of the Department. These responsibilities include studies and investigations needed to develop projects in which State participation is warranted and justified to obtain multiple-purpose development of specific small watershed and reservoir projects, to solve specific flood control and water resources problems, and to establish a backlog of projects for future development.

In organizing the Department of Natural Resources on a functional basis, the staff of the Division of Water Resources of the Department of Conservation and the staff of the Flood Control and Water Resources Commission were combined into one new Division of Water, with the responsibility of carrying out all of the duties formerly performed by both groups. The staff of the Division is divided into three major branches: Engineering Services, Planning, and Regulation. The Engineering Service Branch is composed of the Drafting, Engineering Geology, Hydraulic, and Survey-

ing Sections. The Planning Branch consists of the Small Watershed Planning, Basin Planning, and Project Planning sections. The Regulation Branch is divided into the Permits Section, the Lake and Stream Investigation Section, and a Licensing Unit.

The planning program of the Division includes cooperation with State and Federal agencies in investigating and planning for flood control and water resources development and in planning for flood plain regulation.

The regulatory program of the Division includes review and approval or disapproval of the construction of any works in the floodways of the rivers and streams of the State; review, coordination, and approval of plans and specifications for all works of any nature for flood control in the State; engineering inspections and proper maintenance and repair of dams, levees, and floodwalls; and mediation of disputes between users of surface water in any watershed area. It reviews petitions for the formation of conservancy districts, the establishment of average normal water levels of natural lakes, and the alteration of the bed or shoreline of public freshwater lakes. It also enforces laws that control removal of sand, gravel, and minerals from navigable streams and from Lake Michigan, licenses water well drillers, and issues permits to oil operators for the use of potable ground water for waterflood operations.

The construction program of the Division includes the construction or supervision of construction of dams, spillways, and control works necessary to maintain the average normal level of natural and artificial lakes; the planning, design, and construction of flood control and water resources projects, including multiple-purpose reservoirs; and the acquisition of land needed for multiple-purpose reservoirs.

Other activities of the Division are the administration of the Flood Control Revolving Fund; development and administration of contracts for the provision of certain minimum quantities of stream flow or for the sale of water; administration of the Water Resources Development Fund, established for the purpose of developing reservoirs for water supply; administration of the statute providing for advance acquisition of reservoir sites for storage of water; administration of State contributions connected with Federal multiple-purpose reservoirs; administration of the water resources planning and construction effort with funds provided by the cigarette tax; and administration of the cooperative stream-gaging and ground-water programs, the cooperative lake level gaging station program, and the cooperative lake mapping program with the U.S. Geological Survey.

(11) State Water Plan Section

The Section coordinates the development of a State Water Plan for the timely conservation, utilization, and management of water and related land resources to provide the means for satisfying the State's future water needs. The Plan will constitute one element of the Comprehensive State Plan for the physical, social, and economic development of the State now being coordinated by the Department of Commerce. The Plan is being developed under the overall administration of the director of the Department of Natural Resources and under the general and technical supervision of the deputy director for Water and Mineral Resources of the Department. Plan development is accomplished by the appropriate divisions of the Department of Natural Resources, the State Board of Health, the Stream Pollution Control Board, and the Department of Commerce. A small central staff has been organized to serve as a focal point for coordination of the participating agencies and for the development and dissemination of certain basic information such as population and economic projections, which will be common to several phases of the study.

The programs and activities of the Section and the cooperating agencies are to evaluate and appraise the location, quantity, and quality of surface- and ground-water resources of the State; to evaluate and appraise existing water resource developments; to develop both medium- and long-range population and economic projections and translate these projections into water requirements; and to develop and propose a plan of action, with appropriate alternatives, for the development and management of Indiana's water and related land resources.

(12) Division of Geological Survey

The Geological Survey has the responsibility to locate and describe the State's mineral resources; to determine the mineralogic and chemical composition of these deposits and

their suitability for particular industrial uses; to provide other State agencies with the geologic and geophysical information that they may require; to preserve in accessible form selected oil well samples, cores, electrical logs and other logs, and mineral records and analyses; and to do basic scientific research on all phases of the geologic information that will increase the use of Indiana's mineral resources.

The Division is headed by the State geologist. The staff consists of geologists, geophysicists, geochemists, chemists, draftsmen, technicians, drillers, machinists, and clerical help.

The programs of the Geological Survey include investigations of the mineral resources of the State; geochemical analysis of all geologic formations; and geophysical surveys in connection with dam and spillway sites and with mapping thickness of potential aquifers. A major geologic mapping program has involved the preparation of regional geologic maps that show bedrock and surficial materials.

(13) Division of Oil and Gas

The primary function of the Division is to conserve the oil and gas resources of the State. Regular duties of the Division include regulating the oil and gas industry, particularly in regard to the prevention of waste, and obtaining the maximum efficient rate of recovery of oil from a reservoir.

The Division is headed by a Division chief, and it is divided into two major branches, Regulation and Field Inspection. The Division program includes regulating the spacing of oil and gas wells and issuing permits for the drilling of oil and gas wells; maintaining permanent files containing information pertaining to oil and gas wells; supervising and collecting complete information on all oil and gas wells, such as drillers' logs, geophysical logs, cores, and samples; supervising the plugging of all oil and gas wells; publishing a monthly oil and gas drilling report; supervising the disposal of oil field brines; preventing fire hazards; and maintaining general supervision of the exploration and production segments of the oil and gas industry.

(14) State Soil and Water Conservation Committee

The State Soil and Water Conservation Committee is responsible for seeing that county soil and water conservation districts are organized throughout the State and that these districts carry out their operations in accordance with the law. In addition to assisting local district supervisors, the Committee is also responsible for maintaining permanent records for each district, making supervisor appointments, overseeing elections, securing an oath of office from each supervisor, training supervisors, and keeping them informed.

The Committee is made up of seven members (four lay members and three ex-officio) appointed by the Governor. The ex-officio members are the director of the Department of Natural Resources, the commissioner of Agriculture or his designated representative, and the director of the Purdue University Cooperative Extension Service. The Committee chairman is designated by the Governor, and the Governor may appoint advisory members from other State and Federal agencies on the recommendation of the Committee. The Committee may employ an executive secretary, technical experts, and other agents and employees as needed.

The purpose of the State Committee is to organize, guide, and support the local Soil and Water Conservation Districts. To accomplish this, the Committee does the following things:

(a) assists interested local groups in organizing new districts

(b) helps districts plan and revise their long-range programs

(c) assists supervisors with administrative, management, and operational responsibilities in their districts

(d) stimulates interest and activity on the part of district supervisors

(e) assists in stimulation of public awareness of the problems and importance of conserving resources

(f) helps districts with their conservation education programs

(g) provides conservation information to news media throughout the State

(h) apportions State funds for district program needs

(i) facilitates the acceleration of small watershed planning by transferring State appropriated funds to the U.S. Soil Conservation Service under a trust fund agreement.

(15) Division of Soils

The Division administers and coordinates the duties and responsibilities of the Depart-

ment pursuant to the land resources programs authorized by the Land Conservation Act of 1969. This Act directs the Department to supplement and implement an expanded program of modern soil surveys for the State; to initiate and carry out a program of urban geology surveys, together with other geologic investigations for the State; to initiate and carry out a program of landscape surveys for the State; to provide support and assistance to local soil and water conservation programs; and to expand the Small Watershed Planning Program carried out in cooperation with the Soil Conservation Service, U.S. Department of Agriculture.

The Department of Natural Resources has been authorized to employ such personnel and provide such facilities and services as may be necessary to carry out the duties and responsibilities of the Division. This Division has not yet been activated.

The programs of the Division may be executed in cooperation with Federal, State, and local governmental agencies for the purpose of improving local land-use practices and decisions.

(16) Reservoir Coordinating Committee

The Committee coordinates the planning and development of reservoirs in the State for the purpose of flood control, water supply, water quality control, recreation, and related water resources purposes in cooperation with Federal, State, and local governmental agencies. The Committee also organizes local advisory committees for each of the reservoirs, groups of reservoirs, or new reservoirs started by the Corps of Engineers within the State.

The Committee was established by the Department of Natural Resources and consists of a reservoir coordinator appointed by the Governor and one member each representing the State Board of Health, Stream Pollution Control Board, the State Highway Department, and the Department of Commerce.

The Committee meets with the Corps of Engineers, the local advisory committees, and other agencies to jointly plan the development of reservoirs, roads, recreation and sanitation facilities, and other public and private improvements.

5.3.1.2 Board of Health

The State Board of Health was established in 1891 to safeguard the health and life of the citizens of the State. The Board must review and approve all plans for water supply improvements prior to construction. It has the authority to confer with local officials and agencies on their future needs, participate in the evaluation of existing and future sources of water supply, and supervise all municipal, county, and other water supply systems. It has similar authority with respect to the planning, construction, and operation of all sewage systems, sewage treatment plants, and plants for industrial waste treatment and disposal.

The Board's staff is organized administratively into 6 bureaus and 25 divisions. Functions relating to water supply and pollution control are handled through the Divisions of Sanitary Engineering and Water Pollution Control in the Bureau of Engineering.

The programs and activities of the State Board of Health concerning water supply, water resources, and water pollution control are best described under the division responsible for carrying them out.

(1) Division of Sanitary Engineering

The Division of Sanitary Engineering has primary responsibility for matters relating to the health and sanitary aspects of public water supplies, certain semipublic water supplies and sewage treatment facilities, and solid waste disposal.

The Division has three sections: General Sanitation, Housing and Schools, and Water Supply. The Division reviews and approves plans for public and certain semipublic water supplies; provides advice and recommendations concerning standards for design, construction, and operation of public water supplies and the need for improvements and expansion of the facilities; insures that all public and semipublic water supplies produce water meeting the bacteriological and other health-related standards set forth in the latest Public Health Service Drinking Water Standards; and advises and assists other State, interstate, and Federal agencies in studies and programs dealing with water supply development. The Division reviews plans for semipublic wastewater treatment facilities that discharge water into streams. It also summarizes the plans and presents them to the Stream Pollution Control Board with recommendations for their approval or disapproval.

(2) Division of Water Pollution Control

The Division of Water Pollution Control has the main responsibility for furnishing technical assistance to the Stream Pollution Control Board. The Division was created under a reorganization of the Board of Health in 1968. The Division consists of the Industrial Waste Sewage Disposal, Surveys, and Special Projects Sections. Plans for municipal and industrial wastewater treatment facilities are reviewed, summarized, and presented to the Stream Pollution Control Board with recommendations for their approval or disapproval. Field activities, including inspection and assistance in the operation of wastewater treatment plants, collection of data required for determination of pollution, operation of the water quality monitoring network, and sampling of streams are carried on by the appropriate sections. Liaison within the divisions and with other State, Federal, and local agencies and groups concerning water supply, water pollution, and water resources is carried on under the Special Projects Section.

The wastewater treatment plant operators certification program requiring mandatory certifications under the Acts of 1967, Chapter 273, is administered by this Division. The Division gives assistance to the Stream Pollution Control Board in certifying industrial water pollution control facilities exempt from personal property taxation under the Acts of 1967, Chapter 174.

Biological determinations are made by the Survey Section, and chemical, physical, and bacteriological determinations are performed for both Divisions by the Water and Sewage Laboratory of the Laboratories Bureau.

5.3.1.3 Stream Pollution Control Board

The Stream Pollution Control Board, which was established in 1943, has broad powers to control and prevent pollution of State waters by substances injurious to public health, industry, or wildlife. The agency represents the State in the Federal water pollution control program, and it reviews plans and specifications for pollution abatement facilities and assigns priorities to municipalities for Federal aid.

The Board is composed of the Lieutenant Governor, the secretary of the Board of Health, the director of the Department of Natural Resources, and four additional members named by the Governor. Technical and administrative services are provided to the Board by the Divisions of Sanitary Engineering and Water Pollution Control of the State Board of Health.

The primary objective of the Board is to control and prevent the pollution of surface and ground waters within the State, in accordance with State statutes, interstate compacts, and Federal laws. This is accomplished by eliminating existing pollution of waters in Indiana, by requiring adequate treatment prior to discharge for all wastes from new outlets; and by urging adequate expansion of existing waste treatment facilities as the need arises.

The Board's program includes the following items:

(1) the adoption of Water Quality Standards and a plan for implementing these standards

(2) the location and evaluation of sources of pollution by means of stream surveys, waste treatment plant surveys, and the water quality monitoring program

(3) utilization of data obtained to promote the construction of abatement facilities

(4) legal action involving board hearings and orders, and enforcement of such orders in the courts, if necessary

(5) promotion of adequate water supply and waste treatment facilities in reservoir areas

(6) enforcement of a requirement that adequate treatment facilities be installed on all new sources of pollution

(7) approval of plans and specifications for proposed pollution abatement facilities for new outlets to the waters of the State and for facilities required to eliminate existing pollution

(8) advice to local communities on means of financing treatment works and the administration of the Federal grant programs for the construction of needed pollution abatement facilities.

5.3.1.4 Department of Commerce

The present rights and obligations of the Department of Commerce are set forth in the Acts of 1965, Chapter 262, as amended. The Department serves as the official State planning agency, and it has the power to negotiate with the Federal government or any of its agencies to secure a planning grant or grants for the initial phase of the development of a Statewide planning program. In addition, the

Department is responsible for the development and promotion of programs designed to make the best use of the resources of the State so as to assure a balanced economy and continuing economic growth for Indiana. To achieve such purposes the Department may perform the following activities:

(1) assemble and disseminate information concerning the resources of the State and their availability for the development of industrial and commercial activities

(2) prepare and activate plans for the development, expansion, and use of the resources of the State

(3) cooperate with Federal, State, and local governments and agencies in the coordination of programs to make the best use of the resources of the State

(4) encourage and foster research and development activities, including industrial parks

(5) receive and accept grants, gifts, and other things of value on behalf of the State.

The Lieutenant Governor serves as director of the Department and chairman of the Advisory Commission on Economic and Industrial Development. The Commission includes seven citizens of the State appointed by the director with the approval of the Governor. Legislators of any standing committee on economic development and any study committee are ex officio members of the Commission. The director may also appoint or employ an executive director, deputies, assistants, and other employees in the performance of the duties of the Department.

The Department develops and promotes programs designed to make the best use of the resources of the State so as to assure a balanced economy and continuing economic growth for Indiana. The Department performs the following functions:

(1) plans, directs, and conducts research activities

(2) prepares and disseminates information about the advantages of locating or expanding industrial and commercial facilities within the State

(3) assists in the development and promotion of tourist resources and facilities

(4) assembles, analyzes, and makes available to governmental agencies and the public information relative to the resources and economic needs of the State

(5) assists public and private agencies in the preparation of promotional programs designed to attract business, industry, and tourists to the State.

5.3.1.5 Public Service Commission of Indiana

The Public Service Commission of Indiana, created by the Acts of 1941, Chapter 10, as amended, is charged with the authority to regulate, as prescribed by law, any product or commodity furnished by any public or other utility in which the utility is engaged in the accommodation of the public. The Commission may formulate rules and regulations necessary to perform the duties imposed by law.

The Commission consists of three members, appointed by the Governor for a term of four years. At least two must be attorneys qualified to practice law before the Supreme Court of Indiana and not more than two may belong to the same political party. The Commission, subject to the approval of the Governor, appoints a secretary and may appoint one or more deputy commissioners to serve at the pleasure of the Commission. A public counselor, totally independent with respect to the Commission matters, is also appointed by the Governor for a term of four years. He appears on behalf of rate payers, patrons, and the public in all hearings before the Commission in which the subject matters of the action affects the patrons of any public utility.

The Commission exercises regulatory authority on the service and the rates of public utilities and public transportation agencies in Indiana. Duties include the regulation of rates charged by electric, water, gas, telephone, and heat utilities and authorization and control of sewage disposal facilities in rural areas. Public water utilities are required to file an annual report with the Commission showing monthly water pumpage, the source of supply, and the number of customers.

5.3.1.6 Indiana Port Commission

The Indiana Port Commission, successor to the Indiana Board of Harbors and Terminals, was created by the Acts of 1961, Chapter 11, and amendatory or supplemental acts. The Port Commission is authorized to construct, maintain, and operate public ports with terminal facilities and traffic exchange points for all forms of transportation. Located on Lake Michigan and the Ohio River, these public ports and traffic exchange points must be approved by the Governor. The Port Commission sometimes works in cooperation with the Federal government. The Commission may issue State port revenue bonds payable solely from revenues to finance such projects.

The Port Commission is both a corporate and political body in the State, and it consists of five members appointed by the Governor. No more than three may be members of the same political party. The Commission is authorized to employ an executive director and other employees as needed to carry out its power and duties.

In 1962 the U.S. Army Corps of Engineers recommended construction of a port at the Burns Waterway site, approximately 10 miles east of Gary. In 1965 Congress passed the Rivers and Harbors Act, authorizing Federal participation in the Burns Waterway Project with provisions for reimbursing the State of Indiana with up to $25 million for portions of the project approved by the Corps of Engineers.

After acquisition of land and the building of accessory transportation facilities for the use of contractors, actual construction of the Port of Indiana began in July 1966, when work started on the North Breakwater, the West Outer Bulkhead, and the East Inner Bulkhead. This contract work was completed in October 1968. General use as a public port began in the 1970 shipping season.

5.3.1.7 Purdue University

The Natural Resources Research Institute was established in July 1964 as an administrative unit of Purdue University to provide scientific leadership and coordinated management for all University, interdisciplinary research, and educational programs concerned with the preservation, conservation, development, and utilization of the State's most important basic natural resources: water, land, and the atmosphere.

The Institute has general jurisdiction over three associated research centers: the Water Resources Research Center, the Land Resources Research Center, and the Atmospheric Resources Center.

The Water Resources Research Center serves to coordinate and expand research programs dealing with all phases of present and future water problems. At present the University has ongoing research in this field.

The off-campus teaching arm of the University is the Cooperative Extension Service. Water use and management are dealt with in the Departments of Agriculture Engineering, Agronomy, Forestry and Conservation, and Agricultural Economics.

5.3.1.8 Indiana University

A Water Resources Research Center was established as an interdisciplinary component of the University in June 1963 to integrate the diverse water research activities of Indiana University and to coordinate them with water programs of State and Federal agencies, other academic institutions, and private organizations. Emphasis is placed on water problems peculiar to the Midwest, and the Center helps to identify and define those areas in which current research is deficient and to stimulate and initiate new research programs in critical areas.

The Center is administered by a director and three associate directors. An executive committee composed of representatives of the academic disciplines and departments involved establish operating policy, objectives, and plans for the Research Center.

5.3.2 Special Purpose Districts

Six types of special purpose districts may be established in Indiana to handle various water management problems.

5.3.2.1 Conservancy Districts

Under provisions of the Indiana Conservancy Act, Acts of 1957, Chapter 308, as amended, local landowners may petition the circuit courts for the establishment of conservancy districts that have the legal authority and fund-raising powers to construct, operate, and maintain works of improvement for solving water management and water resources problems. Conservancy districts may be formed to accomplish one or more of the following purposes:

(1) to carry out projects of flood prevention and control

(2) improve drainage

(3) provide for irrigation

(4) provide for water supply, including treatment and distribution for domestic, industrial, and public use

(5) provide for the collection, treatment, and disposal of sewage and other liquid wastes produced within the district

(6) develop forests, wildlife areas, parks, and recreational facilities in connection with beneficial water management

(7) prevent the loss of top soil from injurious water erosion

(8) store water for augmentation of stream flow

(9) operate, maintain, and improve any existing work of improvement for water-based recreational purposes or other work of improvement that could have been built pursuant to any of the above purposes.

The program and operation of the conservancy district may be financed by special benefit taxes levied on real property, the collection of assessments from lands that may receive exceptional benefits, the receipt of funds from Federal or State government, the receipt of revenue from the sale of services for property, the collection of assessments for maintenance and operation of the works of improvement, and loans from private or public sources.

5.3.2.2 Flood Control Districts

First-class cities are authorized to have a Department of Flood Control administered by a Board of Flood Control Commissioners. (Indianapolis is the only city in Indiana classified as first class under the provisions of the Consolidated First-Class Cities and Counties Act, Acts of 1969, Chapter 173, Article LX.) The Board of Flood Control Commissioners has the power and jurisdiction to authorize and carry out projects of flood control and prevention on all rivers, streams, and water resources within the county.

To finance flood control improvements, the Board may raise funds through the sale of bonds. Funds to repay the bonds are obtained from a special benefits tax levied on the property in the district.

Flood control districts may also be established in cities of the second, third, fourth, or fifth class. Such a district may extend a distance of four miles outside the corporate limits, but must be limited to areas subject to flooding. Projects are financed by the collection of a special benefits tax levied on all property in the district.

5.3.2.3 Soil and Water Conservation Districts

Soil and Water Conservation Districts are established under the provisions of the Acts of 1965, Chapter 171, as amended, to encourage the development, improvement, and conservation of lands and water.

The Board of Supervisors, assisted by technicians of the U.S. Soil Conservation Service, promotes the use of proper land treatment practices and sound farming techniques by local landowners. They have active interests in the Federal watershed protection and flood prevention program, and they have authority to construct water control and management works. However, the district does not have any eminent domain, taxing, or assessment powers.

Before 1965, Soil Conservation Districts were established under the provision of Acts of 1937, Chapter 232, as amended. This act was superseded by the Soil and Water Conservation Districts Act of 1965.

5.3.2.4 Levee Districts

Such districts are established through petitions to the circuit courts. They enable landowners to organize for the construction, operation, and maintenance of levees, flood walls, and appurtenant works for interior drainage.

5.3.2.5 Sanitary Districts

Under the provisions of the Acts of 1917, Chapter 157, as amended, first- and second-class cities may form a sanitary district for the construction, maintenance, and operation of a sewage treatment works, including interceptor sewers and main and submain sewers. First-class cities may construct storm sewers, provided such sewers will be of public utility and will relieve or aid in district sewage disposal. The debt limit of first- and second-class cities is 10 percent of the total assessed valuation.

5.3.2.6 Regional Water, Sewage, and Solid Waste Districts

Under the provisions of the Acts of 1969, Chapter 244, any area situated in any unincorporated part of one or more contiguous counties or in one or more municipal corporations, or both, may be organized as a regional water, sewage, and solid waste district for one or more of the following purposes:

(1) to provide a water supply for domestic, industrial, and public use to users both within and outside of the district

(2) to provide for the collection and disposal of storm and sanitary sewage and other liquid waste within and outside of the district

(3) to provide for the collection and dis-

posal of solid waste and refuse within and outside of the district.

The authority for the district is vested in a board of trustees which manages and conducts the affairs of the district. The Board of Trustees may make and enforce rules and regulations necessary to accomplish the purposes of a district that are not inconsistent with the laws of the State Board of Health or the Stream Pollution Control Board. Before taking effect, all rules and regulations, issue of bonds, and proposed rates of the district are subject to approval by the Public Service Commission of Indiana. Before plans for the proper purification, filtration, and distribution of water or proper collection and treatment of sewage are placed in effect, they must be filed with the State Board of Health or the Stream Pollution Control Board, which may approve or reject any provisions of the plans pertaining to water supply, sewage, and solid waste.

5.3.3 Political Subdivisions

5.3.3.1 Planning and Zoning Agencies

Planning and zoning agencies—municipal, county, and regional—are concerned with the orderly development of land. The use of lands subject to flooding can be controlled through zoning and other regulations that prescribe how such areas may be used or developed to minimize the loss of life and property damage from flooding. Proper drainage and adequate sanitation facilities also concern planning commissions.

5.3.3.2 Counties, Cities, and Towns

County commissioners, city councils, and town boards can pass ordinances regarding water, sewage, and general health practices and designate the health officer as the enforcing agent. In addition, the local health departments are an important part of water resources development because they have authority to enforce Indiana State Board of Health laws, rules, and regulations at the local level.

The Indiana Drainage Code, Acts of 1965, Chapter 305, as amended, created in each county in the State a county drainage board to construct, reconstruct, and maintain all legal drains in the county. Board membership consists of the county commissioners and the county surveyor. In counties with a first-class city, the city engineer is also a member of the county drainage board.

Whenever construction or reconstruction of a legal open drain is proposed, the Department of Natural Resources must be notified. Written approval of the Department is required before a drain under the jurisdiction of a drainage board can be included in the final plan of a conservancy district and when plans show that any legal drain will come within 300 feet of a levee. Whenever anyone desires to connect a drain carrying liquid wastes into a legal drain, written approval must be obtained from the Stream Pollution Control Board.

5.4 Michigan

Statutory responsibilities for water and related land resources in Michigan are listed in Addendum B, Table S20–19.

5.4.1 State Departments and Agencies

Although the Water Resources Commission is the designated pollution control arm of the State of Michigan, four separate State departments are charged with responsibilities in the pollution control field: the Department of Natural Resources, the Department of Public Health, the Department of Agriculture, and the Department of State Highways. Each is represented on the Water Resources Commission. By this structuring arrangement, the pollution control interests and objectives of each department represented on the Water Resources Commission are correlated with those of the Commission whenever possible.

The pollution abatement activities of these State departments, including the pertinent interrelationships, are described in the appropriate subsections.

5.4.1.1 Department of Natural Resources

In broad terms, the responsibilities of the Department of Natural Resources are to protect and conserve the State's natural resources, provide and develop facilities for outdoor recreation, prevent losses of timber and other forest values, promote reforestation of State forest lands, prevent and abate pollution of lakes and streams, enforce conservation laws, and foster the protection and repro-

duction of fish and wildlife resources.

This monumental responsibility encompasses more than 36,000 miles of streams, 11,000 inland lakes, 3,200 miles of Great Lakes shoreline, a rich reservoir of minerals, and some 4.2 million acres of State-owned lands, including 3.8 million acres of State forests, 72 State Parks, more than 60 game areas, and more than 800 public water access sites.

Five commissioners, appointed by the Governor, comprise the Department of Natural Resources Board of Directors. This Commission has the responsibility of making decisions on natural resources policies which set the guidelines for Department programs. The Commission also appoints the director of the Department.

An assistant director and five deputy directors comprise the Executive Unit. Deputy functions are directed into the areas of recreation, resources management, field operations, administration, and water management.

Under the Executive Office of the Department of Natural Resources, Department operations are administered through 21 staff divisions and three regional headquarters. Field activities are further divided into a large number of district offices throughout the State.

Michigan law provides for certain pollution abatement activities on shores or waters by filling and dredging under the supervision of the director of the Department of Natural Resources. The basic act creating the Department (Act 17, P.A. 1921) confers a broad grant of authority " . . . to protect and conserve the natural resources of the State of Michigan, to provide and develop facilities for outdoor recreation, to prevent and guard against the pollution of lakes and streams within the State, and to enforce all laws provided for that purpose with all authority granted by law, and to foster and encourage the propagation of game and fish."

Enactment of Act 61, Public Acts of 1939, created a State Supervisor of Wells within the Department of Natural Resources. Included in the duties delegated by this Act, the Supervisor of Wells is authorized " . . . to prevent waste or damage to oil and gas, to the fresh, brine and mineral waters or to life and property." The Department has maintained active patrol of oil fields and has required measures for the conservation of brine and prevention of pollution since 1939.

Numerous other water protection and management functions charged to the Department of Natural Resources are discussed throughout this section under appropriate headings.

The director of the Department of Natural Resources also serves as a member of the State Water Resources Commission.

The divisions within the Department of Natural Resources are essential links in the Department's administrative chain. Within them, programs are planned and developed and projects, policies, and procedures are drafted. Thus, each division becomes the originating point for work done in the field.

(1) Fish Division

The Department of Natural Resources Fish Division is charged with the responsibility of initiating programs, developing policies, and drafting orders for the better protection, enhancement, and development of the State sport and commercial fishery resources. To carry out this basic responsibility, the Fish Division conducts biological and physical surveys of the Great Lakes and inland lakes and streams, maintains a hatchery production and planting program, and conducts lake and stream fish habitat improvement programs.

In addition, the Fish Division reviews and comments on new or increased water-use applications, dredge and fill permits, and dam construction permits to the new Bureau of Water Management. Regulation of private fish hatcheries and control of fish planted in public waters are also the responsibility of the Fish Division. Chemical aquatic weed control in public waters is administered by this Division.

Fish Division staff and field personnel carry out their responsibilities and programs under five basic acts: Act 17, P.A. 1921, creating the Department of Natural Resources; Act 165, P.A. 1929, the Michigan Sportsman Fishing Law; Act 230, P.A. 1925, the Discretionary Power Act for further protection of fish that are in danger of depletion or extermination; Act 84, P.A. 1929, the Commercial Fishing Law; and Act 218, P.A. 1955, the Discretionary Power Act for regulating commercial fishing.

Fish Division personnel further cooperate with Water Resources Commission staff and perform duties in accordance with procedures established under authority of the following State water management statutes: Act 156, P.A. 1851, concerning Construction of Dams and Act 123, P.A. 1929, providing for the erection and maintenance of proper means for free fish passage through and over dams; Act 146,

P.A. 1961, the Inland Lake Level Act; Act 291, P.A. 1965, the Inland Lakes and Streams Act; Act 345, P.A. 1966, the Inland Lake Improvement Act; Act 247, P.A. 155, the Great Lakes Submerged Lands Act; and Act 245, P.A. 1929, the Water Resources Act.

Finally, investigation of fish kills and recommendations for restitution to the State for damages are the responsibility of the Fish Division.

A major role in environmental responsibility is further performed through the Federal Fish and Wildlife Coordination Act (P.L. 85–264) and procedures established under this Act. They govern Federal projects, Federally financed projects, and projects licensed or permitted under Federal statute in Michigan. Examples are Federal or State highway projects, small watershed projects under P.L. 83–566, Corps of Engineers projects, and Federal Power Commission projects.

(2) Geological Survey Division

This division works with State and Federal departments to locate and develop suitable supplies of water for public institutions, parks, agencies, municipalities, industries, irrigation projects , and individual land owners. The Division issues permits for drilling oil and gas wells; supervises the locating, drilling, producing, and plugging of these wells; and aids in the protection of property and surface and underground fresh waters from oil field and pipeline wastes.

Pertinent water-related statutory responsibilities of the Division include Act 315, P.A. 1969, the supervision of Mineral Wells Act, which provides a system of permits for all wells, requires construction materials and practices designed to provide acceptable methods of disposal or storage of wastes in subsurface formations to prevent both surface and subsurface damages. Act 61, P.A. of 1939, and Act 326, P.A. of 1937, provides for permits and supervision and proper plugging of oil and gas wells. Act 69, P.A. 1969, permits the Division to locate, evaluate, and aid in the development of mineral resources of the State (including water). The Division further provides consultation, upon request, to the Department of Public Health in the administration of Act 294, P.A. 1965 (water well drilling), and Act 87, P.A. 1965 (sanitary land filling), and to the Water Resources Commission for administration of Act 245, P.A. 1929.

The Division also serves as the Governor's designate to the Interstate Oil Company Commission, pursuant to Act 138, P.A. of 1947, enabling the State to cooperate with oil and gas producing States. The Geological Survey is also the repository for all ground-water records in the State. The filing of records in the drilling of water wells is mandatory.

Act 92, P.A. 1970, provides for reclamation of land subjected to mining of metallic minerals to control possible adverse environmental effects. Rules may also be developed pertaining to mining operations such as sloping, terracing of stockpiles, and treatment of tailings.

(3) Wildlife Division

The Wildlife Division has for many years acted as a watchdog to preserve wetlands wildlife habitat and aquatic environment from destruction and deterioration caused by man. The Division works with all interested resource agencies at the local, State, and Federal level in protecting the public trust and in developing wildlife habitat. The Division participates in water resource protection with the U.S. Bureau of Sport Fisheries and Wildlife, the U.S. Army Corps of Engineers, the U.S. Forest Service, and the Soil Conservation Service. It manages the wildlife habitat interest in the Great Lakes bottom lands (Act 247, P.A. 1955, as amended), the Inland Lakes and Streams Act (Act 291, P.A. 1965, as amended), and the Water Resources Act (Act 245, P.A. 1929).

The Wildlife Division also develops new wetlands. Since 1948, 60 major waterfowl flooding projects have been constructed on State lands, flooding some 23,171 acres. An additional 452 small waterfowl floodings have been constructed totaling 3,837 acres. Most of these projects are managed intensively to provide for a maximum production of waterfowl and for maximum hunter harvest. Long-range planning includes acquisition of key wetlands habitat in danger of destruction. The Division has legal authority to acquire shoreline marshes to protect them for wildlife.

The Wildlife Division is responsible for investigating wildlife mortalities caused by pollution, and it works closely with the Bureau of Water Management and with the Division of Fisheries of the Department of Natural Resources, in joint protection of the water resource as it pertains to waterfowl habitat protection. The Division, in addition to developing plans for wetland habitat improvement, reviews proposed development of adjacent wet-

lands, and makes recommendations for denial, acceptance, or modification, dependent upon potential adverse effect to habitat.

The Division operates under authority of Act 17, P.A. 1921, as amended, creating the Department of Natural Resources. As a Division of the Department, the Wildlife Division is responsible for all matters affecting wildlife interests including recourse to the civil courts under the common law wherever there is a threat to wildlife habitat.

(4) Office of Planning Services

The water-related functions of this unit of the Department revolve around its responsibility for long-range planning for outdoor recreation for the Department and the State, and for administration of the local portion of the Federal Land and Water Conservation Fund Grant program (Act 316, P.A. 1965).

Planning studies involving water include an inventory of the State's lake and stream frontage for recreation use and potential; recreational aspects of scenic and wild river planning; recreational use and potential of hydroelectric impoundments and other impoundments; and estuarine inventories.

This Division also serves to coordinate the Department's fish, wildlife, and recreation interests that may be affected by Federal water development projects. This is under authority of various Federal acts, notably the Fish and Wildlife Coordination Act (P.L. 85–264) and State Act 17, P.A. 1921. Projects include those of the Corps of Engineers, Soil Conservation Service, Federal Power Commission, Bureau of Outdoor Recreation, and Bureau of Sport Fisheries and Wildlife.

The State's historic preservation, initiated under the National Historic Preservation Act of 1966 (P.L. 89–665) is a recently acquired activity of this Division. State Statute Number 169, P.A. 1970, provides for the establishment of historic districts; the acquisition of land and structures for historic purposes; preservation of historic sites and structures; and maintenance of publicly owned historic sites and structures by local units.

The Office of Planning Services Division also has the responsibility to review plans of local units of government applying for funds under the State $100 million Recreation Bond Program. Authorities are derived from Act 316, P.A. 1965, and Act 108, P.A. 1969.

The recently enacted Natural Rivers (Act 231, P.A. 1970) gives to the Natural Resources Commission the authority to designate recreational, scenic, or wild rivers. A distinctive feature of this statute is the system it provides for protecting rivers through the zoning of adjacent land for its use. After designating a river, preparing long-range plans, and holding necessary public hearings, the Commission may declare that the river lands are to be zoned to control and guide their development and provide for their preservation. If a county or township chooses not to enact such an ordinance, the Commission itself can adopt a zoning rule under the provisions of the State Administrative Code. The Office of Planning Services has been charged with the development of specific guidelines for administering this Act.

(5) Waterways Division

Programs of the Waterways Division encompass Great Lakes harbors and recreational waterways, State and local boating facilities, public water access sites, public dock administration, and marine inspections.

By virtue of Act 320, P.A. 1947, as amended, the Waterways Commission has the responsibility of representing the State on all matters pertaining to recreational navigation involving the Federal government. Activities in this area consist of proposing through the Commission the construction of new refuge harbors and reviewing proposed harbor design which includes breakwater configuration, depths and widths of entrance channels, and depths and widths of mooring basins. The Division also cooperates with the Corps of Engineers in the design of that portion of flood control projects offering recreational navigation benefits.

Under authority of Act 125, P.A. 1959, the Division provides grants to participating communities for the construction of harbors, docks, launching ramps, parking areas, rest rooms, shower facilities, sewage pump-out facilities, gasoline installations, and related facilities for recreational navigation.

The Commission owns and operates recreational boating facilities at Harbor Beach, Port Austin, East Tawas, Hammond Bay, Mackinac Island, St. Ignace, and Leland, and also operates and maintains the water elevation control devices and the lock at Cheboygan. The Commission operates, maintains, and develops more than 800 public access sites throughout the State which provide launch-

ing, camping, picnicking, and related recreational opportunities.

In addition, Division programs provide for the inspection of boat liveries renting boats to the public, the inspection of vessels carrying passengers for hire which are not subject to U.S. Coast Guard inspection, and the enforcement of the Boat License Act.

Statutes under which the Division operates include:

(a) Great Lakes Program
  (aa) Act 320, P.A. 1947, as amended
  (bb) Act 125, P.A. 1959
(b) Public Access Site Program—Act 337, P.A. 1939 as amended
(c) Dock Administration Program
  (aa) Act 320, P.A. 1947, as amended
  (bb) Act 187, P.A. 1964
  (cc) Act 125, P.A. 1959
(d) Inspection Program
  (aa) Act 257, P.A. 1952, as amended, and R. 281.511 through 281.529
  (bb) Act 228, P.A. 1965, as amended, and R. 281.2001 through 281.2129
  (cc) Act 70, P.A. 1911, as amended.

(6) Law Enforcement Division

The Law Enforcement Division, under authority of Act 303, P.A. 1967, has the responsibility of administering the State's Marine Safety Program. The program provides that every person operating a motorboat on Michigan waters is required to have his craft registered, carry prescribed life saving devices, safety equipment, and navigation aids, and adhere to prescribed safety requirements such as maximum capacity limits and safe operating rules.

Activities conducted under this program include administration, State aid to counties, establishment of local watercraft controls, boating safety education, public information, issuance of permits for buoys, races and regattas, compiling statistical information, coordinating and conducting emergency safety patrols, and non-boating water safety programs.

Law enforcement personnel are further charged with the responsibility of prosecuting criminal violations of the Inland Lakes and Streams Act and the Great Lakes Submerged Lands Act.

(7) Engineering Division

The Engineering Division is a service unit providing engineering assistance in planning, design, construction, and surveying to other units of the Department of Natural Resources in the development and operation of their programs.

Construction work on such water-related projects as State park campgrounds, fish hatcheries, fishing spawning facilities, and wildlife flooding projects fall within the purview of this Division.

For the protection of natural resource interest, the special engineering projects section of this Division reviews plans prepared by State and county highway departments and projects under the Department of Public Works.

5.4.1.2 Department of Public Health

The director of the Department of Public Health exercises supervisory control over all public sewerage systems. He is required by statute, Act 98, Public Acts of 1913, as amended, to "exercise due care to see that sewerage systems are properly planned, constructed, and operated so as to prevent unlawful pollution of the streams, lakes, and other water resources of the State." No public sewerage system may be built or altered without approval of the director. The Department discharges this responsibility in the following ways:

(1) reviews and approves or rejects plans submitted for new municipal systems or alterations to existing systems

(2) issues or withholds issuance of construction permits for sewers and sewage treatment plants

(3) exercises supervisory control over operations of wastewater treatment plants at municipalities, institutions, trailer parks, schools, and hospitals to ensure effective performance

(4) trains and licenses operators of wastewater treatment plants

(5) orders changes in physical facilities of their operations to ensure that sewage shall not be "potentially prejudicial to the public health"

(6) refers appropriate cases to the Water Resources Commission for pollution abatement action.

Acting pursuant to the authority vested in him by Act 98, Public Acts of 1913, and Act 219, Public Acts of 1949, the director can extend municipal sewer systems to control pollution and protect public health.

Water-related responsibilities of the Department are further divided among three sections of the Engineering Division: the Environmental Health Section, the Wastewater Section, and the Water Section. The Environmental Health Section has numerous statutory responsibilities pertaining to quality of the environment through water resources protection. These include Act 87, P.A. 1965, the Solid Waste Disposal Act; Act 288, P.A. 1967, the Subdivision Control Act; Act 243, P.A. 1951, regulating the licensing of septic tank and cesspool cleaners; and numerous public health protective measures governing trailer coach parks, agricultural labor camps, and food and drink establishments. The wastewater section and the water section responsibilities are self-explanatory and are concerned with the administration of Act 98, P.A. 1913, as amended, on the control of waterworks and sewerage systems, and Act 294, P.A. 1965, on groundwater quality control. The Engineering Division is further concerned with the administration of Department rules 325.1451–1461, the regulation of certain water supplies by persons other than the owner, which is not covered under Act 98, P.A. 1913, and Act 294, P.A. 1965.

The Department of Public Health must also issue certifications of acceptability for engineering reports and approve plans and specifications for sewage treatment plant construction before grants from the Clean Bonding Program can be administered by the Water Resources Commission.

The director of the Department of Public Health also serves as a member of the State Water Resources Commission.

5.4.1.3 Department of Agriculture

Although he possesses no direct statutory responsibility for the control of water pollution, the director of the Department of Agriculture is ex officio chairman of all Intercounty Drainage Boards, which frequently become involved in pollution problems. The State Drain Code (Act 40, Public Acts of 1956, as amended) defines the unlawful use of county drains and intercounty drainage facilities. It states that it is "unlawful to connect sewage or other waste to county or intercounty drains," except with the written approval of the appropriate authority. The individual drain commissioner or Intercounty Drainage Board, upon petition, is authorized to take action to correct misuse of drains. The Water Resources Commission, of which the director of the Department of Agriculture is a member, can file the necessary petition if injury to public health is certified by the State Director of Public Health.

In addition to its pollution control responsibilities, the State Soil Conservation Committee in the Department of Agriculture is further responsible for two broad program areas concerned with the management of surface water. It is charged with administering the 84 soil conservation districts in 82 Michigan counties. More than 50,000 landowners are cooperators. One main objective of these districts is erosion control, which reduces water sediment pollution.

A second major responsibility of the Committee is to act for the Governor's Office in processing community requests for Federal watershed assistance under Congressional act (P.L. 566). The Committee has already taken some action on 50 applications for assistance.

The State Department of Agriculture also administers Act 233, P.A. 1959, as amended (by Act 67, P.A. 1970) which provides for the licensing of persons applying economic poisons (pesticides), and Act 297, P.A. 1949, as amended, which regulates the distribution, transportation, and sale of economic poisons.

The director of the Department of Agriculture also serves as a member of the State Water Resources Commission.

5.4.1.4 Department of State Highways

The interests of the Department of State Highways center largely upon phases of the State's water resource program other than pollution control. However, the Highway Commission, through its director, corrects or prevents misuse of the many thousands of miles of Department-owned highway drains arising from connections to septic tank drainage, sewage, or industrial waste.

The director of the Department of State Highways also serves as a member of the State Water Resources Commission.

5.4.1.5 Water Resources Commission

Seven persons make up the Water Resources Commission which directs the activities of the Bureau of Water Management. Four ex officio members include the director of Natural Resources, director of Public Health,

director of Agriculture, and the director of Michigan State Highways. The other three members are appointed by the Governor with approval of the Senate. Two of the appointive members to the Water Resources Commission represent municipalities and industry, the most commonly encountered sources of waste-causing water pollution. Through their representative, conservation groups seek improved water quality in the best interest of fish and wildlife, recreation, and other uses of the waters of the State.

The Water Resources Commission is under legislative mandate:

> to protect and conserve the water resources of the state, to have control over the pollution of any waters of the state and the Great Lakes, to have control over the alteration of the watercourses and the flood plains of all rivers and streams, with powers to make rules and regulations governing the same, ...to require the registration of manufacturing products, production materials and waste products where certain wastes are discharged; to provide for surveillance fees upon discharges to the waters of the state in order to provide for investigation, monitoring, and surveillance necessary to prevent and abate water pollution; to prohibit the pollution of any waters of the state and the Great Lakes; and to prohibit the obstruction of the floodways of the rivers and streams of the state....The commission is the state agency to cooperate and negotiate with other governments and agencies in matters concerning the water resources of the state....
>
> The commission is empowered to make or cause to be made surveys, studies, and investigations of the uses of waters of the state, both surface and underground, and to cooperate with other governments, governmental units and agencies thereof in making such surveys, studies and investigations. The commission assists in an advisory capacity any flood control district which may be authorized by the legislature of this state. The commission in the public interest has the right and duty to appear and present evidence, reports and other testimony during the hearings involving the creation and organization of flood control districts. It also has the responsibility to advise and consult with the legislature on the obligation of the state to participate in the costs of construction and maintenance as provided for in the official plans of any flood control district or intercounty drainage district. Further, the commission has authority to enforce the provisions of Act 245, P.A. 1929, as amended, and make and promulgate such rules and regulations as shall be deemed necessary to carry out the provisions of the act.

Section 2a, Act 245, P.A. 1929, further provides:

> The water resources commission is designated the state agency to cooperate and negotiate with other governments, governmental units and agencies thereof in matters concerning the water resources of the state, including but not limited to flood control and beach erosion control. The commission shall have control over the alterations of natural or present watercourses of all rivers and streams in the state to assure that the channels and the portions of the flood plains that are the floodways are not inhabited and are kept free and clear of interference or obstruction which will cause any undue restriction of the capacity of the floodway. The commission is further authorized to take such steps as may be necessary to take advantage of any act of congress which may be of assistance in carrying out the purposes of this act.

Under the provisions of Section 5, the Commission is required to:

> establish such pollution standards for lakes, rivers, streams or other waters of the state in relation to the public use to which they are or may be put, as it shall deem necessary. It is given the authority to determine for record what volume of water actually flows in all streams, and the high and low water marks of lakes and other waters of the state, affected by the waste disposal. It is authorized to make regulations and orders restricting the polluting content of any waste material or polluting substance discharged into any lake, river, stream, or other waters of the state and to take all appropriate steps to prevent any pollution which it deems to be unreasonable and against public interest in view of the existing conditions in any lake, river, stream, or other waters of the state.
>
> The commission also has the authority to make regulations and orders for the prevention of harmful interference with the discharge and stage characteristics of streams, to ascertain and determine for record the location and extent of flood plains, stream beds and channels and the discharge and state characteristics of streams at various times and circumstances.
>
> Further, it is unlawful for any person to occupy or permit the occupation, for residential, commercial or industrial purposes of lands or to fill or grade or permit the filling or grading for any purposes other than agricultural, of lands in the flood plains, stream bed or channel of any stream, as ascertained and determined for the record by the commission, or to undertake or engage in any activity on or with respect to the lands which is determined by the Commission to harmfully interfere with the discharge or state characteristics of a stream, unless the occupation, filling, grading, or other activity shall have been permitted by an order or rule of the commission, or by a valid permit issued therefor by the Department of Natural Resources under the provisions of law.

Section 6 of the Act states that it is:

> unlawful for any persons directly or indirectly to discharge into the waters of the state any substance which is or may become injurious to the public health, safety or welfare; or which is or may become injurious to domestic, commercial, industrial, agricultural, recreational or other uses which are being or may be made of such waters; or which is or may become injurious to the value or utility of riparian lands; or which is or may become injurious to livestock, wild animals, birds, fish, aquatic life or plants or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.

The Act further states that:

> every industrial or commercial entity which discharges liquid wastes into any public lake or stream shall have waste treatment facilities under the specific supervision and control of persons who have been certified by the commission as properly qualified

to operate the facilities. The commission examines all supervisory personnel having supervision and control of the facilities and certifies the persons properly qualified to operate or supervise the facilities.

Act 245, P.A. 1929, as amended, further stipulates that:

Every person doing business within this state discharging waste water to the waters of the state or to any sewer system, which contains wastes in addition to sanitary sewage shall file annually reports setting forth the nature of the enterprise, a list of materials used in and incidental to its manufacturing processes and including by-products and waste products, which appear on a register of critical materials as compiled by the commission and the estimated annual total number of gallons of waste water including but not limited to process and cooling water to be discharged to the waters of the State or to any sewer system.

In order to provide for increased surveillance, investigation, monitoring and other activities necessary to provide greater protection of the quality of waters of this state, an annual surveillance fee is payable by a person, company, corporation, but not a municipality, discharging water borne waste directly or indirectly into any waters of the state from any manufacturing facility; or from any other commercial establishment which may generate a discharge inconsistent with the protection of waters of the state. The fees are for the cost of surveillance of industrial and commercial discharges and receiving waters.

A person requiring a new or substantial increase over and above the present use now made of the waters of the state for sewage or waste disposal purposes must file with the commission a written statement setting forth the nature of the enterprise or development contemplated, the amount of water required to be used, its source, the proposed point of discharge of the wastes into the waters of the State, the estimated amount to be discharged, and a fair statement setting forth the expected bacterial, physical, chemical or other known characteristics of the wastes.

Act 14, P.A. 1956, authorizes the Water Resources Commission to comply with the provisions of P.L. 660 of the 84th Congress, known as the Water Pollution Control Act Amendments of 1956.

5.4.1.6 Bureau of Water Management

The Executive Organization Act of 1965 placed the staff of the Water Resources Commission within the structure of the Department of Natural Resources. However, the Commission's prescribed statutory powers of rulemaking and adjudication, including the prescription of regulations and standards, could continue to be exercised independent of the head of that department.

However, the staff of the Water Resources Commission, formerly a division under the Department of Natural Resources, was officially reorganized as the Bureau of Water Management on May 2, 1969. Formation of the Bureau served to consolidate the Department of Natural Resources far-reaching water and submerged lands management responsibilities under one high-level unit for more efficient operations and better public service.

The Bureau's staff duties, under the reorganization, have been expanded and regrouped into three divisions covering Water Quality Control, Hydrological Studies, and Water Development Services for local units of government. Such water-oriented activities as submerged lands management, lake engineering, and oil pollution control, previously scattered throughout the Department of Natural Resources, have been transferred into these new divisions as part of the consolidated reorganization.

Controlling pollution of Michigan's lakes, streams, drains, and underground waters is the major responsibility of the Water Resources Commission and its Bureau staff. But the Commission also advises the public on water laws, water conservation, water uses, stream flow, dam construction, beach erosion, and a host of other water resource matters. The Commission also reviews and assigns priorities to applications from municipalities for Federal and State aid in constructing pollution control facilities. It reviews applications and issues permits for water use in low grade iron ore beneficiation, and administers the State's recently adopted flood control act. In addition, the staff provides advisory and technical assistance to resort and cottage owners in combatting the swimmers' itch parasite.

Although most of the staff is stationed in Lansing, the Water Resources Commission also maintains five district offices. District 1, with headquarters at Pointe Mouillee, includes the Detroit, Raison, Rouge, Huron, Clinton, Belle, and Pine River basins and the Michigan portion of the Maumee River basin. District 2, headquartered in Lansing, serves the Saginaw, upper Grand, Rifle, and Au Gres River basins as well as the Thumb Area and numerous smaller river basins up to the Au Sable. District 3, based in Grand Rapids, includes the Kalamazoo and St. Joseph River basins and the lower Grand River basin beginning at Ionia. With headquarters in Cadillac, District 4 encompasses the Muskegon and Au Sable River basins and all other river basins in the northern portion of the Lower Peninsula. District 5 covers the entire Upper Peninsula, with headquarters in Escanaba.

Statutory division of the Bureau's and Water Resources Commission's water protection, management and preservation adminis-

trative responsibilities are executed as follows by the Executive Secretary:

(1) Act 211, P.A. 1956—Sewage Disposal and Water Supply Districts Act

(2) Act 294, P.A. 1965—membership on Well Drilling Advisory Board

(3) Act 233, P.A. 1959—membership on Economic Poisons Advisory Committee

(4) Act 28, P.A. 1955—designates Water Resources Commission Executive Secretary as a Commissioner to the Great Lakes Commission.

(1) Hydrological Survey Division

Sections dealing with flood plain management, hydrologic studies, lake engineering, and submerged lands management and coordination with Federal interest form the nucleus of this Division.

The Division's staff reviews and recommends, for Water Resources Commission approval or rejection, applications for plat development and flood plain filling or grading to insure that statutory and rule requirements have been met by the applicants.

Detailed hydrologic studies of stream flow and characteristics of stream flow behavior are developed to aid the Water Quality Control Division in its pollution control investigations.

This Division is further charged with the responsibility of controlling fills, dredging, and other developments, which threaten to destroy public rights anywhere in the State's 38,500 square miles of waters and bottom lands of the Great Lakes and anywhere in public inland waters. A permit is required to dredge or connect to any navigable waterway for any purpose.

The Submerged Lands Management Section of the Bureau of Water Management has been assigned the responsibility of coordinating all State interests in projects that require a Corps of Engineers permit. Public notices that issue from the Corps of Engineers are referred to this Section for review and consultation with the various departmental divisions and other State departments that may have an interest in the proposed project.

The Section coordinates all of the various responses to a particular project and notifies the Corps of the State's final recommendation with respect to the proposed work. This procedure avoids the uncertainties of the Corps of Engineers, and other Federal agencies attempting to contact each of the State departments that may have an interest in a particular project.

This Division is also responsible for the supervision of activities involving the establishment of legal lake levels and inland lake improvement (cleanout) projects. In addition, it reviews plans, issues construction permits, and conducts field inspections for dams constructed throughout the State.

The following are the statutory responsibilities of the Hydrological Surveys Division:

(a) Lake Engineering Section

(aa) Act 146, P.A. 1961, as amended (by Act 175, P.A. 1969)—Inland Lake Level Act

(bb) Act 184, P.A. 1963, as amended (by Act 68, P.A. 1970)—Dam Construction Approval Act

(cc) Act 345, P.A. 1966—Inland Lake Improvement Act of 1966

(dd) Act 123, P.A. 1929—Passage of Fish over Dams

(ee) Act 156, P.A. 1951—Board of Supervisors, Control Construction of Dams and Bridges

(b) Submerged Lands Management

(aa) Act 247, P.A. 1955, as amended —Great Lakes Submerged Lands Act

(bb) Act 291, P.A. 1965, as amended —Inland Lakes and Streams Act

(cc) Act 288, P.A. 1967, as amended —Subdivision Control Act

(c) Hydrologic Studies

(aa) Act 245, P.A. 1929, as amended —Water Resources Commission Act

(bb) Act 143, P.A. 1959—Iron Ore Beneficiation Act

(cc) Act 205, P.A. 1967—Act establishing Irrigation Districts

(dd) Act 20, P.A. 1964—Surplus Waters Act of 1964

(ee) Act 253, P.A. 1964, as amended—Local River Management Act

(ff) Act 289, P.A. 1966, membership on State mapping advisory committee; topography mapping

(d) Flood Plain Management

(aa) Act 167, P.A. 1968—Flood Plains Management Act

(bb) Act 288, P.A. 1967—Subdivision Control Act.

(2) Water Development Services Division

The staff of the various sections within this Division provides coordination, assistance, and technical advice to other State and Federal agencies and local units of government in the planning and management of water and related land resources. The Division's sections

include State water resource planning, local water management assistance, municipal grant administration, technical services, and water resources coordination.

Comprehensive water and related land resources planning in Michigan is a primary responsibility of this Division. Such planning is necessary to guide the conservation, development, and use of the State's water and related land resources, including flood plains, shorelines, irrigated land, and water-related outdoor recreational areas. The program involves collecting basic data on water use, quality, and availability; projecting future water and related land resource demands; a continuing review and analysis of State and Federal legislative proposals; and formulating plans, policies, and programs on a river basin and Statewide basis for the most effective management of Michigan's water resources.

Administration of the distribution and the use of State and Federal grant funds to local units of government for construction of waste treatment facilities and State grants for construction of collecting sewers is handled by Division staff. Pollution control plans submitted by local govermental units applying for State grant assistance are reviewed and recommendations are made by the Water Resources Commission.

Serving as the State staff for the Michigan representative to the State-Federal Great Lakes Basin Commission, the Division provides a coordination mechanism to insure that Michigan's interests receive full consideration in the development of a Basinwide comprehensive water and related land resources plan.

Local governments involved in area water development and management planning also receive informational and procedural assistance from Division staff. Michigan's water management laws are supervised by this Division as well.

The following are statutory responsibilities of the Water Development Services Division:

(a) Municipal Grant Administration

(aa) Act 329, P.A. 1966, as amended—sewage treatment works construction grant program

(bb) Act 159, P.A. 1969—construction grant program for collecting sewers

(cc) P.L. 84-660—Federal Water Pollution Control Act

(b) Local Water Management Assistance—Planning and Coordination

(aa) Act 253, P.A. 1964, as amended —Local River Management Act

(bb) Act 329, P.A. 1966, as amended—sewage treatment works construction grant program

(cc) Act 200, P.A. 1957—local government special purpose study committees

(c) Water Resources Coordination

(aa) Act 245, P.A. 1929, as amended —Water Resources Commission Act

(bb) P.L. 89-80—Water Resources Planning Act—Title II

(d) Water Resources Planning

(aa) Act 245, P.A. 1929, as amended—Water Resources Commission Act

(bb) P.L. 89-80—Water Resources Planning Act—Title II.

(3) Water Quality Control Division

This Division is responsible for administering Michigan's water pollution control program. To function more effectively, the Division is divided into specialized sections: the comprehensive studies section, including data processing and waste assimilation studies; the laboratory section; the oil pollution control section; the water quality appraisal section, including a biology unit and an engineering unit; and the enforcement section. Five district offices, located in the Point Mouillee State Game Area, Lansing, Grand Rapids, Cadillac, and Escanaba, are major hubs of the enforcement section.

Field surveys of water quality and aquatic life, temperature, and quantity and laboratory analyses are carried out to evaluate water resources for management and control purposes. This is aimed at learning the effectiveness of pollution control measures, the need for restriction of the polluting content of waste disposals, and determining the waste load an individual stream can safely absorb. Division staff members also are involved in investigations of actual or suspected pollution problems. This Division is also responsible for enforcing the Water Resources Commission's water quality standards which protect all of Michigan's lakes and streams, including the Great Lakes.

Results of staff investigations and studies are presented as recommendations for Water Resources Commission action. The Commission is supplied with items for consideration, data, and drafts of proposed legal pollution control instruments prepared by this Division. Plans and specifications for industrial waste treatment facilities ordered by the Commission must be approved by the Division Chief

engineer to determine whether the proposed facilities will meet the Commission's pollution control requirements.

The Division's staff also supervises Michigan's program to control swimmer's itch. It provides local governments, lake associations, and others with technical assistance in treating water to cope with this problem.

The following are the statutory responsibilities of the Water Quality Control Division:

(a) Primary Enforcement

(aa) Act 245, P.A. 1929, as amended —Water Resources Commission Act

(bb) Act 61, P.A. 1939—oil pollution control

(cc) Act 136, P.A. 1969—Liquid Industrial Waste Haulers Act

(dd) Act 209, P.A. 1968—certification of industrial waste treatment plant operators

(ee) Act 200, P.A. 1970—registration, surveillance and enforcement

(ff) Act 222, P.A. 1966—tax relief for industrial waste treatment facilities

(gg) Act 245, P.A. 1929, as amended—disposal of waste from watercraft

(hh) Act 167, P.A. 1970—regulates disposal of oil and sewage from watercraft, prohibits littering of waterways, and requires marina pumpout facilities

(b) Secondary Enforcement—includes Laboratory

(aa) Act 245, P.A. 1929, as amended —Water Resources Commission Act

(bb) P.L. 87-88—Federal Water Pollution Control Act

(cc) Act 58, P.A. 1959—swimmer's itch program.

5.4.1.7 Department of Commerce

The Department of Commerce's involvement with water management lies primarily in the realm of port development and movement of commerce by water. Commercial waterborne commerce includes interstate, interregional, Canadian, international, and intrastate commerce.

Departmental responsibilities in this area may be best outlined by highlighting the following enabling legislative actions:

(1) Act 251 of the Public Acts of 1966 designates the Department as the agency of this State to cooperate and negotiate with port districts, to increase port use, to investigate transportation rates and policies, and to represent Michigan ports before Federal and State agencies.

(2) Act 24 of the Public Acts of 1968 requires the Department to promote port use, serve as a central intelligence center for port matters, coordinate intervention on Great Lakes rate and service cases, and spearhead State activities to encourage improvements in the Great Lakes-St. Lawrence Seaway transportation system.

(3) Executive Directive of 1968 requires the Department to represent the economic interests of Michigan's commercial harbors with the U.S. Army Corps of Engineers on harbor improvements, maintenance dredging, and harbor pollution controls.

(4) Act 246 of the Public Acts of 1921 authorizes the Public Service Commission to regulate the service, rates, fares, and charges of intrastate carriers by water.

5.4.2 Special Purpose Districts

5.4.2.1 Drainage Districts

Drainage areas wholly within one county can be established as county drainage districts administered by the County Drain Commissioner. Drainage areas involving more than one county become intercounty drainage districts administered by an intercounty Drainage Board composed of the drain commissioner of each county affected and the director of the Michigan Department of Agriculture or his deputy who serves as chairman. Also, any two or more drainage districts or parts of districts within or among counties may be consolidated.

Act 40, P.A. 1956, as amended, codifies the laws relating to laying out of drainage districts, the consolidation of drainage districts, the construction and maintenance of drains, sewers, pumping equipment, and such structures and mechanical devices to purify the flow of these drains. It also provides flood control projects, water management districts and subdistricts, and flood control and drainage projects within such districts.

Drain, as defined in the Act, includes any creek or river, any watercourse or ditch, any sanitary or any combined sanitary and storm sewer, any structures or mechanical devices that will properly purify the flow of such drains, any pumping equipment necessary to assist or relieve the flow of such drains, and any levee, dyke, or barrier for the purpose of drainage or purification of flow.

Drains may be established, constructed, and

maintained whenever they are conducive to the public health, convenience, and welfare. Drains and watercourses may be cleaned out, straightened, widened, deepened, extended, consolidated, and relocated. Costs for these actions are apportioned on benefits received by individuals and municipal corporations.

Drains may be laid out or extended into, along, or from any lake or other body of water surrounded wholly or in part by a swamp, marsh, or other low lands for the general purpose of drainage. However the drain may not impair the navigation of any navigable river.

Established drains may be improved for the benefit of certain lands by the construction, operation, and maintenance of dams in drains to control flow, water levels and seepage, and to provide for removal of drainage when necessary by the use of pumps.

Provision is also made for granting to the United States the right to use certain easements and rights-of-way in connection with any Federal flood control project.

Districts have the powers and duties to adopt a plan of drainage and to obtain lands and right-of-way by eminent domain.

5.4.2.2 Water Management Districts

The water management district, also enabled by Act 40, P.A. 1956, as amended, is given a somewhat broader scope than the drainage district in the use and development of the water resource. The procedure for establishing a district must be initiated by governmental units and not by individuals as permitted in the function of drainage districts. Cities, village, counties, and townships may form a water management district to eliminate problems of flood damage and water conditions that jeopardize the health and safety of individuals. The district may undertake drainage and flood control improvements, which will increase the value of land and property and make advantageous use of water for agriculture, conservation, or recreation purposes. Water management districts must represent or include three or more adjacent counties. The Commission may enter into contracts with the Federal government, lease land, sell water, cooperate on erosion control, and develop recreational facilities.

5.4.2.3 Irrigation Districts

Act 205, P.A. 1967, provides for the establishment of irrigation districts in counties with a population of 400,000 or less to use waters from the Great Lakes only. This would include portions of lakes and streams tributary to the Great Lakes where the natural water levels are controlled by and at essentially the same water level as the Great Lake involved. Powers of the district provide for the creation of irrigation boards, irrigation projects, assessment and collection of taxes within such districts, issuance of bonds or irrigation orders, maintenance assessments, and the cooperation of various governmental agencies with such districts.

Water withdrawals are confined to uses that can reasonably be expected to benefit agricultural crops and cannot be to such extent as to damage specified natural resource and related public welfare and trust values.

Irrigation boards may acquire either by purchase or condemnation all lands and other property necessary for the construction, use, maintenance, repair, and improvement of any canal, drain, or drains, and land for reservoirs or dams, for the storage of water and all necessary appurtenances. The board may also acquire by purchase or condemnation any irrigation works, dams, drains, canals, pumping equipment, pump, or reservoirs for use of the district, and may construct the necessary dams, reservoirs, and works for the storage or transfer of Great Lakes water for the district.

5.4.2.4 Soil Conservation Districts

Act 297, P.A. 1937, as amended, in declaring the necessity for creating soil conservation districts, states the following:

> It is hereby declared to be the policy of the legislature to provide for the conservation of the soil and soil resources of this state, and for the control and prevention of soil erosion, and thereby to preserve natural resources, control floods, prevent impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, preserve wildlife, protect the tax base, protect public lands, and protect and promote the health, safety, and general welfare of the people of this state.

Any 25 occupiers of land lying within the limits of the territory proposed to be organized may file a petition with the State Soil Conservation Committee requesting the organization of a soil conservation district.

A soil conservation district so organized is empowered, within stipulations of the Act, to conduct surveys, investigations, and research relating to the character of soil erosion and needed control and preventive measures; to

conduct demonstration projects; to carry out preventive and control measures including engineering operations, methods of cultivation, and land use practice alterations; to furnish financial or other aid in carrying on erosion control and preventive operations within the district; to purchase, exchange, lease or receive property; to maintain, administer, improve and dispose of same; and to construct, improve, and maintain structures. The district may also develop comprehensive plans for the conservation of soil resources and for the control and prevention of soil erosion within the District.

5.4.2.5 Water and Sewage Districts

Act 211, P.A. 1956, prescribes certain powers and duties of the State Water Resources Commission relative to sewage disposal and water supply districts. Districts organized under the provisions of this Act are authorized to make surveys, studies, and investigations of water resources of the area to determine the feasibility and practicability of developing new sources of water supply to municipalities, industrial and commercial establishments, as well as to agricultural and residential lands so that "water shall be made available to the aforesaid of a quantity and quality necessary for the protection of the public health and the promotion of the general welfare within the areas."

As provided by this Act, the districts can acquire property by condemnation, purchase, gift, or otherwise; adopt programs to acquire, construct, extend, improve, or operate sewage disposal systems and water supply systems; issue bonds; make contracts and agreements with municipalities for said purposes; and empower municipalities to finance by taxes or issuance of bonds the carrying out of contracts.

Districts may be created when any two or more municipalities, by resolution of their legislative body, petition the Water Resources Commission for the organization of a sewage disposal district, a water supply district, or a combination of both in the territory described in the petition. Approval of the electorate of the units of government is then required.

5.4.2.6 Port Districts

Act 234, P.A. 1925, as amended, provides for the creation and establishment of port districts and places the control and management in a port commission.

Any city or township, any two or more whole contiguous cities or townships, or any combination may form a port district. A port district may also be composed of more than one whole county if the electors in the counties choose. No lesser port districts may be created within the limits of any established port district, and no port districts may consist of more than five whole contiguous counties.

A port district is empowered to lay out, construct, condemn, purchase, acquire, improve, enlarge, extend, maintain, and conduct and operate seawall jet-elevators, grain bins, cold storage plants, bunkers, oil tanks, ferries, canals, locks, bridges, seaways, tramways, cableways, conveyors, and modern appliances for the economical handling, storing, and transporting of freight and handling of passenger traffic and other harbor improvements, and rail and water transfer and terminal facilities.

Subject to the paramount authority of the Federal government and the State or any municipality, each port district is also empowered to regulate the construction of structures in navigable waters including the establishment of harbor lines, pierhead lines, and bulkhead lines.

Each port commission has the power to improve navigable and non-navigable streams of the United States and the State of Michigan within the port district; to create and improve for harbor purposes any waterways within the port district; to regulate and control all such waters and all natural or artificial waterways within the limits of such port districts; and to remove obstructions.

5.4.2.7 River Management Districts

By the provisions of Act 253, P.A. 1964, the governing bodies of any two or more local governments may petition the Water Resources Commission to establish a river management district to provide an agency for the acquisition, construction, operation, and financing of water storage and other river control facilities necessary for river management. Following public hearing, the Commission may adopt an order establishing the district if it is shown that the district creation would be in the best public interest.

Districts are governed by a river management board composed of representatives of local governments within the district. Powers

of the board include study of river use requirements and needs; development of plans for construction, operation, and financing of water storage and river control structures; negotiation of coordinated financing of water storage and river control structures; negotiation of coordinated policies and programs relating to river use among local governments within the district; and impoundment and control of waters, subject to established minimum flows, through acquisition, construction, maintenance, and operation of water storage reservoirs, dams, or other river control structures necessary to assure adequate quantity, quality and stability of river flow.

A district formed under this Act is a body corporate with powers to contract, sue and be sued, exercise the right of eminent domain, apportion administrative costs and benefit charges, collect revenues for services, issue bonds, and receive grants, gifts, and other devices.

River management districts do not have direct taxing powers, and any plans for a river management district must be coordinated with plans of adjacent river basins and with any comprehensive regional master programs for river basin development. Further, no river management plan may be placed into effect until it has been approved by the Water Resources Commission as conforming to the objectives stated in the originating petition.

5.4.2.8 Lake Level Assessment Districts

Act 146, P.A. 1961, as amended by Act 175, P.A. 1969, provides for the determination and maintenance of the normal height and level of the waters in inland lakes for the protection of the public health, safety, and welfare and the conservation of natural resources. It authorizes the building and maintenance of dams and embankments to accomplish such purpose; the acquisition of lands and other property by gift, grant, purchase, or condemnation proceedings; and the acceptance of funds and the raising of monies by taxation and by special assessment.

These activities may be carried out by the Department of Natural Resources or by the county board of supervisors in any county in which the waters of an inland lake are situated. The board may act upon its own motion or by petition of two-thirds of the freeholders owning land abutting the lake.

The county board may drill wells to supply the lake and raise its level or pump water from some other source, or it may arrange for the pumping of water from the lake to lower its level.

No normal water level may be established under the Act for an artificial lake created for the purpose of providing a reservoir for municipal water supply systems unless petitioned for by the governing body of the municipality.

5.4.2.9 Inland Lake Improvement Districts

Act 345, P.A. 1966, allows local governments to provide for the improvement of a lake or adjacent swampland and to take actions necessary to remove and properly dispose of undesirable accumulated materials from the bottom of the lake or swamp by dredging, digging, or other related methods. These actions may be carried out by the local governing body of any unit in which the whole or any part of any public inland lake is situated. The local governing body may act upon its own motion or by petition of two-thirds of the freeholders owning lands abutting the lake. The improvements may be made for the protection of the public health, safety, and welfare, and for the conservation of natural resources or the preservation of property values around the lake.

Similar action may be initiated for private inland lakes only upon petition of two-thirds of the freeholders owning lands abutting the lake.

The Act further authorizes the acquisition of lands and other property by gift, grant, purchase, or condemnation, and the raising of money by taxation and special assessments.

If the Department of Natural Resources deems it expedient to have a lake dredged or improved, the director may also petition the local governing body for an improvement of the lake. The Department of Natural Resources may likewise join with the local governing body of any local unit in instituting proceedings for improvements.

5.4.2.10 Special Assessment Districts

Special assessment districts may be formed to acquire, own, and operate parks or public utilities for the purpose of supplying sewage disposal, drainage, water, or transportation. These districts may be incorporated by any two or more cities, villages, or townships or any combination or parts of them. The park or public utility may be located within or outside of their limits.

5.4.3 Political Subdivisions

5.4.3.1 Counties

(1) Water Supply and Sewage Systems

Act 342 of Public Acts of 1939, as amended, the County Public Improvement Act of 1939, authorizes any county to establish a county water supply system, sewage collection and/or disposal system. Refuse collection and disposal systems with authority invested in the road commission or with the drain commissioner and under indirect control of the board of supervisors are also permitted.

Act 151, P.A. 1961, as amended by Act 191, P.A. 1970, stipulates that in counties with more than 75,000 inhabitants, properties from which sanitary sewage emanates must be connected to public sanitary sewage collection facilities, when available.

By resolution adopted by a majority vote of its members, the board of supervisors of any county may elect, authorize, and direct that there be established a county water and sewer system.

Act 342 also permits any two or more adjoining counties to contract for the establishment of refuse disposal facilities or services and to provide for an administrative agency to be composed from the membership of the counties. Such administrative agencies have all the powers and duties conferred upon a county agency under the provisions of the Act, except where specifically limited by the provisions of the Act or by the provisions of a contract. Any bonds issued to finance the construction of improvement under such a contract are the joint obligation of all participating counties.

Act 185 of Public Acts of 1957, as amended, the County Department of Public Works Act, provides that any county of 75,000 persons or more may establish a county department of public works to function in the fields of water supply and sewage collection and disposal.

The board of supervisors, by resolution adopted by two-thirds vote of its members, may establish a department of public works for the administration of the powers conferred upon the county by the terms of this Act. The board of public works may be a three-, five- or seven-man board appointed in staggered terms by the board of supervisors.

Counties do not have the power to furnish water services or sewage disposal services to individual users within any municipality unless the municipalities so request. Also, it is possible under this Act to contract outside the county limits.

Act 40, Public Acts of 1956, as amended, the Drain Code of 1956, enables county governments to establish inter- and intracounty drainage districts. These districts include provisions for water resource and sewage disposal systems and are under the authority of the drain commissioner of the county or counties involved. In the intracounty system, two or more public corporations may join together by a majority vote of their local governmental units to form a drainage district. The intercounty system is formed in a similar way, i.e., by a majority vote of the board of supervisors. No referendum is needed. These districts have the power to contract with and borrow money from the Federal government and any public or private corporation.

(2) Regulation of Houseboats

Act 68, P.A. 1957, stipulates that the board of supervisors of any county in the portions of such county outside incorporated cities and villages may regulate by ordinance the sanitation requirements and the location of houseboats on those portions of the lakes, rivers, canals, and waterways of the county under their control and jurisdiction.

(3) Surplus Waters

Act 20, P.A. 1964, known as the Surplus Waters Act of 1964, authorizes units of government to request that the State Water Resources Commission undertake a survey of the water in a river basin or watershed to determine if surplus water is available and, if so, how it may be best impounded, used, and conserved. The request for a survey may be made by a county board of supervisors or groups of boards or any city, village, township, or soil conservation district, acting singly or in concert.

The Water Resources Commission determines the optimum flow and requests the county boards to prepare a plan for impoundment and best use and conservation of the surplus waters. The plan must specify the range of stream flow variation; present and foreseeable future riparian uses; waste assimilation capacity; and its practical utility for domestic use, fish and wildlife habitat, recreation, water supply, navigation, private utilities, and water storage purposes.

No plan may permit impounding of water where the flow is below optimum flow, and the Act does not authorize diversion of water from one watershed to another.

The county board or boards administering the Act may construct, operate, and maintain dams and make use of surplus water in accordance with the approved plan; receive gifts and grants of land and other property; buy, sell, or condemn land or property interests; and charge users of the surplus water for waste assimilation or consumptive use.

The Act does not apply within the boundaries of any river management district created under the local river management act.

(4) Construction on Streams

Act 156, P.A. 1851, as amended by Act 91, P.A. 1969, empowers county boards of supervisors to permit or prohibit the construction of any dam or bridge over or across any navigable stream. They are also empowered to provide for removal of obstructions arising from booms in such streams and the collecting of logs or rafts by individuals.

Any person or corporation wishing to construct a dam across a navigable stream must file a petition with the county board of supervisors setting forth those matters specified in the statute. Prior to hearing by the board, provision is made for publication of the application and service of notice to all owners of land affected. At the hearing any person shall be heard in favor of or against the petition. The board is empowered to grant or refuse the petition. The Act provides for replacement of a permitted dam. It also requires that a copy of petitions to dam be sent to the Department of Natural Resources Commission, with notice of data and place of the hearing.

(5) Joint Waste and Water Systems—Interstate

Act 76, P.A. 1965, authorizes counties, townships, villages, cities, and any other governmental unit or entity, either singly or jointly with other local units of government, to construct or build water supply systems and waste disposal systems by agreements or contracts with governmental units, entities, or agencies of another State.

Any local unit of government, either singly or jointly with other local units of government, may also enter into contracts and agreements with local units of government in another State for securing or providing of waste disposal or water supply services by means of appropriate facilities located in either State.

(6) Beach Erosion

Act 44, P.A. 1952, authorizes any political subdivision of the State to make expenditures, either independently or in cooperation with any other political subdivision or any agency of the State and/or Federal government, for investigative or study functions related to coastal beach erosion or protection.

(7) Recreation

Act 261, P.A. 1965, as amended by Act 104, P.A. 1969, enables any county to issue bonds or notes to pay all or part of the costs of acquiring, planning, and developing parks and recreational places.

In addition, counties are able to regulate or restrict the use of water for certain purposes under their zoning powers, by regulating the use of lands adjoining a watercourse, which includes flood plains. For planning purposes, counties may join together to form regional planning commissions under Act 281, P.A. 1945, the Regional Planning Commission Act, or plan independently under Act 282, P.A. 1945, the County Planning Commission Act. Act 183, P.A. 1943, the County Regional Zoning Act, enables counties to regulate land uses via their police powers.

5.4.3.2 Townships and Villages

(1) Waterway Improvements

Act 286, P.A. 1923, authorizes townships abutting upon any navigable waters to acquire, construct, and maintain wharves, piers, docks, and landing places for public use.

Act 157, P.A. 1905, as amended by Act 308, P.A. 1941, authorizes a township to acquire by gift or device certain property for a bathing beach or other named purposes.

Act 116, P.A. 1923, as amended by Act 33, P.A. 1961, authorizes improvements for lands in townships or waters adjacent to townships by constructing bridges over natural or artificial waterways, laying storm sewers to care

for surface water in streets, constructing or acquiring sanitary sewers and sewage disposal plants, constructing filtration plants, purchasing or constructing waterworks, constructing breakwaters, retaining walls or any combination of the foregoing for beach and soil erosion control.

Act 47, P.A. 1941, stipulates that in any township where there are lands adjacent to municipalities or areas serviced by water departments or districts, the township board has the authority to contract with the governing body or other agency for the purpose of securing extensions or further extensions of water mains throughout portions of the township and to provide water services by the continued operation of such mains by the municipality water department or district. The township board is permitted to levy special assessments and issue bonds to provide the project costs.

(2) Water Supply and Sewage Systems

Act 96, P.A. 1951, authorizes that in any township where there are lands serviced by a water system financed by revenue bonds under the provisions of Act 94, P.A. 1933, as amended, having water service available for fire protection through fire hydrants and water mains, the township board may determine by resolution that the reasonable cost and value of such water service shall be borne by special assessment levied annually, while the bonds are outstanding, against all of the real property located within the district. However, no special assessments may be levied against any property in any one year in excess of 20 cents per front foot, nor may the assessment exceed 5 percent of the assessed valuation of the property in any one year.

Act 107, P.A. 1941, authorizes township boards to contract with cities or villages for the furnishing of water to township water supply districts for fire protection and domestic purposes under the terms and conditions agreed upon between the township board and the city or village. The Act further provides for installation and financing of water mains on a voluntary payment basis; the adoption of plans for financing, installation, maintenance, and control of township water mains; the provision of water supply and sewage disposal systems; and the purchase and issuance of revenue bonds to support them.

Act 207, P.A. 1953, authorizes the township board of any township having a population of 5,000 or more to contract with any city or village for water for fire protection and domestic purposes. The township boards are further permitted to borrow funds necessary to acquire and install township water facilities. Persons, firms, corporations, banks, and trust companies are authorized to loan funds for such purposes. Township boards may also pledge sales tax diversion funds accruing to such townships for the purpose of securing payment of funds so borrowed and enact such ordinances as are necessary to effectuate the foregoing. At no time, however, may the total outstanding debt under this Act exceed $250,000. The powers granted in this Act are also granted to such defined townships by other statutes.

Act 88, P.A. 1919, provides that upon the filing of petitions signed by 60 percent of the record owners of land to be made into a special assessment district, the township shall have the power to contract with any city or village for water for this portion of the township. Further provisions of the Act authorize the issuing of bonds and the levying of special assessments to partially defray costs. Cost of purchasing, laying, and maintaining the pipe is shared between the contingent fund of the township and the special assessment district.

(3) Weed Control

Under the provisions of Act 41, P.A. 1955, the township board of any township in Michigan, upon a petition signed by 25 freeholders residing within the township, may appropriate money for the purpose of controlling weeds in inland public lakes situated within the township. Any township may also enter into agreements with another township or townships in the State for the same purpose if the public lake is situated within more than one township of the State. However, poisons may not be used without the consent of the Department of Natural Resources.

(4) Flood Control and Beach Erosion

Act 278, P.A. 1952, as amended by Act 86, P.A. 1956, provides that the township board of any township, the legislative body of any incorporated city or incorporated village, or the board of county road commissioners of any county, when directed by the board of supervisors of the county, may acquire interests in lands and contract with the Federal government or any Federal agency for the purpose of

flood control, drainage control, and beach erosion control.

Such a contract may provide for the granting, with cost to the United States, of all lands, easements, and rights-of-way necessary for the construction of the project and may provide for the maintenance and operation of the project after completion in accordance with regulations prescribed by the Secretary of the Army.

They are further given the power to plan or zone for land use development by Act 285, P.A. 1931, the Municipal Planning Commission Act; Act 168, P.A. 1958, as amended, the Rural Township Planning Commission Act; Act 184, P.A. 1943, as amended, the Township Rural Zoning Act; Act 207, P.A. 1921, as amended, the City and Village Zoning Act; Act 282, PLA. 1945, as amended, the County Planning Commission Act; Act 183, P.A. 1943, as amended, the County Rural Zoning Act; and Act 281, P.A. 1945, as amended, the Regional Planning Commission Act.

5.4.3.3 Incorporated Villages and Cities

(1) Waterway Improvement

Act 3, P.A. 1895, as amended by Act 58, P.A. 1969, empowers and authorizes the village council to "lay out, establish, open, make, widen, extend, straighten, alter, vacate or abolish any . . . sewer, drain, watercourse, bridge, or culvert in the village" when deemed a public improvement or necessary for the public convenience. Incorporated villages are given the right by general tax or defrayed special assessment to pay the expenses of sewers, drains, or watercourses and to issue bond for them.

The village council is empowered "to construct and maintain sewers, drains, and watercourses whenever and wherever necessary . . . for drainage of the village."

The council of any village located upon or adjacent to any navigable waters of the State is empowered to establish, construct, maintain, and control public wharves, docks, piers, landing places, and levees on any lands or property belonging to or under the control of the village, including property at the end of public streets. The council is empowered to lease wharfing and landing privileges upon public wharves on conditions stated in the Act.

The council is authorized to establish and require conformity with grade provision for docks and wharves and to establish and prescribe dock line limits.

The Council is empowered to provide by ordinance for preservation of purity of waters of any harbor, river, or other waters within the village, and to control and regulate use of the harbor by boats to promote order, safety, and convenience, not inconsistent with laws of the United States or of this State.

The council is empowered to appoint a harbor master.

The village council is empowered to license ferries from the village to the opposite shore.

Any village having a resident population of 200 or more is authorized to purchase, construct, and maintain waterworks for supplying the village and its inhabitants with wholesome water for ordinary or extraordinary uses by the inhabitants and to construct and maintain a filtration plant.

The village is empowered to acquire, erect, and maintain waterworks reservoirs, canals, aqueducts, sluices, and buildings.

Act 5, P.A. 1870, as amended, authorizes cities and incorporated villages to acquire or construct hydraulic works for supplying cities and incorporated villages with water.

(2) Water Supply and Sewage Systems

Act 82, Public Acts of 1955, enables a city to acquire by purchase the water supply system and sewage disposal system of a metropolitan district and to permit such a city to own, maintain, operate, improve, enlarge, and extend the system either within or without its limits, and to provide for the transfer to the city, all the rights, obligations, property, and functions of the metropolitan district.

Act 130, P.A. 1945, authorizes cities to extend and improve their municipally owned water systems through acquisition and operation of joint source of water supply from one of the Great Lakes or connecting bays or waterways.

(3) Waterfront Improvement

Act 66, P.A. 1941, provides for the acquisition, improvement, and repair of waterfront facilities and for the issuance of revenue bonds in payment of the costs; the operation and control of such facilities and improvements; the granting to such cities the right to license ferries and similar commercial craft and to impose fees and charges for the

use of public piers, wharves, docks and landing places; the regulation and licensing of the construction, operation, maintenance, and business of owning private piers, wharves, docks and landing places of boats, ferries, and craft on and adjacent to any lands bordering on navigable waters; power to cancel such licenses and to make rules and regulations governing their construction, operation, and maintenance; the issuance of revenue bonds; and authorization for supervision and regulation by such cities of all lands located within their borders on such navigable waters, including lands owned by the State of Michigan.

(4) Submerged Lands Annexation

Act 4, P.A. 1955, authorizes any incorporated city or village that has a boundary on waters of the Great Lakes to annex lands submerged by the waters if they are adjacent to its boundary, the title to which is vested in a private owner pursuant to an act of the State legislature, which have no inhabitants, and are not at the time of the conveyance located in any township, city, or village.

Further, whenever the boundary of any city or village in this State is the shoreline of the Great Lakes or connecting waters, any filled-in submerged land that is attached to an extension of the upland and has been in existence for more than 15 years, and any submerged islands not within any city or village but within 300 yards of the boundary of the city or village shall be included within the boundaries of the city or village without annexation proceedings.

Planning and zoning for land use regulation and guidance are enabled through Act 285, P.A. 1931; Act 207, P.A. 1921, Act 171, P.A. 1958; and Act 281, P.A. 1945, for incorporated political subdivisions of the State.

5.4.3.4 Metropolitan Districts

(1) Water Supply and Sewage Systems

Act 312, Public Acts of 1929, The Metropolitan District Act, enables the creation of metropolitan districts to establish special assessments and to provide for the cost and expense of acquiring, owning, operating, and maintaining any public utility, i.e., water supply and sewage disposal systems. Each district may provide for operations necessary for the development and maintenance of these special districts.

Act 94, Public Acts of 1933 as amended (Act 79, P.A. 1969 and (Act 87, P.A. 1969), Revenue Bond Act of 1933, enables not only counties, cities, and villages, but also townships, school districts, port districts, and metropolitan districts to engage contracts and establish authority districts with any other public corporation or governing unit for the purpose of collecting and disposing of public waste and establishing water supply districts. This cooperation must not infringe upon the rights of other communities as stated in Act 261, P.A. 1927. Public corporations may issue bonds, levy special assessments, and impose and collect fees, rentals, and rates.

Section 4 of this Act provides in part:

> Any public corporation is authorized to purchase, acquire, construct, improve, enlarge, extend and/or repair one or more public improvements and to own, operate and maintain the same, within and/or without its corporate limits, and to furnish the services, facilities and commodities of any such public improvement to users within and/or without its corporate limits. . . . That the authority herein granted shall be further limited as follows: . . . . (c) Port districts shall be limited to such public improvements as are within the scope of their powers under acts creating the same.

Act 222, P.A. 1949, authorizes county, city, village, township, or metropolitan district or authority created by legislature to accept grants and aid from the United States government and from industries for public improvements for purposes of preventing and abating water pollution.

5.4.3.5 Home Rule Cities

Act 279, P.A. 1909, provides that among the permissible character provisions, such cities may:

> For the use, control and regulation of streams, waters and watercourses within its boundaries, but not so as to conflict with the law or action thereunder where a navigable stream is bridged or dammed, or with riparian or littoral rights without their corporate limits:
>
> . . . .
>
> For the acquiring, constructing, establishment . . . of facilities for docking of pleasure watercrafts and/or hydroplanes within its corporate limits . . ."

5.4.3.6 Fourth Class Cities

Act 215, P.A. 1895 (as amended by Acts 88 and 89, P.A. 1969), empowers these cities to provide for clearing the rivers, ponds, canals,

and streams of the city of all driftwood and noxious matter and to prevent the depositing of any filth or other matter.

The city council of any city located upon any navigable waters of the State is empowered to establish, construct, maintain, and control public wharves, docks, piers, landing places and levees, basins and canals, upon any lands belonging to or under the control of the city.

The council is also empowered to preserve the purity of the waters of any harbor, river, or other waters within the city and one-half mile from the corporate boundaries; to prohibit depositing of "any filth, logs, floating matter or any injurious thing;" and to enact ordinances and regulations not inconsistent with the laws of the United States and of the State for the orderly, safe, and convenient use and occupancy of the harbor, navigable waters, wharves, docks, piers, and landing places within the city.

The council is authorized to construct and maintain sewers and drains for drainage and under the provisions of the Act to borrow money for purchasing and constructing waterworks, and to levy special assessments.

5.4.3.7 Corporations and Authorities

(1) Waterway Improvement and Power

Act 149, P.A. 1869, as amended, authorizes the formation of corporations for the purpose of improving the navigation of rivers, by deepening the channel, and the construction of dams and canals to connect channels. Section 4 of the Act prevents the navigation of any stream under this Act until the written assent of the Governor and Attorney General has been obtained.

Act 232, P.A. 1863, as amended, authorizes the incorporation of water power companies for the purpose of maintaining, repairing, and improving any canal constructed and used for the transmission of water and the creation of water power for manufacturing uses.

Act 39, P.A. 1883, as amended, authorizes the formation of corporations for excavating and constructing, maintaining, repairing, and improving any canal already existing or which is constructed with water power appurtenances for storing, conducting, and selling water and water power for mining, manufacturing, domestic, municipal, and agricultural purposes.

Act 202, P.A. 1887, authorizes formation of corporations for damming, excavating, constructing, and maintaining watercourses for accumulating, storing, conducting, selling, and supplying water and water power for mining, milling, manufacturing, domestic, municipal, and agricultural purposes and for navigation.

Act 238, P.A. 1923, as amended, authorizes the formation of corporations for manufacturing electric energy. It also gives these corporations power to dam any stream, to excavate, construct, and improve any existing stream or canal with water power and to flood its land and property by constructing dams in any canal, creek, stream, or other watercourse.

(2) Water Supply and Sewage Systems

Act 113, P.A. 1869, authorizes formation of companies for introduction of water into towns, cities, and villages under conditions set forth in the Act. These companies are empowered to take the water from any springs, ponds, rivers, fountains, or streams, and to divert and conduct the water to the city.

Act 235, Public Acts of 1947, regulates the ownership, extension, improvement, and operation of public water and sewage disposal systems in which two or more public corporations lie. Any public corporation that is part of a larger public water or sewage disposal system is given the power to annex any part of its districts lying within the larger boundaries. A 60-percent majority vote is required for a public corporation to break away and establish its own district. Also, if two or more public corporations separate from the larger district, they may establish their own single unit either with one of the public corporations acting as an agent for all, or by a joint board of commissioners.

Act 320, P.A. 1927, as amended, authorizes counties, cities, villages, and townships, either individually or jointly by agreement, to provide a sanitary means of disposing of garbage, sewage, night soil, and storm water; to charge owners or occupants for these services; and to borrow money and issue bonds to own, acquire, construct, equip, operate, and maintain intercepting sewers, other sanitary and storm sewers, sewage disposal plants, and garbage disposal plants.

Act 233, Public Acts of 1955, provides for the incorporation of certain municipal authorities to acquire, own, extend, improve, and operate sewage disposal systems and water supply systems. This municipal authority is a public

body corporate with the powers necessary to carry out the purposes of its incorporation. Any municipality that did not join the incorporation can become a member by amending the articles of incorporation. The established authority and its constituent and municipalities are authorized to enter into any contracts in the operation of their incorporation.

Act 196, P.A. 1952, provides for incorporation of municipal authorities by two or more cities, villages, or townships to acquire, own, and operate water supply streams.

Act 4, P.A. 1957, provides for the incorporation of municipal authorities to acquire, own, and operate water supply and transmission systems, to provide a municipal charter, and to prescribe its powers and functions.

Act 34, P.A. 1917, authorizes municipal corporations to furnish water outside their territorial limits, to sell water to other municipal corporations, and to contract regarding this sale. They can contract with individuals, firms, or corporations regarding the construction of water mains, and the sale of water in such outside territory; to construct water mains through the highways outside their territorial limits; and to furnish water to individual consumers and fix their rates.

Act 6, P.A. 1956, authorizes the formation of corporations for supplying, distributing, and selling water to townships. The Act gives these corporations the right to take water from the Great Lakes, Lake St. Clair, and their bays. It also authorizes a township to contract with corporations for purchase of water and to purchase water works systems of these corporations.

Act 35, P.A. 1951, permits any municipal corporation to join with another municipal corporation by contract for ownership or operation of any facility or service that each would have power to own, operate, or perform separately. No additional powers are granted to joint operation that one community does not have acting singly.

Act 19, P.A. 1967, regulates water companies and the sale and distribution of water within the State. Water companies must obtain a certificate from the State Public Service Commission to begin construction or operation, and no service area or facility may be discontinued or abandoned by any water company until the company obtains a certificate permitting such action from the Commission.

5.5 Minnesota

5.5.1 State Departments and Agencies

State agencies having major responsibilities in water and related resources are the Minnesota Department of Natural Resources, the Minnesota Department of Health, the Minnesota Department of Highways, the Minnesota Department of Iron Range Resources and Rehabilitation, the Minnesota Geological Survey, the Minnesota Association of Soil and Water Conservation Districts, the Minnesota State Soil Conservation Commission, the Minnesota Pollution Control Agency, the Metropolitan Council, and the University of Minnesota Water Resources Research Center. In addition, various other agencies, commissions, and committees, along with the Water Resources Coordinating Committee, contribute to Statewide activities regarding water.

5.5.1.1 Department of Natural Resources

General charge and control over the water of the State and of its use, sale, leasing, or other disposition is given to the Commissioner of Natural Resources (Minnesota Statutes 84.027). He is given the power to devise and develop a general water resources conservation program for the State, which shall contemplate the conservation, allocation, and development of all the waters of the State for the best interests of the people (Minnesota Statutes 105.39). To enforce and give effect to declared policy, the legislature provided the statutory means for State control and regulations over all waters:

(1) Minnesota Statutes 105.41, Subdivision 1:

> It shall be unlawful for the state, any person, partnership, or association, private or public corporation, county, municipality, or other political subdivision of the state, to appropriate or use any waters of the state, surface or underground, without the written permit of the commissioner, previously obtained upon written application therefore to the commissioner. The commissioner may give such permit subject to such conditions as he may find advisable or necessary in the public interest. Nothing in this section shall be construed to apply to the use of water for domestic purposes serving at any time less than 25 persons or to any beneficial uses and rights, outside the geographical limits of any municipality, in existence on July 1, 1937, or to any beneficial uses and rights, within the geographical limits of any municipality, in existence on July 1, 1959.

(2) Minn. Statutes 105.42:

> Except in the construction and maintenance of highways when the control of public waters is not affected, it shall be unlawful for the state, any person, partnership, association, private or public corporation, county, municipality or other political subdivision of the state, to construct, reconstruct, remove, or abandon or make any change in any reservoir, dam or waterway obstruction on any public water; or in any manner other than in the usual operation of dams beneficially using water prior to July 1, 1937, to change or diminish the course, current or cross-section of any public waters, wholly or partly within the state, without written permit from the commissioner previously obtained. Application for such permits shall be in writing to the commissioner on forms prescribed by him.

Under this permit system, the decision of what constitutes reasonable use lies with the Commissioner of Natural Resources rather than with the property owner. With regard to water usage, the permit procedure creates a system approximating the appropriation doctrine. The Department of Natural Resources has not formally published administrative regulations and criteria for evaluating water permit applications, but past restrictions have included the prohibition against assignment of water rights, limitations on what constitutes riparian lands, establishment of priorities of use of lands, prohibitions on the transportation of appropriated water, and limitations on the amount appropriated for irrigation purposes.

The Commissioner of Natural Resources is required to promulgate model standards and criteria for the subdivision, use, and development of shoreland in unincorporated areas. In Minnesota Statutes 105.485, Subdivision 3, shoreland is defined as all lands within 1,000 feet from the normal high-water mark of a lake, pond, or flowage; within 300 feet of a river or stream; or to the landward side of the flood plain delineated by ordinance on such river or stream, whichever is greater. A public waters classification system was incorporated into the *Statewide Standards and Criteria for Management of Shoreland Areas of Minnesota*, officially adopted on June 30, 1970. These regulations provide minimum development standards for various classes of public waters, which must be reflected by July 1, 1972, in county shoreland management ordinance.

The Commissioner of Natural Resources is given broad responsibility for flood management under Minnesota Statutes 104.03, Subdivision 1:

> The commissioner shall (a) collect and distribute information relating to flooding and flood plain management; (b) coordinate local, state and federal flood plain management activities to the greatest extent possible; (c) assist local governmental units in their flood plain management activities within the limits of available appropriations and personnel in cooperation with the office of local and urban affairs and the state planning officer; (d) do all other things within his lawful authority, which are necessary or desirable to manage the flood plains for beneficial uses compatible with the preservation of the capacity of the flood plain to carry and discharge the regional flood.

The Commissioner of Natural Resources has promulgated the *Statewide Standards and Criteria for Management of Flood Plain Areas of Minnesota* as required by Minnesota Statutes 104.05. Local governmental units (cities, villages, counties and boroughs) are required to adopt flood plain management ordinances meeting these minimum standards as soon as practicable after being notified by the Commissioner of Natural Resources that sufficient technical information is available for the delineation of flood plains and floodways on a watercourse. In Minnesota Statutes 104.04, Subdivision 3, flood plain is defined as those areas adjoining a watercourse which have been or hereafter may be inundated by the regional (100-year frequency) flood. Floodway is defined to mean the channel of the watercourse and those portions of the adjoining flood plains which are reasonably required to carry and discharge the regional flood (Minnesota Statutes 104.02). Affected local governmental units (cities, villages, boroughs, or townships) may petition the Commissioner of Natural Resources to establish regulations relating to the use of watercraft (Minnesota Statutes 361.26, Subdivision 2). Upon deciding that the establishment of regulations for the body of water would serve the public interest and following a public hearing, the Commissioner of Natural Resources may establish regulations, subject to the approval of the county board of the majority of the affected counties, restricting any or all of the following:

(1) type and size of watercraft
(2) areas of water used by watercraft
(3) speed of watercraft
(4) time permitted for use of watercraft
(5) minimum distance between watercraft.

The Commissioner of Natural Resources is permitted by statute to grant permits for the drainage, diversion, control, or use of waters when necessary for mining. In 1949 the legislature granted the commissioner such powers as they related to the mining of iron ore and taconite. In 1967 the legislature expanded this permit power to copper-nickel, and nickel min-

ing. Permits may be granted under this statute upon the following determination by the commissioner:

(1) The proposed drainage, diversion, control, or use will be necessary for the mining of substantial deposits, and no other feasible and economical method therefore is reasonably available.

(2) The proposed drainage or diversion, etc., will not substantially impair the interests of the public in lands or waters except as authorized in the permit.

(3) The proposed mining operations will be in the public interest (Minnesota Statutes 105.64).

No lands of the State are to be flooded without permit, license, or lease having first been obtained from the Commissioner of Natural Resources. The commissioner is by statute specifically authorized to grant such permits, licenses, and leases (Minnesota Laws, 1967, Chapter 556).

Minnesota Statutes Section 93–43 was also amended to provide that the business of mining, producing, or beneficiating copper, copper-nickel, or nickel is declared to be in the public interest and necessary to the public welfare, and the use of property therefore declared to be a public use and public purpose. Under this statute, the Commissioner of Natural Resources is authorized to license the flooding of State lands in connection with any permit or authorization for public water issued by the legislature or by the Commission of Natural Resources pursuant to law.

With respect to mining and prospecting, the Department of Natural Resources is, with the approval of the executive council, empowered to issue rules and regulations governing the issuance of permits and leases for prospecting and mining of minerals under the waters of any public lake or stream in the State (Minnesota Statutes 93.08).

The Department of Natural Resources plays the major role in collection and compilation of data on water. Much of this work of gathering and recording data on surface waters, ground waters, and quality of water is done under an annual agreement with the United States Geological Survey, Water Resources Division. In previous years much of this basic data was collected by the United States Geological Survey under a cooperative arrangement with the Iron Range Resources and Rehabilitation Commission.

The data collection projects presently in operation are numerous. Gages are in use to measure lake water levels. Stream gaging is carried on to measure crests on high flows of Minnesota's streams and rivers. Various records are maintained by the Division of Waters, Soils, and Minerals from information supplied by permit holders regarding waters appropriated in accordance with their permits. Municipalities furnish information based on their annual water-use records.

Well logs are required to be filed with the Department by well drillers and contractors. In addition, State personnel conduct tests throughout the State to measure groundwater levels in various geologic formations. Analyses are continually being conducted on well-formation samples. In addition, private organizations and the Game and Fish Division contribute analysis test samples from lakes and streams located throughout the State.

The Bureau of Engineering has as a major task: the preparation of topographic maps and the survey of lands for acquisition and development for fish and wildlife management, boating, and swimming. The Bureau is also engaged in the study of public access sites, forestry campgrounds, and all phases of park development. The Bureau cooperates with the United States Geological Survey, particularly in the area of topographic mapping.

Four divisions of the Department of Natural Resources are engaged in various planning programs. The Division of Forestry is preparing a forest management plan which includes inventory of land, timber, growth, planting needs, and lake and river recreation on a district basis. The Game and Fish Division continues on programs of planning for selected watersheds. The project includes inventories of lakes, marshes, streams, and upland game habitat. The Bureau of Planning has published an outdoor recreation plan, "Minnesota Outdoor Recreation Preliminary Plan 1968." Hydrologic reports on each of 39 watersheds covering the State are being prepared under a cooperative agreement with the Division of Waters, Soils and Minerals, and the United States Geological Survey.

The game and fish laws are found in Minnesota Statutes, Chapter 97, and the primary responsibility for their implementation rests with the Division of Game and Fish. Of particular relevance to the control and use of Minnesota's waters are the following powers specifically granted to the commissioners in connection with game and fish management:

(1) The commissioner may enter into contracts with bordering States relating to the removal of rough fish in boundary waters between Minnesota and those States. He may

also regulate the taking and possession of fish and mussels from such areas (Minnesota Statutes 97.48, Subdivisions 2 and 3).

(2) The commissioner can set aside and reserve for any period any waters of the State to aid the propagation and protection of wild animals (Minnesota Statutes 97.48, Subdivision 11).

(3) The commissioner is empowered to acquire, by gift, lease, and purchase of condemnation, access rights for the public to waters which had no access or inadequate access (Minnesota Statutes 97.48, Subdivision 15).

(4) The commissioner may designate all or part of any lake that does not exceed 2,000 acres of water, or any stream, as experimental waters and establish regulations relating to it after a public hearing held in the county where the lake or stream is located (Minnesota Statutes 97.48, Subdivision 15).

(5) The commissioner may, by gift, lease, purchase, or trade of other State lands, acquire wildlife land, including marsh and wetlands, small lakes, and stream bottom lands necessary for water conservation relating to wildlife development programs (Minnesota Statutes 97.481).

(6) The commissioner also has the power to designate any land or water areas, more than 50 percent of which are in public ownership, as State game refuges (Minnesota Statutes 99.25).

In addition to the planning programs and projects affecting recreational uses of water and related land resources the Division of Parks and Recreation is also responsible for a continual program of maintaining facilities to accommodate people engaged in outdoor recreational activities in State parks and historical places of interest.

There are also local and regional private organizations that actively promote and foster programs to enhance the State's stock of game fish and fowl.

Various divisions within the Department of Natural Resources conduct extensive research programs. The Section of Water within the Division of Waters, Soils, and Minerals, is concerned with analysis of basic data and interpretive studies of water resources. Studies are made for improvement of lakes and streams, determination of the natural ordinary high-water mark of lakes, and for the protection of lakes and streams. In general, studies are aimed at providing quantitative criteria in areas where causes and effects are only vaguely understood.

The Game and Fish Division engages in extensive research programs for water and related land resources. Programs currently in operation include investigation of pollution as it affects game and fish; pesticides investigation; fish diseases and parasites; evaluation and experimental development of wetlands and any other game habitat; banding and marking of ducks; walleye studies in lakes; Lake Superior steelhead trout studies; and numerous other studies affecting many species of fish, fowl, furbearers, and their natural environment. In addition, the research section surveys and maps fish, lake, stream, and game areas. To date, more than 7,000 of these surveys have been completed.

5.5.1.2 Department of Health

State agencies such as the Department of Health's Section of Water Supply and General Engineering supplement the efforts of the Department of Natural Resources and the United States Geological Survey in the area of available supplies of water. This assists water users in efforts to fulfill their needs. The Division of Waters, Soils, and Minerals, in conjunction with the Bureau of Engineering, assists the Division of Parks and Recreation in the construction and maintenance of wells, dams, and control structures for recreational pools and domestic consumptive use. The Bureau of Engineering drills wells to supply water for State use on conservation lands. The Department of Health's Water Supply Section examines plans and prepares reports on plans for public water supplies, plumbing systems, swimming pools, and sewage systems not discharging to surface draining courses. It examines and licenses mobile trailer courts, and inspects children's camps, immigrant labor camps, and industrial camps. It also offers technical advice and assistance to communities in their overall development of water supply and treatment.

To insure continued quality, the Department of Health and the Minnesota Pollution Control Agency assume leading roles among State agencies. The Department of Health's main function is the prevention of disease, disability, and premature death through the application of preventive medicine and the elimination of health hazards. In helping to accomplish these objectives, the Division of Environmental Sanitation is most directly concerned with water. Programs intiated by the Division are aimed primarily at the control and understanding of environmental factors

concerning acceptable public water supplies, adequate sewage treatment facilities, control of industrial waste products, inspection of more than 21,000 hotels, restaurants, and resorts on a yearly basis, and various radiation control programs.

5.5.1.3 State Board of Health

The State Board of Health is empowered by Minnesota Statutes 144.12 to adopt and enforce regulations to control, among other things:

(1) the pollution of streams and other waters

(2) the distribution of water by private persons for drinking or domestic use

(3) the accumulation of filthy and unwholesome matter injurious to public health

(4) the general sanitation of tourist camps, summer hotels, and resorts in respect to water supplies and the disposal of sewage, garbage, and other wastes.

5.5.1.4 Highway Department

The Minnesota Highway Department is responsible for maintaining proper drainage of State highways and perpetuating the drainage systems. The hydrologic unit of the Department handles the job of inspecting, repairing, and improving drainage projects affecting the State's highway system. Problems dealing with sedimentation and erosion are also studied by the Highway Department, as well as other State agencies, in cooperation with the Corps of Engineers. New methods, approaches, and equipment are sampled and tested constantly.

5.5.1.5 Minnesota Resources Commission

To provide a basis for the establishment of a long-term comprehensive program to preserve, develop, and maintain the natural resources of the State, the legislature enacted the Omnibus Natural Resources and Recreation Act of 1963 (Minnesota Statutes 86.06–86.12). The resources to which this application is directed included lakes, rivers, and streams. This legislation provided for the essential planning for both ground- and surface-water research necessary for recreation and conservation purposes, including hydrologic studies. It was also intended to provide an inventory of presently available outdoor recreational resources.

In 1967 the purpose of this Act was revised by the legislature to provide the legislature with the background necessary to evaluate proposed programs to preserve, develop, and maintain the natural resources of the State. The long-range planning function was eliminated (Minnesota Laws 1967, Chapter 867).

The Minnesota Resources Commission comprises seven members of the senate appointed by the Committee on Committees, and seven members of the house appointed by the speaker (Minnesota Statutes 86.07).

5.5.1.6 State Planning Agency

In a letter of intent to the Federal Water Resources Council dated September 2, 1966, Governor Rolvaag designated the State Planning Agency to administer Title III funds of the Federal Water Resources Planning Act of 1965. Responsibility for water and related land resources planning in State government was assigned to the State Planning Agency because of its ability to provide needed interdepartmental coordination. Current staffing of the State Planning Agency includes a natural resources planning director position. This position provides ongoing review and coordination of planning programs in natural resources, including water and related land resources.

The Water Resources Coordinating Committee was established under the supervision and control of the Natural Resources Planning Director. Its main objectives are to assist the State Planning Agency in an advisory capacity and to undertake the following primary functions:

(1) encourage State, Federal, local and private organizations to cooperate with one another in the definition and solution of the State's water and related land resources planning programs

(2) establish, where necessary, and maintain liaison with the various Federal and State agencies previously mentioned

(3) participate in Federal, Federal-State, or interstate comprehensive water and related land resources planning

(4) participate in water pollution control programs in the State

(5) prepare a comprehensive Statewide water and related land resources plan in harmony with comprehensive planning of other resources of the State and in light of local,

regional, national, and international water and related land resources plans

(6) provide for the State training of qualified personnel

(7) sponsor conferences, meetings, seminars, and other informational and educational programs dealing with water and related land resources.

The Coordinating Committee will not, under normal circumstances, become directly involved in work on any specific program.

5.5.1.7 Water Resources Board

The 1955 Legislature, in creating the Minnesota Water Resources Board, provided that the Board be composed of members conversant with water problems and conditions within the watershed of the State other than government employees. It also provided that the membership of the Board could be increased by the governor to five members. Although the Board was given the power to employ such technical and professional personnel as it might require, funds have not been appropriated to allow for such employment.

The declared intention of the legislature when creating the Water Resources Board was to create a forum where the conflicting aspects of public interest involved could be presented and a controlling water policy be determined. The intent was to have the issues resolved by one State agency conversant with the whole body of water law. The need to effect a systematic administration of water policy for the public welfare out of a code of water law contained in numerous statutes was expressly recognized (Minnesota Statutes 105.72).

The Board is given authority to decide questions of water policy where the use, disposal, pollution, or conservation of water is a purpose, incident, or fact in a proceeding that involves a question of State water law and policy (Minnesota Statutes 105.73). The Board may also resolve inconsistencies between statutes and may determine the proper application of that policy to facts in the proceeding when application is a matter of administrative discretion.

The decision-making power given to the Water Resources Board can be invoked when the proceeding of an agency involves a question of water policy in one or more of the areas of water conservation, water pollution, preservation and management of wildlife, drainage, soil conservation, public recreation, forest management, and municipal planning. The Board's jurisdiction can be invoked by petition by any party to such a proceeding, the governor, the agency, the commissioner of conservation, or the director of any division of the Department of Conservation, the head of any other department of State and any bureau or division of the Federal government whose function is concerned in such a proceeding. Moreover, any person or group who the Board deems representative of any substantial segment of the State or particularly able to present evidence bearing on the public interest may also petition (Minnesota Statutes 105.74, 105.75).

In addition, if the court is involved in a matter concerning the question of water policy of a nature enumerated in the foregoing paragraph, it may ask to have the matter referred to the Board (Minnesota Statutes 105.51).

Upon such a petition, the proceeding abates until recommendation by the Board or until 60 days after the conclusion of the hearing before the Board, whichever is earlier. Consent of the Board to hear a matter is shown by a brief statement in general terms of the questions of public policy that the Board will consider.

The Board then is to proceed with all reasonable dispatch to hear, determine, and make its recommendations on the questions it has consented to consider. The decision of the Board is in the form of a written recommendation. In the proceeding and upon any judicial review, the recommendation is evidence (Minnesota Statutes 105.77).

5.5.1.8 Pollution Control Agency

In 1967 the Minnesota legislature created the Pollution Control Agency to deal directly with problems relating to water and air pollution in Minnesota.

By Minnesota Statutes 116.02, Subdivision 5, the Pollution Control Agency is the successor of the Water Pollution Control Commission, and all powers and duties now vested in the commission by Minnesota Statutes Chapter 115 are transferred to the Pollution Control Agency. The former Water Pollution Control Commission was given the following powers and duties:

(1) to administer and enforce all laws relating to the pollution of any waters of the State

(2) to investigate and gather data desirable in the administration and enforcement of the pollution laws

(3) to classify the waters of the State

(4) to establish and alter pollution standards for any waters of the State in relation to the public use

(5) to make and alter orders requiring the continuance of the discharge of sewage, industrial wastes, or other wastes, which results in pollution in excess of the applicable pollution standard in any waters of the State

(6) to require and approve plans for disposal systems, and to inspect their construction

(7) to issue, continue, or deny permits for the discharge of sewage, industrial wastes, or other wastes, or for the installation or operation of disposal systems (Minnesota Statutes 115.03).

Any of the permits can be revoked or modified whenever necessary. The Commission was also empowered with the ability to prescribe and alter rules and regulations for the conduct of the powers granted to it, and to hold investigations and hearing as is deemed advisable (Minnesota Statutes 115.03).

To control water pollution by municipalities, the Pollution Control Agency is granted the power to issue, modify, or revoke orders after due notice and hearing for the following purposes when deemed necessary to prevent, control, or abate pollution:

(1) prohibit or direct the abatement of any discharge of sewage, industrial waste, or other waste into the waters of the State

(2) prohibit the storage of any liquid in a manner that does not reasonably assure proper retention against entry into any waters of the State

(3) require the construction, installation, maintenance and operation by any municipality of any disposal system or the reconstruction, alteration, or enlargement of its existing disposal system, or the adoption of other remedial measures to prevent, control, or abate pollution or discharge of sewage or other waste by a municipality (Minnesota Statutes 115.43).

It is specifically provided by Minnesota Statutes 115.43 that in exercising the foregoing powers, the Pollution Control Agency shall give due consideration to the expansion of business, commerce, and trade and other economic factors affecting the feasibility of any proposed action, including the burden on a municipality of any tax. The former Water Pollution Control Commission was required by statute to prepare a long-range plan and program for effecting the abatement of pollution of all waters of the State. The succeeding Pollution Control Agency is given the specific task of studying and investigating the problems of solid waste control and problems concerning the uses of land in areas of the State that are affected by the pollution of air and water, and reporting to the Governor and the legislature not later than February 15, 1969.

In addition to the amendment of Section 105.65 in 1967, the legislature specifically gave the copper, copper-nickel, and nickel mining industries the right to use water from Birch Lake and the south Kawishwi River and, in connection with their operation, to flood or otherwise affect lands of the State adjacent to that lake and river subject to the conditions that the industry obtain a permit pursuant to Chapter 105, and that the water withdrawn from the lake and river be returned to the drainage basin from which it is taken in conformity with the water quality standards established by the Water Pollution Control Commission or other pollution control agencies.

The industry was also required to obtain from the Water Pollution Control Commission a permit for the maintenance of disposal systems in connection with such operations.

5.5.1.9 Water Pollution Control Advisory Committee

In 1971 the legislature created a water pollution control advisory committee consisting of two members from each congressional district of the State. The members of the committee are appointed by the Governor with the advice and consent of the senate. This committee has rarely functioned and apparently is not presently in existence.

The committee is charged with assisting the Pollution Control Agency in the performance of its statutory powers and duties and formulating a general Statewide comprehensive policy for the conservation, use, and development of the water resources and other interrelated natural resources of the State. It is also charged with advising the Commission concerning the prevention, control, and abatement of pollution and the establishment of a reasonable pollution standard for the waters of the State.

The committee is to maintain liaison between the Pollution Control Agency and the communities, industries, and persons concerned with water resources. It is also to assist in programs designed to inform the public of the importance of conservation, use, and de-

velopment of the water resources of this State, and the prevention, control, and abatement of water pollution (Minnesota Statutes 115.17).

5.5.1.10 Water Resources Research Center

Since its inception in September 1964, the Water Resources Research Center has been a major contributor and coordinator of research efforts in water and related land resources. The Center is under the auspices of the University of Minnesota Graduate School. A primary objective of the Center is to coordinate University research with the resource programs of local, State, Federal, and private agencies. The Center also provides a valuable service by acting as an information exchange through distribution of circulars, newsletters, and bulletins.

Through constant compilation of gathered data, the center is able to assist and advise other agencies of needed research in areas of water resources which may have been neglected or are in need of reevaluation.

In addition to present studies, the importance of planning for future research is not overlooked by the Center. With the assistance of advisory committee members and consulting council representatives, the Center formulates priority lists on future subjects of research.

5.5.2 Special Purpose Districts

5.5.2.1 Watershed Districts

To carry out conservation of natural resources of the State through land use and flood control upon sound, scientific principles, a public corporation known as a watershed district may be established for the protection of the public health and welfare and for the provident use of the natural resources (Minnesota Statutes 112.34).

A watershed district is established by the filing of a nominating petition with the Water Resources Board. The nomination petition is required to set forth the name of the proposed district, the necessity for the district, a statement setting forth the purposes of the contemplated improvements, and the territory to be included in the district (Minnesota Statutes 112.37).

After the watershed district is established and the first board of managers qualified, the managers are required to adopt an overall plan for any or all of the purposes for which a district may be established. A copy of this plan is transmitted to the county auditor of each county affected, the secretary of the Water Resources Board, the Commissioner of Conservation, the Director of the Division of Waters, Soils, and Minerals, and the governing bodies of all municipalities and soil conservation districts within the area, who may make comments and recommendations. Following a public hearing, the Water Resources Board issues an order describing an overall water management plan for the district (Minnesota Statutes 112.46).

The managers of a watershed district shall, when directed by the district court or county board, take over any judicial or county drainage system within its district (Minnesota Statute 112.65).

5.5.2.2 Drainage and Conservancy Districts

The district courts of any county were formerly empowered to establish drainage and conservancy districts. However, since May 21, 1965, formation of new drainage and conservancy districts has been prohibited (Minnesota Statutes 112.76). Previously existing drainage and conservancy districts have largely been abandoned or reorganized as watershed districts.

5.5.2.3 Soil Conservation Districts

The policy of the State of Minnesota, as articulated by the legislature, is set out in Minnesota Statutes 40.02, as follows:

> It is hereby declared that it is for the public welfare, health, and safety of the people of Minnesota to provide for the conservation *of the soil* . . . for land resource planning and development, and for flood prevention or the conservation development, utilization, and disposal of water including but not limited to measures for fish and wildlife, and recreational development, and thereby preserve natural resources, control floods, prevent impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, preserve wildlife, protect the tax base and protect public land by land-use practices, as here provided for.

The portion of this statute that starts with "for land" and ends with "and recreational development" was added by the legislature in 1965, indicating an increased awareness of the link between water utilization and conservation and land resource planning and development.

To effect these policies, a State soil conservation committee was established, and provision made for the establishment of soil conservation districts, which become governmental subdivisions of the State, vested with extensive powers over all phases of soil conservation (Minnesota Statutes 40.07).

5.5.2.4 Regional Sanitary Sewer Districts

In Minnesota Statutes 115.61–115.67, the 1965 legislature provided for regional sanitary sewer districts to provide a method by which municipalities in a drainage area designated by law may join together to prevent water pollution in excess of reasonable standards. The districts created by these sections are municipal corporations, responsible for the collection, treatment, and disposal of sewage in all municipalities within its corporate limits for the purpose of preventing pollution of public waters in excess of the permitted standards. Each district is responsible for planning and for the collection, treatment, and disposal facilities for all municipalities within its drainage area.

5.5.2.5 Sanitary Districts

Minnesota Statutes 115.19 provides for creation of a sanitary district to promote public health and welfare by providing for an adequate and efficient system of collecting, conveying, pumping, treating, and disposing of domestic sewage, garbage, and industrial waste within a district where the Pollution Control Agency finds there is need, and that such purposes cannot be accomplished by any existing agency. No sanitary district may be created within 25 miles of the boundary of any city of first class without the approval of the governing body of the city and the approval of the governing body of every municipality in the proposed district.

Specifically such district may do the following:

(1) construct and maintain facilities within or without the district required to control and prevent pollution of waters within its territory

(2) construct and maintain facilities within or without the district to provide for disposal of sewage and industrial or other waste originating within its territory. The district has the power to require the use of its disposal facilities by any person upon whose premises there is a source of sewage and industrial or other waste

(3) construct and maintain facilities within or without the district to provide for the disposal of garbage or refuse originating within the district. The district may require any person upon whose premises garbage is produced to dispose of it through its system

(4) procure supplies of water necessary to accomplish its purposes.

5.5.2.6 Port Authorities

A commission known as a port authority was established by the legislature to serve any city of more than 50,000 inhabitants situated upon a port or harbor located on a navigable lake or stream. Port authorities located upon the Great Lakes-St. Lawrence Seaway System are known as seaway port authorities (Minnesota Statutes 458.09). Generally, port authorities are charged with the duties of promoting the general welfare of the port district, endeavoring to increase its volume of commerce, provision of adequate facilities, and the promotion of efficient, safe, and economic handling of commerce.

5.5.3 Political Subdivisions

5.5.3.1 Counties

The county boards of the various counties and the district courts are authorized to construct and maintain public drainage systems in accordance with Minnesota Statutes Chapter 106.

Such boards and courts are also authorized by statute to drain in whole or in part lakes that have become shallow and have marshy character and are not of sufficient depth or volume to be of any substantial public use. A meandered lake is not to be drained, except on the determination of the commissioner of conservation that such lake is not a public water.

In connection with the power of the county boards and district courts to regulate drainage and control flood waters, such boards are authorized to raise, lower, or establish the height of water in any body of water. The board or court can construct and maintain all necessary structures and improvements for flood control and other public purposes relating to flood control. The public water policy underlying the drainage legislation is the rec-

lamation of land by the removal or management of surface water.

Upon permission of the Commissioner of Conservation, the county boards are given the power to maintain and improve and operate water control works for any body for any of the following reasons:

(1) to improve navigation

(2) to promote the public health, safety, and welfare (Minnesota Statutes 110.21).

The county board is given the power to acquire by gift, purchase, or condemnation any existing dam or control works that may affect the level of such waters. The county board is also given the power to acquire other land property needed for the purpose of improving any body of water (Minnesota Statutes 110.122).

The legislature has provided that there shall be no improvements either by county boards or municipalities unless the public has access to some portion of the shore.

In addition to the general powers granted to all county boards, certain counties are given the additional power to determine and award damages to property affected by such improvements and to determine special assessments against property benefited in any way from such improvement. A system of determining special assessments for Hennepin County is set out in Minnesota Statutes 110.127.

Chapter 361 of the Minnesota Statutes establishes watercraft licensing requirements of Minnesota, as well as a comprehensive set of water safety rules. The sheriffs of the counties are responsible for enforcing the water safety rules maintaining a program of search and rescue, posting and patrol, and inspecting watercraft for hire.

5.5.3.2 Metropolitan Council

The 1967 Legislature, by Chapter 896, created a Metropolitan Council for the seven-county area composed of Anoka, Carver, Washington, Ramsey, Hennepin, Dakota, and Scott Counties. The Metropolitan Council, which succeeds to the powers and duties of the former Metropolitan Planning Commission, is governed by a board appointed by the Governor. The 15-member board includes 14 members from council districts and a chairman appointed at large with the advice and consent of the senate. The council is given broad powers in the area of water resources and is directed to prepare a comprehensive development guide for the metropolitan area that recognizes physical, social, and economic needs. All requests by local governmental units for Federal loans or grants must be submitted to the council. In the field of water resources, the council is authorized to study the feasibility of programs relating but not limited to water supply, refuse disposal, surface-water drainage, transportation, and other subjects of concern to residents of the metropolitan area.

5.5.3.3 Cities, Villages, and Boroughs

A municipality can improve any body of water lying within a city, village or borough in this State (Minnesota Statutes 110.126).

5.5.3.4 Cities of the First Class

Cities of the first class have the right and power to condemn lands to harbors, wharves, boat landings, and canals and approaches (Minnesota Statutes 458.24). Such cities are also authorized to establish and maintain public landings, wharves and docks, transfer railroad tracks, and loading, unloading, transfer, and storage facilities. The cities may charge reasonable fees to maintain such facilities and regulate the manner of their use (Minnesota Statutes 458.25).

5.5.3.5 Cities of the Second Class

Cities of the second class located upon navigable boundary waters have the power to acquire, by purchase or condemnation, land for the establishment of docks, wharves, and water terminal facilities (Minnesota Statutes 458.42). Such cities also have the power to construct facilities on the land and to charge a reasonable price for their use.

5.5.3.6 Chartered Cities

Chartered cities having population of not less than 4,000 nor more than 50,000 are empowered to acquire land for passenger or freight transportation terminals by purchase or condemnation (Minnesota Statutes 458.02). Such cities are also empowered to construct and maintain docks, wharves, and other water transportation facilities and to charge a reasonable price for their use.

5.6 New York

5.6.1 State Departments and Agencies

5.6.1.1 Department of Environmental Conservation

The new Department of Environmental Conservation was created to consolidate under one department various existing State programs involving the quality of the environment, water resources planning, development and management, and programs relating to air, land, and water pollution.

The functions and duties of the former Water Resources Commission were transferred to the new Department. The Department also continues to coordinate the functions of affected State agencies concerned with water resources planning, development, and management.

Duties formerly under the jurisdiction of the Water Resources Commission, which are continued by the Department of Environmental Conservation, include:

(1) planning, developing, and managing the State's water resources

(2) undertaking studies on a regional basis, preferably with local participation, for the protection, conservation, development, and use of water resources within any region of the State

(3) apportioning water for public water supply systems

(4) investigating the purity of public water supply systems and the works constructed

(5) controlling well drilling on Long Island

(6) licensing certain public corporations for the diversion of certain water used in the generation of power

(7) classifying the waters of the State and establishing standards of quality and purity

(8) draining agricultural lands, primarily through districts set up for this purpose

(9) regulating rivers and river improvements through districts set up for these purposes

(10) implementing flood control and flood plain management and planning public water supply systems for intermunicipal areas

(11) protecting stream beds from disturbance, controlling dredging and fill in navigable waters, and controlling the construction of dams and docks.

The Department also acts as the agent for the State of New York in partnership ventures with Federal and local entities and represents the State's interest in interstate water resources planning and development activities.

The tentative structure of the new Department is presently under review by a departmental task force created for this purpose. Although the new organizational structure has not been finalized, it is anticipated that the Department will be organized under three deputy commissioners having program responsibilities for environmental quality, environmental management, and environmental field services.

The general field of environmental quality includes the various functions and activities of the Department of Health which have been transferred to the new Department. These include all aspects of the program for pollution abatement under the Pure Waters Program and various programs for air resources and solid waste pollution.

Some of the specific activities that will be carried out regarding water pollution include the following:

(1) enforcement of water pollution control laws

(2) technical aspects relating to the establishment of standards of water purity for appropriate usage and for the classification and reclassification of bodies of water

(3) review and approval of plans for sewage disposal systems

(4) studies of municipal and intermunicipal sewage facilities

(5) administration of programs of State grants to municipalities for the construction of sewage and waste treatment facilities

(6) grants for the operation of these facilities and research in the treatment of sewage and industrial wastes.

It is anticipated at this time that activities in all regional and district offices will be coordinated through an Office of Environmental Field Services. It is also anticipated that a new unit will be set up to deal directly with urban affairs.

Environmental management will include the former units of the old Conservation Department covering the areas of fish and wildlife, lands and forests, mineral resources, marine resources, and water resources.

Staff services under general administration, communications, ecological research and planning, and legal affairs will also be provided.

It should be further noted that until the final structure of the new Department is finalized, it is not known exactly how the

major program areas and the staff services indicated above will be interrelated.

5.6.1.2 State Environmental Board

Under the legislation that created the new Department of Environmental Conservation, a State Environmental Board was also created within the Department. The Board consists of 15 members, with the Commissioner of Environmental Conservation serving as chairman and the Commissioner of Health serving as vice-chairman. Other members include the Commissioner of Agriculture and Markets, the Commissioner of Commerce, the Commissioner of Transportation, the Commissioner of Parks and Recreation, the Commissioner of the Office of Local Government, the chairman of the Public Service Commission, and the Industrial Commissioner.

The membership is completed by six lay members appointed by the Governor with the advice and consent of the Senate. Of these six members, one represents the conservationists of the State, one represents industry, and four represent the fields of public health, natural sciences, agriculture, urban studies, or other disciplines relating to the environment, ecology, or natural resource management. The Director of the Office of Planning Coordination and the Chairman of the Council are also entitled to attend and participate in the meetings of the Board, but they cannot vote.

The Board assists the Commissioner of Environmental Conservation in the review and appraisal of programs and activities involving the quality of the environment. The Board also passes on every environmental standard, criterion, rule, and regulation proposed by the Commissioner of Environmental Conservation. The Board serves as a working forum for the exchange of views, concerns, ideas, and information relating to the quality of the environment.

The Board has an executive secretary and draws on staff services from the Department of Environmental Conservation.

5.6.1.3 Council of Environmental Advisers

The legislation creating the Department of Environmental Conservation, in addition to creating a State Environmental Board, further created a Council of Environmental Advisers to provide special counsel to the Governor on environmental policy matters affecting the State. The Council consists of seven members who are private citizens appointed by the Governor.

The primary function of the Environmental Advisers is to provide an overview in both the public and private sector in matters affecting the environment, to develop guidelines for weighing complex interrelationships between environmental quality, economic development, and population growth, and to recommend State environmental policies, including legislation.

5.6.1.4 Environmental Facilities Corporation

Under legislation adopted in 1970 (Chapter 774, Laws of 1970) the State's Pure Waters Authority was expanded and reconstituted as the Environmental Facilities Corporation. The new corporation continues to offer the services offered by the former Authority and will also be able to provide expanded services in several new areas.

The Corporation is a public benefit corporation designed to assist municipalities and State agencies by providing needed facilities to abate air, water, and solid wastes pollution. For a fee, the Corporation can provide a full range of services to a community: planning, designing, financing, constructing, operating, and maintaining sewage treatment plants, sanitary landfills, or other desired waste-management facilities. The Corporation can also provide a construction-management service to a community under a "turnkey" arrangement, whereby the project is turned back to the municipality for operation after construction by the Corporation. The following are new capabilities which the Corporation can offer under the new legislation:

(1) contract with municipalities, as well as State agencies, for the planning, financing, and construction of water management facilities, including water treatment and transmission facilities for public water supply systems

(2) provide a community or State agency with appropriate facilities, such as a park or golf course, on the site of a waste-management project, such as a sanitary landfill

(3) contract to perform research and testing in waste management for private businesses and industries.

The Commissioner of the Department of Environmental Conservation serves as Chairman of the Environmental Facilities

Corporation. The Corporation also has a president and its own staff.

5.6.1.5 Office of Parks and Recreation

Under the legislation establishing the Department of Environmental Conservation, the functions of the Division of Motor Boats and the Division of Parks in the Conservation Department were transferred to a new Office of Parks and Recreation in the Executive Department.

The State Council of Parks and Outdoor Recreation, the New York State Historical Trust, the Natural Heritage Trust, all regional State Park Commissions, and the Saratoga Springs Commission continue in existence in the Office of Parks and Recreation.

Activities of the former Division of Motor Boats transferred to the new Office of Parks and Recreation include the establishment of standards for boating safety and sanitation, the inspection of public vessels, education regarding the use of motor boats, the review of local ordinances governing navigation on State waterways, and a program of aid to counties for enforcement of the Navigation Law.

5.6.1.6 Department of Health

As was previously noted, the activities and jurisdiction of the Department of Health in the field of pollution abatement have been transferred to the Department of Environmental Conservation.

The Department of Health continues to have primary responsibility for the quality and control of public water supplies and for various aspects of environmental conservation involving public health. The Department of Health, in cooperation with the Department of Environmental Conservation, continues to review and appprove plans for public water supply systems and initiates and coordinates studies for municipal and intermunicipal water supply facilities.

5.6.1.7 Department of Transportation

This Department is the successor to the Department of Public Works and assumes responsibility for the improvement, operation, and maintenance of the 524 Mile State Canal System under Chapter 717 of the Laws of 1967. This includes the operation of 57 locks, dredging, repair of banks, maintenance of canal dams, reservoirs, aids for navigation and safety, and the regulation of the use of canals by pleasure craft and commercial vessels. This Barge Canal system, together with the Hudson River, links New York City with Lake Champlain and the Great Lakes.

The 1967 legislation, which terminated the Department of Public Works and created the Department of Transportation, transferred and assigned the functions, powers, obligations, and duties of the former Superintendent of Public Works and the Department of Public Works pertaining to flood control and shoreline and beach erosion control to the former Conservation Department. These functions, which are new under the jurisdiction of the Division of Resource Management Services in the Department of Environmental Conservation, include activity in project land acquisition negotiation and performance of work under local cooperation requirements and the furnishing of assurances to the Federal government, preparation and administration of various contracts, and the operation and maintenance of constructed projects.

5.6.1.8 Department of Agriculture and Markets

The Department of Agriculture and Markets has the responsibility of overseeing the production, processing, and distribution of the State's agricultural products. Consequently meeting present and future needs of farmers is of primary interest to the Department. It estimates these needs, evaluates the benefits that will accrue if water is furnished for nondomestic use, such as irrigation, and estimates the repayment capacity of agricultural lands for supplemental water supplies.

5.6.1.9 Department of Law

The Department of Law's Bureau of Water and Air Resources handles all legal actions, proceedings, and appeals involving the abatement of air and water pollution and the disposal of solid wastes. The Bureau also defends the Department of Environmental Conservation on review proceedings involving these matters.

5.6.1.10 Department of Commerce

Industrial and recreational development

within the State are important responsibilities of the Department of Commerce. Business firms now located in New York insist on adequate supplies of fresh water for their operations, and new industries are attracted to the State because there are sufficient quantities of fresh water.

5.6.1.11 Office for Local Government

This agency in the Executive Department aids local governments in developing more effective services by securing aid and assistance from other State agencies and the Federal government. It acts as a clearing house for information and makes studies to solve problems common to many local governments. Important among these are the improvement of water supply facilities and the fight against polluted waters.

5.6.1.12 Office of Planning Services

In New York State the Office of Planning Coordination has been superseded by the Office of Planning Services.

The Office of Planning Services is located within the Executive Department and encourages and facilitates cooperation and collaboration among all agencies and levels of government and the private sector, for the protection and development of human, natural, and man-made resources. It aids in the review of planning and development activities of State agencies and aids in the conduct of planning activities for State functions. Finally, it acts as the official State planning agency with regard to the Federal Housing Act, the Federal Appalachian Regional Development Act, and the Federal Public Works and Economic Development Act.

5.6.1.13 Atomic and Space Development Authority

This agency comprises five members appointed by the Governor with the consent of the Senate. This agency, in the Executive Department, was originally created to encourage the development of public and private atomic research. Its scope has since been broadened to include the licensing and inspection of plants employing radioactive materials. The agency is currently planning water desalination facilities on Long Island.

5.6.1.14 Department of Public Service

The regulation of public utilities in New York State, including privately owned water companies with a property value of $30,000 or more, is the responsibility of the Public Service Commission.

These water utilities serve 10 percent of the people of New York State. The Commission's statutory powers extend over all matters concerning rates and charges, finances, and adequacy of service. The staff investigates, analyzes, and reports on these matters to the Commission. In formal proceedings before the Commission, staff members testify on property valuation, rates and charges, service, and finances.

5.6.1.15 Power Authority of the State of New York

The Power Authority was created in 1931 to improve the International Rapids section of the St. Lawrence River near Massena, in cooperation with Federal and Canadian authorities. The aim was to create hydroelectric power and to clear the rapids for navigation at the same time. As a result of a later treaty with Canada, the Power Authority's scope was widened to develop additional power resources on the Niagara River, while preserving and enhancing the beauty of the Niagara Falls.

The Public Authorities Law was recently amended to authorize the Authority to construct nuclear facilities and hydroelectric pumped storage projects.

5.6.1.16 Hudson River-Black River Regulating District

This agency is charged with the responsibility of regulating streamflow in the 6,500-square-mile Black River and Upper Hudson River basins. The district maintains and operates the Stillwater, Old Forge, Sixth Lake, and Great Sacandaga Lake reservoirs to regulate streamflow for the health, safety, and welfare of the public. The reservoirs also provide recreational facilities and water for the generation of power.

The cost of constructing and maintaining these river regulating projects is apportioned among the public corporations, municipalities, and parcels of real estate that are benefited.

5.6.1.17 Port Management Agencies

There are six port management agencies in New York.

The Port of New York Authority was created in 1921 by the States of New York and New Jersey with the concurrence of the President and the Congress. It has the duty of making recommendations to Congress and to the States concerned for the better conduct of commerce passing through the Port of New York. It also appears before regulatory bodies in protection of the Port's interests. The Authority is a public corporation, empowered to purchase, construct, lease, and operate any terminal or transportation facility within the port district.

The function of the Albany Port District Commission is to survey, develop, control, and operate port facilities in the Albany Port District.

The Niagara Frontier Port Authority is a public benefit corporation created to operate a port district which embraces the Cities of Buffalo, Lackawanna, Tonawanda and the Towns of Hamburg, Amherst, Cheektowaga, and West Seneca. The Authority was incorporated into the Niagara Frontier Transportation Authority in 1969.

The Ogdensburg Bridge and Port Authority was created to construct and operate an international toll bridge between Ogdensburg, New York, and Prescott, Ontario, which was officially opened in September 1960. In 1963 the Authority was given the further responsibility of developing the Port of Ogdensburg on the St. Lawrence River.

The function of the Port of Oswego Authority is to survey, develop, operate, and promote port facilities in the Oswego Port District which embraces the City of Oswego and the Town of Scriba.

The function of the Rochester-Monroe County Port Authority is to survey, develop, and operate port facilities in the Rochester-Monroe County Port District which embraces all lands and waters within Monroe County, excepting the county airport and Barge Canal lands and facilities.

5.6.1.18 Divisions Within the Department of Environmental Conservation

Located within the Department of Environmental Conservation are several divisions formerly within the Conservation Department, which are involved in various facets of water resources activities. These divisions include the following which are under the Environmental Management Office, except as noted.

(1) Division of Planning and Research

Under the New Department of Environmental Conservation, one of the Division's primary responsibilities is in the field of water resources planning and management. The appraisal of specific project proposals, plans, and technical reports that affect water resources is a basic responsibility of the Division. The staff obtains recommendations and comments from various affected State agencies for consolidation into a single position for the Commissioner of the Department in dealing with Federal and interstate planning agencies.

To permit a decentralization approach to planning activities, three regional offices were established to serve the eastern, central, and western portions of the State. Each region is further subdivided into district offices located throughout the State. The regional and district offices provide staff services and perform and coordinate planning activities for the regional water resources planning boards. In addition, the State responsibilities related to various interstate and State-Federal river basin surveys are met through the regional and district offices.

The Division is also the coordinator and liaison between all subfunctional areas of natural resources planning in the Department of Environmental Conservation. This will ensure the compatibility of water resources planning efforts and other Department planning functions to meet total environment planning needs.

The Division conducts environmental impact analyses on all State and Federally-sponsored projects and is responsible for development of a Statewide Environmental Plan in 1972. The Division is also responsible for conducting an environmental research program.

(2) Division of Lands and Forests

Administration of more than 3.3 million acres of State-owned land area, including the lakes, ponds, streams, rivers, and coastline, is one of the primary functions of this Division. Included are more than 2.6 million acres of State forest preserve land and 700,000 acres of State forest and multiple-use land.

The Division also assists in maintaining and improving the hydrologic condition of more than 21 million acres of private and public forest and woodland. Through district field offices, the Division is responsible for providing forest fire protection and also institutes control measures against forest insects and diseases. Professional forest management assistance is also available to private forest landowners through the district offices, including the sale of 15 to 20 million tree seedlings annually for reforestation purposes. All of these activities are important for protecting the watershed values of the State's forest cover.

The Division cooperates with the U.S. Forest Service in the Public Law 566 Small Watershed Program and other Federal-State river basin studies.

The Division also serves as staff to a regional State Park Commission for the 16 Forest Preserve Counties in the Adirondack and Catskill Mountain regions.

(3) Division of Fish and Wildlife

This Division has mandated responsibility for the efficient management of the fish and wildlife resources of the State—including its wildlife, fish, shellfish, crustacea, protected insects, and game. Such management includes both the maintenance and improvement of natural resources and the development and administration of measures for making them accessible to the people of the State.

Action programs developed to accomplish these mandates fall in the general areas of environmental protection, environmental management, species management, public use, and extension services and planning. Pending completion of the new organizational structure of the Department, these programs are carried out by this Division through four bureaus: fish, wildlife, ecological standards, and law enforcement.

The Division participates in Federal-State comprehensive water resource planning, cooperates with other Federal and State resource agencies, and receives reimbursement for various research and management projects through Federally aided fish and wildlife restoration programs.

(4) Division of Resource Management Services

Among this Division's functions is the responsibility for the administration of flood control, beach erosion, and hurricane protection activities in New York State. The State participates with the Federal government in a long-range program of flood control by assuming responsibility for all non-Federal project requirements such as lands and rights-of-way, relocation or reconstruction of utilities and other facilities, maintenance where required by Congressional authority, and implementation of flood plain management programs.

The beach erosion and hurricane protection activities (limited to Long Island and New York City) are accomplished by participation in the Federal programs as representative of all non-Federal interests and by cooperating with local governments in non-Federal projects.

Other related responsibilities include the operation and maintenance of 70 flood protection works and one flood control dam, in addition to regulation of water levels of Lake George.

The Division also carries out investigations, conducts public hearings, and carries out certain regulatory functions involving public water supplies on behalf of the Department. The Division acts as central permit agent under the Stream Protection Act and is responsible for dam safety.

The Division is responsible for the regulation of oil and gas activities on public and private lands throughout the State. Its basic functions are the prevention of waste by providing for the operation and development of oil and gas properties in such a way that a greater ultimate recovery of these natural resources will result in protection of the correlative rights of all relevant parties. It is similarly entrusted with the regulation of underground storage of natural gas.

The Division also provides engineering services in the design and construction of certain Department projects and is responsible for acquisition of lands associated with Department programs.

The functions listed below were transferred to the Department of Environmental Conservation from other previously existing departments, and are now under the Environmental Quality Office.

(a) The Division of Pure Waters consists of four bureaus with the following responsibilities:

(aa) The Bureau of Construction Grants administers State and Federal sewage works construction grant programs and acts as administrator and liaison for all Federal ad-

vances or grants for engineering and construction of sewage works.

(bb) The Bureau of Water Quality Management designs and develops the engineering aspects of manual and automatic data monitoring systems for surface and ground water, reviews and keeps current quality standards for all water uses, makes recommendations to classify and reclassify surface and ground water, supervises and carries out State enforcement activities relating to technical considerations, and participates in comprehensive water resource planning studies relative to water quality management and waste water treatment systems.

(cc) The Bureau of Industrial Wastes issues and renews permits for construction and operation of industrial wastewater facilities, inspects industrial waste treatment facilities to assure project conformance with approved plans, processes applications for a tax incentive program, investigates new treatment processes and equipment, and develops design standards and criteria.

(dd) The Bureau of Municipal Wastes administers the intermunicipal comprehensive sewage study programs to promote integrated sewer utility planning and operation on a multimunicipal scale; evaluates sewage reports, plans, and specifications and issues construction permits for municipal waste control; inspects non-aided treatment facilities to assure conformance with approved plans; evaluates new treatment processes and equipment; develops design standards and criteria; administers the Operation and Maintenance State Aid Program; conducts investigations of municipal wastewater facilities on their performance; issues and renews permits for operation of sewage treatment facilities; and promulgates rules, regulations and standards for testing of sewage.

(b) The Division of Quality Services provides an administrative structure to supervise and assist several diverse programs. It is organized as five bureaus and one office within the Division. These are the Bureaus of Solid Waste Engineering, Radiological Pollution Control, Pesticide Control, Noise Control, and Hazardous Substances Control. Each of these is a critical area in the field of achieving and maintaining environmental quality. Disposal of solid waste is of nearly emergency status in several major areas of the State. Radiological and pesticide pollution control are both necessary for maintaining a quality environment free of contaminating quantities of the hazards they control. Noise and hazardous substances control are on the threshold of functioning as organized programs. Each of the bureaus is recognized in law, both specific and general.

The Division also includes the Office of Recovery, Recycling and Reuse. This office promotes and encourages the recovery and reuse of materials which traditionally have been considered waste. These are solids, liquids, and gases that have been creating our ever increasing volumes of disposable wastes.

(c) The responsibilities of Division of Air Resources include air pollution control and monitoring functions formerly under the Health Department and former Air Pollution Control Board.

5.6.1.19 Regional Board Studies

At present, most comprehensive planning in New York State is conducted under the auspices of regional water resources planning boards established under the provisions of Article V, Part V, of the Conservation Law.

Regional water resources planning boards are established after public hearings and approval by the Department of Environmental Conservation. This type of board is most appropriate for the study of an intrastate river basin embracing all or parts of one or more counties. However, it can also be used effectively for interstate river basin studies.

A regional board has 7 members selected by the Department of Environmental Conservation from a list of 14 names submitted by the counties involved. Each member represents one of five specified interests or is a member-at-large. The specified interests are agriculture, industry, public water supply, municipal corporations, and outdoor recreation, including fish and wildlife interests. The board is responsible for the conduct of the study and for evolving a comprehensive plan of development of the region's water resources.

Upon approval of a study, the Department, through the Bureau of Water Resources Planning, provides office space, equipment, clerical, engineering, legal, and other personnel and services to the Board. Of the study's total cost, 75 percent is borne by the State and the other 25 percent by the participating counties. Eleven regional boards are currently in existence. These boards encompass virtually the entire Great Lakes Basin.

5.6.2 Special Purpose Districts

5.6.2.1 Soil and Water Conservation Districts

If soil erosion and related problems cause sufficient public concern, a County Board of Supervisors can set up a soil and water conservation district. The directors of such a district consist of two members from the Board of Supervisors, two practical farmers, and a lay member representing nonagricultural interests.

These districts are empowered to make necessary surveys and investigations and carry out preventive and control measures to reduce damages due to floodwaters, erosion, and sedimentation.

The State Soil and Water Conservation Committee coordinates the work of these districts. The State committee cooperates with the Soil Conservation Service of the U.S. Department of Agriculture and allots Federal aid funds to the several districts.

5.6.2.2 County Small Watershed Protection Districts

A county board of supervisors may, with the approval of the Department of Environmental Conservation, form a county small watershed protection district for the purpose of constructing appropriate flood prevention measures under the P.L. 566 program. Federal grants, administered by the Soil Conservation Service, pay the entire construction cost of such facilities attributable to flood prevention. Remaining costs, including all land and right-of-way costs, are paid by local tax funds. The State reimburses the counties involved for 50 percent of the expenditures for the land, easements, and rights-of-way required for construction of the flood prevention facilities. The functions of a county small watershed protection district may be carried out directly by the county board of supervisors without the establishment of a district.

5.6.2.3 Drainage Improvement Districts

When it is necessary to drain certain agricultural land to make it more productive, or for reasons of public health or safety, a drainage improvement district may be formed by the owners, or lessees, of the property to be improved. These persons first petition the Department of Environmental Conservation for the right to initiate such a project. When the right to proceed is granted, a public corporation is formed by the landowners, each of whom has an equal vote. These districts construct and maintain drainage projects. The costs of these projects are assessed against the lands benefited.

5.6.2.4 Other Special Purpose Districts

A district can also be created to provide for water supply, fire protection, sewage, recreation, or other purposes that benefit the public. The district can be initiated by any organization in the affected area, and its cost is underwritten by the district itself. The administration of county districts is the same as small watersheds protection districts. Town boards normally administer the affairs of a district within a town.

The Conservation Law provides for the formation of river regulating districts and one such agency, the Hudson River-Black River Regulating District is in operation. The same law permits the establishment of districts for river improvement, drainage improvement, and combined river regulation and river improvement.

5.6.3 Political Subdivisions

The structure of local government in New York is remarkable for the multiplicity of types of political subdivisions employed. The State is divided into 62 counties and the counties are in turn divided into varying numbers of cities and towns. Town boundaries are contiguous so that every portion of the State outside of the corporation limits of a city is included in a town. Two types of municipal corporations exist in New York State—the village and the city.

The 62 counties of New York State presently contain 932 towns, 554 villages, and 62 cities. The revenues to support these governments come mainly from taxes on property and districts, State aid, fees, licenses, and fines. Local sales and use taxes are imposed by a few counties and cities for additional revenue.

5.6.3.1 Counties

A board of supervisors or county legislature is the usual governing and legislative body in

a county, with the exception of the five counties (boroughs) that comprise the City of New York. New York City is governed by a city council made up of representatives from each borough.

A county board of supervisors generally consists of at least one supervisor from each town and from any cities that may lie within that county. A county legislature is generally apportioned according to population with a number of legislative districts. Several counties have an elected county executive who serves as chief administrative officer and shares policy-making powers with the board or legislature through the power of veto.

5.6.3.2 Towns

A town is governed by an elected town board, presided over by the elected supervisor. The other town officials vary considerably from town to town, and are usually elected, although some are appointed.

Towns are divided into several classes, based upon population and assessed valuation. The larger towns are permitted a more complex governmental structure and have authority to perform more extensive services for their residents.

Towns are responsible for numerous local governmental services, such as road construction and maintenance, but are not geared to provide municipal-type services to population centers. Such services may be performed by special improvement districts formed for the purpose, or by municipalities.

5.6.3.3 Villages

A village is incorporated by petition of the residents of the community. Villages are created under the Village Law, and all have essentially the same governmental structure and authority. This law establishes several classes of village, based on population, and their detailed organization and powers vary from class to class.

Villages, unlike cities, remain part of the town. Village residents vote in town elections, pay town taxes, and receive town services.

The village is governed by an elected mayor and board of trustees, who appoint a number of other officials. Village government may more easily provide municipal services such as water supply, sewage disposal, fire and police protection, and street lighting, than town governments.

5.6.3.4 Cities

Cities, like villages, are municipal corporations, created at the will of the residents of the communities. Unlike a village, each city has its own charter, drafted to meet specific needs of the area. Thus, the governmental structure and powers of cities vary greatly. Cities are completely divorced from the towns, but each city elects one or more representatives to a county legislature or in some cases a county board of supervisors.

One normally thinks of cities as being larger and wealthier than villages. This is not always the case—some cities have fewer than 3,000 inhabitants and some villages approach a population of 40,000.

The governmental structure of cities varies greatly but generally consists of an elected council with either an elected mayor or an appointed city manager. A variety of other officials, most appointed, administer the various departments.

Cities have extremely broad powers for local governmental activities. Under the City Home Rule Law, a city may virtually take any measures not in conflict with the State law or constitution.

5.7 Ohio

Statutory responsibilities for water and related land resources in Ohio are listed in Addendum B, Table S20–20.

5.7.1 State Departments and Agencies

5.7.1.1 Department of Natural Resources

The Department of Natural Resources was established in 1949 to bring together various State agencies engaged in the conservation of natural resources, and to correlate their work with other State and Federal agencies, local governments, and private organizations.

The director, appointed by the Governor with the consent of the Senate, is charged with formulating and instituting programs. He coordinates the activities of eleven divisions and two sections, each headed by a chief, through three deputy directors. Administra-

tive functions are carried out through seven sections: accounting and budget, administrative services, engineering, real estate, program and planning, legal, and personnel.

The Recreation and Resources Commission advises the director on plans and programs, methods of coordinating work of the division, and any other matter the director may submit. The Commission biennially makes recommendations for amendment of the conservation laws. Of the eleven members, five are appointed by the Governor with consent of the Senate and six are the chairmen of advisory bodies within the Department: Wildlife Council, Parks and Recreation Council, Waterways Safety Council, Forestry Advisory Council, Oil and Gas Technical Advisory Council, and Ohio Water Commission.

This Department, like all others of the State, must maintain a six-year capital improvements plan to guide the legislators in appropriations. The Office of the Chief Engineer plans and supervises capital improvements projects, acts as shore erosion agency of the State, and issues permits for beach and shore erosion devices in Lake Erie. The program and planning section coordinates the capital improvements program and is the liaison section for the Federal Land and Water Conservation Fund Act.

5.7.1.2 Ohio Water Commission

The purpose of the Ohio Water Commission is to coordinate water programs to develop water supply, flood control, and flood plain zoning programs, and to obtain the most beneficial use of water resources. It may make studies, hold hearings, encourage and assist government agencies and private interests, recommend means of resolving conflicts among user interests and between geographic areas, recommend policy and legislation to the Governor and general assembly, and appear before any court considering any water program or project.

The Ohio Water Commission was created in 1959 as an agency in the Department of Natural Resources. Its commissioners include the directors of the Departments of Health, Development, and Natural Resources. Four members appointed by the Governor for 4-year terms represent commerce and industry, recreation, agriculture, and public water supply. The Commission has an executive secretary with a small staff and relies on the Division of Water and other State agencies for technical assistance. The Water Planning Section serves as the planning agency for the Commission and the Department of Natural Resources. The Commission has created a water management advisory council to review policies and programs.

Recognizing that the State must assume a greater responsibility in water resources development, the Governor in December 1965, requested the Commission to do the following:

(1) set forth the framework of a long-range Statewide water management and development plan for Ohio

(2) recommend means of utilizing State, Federal, and local resources

(3) recommend a system of determining desirable water quality criteria for the streams and lakes of Ohio

(4) draft the necessary legislation to implement this program, including provision for a broadened overall commission with more specific responsibility and authority.

The Commission undertook this task in cooperation with its Water Management Advisory Council. Four special task forces were created out of the Council to prepare recommendations. The technical staffs of the Departments of Natural Resources, Health, Development, and Finance also assisted.

The 106th General Assembly directed the Commission to prepare a comprehensive water development plan for Northwestern Ohio. This pilot plan for an area covering more than one-fifth of the State includes all phases of water management, such as recommendations for augmented water supply, pollution abatement, improved stream flow, flood control, and water for recreation. Twenty million dollars from the May 1965 State bond issue has been allocated to initial phases of the plan.

As a result of the Commission's recommendations, the 107th General Assembly enacted several important pieces of water legislation: H.B. 314 increased the authority of the director of Natural Resources; S.B. 345 authorized the creation of scenic river areas; and H.B. 998 created a financing institution for water treatment and water management facilities, the Ohio Water Development Authority. A $100 million bond issue was approved to be used as seed money for construction of treatment facilities for local communities. The problems and needs of water resources are once again under study by the Ohio Water Commission and the legislature in an effort to update the solutions.

5.7.1.3 Soil and Water Conservation Commission

This Commission was organized on November 6, 1969. It is based upon the previous Soil and Water Conservation Committee. The Commission determines the distribution of funds from the Department of Natural Resources to the Soil and Water Conservation Districts; recommends to the Director of the Department of Natural Resources and other agencies the levels of appropriations to special funds for the districts; recommends amounts of Federal funds to be requested for the district programs; keeps districts informed of powers, duties, and ongoing programs; seeks cooperation of Federal agencies in district programs; issues regulations for elections and referendums in the districts; recommends to the Director of the Department of Natural Resources priorities for P.L. 566 projects; and recommends legislation.

The Commission is composed of seven members of equal status and authority. Four members are farmers appointed by the Governor with the advice and consent of the Senate, and one member is appointed by the Board of Directors of the Ohio Federation of Soil and Water Conservation Districts. The other two are the Director of Agriculture and the dean of the College of Agriculture and Home Economics of the Ohio State University.

Water management practices installed to prevent erosion and flooding include surface and internal drainage, impoundment and regulation of stream flow, channel improvement and maintenance, better crop sequences, and land treatment to retard water movement. The districts carry on a public information program and seek coordination of soil and water management programs involving other agencies.

5.7.1.4 Deputy Director for Soils and Minerals

(1) Division of Geological Survey

The Ohio Geological Survey was organized in 1837. At first its investigations were rather hit-and-miss, depending upon availability of funds. However, it has functioned continuously since its fourth reorganization in 1900. Its purpose is to collect, study, and interpret information on geology and mineral resources, and make such data available to industry, other governmental agencies, and the public.

The Division Chief has a staff with specialists in such fields as glacial geology, coal geology, petroleum geology, clay mineralogy, and industrial minerals. The Division is organized in four sections: publications, regional geology, subsurface geology, and Lake Erie.

Because of the importance of minerals in Ohio's economy, the program is geared to locate, identify, measure, and evaluate these resources. Field parties are assigned to map areas that may involve a county, township, quadrangle, or a specific rock formation such as a limestone or clay unit. Samples of rock units are delivered to the laboratory for chemical and mineralogical analysis. Programs of the various sections are varied, ranging from mapping the surface occurrence of bedrock and glacial materials to collecting drillers' logs, geophysical logs, and cuttings of wells drilled for oil and gas. Among many objectives, the Division seeks to map the bedrock completely, describe coal resources, inventory and determine quality of non-fuel minerals, provide basic geologic data necessary in the search for oil and gas, study Lake Erie shore erosion, supervise extraction of minerals from Lake Erie, and furnish data needed in highway and building construction, and other engineering and scientific developments. The Lake Erie program includes measuring currents and movement of bottom sediments.

(2) Division of Lands and Soil

Authorized in 1949, this Division was organized and staffed in 1952. It cooperates with all conservation agencies, considers policy for most of the State lands, and recommends proper land use and conservation. Surveys and recommendations for managing water in construction projects involving highways, pipelines, railroads, and underground cables, which formerly were made by this Division, are handled now by the chief engineer.

The Division carries on its work through three sections: soil inventory, special studies, and public service. The soil inventory is made by eight field survey crews located in county seats in different parts of the State. Counties usually share in the cost by furnishing office space, funds, and other assistance.

The soil survey is carried on in cooperation with the Ohio Agricultural Research and Development Center, Ohio State University, and the U.S. Soil Conservation Service. Soils are studied and mapped in the field and samples

are analyzed in the laboratory to determine physical and chemical properties. The studies determine soil qualities, problems in various uses, depth to perched water tables, permeability, and rate of infiltration in the principal soils. The public is informed by published maps, brochures, and bulletins, and by land-judging demonstrations and contests.

(3) Division of Oil and Gas

The regulation and supervision of oil and gas well drilling and other oil field operations was formerly under the jurisdiction of the Division of Mines, Department of Industrial Relations. Through passage of amended H.B. 234, the 106th General Assembly created the Division of Oil and Gas within the Department of Natural Resources. The new Division became effective on October 15, 1965. It is charged with regulating and supervising all types of oil and gas field operations, issuing permits, maintaining files of well records, investigating contamination of surface and subsurface fresh waters through oil field operations, regulating disposal of brines and other wastes, and conserving natural resources of oil and gas. The Division compiles statistical summaries of oil field activities.

The Division Chief heads a small office staff of administrative and technical assistants, and a field staff of oil and gas well inspectors who are located in diverse areas within the State.

The office staff issues the permits for oil field operations, maintains the record files, and compiles various statistical summaries, graphs, charts, and reports. The staff renders valuable public service through correspondence and personal contacts. Numerous conferences and office hearings on special problems are conducted by the senior staff. The field staff supervises and inspects certain oil field operations, and reports on investigations concerning possible contamination from such operations. Close liaison is maintained with oil and gas operators and the general public, and with municipalities and other agencies concerned with the drilling of wells.

5.7.1.5 Deputy Director for Recreation and Forests

(1) Division of Forestry and Reclamation

The former Divisions of Forestry and Reclamation were combined in 1965. This division has authority to open portions of the State forests for horseback riding, driving, hiking, hunting, and fishing, and to protect forests so they may serve as "vistas of natural beauty." It is charged with administering the laws regulating surface mining of coal by issuing licenses and enforcing reclamation requirements. It conducts a continuing survey of strip mining lands that should be reclaimed for agriculture, forests, recreation, wildlife, water conservation, or other uses.

The Division is headed by a chief who appoints technical and administrative assistants with advice and consent of the Director.

The Division manages 167,000 acres in 18 State forests; propagates trees in three nurseries; supplies seeds and seedlings to State forests, farms, mines, and local forests (public and private); furnishes fire protection service for nearly four million acres of forest (public and private), abandoned farmland, and permanent pasture; and assists landowners and timber operators in developing sound forestry practices. The Division inspects strip mine operations, orders compliance with the law, approves reclamation practices, releases compliances bonds, and cooperates with the Water Pollution Control Board in efforts to reduce acid mine drainage.

(2) Division of Parks and Recreation

This Division was created to plan, develop, and operate an adequate system of State parks. It has the power to make alterations and improvements; construct dikes, docks, dams, and other works; install picnic, camping, boating, and other recreational facilities, and construct and maintain roads on the properties it administers. It may designate State park purchase areas, by submitting to the Director maps and descriptions which are filed with the State auditor and the attorney general. When approved by the Director and the Recreation and Resources Commission, the Division Chief may act as agent for the State in selling land no longer deemed appropriate for park purposes.

The Chief, with approval of the Director, determines policy and program. The Division functions through three sections: records and reports, maintenance, and recreation, each headed by a supervisor. Central office personnel are advisory to district supervisors, who are in charge of field operations and personnel.

This Division administers 91,199 acres of land and water in 54 State parks. It patrols 39 lakes with a total area of 47,871 acres, furnishes lifeguards for 39 beaches, including 3 on Lake Erie, and provides (as of June 30, 1965) 5,036 campsites, with new sites planned or under construction. Housekeeping cabins and dining lodges are available in some parks. Dredges are used in lake maintenance and to create new facilities. Visitors in 1965 totalled 19,940,138 compared with 300,000 reported in 1950. The future program involves extensive land acquisition, building seven new lodges, developing 6,500 additional campsites and 20,000 feet of new beaches, and installing docks and ramps, with parking and picnic areas, bathhouses, cabins, roads, and sewage systems. In addition to its share of the Department's appropriation for operations, the Division has a rotary fund derived from rentals (lands, camping, and cabins) and licenses (boats, motors, docks, and concessions). These funds may be used for administration, operation, development, equipment, or land purchase. Brochures on the total program and on individual parks are published for public information.

(3) Division of Watercraft

Created in 1959, this Division began registering boats and outboard motors in 1970. At the same time, it began formulating regulations to complement existing laws on watercraft operation. In 1961 the Division was given additional authority to develop small craft harbors and access facilities, financed in part by the tax on marine fuel and in part by boat and motor registration fees, and built in cooperation with local agencies and subdivisions. In 1963 the Division was made responsible for titling certain boats and outboard motors, but in 1964 this was transferred to the Ohio Bureau of Motor Vehicles. The Division has no enforcement power, but cooperates with officers of the Parks and Recreation and Wildlife Divisions, conservancy districts, sheriffs, and local police, all of whom are authorized to enforce watercraft laws and regulations. The Division can match funds in establishment and operation of marine patrols.

The Chief appoints an assistant and technicians, with approval of the Director, and handles the Division's functions through three sections: data processing, requisitions and disbursements, and office services.

The Division registered 154,741 boats and 145,993 outboard motors in 1965. Boating facilities were built in cooperation with local agencies in Cincinnati, Cleveland, Geneva on the Lake, Rossford, and Dayton, and others are planned. Launching ramps on the Ohio River built by the Corps of Engineers are being administered by this Division. Extensive improvements make the entire length of the Muskingum River navigable for recreational boating.

(4) Division of Wildlife

The title to all wild animals in Ohio is held in trust by the State for benefit of the people. The Division of Wildlife manages this trust. The Wildlife Council is advisory to the Director and also approves regulations on taking and possessing wild animals. However, its rule-making authority does not apply to commercial fishing, nor to what species shall be considered game animals, what activities are licensed, or what license fees shall be. The Division may acquire land and water for fish or game management, outdoor activities, public fishing and hunting, and flora and fauna preservation, and regulate use of these properties.

The Chief of the Division is appointed by the Director with the approval of the Recreation and Resources Commissions. Eight members of the Wildlife Council are appointed by the Governor with the consent of the Senate. Fish and game management and law enforcement are carried out by five wildlife districts, each representing from 13 to 20 counties. Lake Erie enforcement and fish and game research are directed by the headquaters staff. District supervisors have technical assistants in fish, game, and law enforcement. Game protectors serve on the local level. Some larger wildlife areas have a full-time manager.

The Division engages in research, investigations, and inventories to provide the basis for sound wildlife management; promulgates hunting and fishing on private property and helps to solve related technical problems; manages wildlife on public property; provides fishing through ownership, construction, leases, and agreements in more than 200 lakes and ponds, in the Ohio portion of Lake Erie and its bays, and on portions of 44,000 miles of streams; and provides public hunting and trapping on one-half million acres of land and impounded water, including 69,000 acres owned by the Division. The Division's activity is financed by sale of hunting and fishing licenses, Federal aid earmarked for specific

fish and game management purposes, income from sale of crops or timber harvested as a result of habitat management on wildlife areas, fees for miscellaneous permits, and all fines, penalties, and forfeitures arising from violation of wildlife laws.

5.7.1.6 Deputy Director for Water

(1) Division of Water

This Division has authority to collect, study, and interpret all available information on supply, conservation, use, and replenishment of underground and surface waters of the State; to cooperate and negotiate for the State with agencies of the Federal government and all States dealing with water resources; to require filing of well logs describing geologic materials encountered in drilling and other pertinent data; to construct reservoirs, levees, and other facilities for various purposes including water supply and flood control, when directed to do so by the General Assembly; to approve plans for dams, dikes, and levees and issue permits for their construction; to conduct basic inventories of water resources in each drainage basin; and to develop plans on a watershed basis that will recognize the variety of uses to which water may be put and the need for its retention and control.

Statewide streamflow records are collected in cooperation with the U.S. Geological Survey (U.S.G.S.). These are basic to practically all studies and analyses of water resources by the Division or other agencies, organizations, or individuals. Records of underground water levels also are collected in cooperation with the U.S.G.S. and other agencies by a network of observation wells with automatic stage recorders. Data on the quality of water include complete analysis of dissolved solids in both surface and underground waters. Records are collected on well drilling, reservoir sedimentation, and amounts of water used for municipal, industrial, and agricultural purposes. The law requires that drilling records of all wells be submitted to this Division and the quarter million reports now on file are consulted by engineers, hydrologists, drillers, industries, and householders seeking underground supplies.

The Division publishes many reports giving basic data on all phases of its program and furnishes data and advice concerning water supply, flood control, flood plain information, recreation, and other water developments. The Division issues construction permits for dams, dikes, and levees. Liaison is maintained with Corps of Engineers, Soil Conservation Service, conservancy districts, and many other agencies.

(2) Division of Soil and Water Districts

This Division was organized in November 6, 1969, under the legislation which created the Soil and Water Conservation Commission. The chief of the Division is appointed by the Director of the Department of Natural Resources. The Division serves as staff to the Soil and Water Conservation Commission and administers its programs.

(3) Water Planning Section

The Section was created in 1968 and given authority to prepare Statewide and regional comprehensive water development plans.

The Section has a chief and three planning coordinators with associated staff. The coordinators are responsible for research, State and interstate planning, and regional planning. The Section is responsible directly to the Deputy Director for Water.

The Section is involved in the preparation of four regional comprehensive water development plans, in addition to the already completed *Northwest Ohio Water Development Plan (1967)*. It is also developing guidelines on water planning policies and coordinating participation by the State in the *Great Lakes Basin Framework Study*.

(4) Water Management Section

This Section was created in 1968 to provide an agency for managing regional water plans once they are completed, to cooperate in their formulation, and to oversee their implementation. The Section's responsibilities will also include flood plain management and other functional water management programs as they are developed.

The Section is not completely staffed at present, but plans include a chief and associated staff in Columbus and district managers in the field in each of the five State water districts. It is responsible directly to the Deputy Director for Water.

5.7.1.7 Department of Health

Under Ohio law, control of public water supplies is given to the Department of Health. All plans for water supply improvements must be reviewed and approved before construction. The Department has authority to confer with local agencies on their future needs, to participate in evaluation of existing and future sources of raw water supply, and to supervise all municipal, county, and other water supply systems. The Department has similar authority over the planning, construction, and operation of all large sewerage and sewage treatment plants, and over the plans for industrial waste treatment and disposal.

The Director of Health has delegated the functions relating to water to the Bureau of Environmental Health, where they are handled by the Division of Engineering and its Water Supply Unit, Sewage and Industrial Waste Unit, General Engineering Unit, and Radiological Health Unit; and the Department's Bureau of Public Health Laboratories.

The Department's Public Health Council adopts rules and regulations known as the Ohio Sanitary Code, holds hearings, makes findings, and reaches decisions that help the Director of Health to enforce the Ohio Sanitary Code.

During 1970 the Water Supply Unit reviewed and approved 191 sets of detailed plans, with total estimated construction costs of $51 million. Personnel of this Unit made 546 inspection visits to check 812 public water supplies. Check analyses of these are made by Department laboratories. An evaluation leading to certification is made on water supplies used on interstate carriers.

The General Engineering Unit approves plans and exercises general supervision for water supplies at all public buildings and places. During 1970 the Unit reviewed 93 sets of detail plans for new supplies. The estimated cost of construction was more than $3 million. The Unit is often called in for consultation on some of the thousands of existing water supplies in the State.

The Sewage and Industrial Wastes Unit supervises all municipal, county, and other public sewage or industrial waste systems that have permits from the Water Pollution Control Board. All plans for public and industrial wastewater are reviewed for approval and inadequate treatment facilities are investigated. Permit applications to the Water Pollution Control Board are studied and processed by this Unit, with recommendations for Board action. Currently there are more than 1,800 active permits for discharges to waters of the State. In 1970 plans for 320 sewerage and sewage treatment projects were recommended for approval, with a total estimated cost of more than $137 million. Inspections made of sewage treatment facilities totalled 475, and more than 1,400 applications for renewal of permits were reviewed for the Water Pollution Control Board. Inspections were also made of 425 industrial waste facilities.

The General Engineering Unit approves plans and exercises general supervision of sewage and industrial waste treatment at all public buildings and places. During 1970 the Unit reviewed and approved 239 sets of detail plans for new systems. The estimated cost of construction was more than $6 million. The Unit is often called in for consultation on some of the thousands of existing sewage treatment systems in the State.

The Division of Sanitation in the Bureau of Environmental Health is responsible for water supplies for dairy farms and milk processing plants through survey of local health department milk inspection programs, and it acts as consultant to local health departments on individual home water supplies.

Stream pollution studies in progress almost continuously coordinate data from many sources to define water quality (the range of concentration of various constituents); determine pollution loads (so responsibilities for natural and man-made contributions can be evaluated and significant changes recognized); and detect and police man-made additions. The Department participates in training and certifying operators for both water and sewage treatment plants.

5.7.1.8 Water Pollution Control Board

This Board was established in 1951 with authority to develop programs for prevention, control, and abatement of new or existing pollution in the waters of the State. It consults and cooperates with Federal, State, interstate, and other agencies, and with industries and others. It is authorized to issue permits with conditions attached for discharge of sewage and industrial or other waste.

The Board is composed of the Directors of Health, Agriculture, Natural Resources, and Commerce, and two members appointed by the Governor with advice and consent of the Senate. The technical arm of the Board is the Division of Engineering in the Department of Health.

In the 20 years after the Board's creation, construction costs for waste treatment totaled more than $1 billion. Although gross pollution has been reduced substantially, problem areas still exist, and much improvement is needed. A total of 114 sewer districts and 195 municipalities were being served by treatment facilities considered adequate at the end of 1970. There were also 196 municipalities served by facilities considered inadequate. In addition, 93 systems are tributary to other sewerage systems. The Board sets priorities for Federal grants-in-aid. Grant requests to Ohio for the past fiscal year totaled more than $100 million.

In accordance with the Federal Water Quality Act of 1965, the Water Pollution Control Board on June 14, 1966, adopted stream water quality criteria and minimum requirements for interstate waters. Standards have since been adopted for most of the waters of the State, with a few exceptions. Hearings will be held on proposed standards for the Mahoning, Pymatuning, Yankee, and Little Beaver waterways.

5.7.1.9 Department of Public Works

This Department is essentially a service organization for housing all agencies of State government; planning and developing capital improvements for all agencies except the Departments of Highways, Natural Resources, and Adjutant General; operating remaining portions of the Ohio canal system; and leasing and selling its lands and water. It is also responsible for managing the submerged lands of Lake Erie.

Under the Director are four divisions: administration, building maintenance and operation, real estate, and State architect and engineer. The Real Estate Division has sections on property, services, hydraulic maintenance, and canal lands, all functioning to some extent in the field of water.

The Department maintains hydraulic sections of the former canal that supply water to industries in Akron, Barberton, and Cleveland, and to industries and municipalities of St. Marys and Celia. In the Akron area this involves operating an elaborate complex of lakes and reservoirs to maintain levels needed by industry and at the same time averting floods. Both conditions are critical due to increasing demand for water and encroachment of building upon flood plains. The Tuscarawas River channel in the Akron-Barberton area is being improved to help alleviate flood problems in that area. Water needs and flood hazards also impose narrow limits at St. Marys, where a third limitation is maintenance of Lake St. Marys at a level to satisfy public and private recreational interests.

Revenue from leasing sections of the canal and sale of surplus water is approximately $150,000 annually. Portions of the former canal must be maintained as a drainage facility. Any dam, lake, reservoir, hydraulic conduit, drain, channel improvement, or flood protection measure for any State agency other than the Department of Highways, Natural Resources, or Adjutant General, would be planned by and constructed under supervision of this Department.

5.7.1.10 Department of Development

This Department was created in 1963, replacing the former Department of Industrial and Economic Development. It has authority to promote best use of the State's resources so as to assure a balanced economy and continuing economic growth. It may assemble and disseminate information on resources and their availability for industry and commerce; prepare and activate development plans; cooperate with Federal, State, and local agencies and assist in coordination of the development plans; and receive grants and gifts for providing planning assistance to political subdivisions or county or regional planning commissions.

The Director administers the program with the assistance of a Deputy Director through nine divisions: sales and service, economic research, planning, finance, research and development, information, atomic energy, travel-tourism, and world trade. The Department has a Development Advisory Board and five of the divisions have advisory councils.

The principal emphasis on water is in the Planning Division, the official State planning agency. A State development plan to be completed by 1969 includes studies of water resources as they apply to total State development, including industry, agriculture, recreation, and urban growth.

The Department also administers the Ohio Water and Sewer Rotary Fund under the direction of the Ohio Water and Sewer Rotary Commission. This is a $10 million rotary fund that can be used to defer assessments against agricultural property adjacent to water and sewer lines being installed to serve new and expanded industry.

5.7.1.11 Department of Highways

The Department of Highways has authority to cooperate with other agencies in impoundment and conservation of water by incorporating a "bridge dam" in plans for new highway construction. The Department also is required to provide for maintenance or restoration of all drainage affected by new highways. Plans for new bridges are submitted to conservancy districts for review as to adequacy of waterway openings.

5.7.1.12 Department of Urban Affairs

Organized in October 1967, the Department was assigned responsibility to assist local communities by acting as a coordinator and catalyst in solving such complex problems as urban transportation, housing, jobs, crime, and water and air pollution. It has since expanded its activities into the fields of community development training, law enforcement improvements, and low-priced housing. The Department's greatest effect on water resources planning has come through its activities with Federal agencies and the Appalachia Regional Commission under the provisions of the Appalachia Regional Development Act, P.L. 89-4.

5.7.1.13 Ohio Water Development Authority

Created in 1969, the Ohio Water Development Authority (OWDA) is authorized to finance and construct water management facilities within Ohio. The 108th General Assembly appropriated $100 million for use by OWDA as seed money for water management projects. The OWDA may contract with an eligible political subdivision to finance and construct sewage treatment facilities for industry on a 100 percent pay-back basis.

The OWDA is composed of seven members, including five appointed by the Governor for 8-year terms, and the directors of Natural Resources and of Health. The Authority may employ any necessary staff and may also contract with consultants as necessary.

The OWDA has proposed a 5-year plan that will enable the Authority to use its initial appropriation as seed money to construct sewage treatment facilities. Repayment of the cost of the projects should generate sufficient funds to continue the program. At present the OWDA has approved financing for construction of $163 million worth of waste treatment. The figure for industrial facilities has not been estimated.

5.7.1.14 Public Utilities Commission

The Public Utilities Commission, composed of three members appointed by the Governor, has authority to regulate privately-owned sewage and water companies as to service and rates.

5.7.1.15 The Ohio Agricultural Research and Development Center

The Ohio Agricultural Research and Development Center began in 1882 with a $3,000 annual State appropriation, 30 acres of rented land, and a two-room headquarters on the Ohio State University campus. Today it is one of the world's largest agricultural research centers. The center was originally financed entirely by State appropriations. After passage of the Hatch Act of 1887, establishing an experiment station in each State, Federal grant funds became available. Subsequent Federal and State legislation has extended the scope of activities to include research in all aspects of agriculture and home economics, including the dissemination of research results.

The Ohio Agricultural Research and Development Center is governed by a Board of Control made up of the Board of Trustees of the Ohio State University plus the Director of Agriculture of the State of Ohio. The Director of the Center serves also as Dean of the College of Agriculture and Home Economics and as Director of the Cooperative Extension Service, both of which are administrative units in the Ohio State University. Assisting the Director in administration of the Center are an Associate Director, three Assistant Directors, a Business Manager, a Coordinator of Research Operations, a Superintendent of the Physical Plants, a superintendent of Outlying Branches, plus chairmen and associate chairmen of 14 subject matter departments.

The headquarters of the Center in Wooster includes 26 major office and laboratory buildings, greenhouse units, and supportive service buildings, 2,000 acres of land, and populations of all classes of livestock and poultry. Research also is conducted at nine outlying branches in Wood, Erie, Clark, Brown, Huron, Meigs, Washington, Mahoning, and Noble

Counties. In addition, the Center uses farm land and laboratory and office space at the Ohio State University. The total land available for research is in excess of 6,000 acres. Cooperative relationships with the Department of Mental Hygiene and Correction make available lands and livestock for research purposes. Occasionally research is conducted on private farms throughout the State. Cooperative work is carried out with a great many Federal and State agencies as well as with the 12 North Central States Experiment Stations and several additional Experiment Stations across the United States.

The Research Center's professional staff consists of 275 scientists, including 150 faculty members located at the Ohio State University who devote part-time to Center research. The research effort is supported by 125 technical and research assistants, the latter mainly half-time graduate students at the Ohio State University, and by approximately 250 civil service employees. A total of 350 research projects are conducted by the following 14 departments: agricultural biochemistry, agricultural economics and rural sociology, agricultural engineering, agronomy, animal science, botany and plant pathology, dairy science, dairy technology, forestry, home economics, horticulture, poultry science, veterinary science, and zoology and entomology. The research program encompasses both basic and applied research. These studies involve all of Ohio's major soil types and are conducted under a wide variety of climatic conditions represented at the Center's 11 locations. Thus, Center scientists conduct field tests under conditions similar to those encountered by Ohio farmers.

Of the many research categories at the Center, one of the most important pertains to soil and water conservation. Currently active projects involve drainage, irrigation, soil water movement, and water requirements for a variety of plants, including forest trees, soil compaction, minimum tillage, watershed hydrology, and many others. The Research Center cooperates with the U.S. Hydrological Laboratory at Coshocton in a variety of soil and water conservation projects. The current effort in soil and water conservation involves an annual investment of $50,000 on 10 projects in these two areas plus an additional $250,000 on a great many related projects.

Research results are disseminated through all available media: Center publications, scientific journals, trade and farm publications, newspapers, radio, television, and directly to 25,000 persons who annually attend field days and other special events. In addition, the Center's research results are made available directly for classroom instruction by the College of Agriculture and Home Economics and for use by the Cooperative Extension Service which has offices in all 88 Ohio counties.

5.7.1.16 Ohio State University

(1) Cooperative Extension Services

This Service is the off-campus teaching arm of the College of Agriculture and Home Economics of the Ohio State University, but is conducted under the authority of both Federal and State laws. Its workers are both faculty members of the University and representatives of the U.S. Department of Agriculture. As a land-grant college, The University is designated to administer provisions of the Smith-Lever Act. Ohio law provides legal authority for cooperative financing from Federal, State, and county governing bodies, and designates the Board of Trustees of the University as responsible for administration.

The principal areas of educational effort dealing with water use and management are agricultural engineering, agronomy, and the wildlife conservation phase of the Department of Zoology and Entomology. In each of these fields, the results of research and educational efforts of specialists and engineers are extended throughout Ohio by county and area extension agents.

In agricultural engineering, one specialist devotes most of his time to land drainage, irrigation, water supply for rural homes and livestock, water treatment, and water disposal. An additional agricultural engineering specialist works almost full-time in providing educational assistance to small watershed development. Engineers involved in land preparation and cultivation techniques give much attention to water management aspects of farming. In agronomy, one specialist on joint appointment with the Soil and Water Conservation Committee devotes most of his time to educational programs. In wildlife conservation, emphasis is on ponds and lakes, fishing, recreation, and other uses. Training programs are provided for drainage contractors. A title testing program has been inaugurated. A large farm pond and a vacation cabin were developed for the Ohio State Farm Science Review. Another pond is planned at the State 4-H Camp as part of the teaching laboratory.

A small watershed bulletin, developed in cooperation with the Soil Conservation Service and the Department of Natural Resources, is distributed through local county extension offices. Soil and water conservation techniques learned by 200 leaders attending 4-H training meetings were passed on to some 250 additional local leaders. Publications promoting privately-owned outdoor recreational developments are furnished local extension officers. In one year eight meetings attended by approximately 450 people were devoted to farm pond management.

(2) School of Natural Resources

This School was organized from the former Natural Resources Institute on July 1, 1968, and placed within the College of Agriculture and Home Economics. It provides academic programs in many areas of natural resources. The School interacts with the State Department of Natural Resources, largely through informal contacts.

(3) Water Resources Center

The Water Resources Center was created in 1958 as a separate area of research under the Engineering Experiment Station of the Ohio State University. It is an outgrowth of the Waste Treatment Laboratory, in existence since 1947. Direction and coordination of the Ohio State University's research activities in the water resources area were assigned to the Center in 1964.

The Director is appointed by the Dean of the College of Engineering. The research staff is composed of faculty and graduate students from the various academic departments of the University that have an interest in water resources and are working on specific research. An advisory committee appointed by the Dean represents various colleges and departments, including engineering, biological sciences, agriculture, arts and sciences, law, and commerce. This committee coordinates the Center's activity with the departments, reviews the Center's program and its research, and makes recommendations to the Director.

The research programs involve study of basic scientific phenomena. Studies have been sponsored by the U.S. Public Health Service, the Ohio River Valley Water Sanitation Commission, the State of Ohio, the U.S. Department of the Interior, and industry. Recent projects include the effects of heavy metals on the activated sludge process; the role of enzymes in the anaerobic digestion process; the effect of conventional and extended aeration and septic tank action on biodegradation of selected detergents; several aspects of acid mine drainage; chemical coagulation control; tertiary treatment systems; industrial waste treatment; and a hydrological classification of river systems in the Great Lakes-St. Lawrence River Basin. These projects provided thesis and dissertation material for graduate students and articles for current technical journals. The Center has modern analytical equipment, and laboratory and pilot scale facilities designed for the study of algal, bacterial, and fungal systems. Related laboratories in other departments of the University are available for specific studies.

5.7.2 Political Subdivisions

5.7.2.1 Conservancy Districts

Ohio law permits landowners or political subdivisions to petition common pleas courts for creation of conservancy districts. If the court, composed of one common pleas judge from each county in the proposed district, decrees in favor of the petitioners, the district then becomes a legal subdivision of the State. The court may specify any or all of the following purposes: preventing floods; enlarging, regulating, or diverting streams and conserving their waters; reclaiming wet lands; providing for irrigation; public or industrial water supply; sewage collection and disposal; and arresting Lake Erie shore erosion. Improvements may be constructed by the district only in conformity with an official plan approved by the court. Subdistricts may be organized to construct improvements that affect only part of the main district.

The court appoints a board of three directors who retain a secretary, treasurer, counsel, chief engineer, and other needed employees. When an official plan is approved, the court appoints a board of three appraisers to determine benefits and damages. If benefits, as confirmed by the court, exceed the estimated cost, the directors may proceed to execute the plan and assess cost against benefited property. Completed works are maintained by the district with maintenance assessments.

Conservancy districts and subdistricts in Ohio now total 35. The size of districts varies

considerably, ranging from nearly 8,000 square miles to less than one square mile. Nineteen districts have constructed projects and several of these are planning additional projects. Ten districts that have not yet constructed any projects plan to do so, and six districts are inactive. The Conservancy Act in recent years has been used most frequently for administering Public Law 566 watershed projects. The Ohio Water Commission administers a rotary loan fund to assist in the organization and preliminary planning efforts of a district.

5.7.2.2 Watershed Districts

Watershed districts are created by the Ohio Division of Water filing a map and description with the Secretary of State and with each board of county commissioners within the district. The chairmen of the boards of commissioners then must meet and appoint a board of directors and adopt a budget. The board of directors, for the purpose of assisting to obtain the orderly development and the most beneficial use of the water resources within the district, may do the following:

(1) review and recommend plans for the development of water resources
(2) recommend means to resolve user conflicts
(3) make studies relative to development of water resources and hold hearings
(4) prepare comprehensive plans for development and control of water resources
(5) counsel with agencies or private interests
(6) assist agencies and private interests in planning and development of water resources
(7) have access to agency information
(8) make contracts with any agency
(9) designate restricted channels
(10) designate and restrict floodways
(11) issue permits in restricted channels
(12) petition for conservancy district or subdistrict.

The chairmen of the boards of county commissioners meet initially to appoint a board of directors and adopt a budget. The board has five members representing the public, agriculture, industry, public water supply, and recreation. It must hold regular meetings and may employ a chief engineer, attorneys, and other employees. The budget is apportioned among the counties in the district.

The Three Rivers Watershed District, covering the drainage basins of the Chagrin, Cuyahoga, and Rocky Rivers, was established in December 1965. While the district has been organized only a short time, the directors have designated a reach of the Cuyahoga as a restricted channel. No other districts have been formed under this law.

5.7.2.3 Regional Water and Sanitary Districts

Ohio provides for organizing sanitary districts under Chapter 6115 of the Revised Code, which was modeled after the Conservancy District Act. Purposes of such a district are prevention and correction of stream pollution, regulation of streamflow for sanitary purposes, providing for collection and disposal of garbage and sewage, providing water supply, and controlling mosquitoes. A board of three directors appointed by the court, a secretary, engineer, and other needed employees make up the organization.

The Mahoning Valley Sanitary District was organized under this law to furnish water to Youngstown and Niles. It operates reservoirs, a treatment plant, and supply mains. Chapter 6119 of the Revised Code authorizes creation of regional water and sewer districts, also patterned after conservancy districts, but only limited use has been made of this law.

5.7.2.4 Regional Water and Sewer Districts

A regional water and sewer district may be established with the consent of all the municipal, county, and township legislative authorities within the proposed region and upon the approval of a combined court of common pleas consisting of one judge from each affected county court of common pleas. The regional district is administered by the board of trustees and provides water supply and sewage collection and disposal for users within and without the district.

5.7.2.5 Soil and Water Conservation Districts

Soil and water conservation districts have been organized in each of Ohio's 88 counties by referendum vote of landowners. The districts have authority to make surveys, develop plans, carry out control measures, and cooperate or enter into agreements with landowners for conservation of soil and water resources.

Each district elects a board of five super-

visors who control development and execution of their program. They have the assistance of the U.S. Soil Conservation Service, which assigns a work unit conservationist and technicians to assist in developing farm plans and group effort.

Water management practices are installed to prevent erosion and flooding. These include surface and internal drainage, impoundment and regulation of streamflow, channel improvement and maintenance, better crop sequences, and land treatment to retard water movement. The districts carry on a public information program and seek coordination of soil and water management programs involving other agencies.

5.7.2.6 Municipalities

Municipalities have broad powers to construct reservoirs, water supply and sewer systems, enlarge and improve ship channels and watercourses, and build levees. They may also acquire or zone flood plain lands.

5.7.2.7 Counties

The boards of county commissioners have been given powers to create sewer districts, county, joint-county, and interstate ditches, water supply systems, and watershed districts. In addition, they provide financial assistance to soil conservation districts. County commissioners also have powers to clean and repair ditches; maintain, divert, or change watercourses; remove drift and other obstructions in stream channels; and remove mill dams. Counties also have zoning powers, including the zoning of flood plains.

5.8 Pennsylvania

Statutory responsibilities for water and related land resources in Pennsylvania are listed in Addendum B, Table S20–21.

5.8.1 Introduction

The administration and execution of the regulations and programs for water and associated resources in Pennsylvania involve a number of different types of agencies. Various administrative functions are handled by boards and commissions, some of which are independent (e.g. Game Commission), while others are concerned with a specific aspect of a departmental jurisdiction (e.g., the Sanitary Water Board of the Department of Health). There are also advisory boards and commissions having responsibilities at independent and departmental levels, e.g., the State Planning Board which advises the Governor's Office, and the Forest Commission within the Department of Forests and Waters. The operational executive departments handle the details of State-level programs.

These various types of boards, commissions, and departments are not, as their modifying adjectives imply, functionally exclusive. Each agency has varying degrees of assigned responsibilities in all three types of functions. For instance, the Fish Commission, an independent administrative agency for the conservation of fish species, also provides advisory services to other agencies and enforces recreational boating regulations. The water-related boards and commissions that are predominantly administrative or advisory are listed below to clarify agency relations:

(1) Administrative Commissions
- (a) Pennsylvania Fish Commission
- (b) Pennsylvania Game Commission
- (c) Public Utility Commission
- (d) Historical and Museum Commission

(2) Departmental Administrative Boards, Commissions, and Offices
- (a) Department of Environmental Resources
  - (aa) Environmental Quality Board
  - (bb) Environmental Hearing Board
  - (cc) State Board for Certification of Sewage Treatment and Waterworks Operators
  - (dd) State Soil and Water Conservation Commission
  - (ee) Anthracite Mine Inspectors
  - (ff) Bituminous Mine Inspectors
- (b) Department of Transportation—Navigation Commission for the Delaware River and Its Navigable Tributaries

(3) Advisory Agencies
- (a) State Planning Board
- (b) State Transportation Commission
- (c) Advisory Board for Boating

(4) Departmental Advisory Groups
- (a) Department of Environmental Resources—Citizens Advisory Council
- (b) Department of Health—Advisory Health Board
- (c) Department of Transportation—State Transportation Advisory Committee.

The executive departments are units of the

Governor's cabinet having assigned responsibilities for executing the required management functions. The following departments are involved in or affected by the different aspects of water and related resources: Department of Agriculture, Department of Commerce, Department of Community Affairs, Department of Environmental Resources, and Department of Transportation.

The functions, powers, duties, and organization of all Commonwealth agencies are given in detail in Pennsylvania's Administrative Code (Act of April 9, 1929, P.L. 177, as amended). Those agencies mentioned above are only part of the total organization. In the sections that follow, these agencies are briefly described.

5.8.2 State Agencies

5.8.2.1 Administrative Agencies: Independent Commissions

(1) Pennsylvania Fish Commission

The agency is governed by nine commissioners appointed by the Governor with the approval of the Senate. Eight of the commissioners are selected from geographic regions, and must be well informed on the subject of conservation and restoration; one commissioner at large is appointed to represent boating interests. The members hold office for eight years and/or until their successors are appointed. The geographic regions from which the commissioners are selected are composed of eight or nine counties. The commissioners receive no monetary compensation for their services.

The Commission shall appoint an Executive Director, and with the approval of the Governor, fix the salary he will receive for attending to the administrative work of the Commission.

The Executive Director is the Chief Fish Warden. He supervises all other fish wardens and employees of the Commission, and also administers and enforces rules and regulations relating to the following:

(a) recreational boating

(b) protection, propagation, and distribution of fish, and the angling, catching, or removal of fish from within the Commonwealth

(c) appointment of staff personnel and fish wardens

(d) control and management of all hatching stations and fish cultural establishments, including land and water acquisitions

(e) obtaining information respecting the laws relating to fish protection and the extent and conditions of the Commonwealth fisheries, and transmitting this information for publication

(f) requiring any person, association, or corporation, erecting or maintaining a dam in the waters of the Commonwealth, to erect chutes, slopes, fishways, gates, or other devices necessary to enable the fish to ascend or descend the waters at all seasons of the year

(g) issuance of boat and net licenses, seine licenses, propagation licenses, fishing licenses, and any other licenses needed for protection and propagation of fish.

(2) Pennsylvania Game Commission

The Commission consists of eight members who are competent and well informed on the subject of wildlife management and recreation. Each member is selected from a geographical area comprising 6 to 11 counties, and is appointed by the Governor, with Senate confirmation, for a term of eight years and/or until their successors are appointed. The Commission selects an Executive Director, at the Governor's approval, to attend to the administrative work of the Commission.

The Executive Director of the Commission shall be the Chief Game Protector, and shall have the direction, supervision, and control of the other game protectors, and the following duties:

(a) protect, propagate, manage, and preserve the game, fur-bearing animals, and protected birds of the State

(b) enforce the laws of the Commonwealth related to the above

(c) appoint and train game protectors and employees

(d) acquire land by gift or purchase

(e) lease privately-owned land for public hunting and wildlife management

(f) establish regulations relating to State Game Lands

(g) establish game bag limits

(h) publish the *Game News*, bulletins, and literature necessary to the work of the Commission

(i) issue hunting licenses, special deer licenses, special licenses to persons of known scientific attainment, agents of public museums, teachers of ornithology, breeders, taxidermists, and fur dealers, and other

licenses for protection and propagation of wildlife.

(3) Public Utility Commission

Five members are appointed to the Commission by the Governor and confirmed by the Senate for staggered terms of 10 years each. A member designated by the Governor shall be the Chairman of the Commission during each member's term of office.

The Public Utility Commission has the primary duty to regulate the intrastate rates and service of public utilities operating in Pennsylvania. Its chief objective is to establish and maintain reasonable rates and adequate service. A public utility is defined as any company, corporation, or person engaged in furnishing services to the public for compensation. The water-related services subject to Commission regulation are water supply, electricity, water sewerage collection and disposal, and wharves. The following are the Commission's principal functions:

(a) regulation of rates charged by utilities

(b) regulation of utility service and facilities to the end that both are adequate, efficient, safe, and reasonable for the public

(c) processing service requests and the settlement of disputes involving meter readings.

(4) Historical and Museum Commission

The membership of this Commission consists of the Secretary of Education, ex officio, nine Pennsylvania residents appointed by the Governor, two members of the Senate appointed by the President Pro Tempore, and two members of the House appointed by the Speaker. The chairman is designated by the Governor.

The Commission acts as the official agency of the Commonwealth for the preservation of Pennsylvania's historic heritage and the preservation of public records, historical documents, and objects of historical interest. In this capacity, its powers and duties are in five principal categories:

(a) museums

(b) historic properties and markers

(c) archeological research and publications

(d) historical research and publications

(e) care of public records.

The Commission also has the following duties:

(a) resolve all unsettled questions concerning geographic names that arise in the administrative departments

(b) determine, change, and fix the names of mountains, rivers, creeks, and other topographic features within Pennsylvania. In this capacity, the Commission must cooperate with the U.S. Geographic Board.

(c) provide administrative direction of the Washington Crossing Park Commission and the Valley Forge Park Commission.

5.8.2.2 Departmental Administrative Boards and Commissions

(1) Department of Environmental Resources

The Environmental Quality Board membership consists of the Secretary of Environmental Resources as Chairman, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Community Affairs, the Secretary of Health, the Secretary of Labor and Industry, the Secretary of Transportation, the Executive Director of the Fish Commission, the Executive Director of the Pennsylvania Historical and Museum Commission, the Executive Director of the State Planning Board, the Chairman of the Public Utilities Commission, the five members of the Citizens Advisory Council designated by the Council, and four members of the General Assembly, one each to be appointed by the President Pro Tempore of the Senate, the Minority Leader of the Senate, the Speaker of the House of Representatives, and the Minority Leader of the House of Representatives. Eight members of the Board constitute a quorum.

The following are the powers and duties of the Board:

(a) to develop a master environmental plan for the Commonwealth

(b) to formulate, adopt, and promulgate the rules and regulations for the proper performance of the work of the Department

(c) to subpoena witnesses, records, and papers

(d) to receive and review reports from the Department, and to advise the Department and its Secretary on matters of policy

(e) to establish rules and regulations for the control, management, protection, utilization, development, occupancy, and use of the lands and resources of State parks and State forests.

The Environmental Hearing Board membership consists of three persons appointed by the Governor and learned in the law, of whom

the Governor shall designate one as Chairman, and a secretary appointed by the Secretary of Environmental Resources with the approval of the Governor.

The Board holds hearings and issues adjudications on any order, permit, license, or decision of the Department. It is responsible for the following duties:

(a) to employ hearing examiners and other personnel necessary to the exercise of its functions, with the concurrence of the Secretary of Environmental Resources

(b) to subpoena witnesses, records, and papers.

The State Soil and Water Conservation Commission membership consists of the Secretary of Environmental Resources as chairman, the Secretary of Agriculture, the Dean of the College of Agriculture, Pennsylvania State University, and four farm members and two urban nonfarm members appointed by the Governor. The associate, nonvoting members are the State Conservationist of the U.S. Department of Agriculture, Soil Conservation Service and the Director of Agriculture and Home Economics Extension of Pennsylvania State University.

The Commission has the following duties:

(a) approve the establishment and organization of county soil and water conservation districts, and district conservation plans for erosion control

(b) apportion any funds alloted from State or Federal sources

(c) assume responsibility for expenditures by county districts

(d) cooperate with government agencies in activities related to conservation of soil and water resources, including the control and prevention of soil erosion, maintenance of projects to safeguard and conserve local water supplies, assistance on a community basis in drainage projects, conservation of wildlife, and forest management

(e) approve applications for assistance under the Federal Public Law 566.

Membership on the State Board for Certification of Sewage Treatment and Waterworks Operators consists of the Secretary of Environmental Resources and five members appointed by the Governor, as follows: an employee of a municipality or authority that operates a sewage treatment plant, water treatment plant, or water distribution systems, or a representative of a State association of municipality authorities; an individual qualified to operate any water treatment plant; an owner or official of a privately owned waterworks; an individual qualified to operate any sewage treatment plant; and a member on the teaching staff of the civil or sanitary engineering department of an accredited Pennsylvania university or college. The Board members serve without compensation except for expenses. A chairman and secretary are elected annually, and meetings are called by the chairman as needed.

The Board has the following powers and duties:

(a) review and pass applications for certification of sewage treatment plant and waterworks operators

(b) prepare and hold such examinations necessary to determine the fitness of candidates for certification

(c) revoke, suspend, or reinstate certificates

(d) receive and act upon complaints

(e) compel attendance of witnesses and the production of books or records

(f) formulate, adopt, promulgate, and repeal such rules and regulations necessary to implement the provisions of Act 322, November 18, 1968, as amended.

(2) Department of Transportation

The Navigation Commission for the Delaware River membership consists of the Secretary of Environmental Resources, ex officio; the Director of Wharves, Docks, and Ferries of Philadelphia, ex officio; three members appointed by the Governor (two residents of Delaware County and one resident of Bucks County); and two members appointed by the Mayor of Philadelphia.

The Commission has the following powers and duties:

(a) to keep accurate minutes and entries of all orders, regulations, and transactions of the Commission, and to make such records available for inspection upon request

(b) to hire a civil engineer and other necessary employees, with the approval of Secretary of Environmental Resources

(c) to maintain adequate offices and a meeting room.

5.8.2.3 Advisory Agencies: Boards and Commissions

(1) State Planning Board

The State Planning Board membership con-

sists of 15 members appointed by the Governor from the general public, two members from the House of Representatives (one from each party) appointed by the Speaker, and two members from the Senate (one from each party) appointed by the President Pro Tempore. Ex officio members are the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Community Affairs, the Secretary of Environmental Resources, and the Secretary of Transportation.

The Board has the following powers and duties:

(a) to conduct and stimulate research, and to collect, compile, and analyze data concerned with industrial, commercial, social, and physical factors that could influence the present and future welfare of Pennsylvania

(b) to prepare plans for physical and economic development for the State

(c) to advise State departments and local authorities on planning

(d) to prepare a long-term development program for major State improvement projects

(e) to publish information relating to the proper economic and physical development of Pennsylvania and its natural resources, and make recommendations to the Governor in these fields.

(2) State Transportation Commission

The State Transportation Commission membership includes three ex officio members: the Secretary of Transportation as Chairman, the Chairman of the Senate Committee on Highways, and the Chairman of the House of Representatives Committee on Transportation. Eight members are appointed by the Governor from the public at large with approval of the Senate. Two must be members of a board of directors of a transportation authority, and two others must be residents of Philadelphia and Allegheny Counties. There are also two members from the General Assembly, one each from each House who are minority party members, appointed by the President Pro Tempore of the Senate and the Speaker of the House of Representatives.

The Commission has the following powers and duties:

(a) to hold public hearings throughout the Commonwealth to secure pertinent information relative to any transportation route, program, and alternatives

(b) to gather and study all available information, data, statistics, and reports relating to the needs for highways, rapid transit, railroad, bus, marine, and other mass and bulk transportation facilities and services, including aviation and airport facilities and services

(c) to determine, on the basis of available information, data, statistics, and reports, which of the above facilities and services should be constructed, and the recommended order of priority of such construction

(d) to certify from time to time the results of such determination to the Governor, to the General Assembly, and to the Secretary of Transportation for their consideration.

(3) Advisory Board for Boating

The Advisory Board for Boating membership consists of the Secretary of Environmental Resources, the Assistant Executive Director of the Fish Commission in charge of the Watercraft Safety Division, and five members appointed by the Governor who are experienced boatmen. The Board acts in an advisory capacity to the Fish Commission, and meets when called by the Chairman, or three members of the Fish Commission.

5.8.2.4 Departmental Advisory Groups

(1) Department of Environmental Resources

The Citizens Advisory Council membership consists of the Secretary of Environmental Resources and 18 members who are knowledgeable in fields related to the work of the Department of Environmental Resources, and who are citizens of the State holding no other salaried State office except that of membership on the Environmental Quality Board. Appointments are made as follows, and in each case, no more than three can be of the same political party: six members by the Governor; six members by the Speaker of the House of Representatives; and six members by the President Pro Tempore of the Senate. The chairman is elected annually, and meetings of the Council are held at least quarterly or at the call of the chairman.

In its advisory capacity, the Council may employ and fix the compensation of such experts, stenographers, and assistants necessary to carry out its work. However, the Coun-

cil is expected to enlist such voluntary assistance as may be available from citizens, research organizations, and other generally qualified sources. The Council has the responsibility of reviewing all environmental laws of the Commonwealth of Pennsylvania and making suggestions for their revision, modification, and codification; reviewing the work of the Department; advising the Department; and making reports to the Governor and the General Assembly.

(2) Department of Health

The Secretary of Health serves as chairman of the Advisory Health Board. The 10 members, appointed by the governor, must include five doctors of medicine, one dentist, one pharmacist, and one professional sanitary engineer.

The board has the following powers and duties:

(a) to advise the Secretary of Health

(b) to make rules and regulations deemed necessary for the prevention of disease, for the protection of lives and health, and for the proper performance of the work of the Department of Health. Such rules and regulations are to become the rules and regulations of the Department.

(c) to adopt rules and regulations for personnel administration based upon merit and fitness

(d) to prescribe minimum health activities and minimum standards of performance of health services for counties or other political subdivisions.

(3) Department of Transportation

Members of the State Transportation Advisory Committee include the following: the Secretaries of Transportation, Agriculture, Commerce, Community Affairs, Education, and Environmental Resources; the Chairman of the Public Utility Commission; the Executive Director of the State Planning Board; two members of different political parties from the House of Representatives appointed by the Speaker; two members of different political parties from the Senate appointed by the President Pro Tempore; and 18 public members, including six appointed by the Governor, six appointed by the Speaker of the House, and six appointed by the President Pro Tempore of the Senate. The Governor annually designates one of the 18 public members as chairman of the Committee.

The Committee has the following powers and duties:

(a) to consult with and advise the State Transportation Commission and the Secretary of Transportation in behalf of all the transportation modes of the Commonwealth

(b) to aid and assist the State Transportation Commission and the Secretary of Transportation in the determination of goals and the allocation of available resources among and between the alternative modes in the planning, development, and maintenance of programs and goals of the Department and the State Transportation Commission.

5.8.2.5 Executive Departments

(1) Department of Agriculture

The Pennsylvania Department of Agriculture is essentially a service agency dealing with investigational, marketing, and service problems in the Commonwealth that can best be solved through public rather than individual action. The Department is charged by numerous laws to encourage the development and successful pursuit of agriculture, to control animal and plant diseases and insect pests, and to safeguard the public against impure or misrepresented foods, as well as feeds, fertilizers, liming materials, and pesticides. The Department also gives special attention to questions relating to the valuation and taxation of farm lands, to the variation and diversification in the kinds of crops, their methods of cultivation and their adaptability to changing markets, and to ways and rates of transportation.

The Department's principal associations in the area of water resources involve both the regulation and the development aspects. The Department's responsibilities relating to pesticides are directly related to water pollution problems, and the Department's responsibilities for improving crops and markets have an indirect relationship to adequate water supply. Here the connection is with irrigation needs during periods of drought and for enhancement of crop values.

(2) Department of Commerce

Programs of this Department are listed below.

(a) The Secretary of Commerce is a member of the Environmental Quality Board in the Department of Environmental Resources (Act 275–1970).

(b) The Bureau of Industrial Development advises industrial prospects regarding potential sites, based on water resource information, for those industries requiring this type of information. The Statistics Division of this Bureau conducts census of water utilities (private, municipal, and municipal authorities) requiring annual statistical reports relating to customers, quantity, investments, revenues, and expenses.

(c) The Bureau of Travel Development encourages, promotes, and assists recreation, travel, and tourism.

(d) The Bureau of State and Federal Economic Aid administers a number of grant-in-aid programs, three of which are concerned with water resources: The Appalachia Program, the Community Facilities Program, and the Site Development Program.

(aa) The Appalachia Program (Section 214 of the Appalachia Regional Development Act of 1965, as amended) provides grant funds to supplement basic Federal grants (P.L. 660 or HUD) for improvements to sewage treatment facilities or water supply systems. The Appalachia office (in the Bureau of State and Federal Economic Aid), in conjunction with the State Planning Board has coordinated the interests of State Departments and agencies concerned with water resources in developing participation in a comprehensive water development plan which the Corps of Engineers has completed under the Appalachia Program for the 13 Appalachia states.

(bb) The Community Facilities Program provides grants made by the Department of Commerce from funds secured from 2 percent of the daily wagers at two harness racing tracks, to assist in the construction, rehabilitation, alteration, expansion, or improvement of water facilities and sewage disposal facilities.

(cc) The Site Development Program provides grants made by the Department of Commerce, from appropriations made by the General Assembly, to assist in the "construction, rehabilitation, alteration, expansion, or improvement of . . . water facilities . . . sewage collection lines . . . and channel realignment . . ." needed for new or existing industrial development projects. Eligible applicants are municipalities, municipal authorities, industrial development agencies, or State agencies.

Acts 50 and 51 created the Department of Commerce and charged it with the duty of "the promotion and development of business, industry, and commerce in the Commonwealth." Section 3 of Act No. 51, known as the "Commerce Law," declares that the Department of Commerce shall have the following duties:

> (1) To investigate, study and undertake ways and means of promoting and encouraging the prosperous development and protecting the legitimate interests and welfare of Pennsylvania business, industry and commerce, within and without the Commonwealth. . . .
>
> (6) To make to the General Assembly, from time to time, recommendations for the remedy or improvement of any conditions, and the elimination of any restrictions and burdens imposed by law, or otherwise existing, which adversely affect or retard the development and expansion of business, industry or commerce. . . .

The Department is vitally concerned with the adequacy of the quality and quantity of our water supply. Prudent water management is essential to further industrial development. The Department advocates water quality standards that are commensurate with feasible treatments and reasonable stream usage, because standards that are excessively stringent will tend to force plants to shut down and discourage industrial migration. Industry is becoming aware of conservation and is planning its development to have a minimal adverse effect on our natural resources.

The Department of Commerce is intrinsically interested in the programs of all water-related agencies. The Department realizes that it may be necessary at some time to make choices between industrial, recreational, and other pressing demands for water uses on particular stretches of streams.

The Department advocates a realistic water resources policy that recognizes that the Commonwealth's rules and regulations should be commensurate with those of other States, and should not put Pennsylvania at a competitive disadvantage.

The Department is also interested in the full development of the outdoor recreation potential of Pennsylvania and in the judicious conservation and uses of the Commonwealth's natural resources for all segments of the economy.

(3) Department of Community Affairs

The broad objective of the Department of Community Affairs, which was created in

1966, is to enhance community development. It seeks to support and assist local governmental capacity to deal with community problems and to focus State resources thereon through interdepartmental action. The Department is a community-oriented, problem-solving agency that endeavors to coalesce local, State, and Federal energies on a priority basis to meet neighborhood, municipal, and area needs. The operational mechanisms of the Department for integrating and applying both technical and financial resources to meet community needs is through an urban-oriented delivery system, i.e., Model City/Partner City, through its regional offices, and through conducting services made available to all municipalities.

In the area of water resources management and development, the Department has two areas of interest. First, the Department, through its Bureau of Planning, is responsible for coordinating the Federal Flood Insurance Control Program, and for providing assistance to municipalities in program requirements and flood plain regulatory measures. It prepares and disseminates information on the Flood Insurance Program to planning and development agencies and for local officials, including preparation and dissemination of flood plain regulatory measures. Second, the Department, through its Bureau of Community Programs, administers the State's "Project 500" programs for the preservation of open space and recreational facility development.

(4) Department of Environmental Resources

As of January 1971, the Department of Environmental Resources was the most recent revision in the administrative structure of Pennsylvania's State government. The Department became effective on January 19, 1971, as the central agency responsible for the regulation and development of the Commonwealth's natural resources. The new Department combines the functions, powers, and responsibilities of several former administrative boards and commissions and executive departments and bureaus of other departments under a single administration. These functions, which are outlined below, are concerned with the management of the activities affecting water and land resources, minerals, and outdoor recreation, and with the control and abatement of water and air pollution. The Department is, therefore, the State agency most involved in water and related land resources.

The Department has the following powers and duties dealing with forests:

(a) to acquire, by purchase, gift, lease, or condemnation, and hold as State forests any lands (including tax delinquent lands), which in the Department's opinion should be held for the management, control, protection, maintenance, utilization, and regulation as State forests or for reforestation. It may also add to existing State forest lands for the purpose of lessening soil erosion and the siltation of reservoirs, control of stream flows, or establishment and maintenance of fire observation towers and stations.

(b) to purchase and hold unseated, vacant, or unappropriated lands, lands advertised for sale of taxes, and land sold for taxes as State forests

(c) to divide the State into convenient forest districts for the administration, protection, development, utilization, and regulation for occupancy and use of the lands and resources of the State forest

(d) to protect all forest land in the State from forest fires, fungi, insects, and other enemies

(e) to advise and assist landowners in the planting of forest and shade trees, and to distribute young forest trees, shrubs, and vines to those desiring to plant them

(f) to cooperate with the authorities of townships, boroughs, and cities in the Commonwealth in the acquisition and administration of municipal forests

(g) to dispose of State forest timber whenever the welfare of the Commonwealth and the betterment of the State forests will be advanced, provided that the Department sets aside within the State forests unusual or historical groves of trees or natural features especially worthy of permanent preservation, makes them accessible and convenient for public use, and dedicates them in perpetuity to the people of the State for their recreation and enjoyment

(h) to make and execute contracts or leases for the mining or removal of any valuable minerals that may be in State forest, or of oil and gas beneath those waters of Lake Erie owned by the Commonwealth

(i) to appoint a chief forest fire warden, district forest wardens, and other local forest wardens and assistants for the prevention, control, and extinction of forest fires

(j) to promote and develop forestry and knowledge of forestry throughout the State,

including assistance in Arbor Day work or any other activity in local forestry helpful to the public interest

(k) to establish and administer auxiliary forest reserves

(l) to furnish information and issue certificates and requisitions necessary for the payment of such fixed charges, in lieu of taxes on State forest and auxiliary forest reserves, to school districts, road districts, and counties

(m) to sell or exchange, if approved by the Governor, State forest land whenever it is to the advantage of the State forest interests

(n) to set aside any State-owned land for the exclusive use for parks, parkways, and other places of scientific, scenic, historic, or wildlife interest

(o) to maintain and operate the Pennsylvania State Forest School at Mount Alto to provide professional education in forestry and maintain a close association of theory and practice, and to train forest rangers and forest inspectors

(p) to lease the following State forest lands for industrial or economic development purposes or for nuclear reactor safety zone purposes: those lands acquired by gift from Pennsylvania State University or by acquisition from the Curtiss-Wright Corporation located at Quehanna, Pennsylvania, including certain industrial buildings on the lands. This lease must be approved by the Governor and in cooperation with the Department of Commerce.

(q) to lease portions of State forests, for periods not exceeding 10 years, to citizens, church organizations, or school boards for health and recreational purposes; and small areas of State forests suitable for crops to interested persons

(r) to grant rights-of-way through State forests to individuals or corporations when such grant will not adversely affect the land, and when the interests of the Commonwealth or its citizens will be promoted by such grant

(s) to give boroughs and other municipalities, subject to the Department's restrictions and regulations , the privilege of impounding water on any State forests, and constructing, maintaining, and operating lines of pipes through State forests for the conveyance of water

(t) to expend reasonable sums for the maintenance, repair, or extension of established public roads running into, through, or bordering State forests for proper administration and protection of State forests

(u) to enter into cooperative agreements with county, township, municipal, and private agencies for the prevention and suppression of forest fires

(v) to grant to public utility companies the privilege to construct, maintain, and operate their lines over, along, and upon highways and roads which lie within or border on any State forests, and to grant right of access by such companies to or through State forest lands, to bring public utilities to camps and cottages in State forest lands and in other homes and farms adjacent to State forest lands

(w) to grant the privilege to erect, maintain, and operate towers, stations, cables, and other devices and apparatus helpful or necessary for broadcasting, telecasting, transmission, relaying, or reception of television to certain parties

(x) to lease State forest lands for the underground storage of natural gas, subject to the approval of the Governor and upon such terms and conditions as the Secretary of Environmental Resources deems to be in the best interest of the Commonwealth.

The Department has the following powers and duties dealing with parks:

(a) to supervise, maintain, improve, regulate, police, and preserve all parks belonging to the Commonwealth

(b) to acquire by purchase, gift, lease, or condemnation any lands which, in the judgment of the Department, should be held, controlled, protected, maintained, and utilized as State park lands for the purpose of promoting healthful outdoor recreation and education, and making available for use natural areas of unusual scenic beauty such as impressive views, waterfalls, gorges, creeks, caves, or other unique and interesting features

(c) to establish rules and regulations, compatible with the purposes for which State parks are created, for the control, management, protection, utilization, development, occupancy, and use of the lands and resources of State parks

(d) to see that conveniences and facilities for the transportation, shelter, comfort, and education of people shall be designed and constructed to retain the naturalistic appearance of State parks areas, surroundings, and approaches.

The Department has the following powers and duties dealing with waters:

(a) to study, consider, and determine a public policy with regard to the conservation, marketing, and equitable distribution of the water and power to be derived from the utili-

zation of the water resources of the Commonwealth, and the effect of this policy on the restoration, development, and improvement of transportation by water, the supply of water and power for municipal, domestic, and industrial use, and the conservation of water resources by the aid of forestation

(b) to investigate or examine dams, walls, wing walls, wharves, embankments, abutments, projections, bridges, and other obstructions and determine whether they are unsafe, need repair, alteration, or change in the structure or location, or should be removed. The Department then notifies owners to repair, alter, or change the structure or location or remove it in emergencies without notice and at the cost of the owner. It can apply for injunctions to enforce compliance with or restrain the violation of the law in regard to the safety of dams, or the derogatory effect of walls, wing walls, wharves, embankments, abutments, projections, bridges, or other water obstructions in the regimen of streams, or the violation of any lawful order or notice of the Department. The power of the Department includes all types of water obstructions, regardless of the date when such obstructions were constructed, and whether or not they were constructed by express or implied permission of the Commonwealth, or any of its agencies.

(c) to collect such information relative to the existing conditions of the water resources of the State necessary for the utilization of waters, and for the conservation, purification, development, and equitable distribution of water and water power resources, for the use of such citizens and communities in need

(d) to establish and maintain gaging stations on rivers and their tributaries

(e) to issue bulletins, during freshet and flood conditions, forecasting gauge heights and their times

(f) to maintain a complete inventory of all the water resources of the Commonwealth; collect all pertinent data, facts and information; classify, tabulate, record, and preserve them; and upon that basis, determine the points at which storage reservoirs may be constructed for flood control, municipal and domestic supply, hydraulic and hydroelectric power, steam raising, steam condensation, navigation, and other utilization. The Department may also devise possible ways to conserve and develop the water supply and water resources of the Commonwealth for the use of the people.

(g) to construct, maintain, and operate works for water storage, flood control, channel improvement, or other hydraulic purposes

(h) to cooperate with municipalities in the construction and completion of projects and improvements for the conservation of water and the control of floods

(i) to make studies, surveys, and examinations of local, State, or national flood conditions, causes, and effects, and to prepare designs, plans, and recommendations for the adequate and reasonable control of flood conditions to save life and property

(j) to cooperate in the activities of State or local agencies, departments, boards, bureaus, commissions, and political subdivisions, and with the Federal Government or any Federal agency in the planning or accomplishment of overall long- or short-term flood control, either national, local, or sectional, and to cooperate with the Congress of the United States in the preparation or presentation of legislation tending to effectuate flood control

(k) to enter into agreements to sell, lease, or otherwise dispose of any iron, coal, limestone, fire-clay, oil, gas, and other minerals, except sand and gravel and minerals deposited as silt created by dams, that may be found in or beneath the beds of navigable streams or bodies of water

(l) to exercise the powers and perform the duties invested in the Department by law with regard to:

(aa) applications for corporation charters for the supply of water for the public, or for the supply, storage, and transportation of water and water power for commercial and manufacturing purposes or for any other water or water power company

(bb) agreements for the merger and consolidation of two or more such corporations

(cc) the sale, assignment, disposition, transfer, and conveyance of the franchises and properties of any such corporation to any other such corporation

(dd) consents or permits for the construction of dams and other water obstructions or of any changes or additions to them, and consents and permits for changing or diminishing the course, current, or cross-section of any stream or body of water

(ee) permits for the condemnation or appropriation of water, or for the construction of hydraulic works

(ff) applications for new or additional sources of supply of water or water power

(gg) applications by companies for the approval of construction, operation, and maintenance of tunnels under navigable rivers

(hh) the extension of time fixed by law for the beginning or completion of the works of water or water power companies, and inquiry into the status quo of water or water power charters, and into the diligence and intent of the water and water power companies to fulfill the requirements of the law

(m) to issue water works permits, stipulating conditions under which water may be supplied to the public, and to administer the laws pertaining to the preservation of the purity of the waters of the State for the protection of the public health

(n) to investigate, hold hearings, and determine any question of fact regarding the purity of water supplied to the public by any public utility over which the Pennsylvania Public Utility Commission has jurisdiction

(o) to make a bacteriological examination and report, for a fee of one dollar, of any sample of water sent by any person to the Department's laboratories at Philadelphia or Pittsburgh

(p) to develop and operate a Statewide water quality monitoring system and a sanitary chemistry laboratory

(q) to conduct water quality management and aquatic biology studies, and to develop and maintain a comprehensive water quality management plan for the State's ground waters, streams, lakes, and estuaries

(r) to coordinate the State's water quality management and planning activities with other State agencies and with pertinent Federal, interstate, and international organizations

(s) to administer and enforce the laws of the Commonwealth regarding prevention and abatement of pollution in waters within the State

(t) to study, investigate, and report ways of eliminating all substances and materials that pollute or tend to pollute the streams and waters of the Commonwealth, and to determine and recommend methods of preventing pollution detrimental to the public health, the health of animals, fish or aquatic life, and detrimental to the use of waters for recreational purposes

(u) to develop technical standards for the construction of water and sewerage facilities, and procedures for the inspection of plant operation control and enforcement activities

(v) to review and take appropriate action on all permit applications for the disposal of wastes or other substance within or along the streams of the State, and to issue, modify, suspend, or revoke permits pursuant to the laws of the Commonwealth and to the rules and regulations of the Department

(w) to make inspections of public or private property to determine compliance with the provisions of the laws of the Commonwealth and the rules, regulations, orders, or permits issued.

The Department has the following powers and duties dealing with mining:

(a) to execute faithfully the mining laws of the Commonwealth and to cause lawfully qualified mine inspectors to enter, inspect, and examine any mine or colliery within the Commonwealth

(b) to make such examinations and investigations necessary to make recommendations on matters pertaining to the general welfare of coal miners and others connected with mining, and to the interests of mine owners and operators in the Commonwealth

(c) to give such aid and instruction to the mine inspectors as is needed to protect the health and promote the safety of all persons employed in and about the mines

(d) to inspect deep and open pit coal mines, and enforce rules and regulations regarding safety precautions

(e) to maintain records of mine inspections and examinations

(f) to investigate the use of new mining equipment

(g) to examine and rule on applications for certificates for mine supervisory positions

(h) to enforce rules and regulations regarding backfilling open pit mines subsequent to coal extraction operations

(i) to enforce rules and regulations regarding drainage pollution abatement and control for active open pit mines

(j) to enforce the rules and regulations regarding the disposal of mine wastes in the areas of past and current coal mining operations

(k) to plan, develop, and implement programs in connection with abandoned open pit and deep coal mines to include sealing, closing, or backfilling, filling voids, drilling bore holes, constructing ditches or flumes to relieve flooding and hazardous conditions caused by mine water, and extinguishing fires in abandoned mines and culm piles

(l) to operate and maintain projects for the control and drainage of water in anthracite coal formations

(m) to enforce the rules and regulations regarding the underground storage of gas under workable coal seams, and those related

to the drilling and operation of gas and oil wells

(n) to implement and carry out programs and projects for the abatement of pollution from mine drainage originating from abandoned open pit and underground coal mines

(o) to administer and enforce the laws, rules, and regulations pertaining to the prevention and abatement of mine drainage pollution originating from active open pit and underground coal mines

(p) to review and process applications for permits for new mines and for the disposal of mine drainage.

The Department has the following powers and duties in the abatement of nuisances:

(a) to protect the public from unsanitary conditions and other nuisances, including any condition that is declared to be a nuisance by any law administered by the Department

(b) to cause examination of nuisances, or questions affecting the security of life and health, in any locality, and to enter, examine, and survey, without fee or hinderance, all grounds, vehicles, apartments, buildings, and places within the Commonwealth

(c) to order nuisances, including those detrimental to the public health, to be abated and removed

(d) to enter premises and abate or remove a nuisance if the owner or occupant of any premise fails to comply with any order of the Department

(e) to file a claim or maintain an action provided by law against such owner or occupant for the purpose of recovering the expense of abating or removing the nuisance

(f) to cooperate with the Department of Health to avoid any duplication of inspection or overlapping of functions.

The Department has the following powers and duties dealing with geology:

(a) to conduct and maintain a thorough and extended topographic and geologic survey of Pennsylvania to disclose such chemical analysis and location of ores, coals, oils, clays, soils, fertilizers, and other useful minerals, and of waters, necessary to afford the agricultural, mining, metallurgical, and other interests, and the public, clear insight into its resources

(b) to make a complete collection of specimens of the geological and mineral resources of Pennsylvania, and to deposit them in the State Museum

(c) to prepare for publication the results of the survey through the Department of Property and Supplies

(d) to enter into all lands and localities in the State for the purpose of the survey, but without doing damage to the property

(e) to avail itself completely of the information, maps, and surveys possessed by citizens and corporations of the State relative to the geology and topography of the State

(f) to arrange for the cooperation of the U.S. Geological Survey or other national organizations authorized to engage in this work.

(5) Department of Transportation

The Department of Transportation was created by Act 120, approved May 6, 1970, for the development of adequate, safe, and efficient transportation facilities and services, including highways, roads, railways, waterways, and airports, but excluding recreational boating. The Act, amending the Administrative Code of 1929, abolished the Department of Highways and the Pennsylvania Aeronautics Commission, creating the Department of Transportation and making changes in various Boards and Commissions related to the new Department. Also, a list of environmental constraints was specified for consideration in the development of transportation facilities and services. Following is an outline of Departmental responsibilities related to water and related resources, and is abstracted from the total list of powers and duties:

(a) to enter into contracts for designing, constructing, repairing, or maintaining State-designated highways and other transportation facilities and rights-of-way, and airports

(b) to consult with appropriate officials as designated by the chief administrative officer of the Department of Environmental Resources, Department of Community Affairs, Department of Health, State Planning Board, and the Fish Commission regarding the environmental hazards and the conservation, sanitary, recreation, and social considerations that may arise by reason of the location, design, construction, or reconstruction of any transportation or air facility

(c) No highway, transit line, highway interchange, airport, or other transportation corridor or facility shall be built or expanded in such a way as to use any land from any recreation area, wildlife or waterfowl refuge, historic site, State forest land, State game land, wilderness area, or public park, unless there is no feasible and prudent alternative to the use of such land, and unless:

. . . such corridor or facility is planned and constructed so as to minimize harm to such recreation area, wildlife and/or waterfowl refuge, historic site, State forest land, State game land, wilderness area or public park.

(d) to coordinate the transportation activities of the Department with those of other public agencies and authorities

(e) to cooperate with interstate commissions and authorities and other State agencies, with political subdivisions of the Commonwealth, with appropriate Federal agencies, public agencies in other States, and with interested private individuals and organizations in the coordination of the following:

(aa) in planning, consideration of environmental, conservation, health, recreational, and social functions of planning, transportation planning, transportation planning statistics, economic research, budget, and advance planning

(bb) local and area transportation services to municipalities; local and public transportation; planning, development, and funding of local and public transportation; technological development of air, rail, water, or other modes of transportation (except recreational boating and ferry licensing); environmental design; improvement of transportation services and airports and aircraft; and urban mass transportation systems

(f) to follow the hearing procedures required for Federal-aid transportation programs pursuant to Titles 23 and 49 of the United States Code as amended, and the regulations and procedures even though the transportation route or program does not contemplate the use of or actually employ Federal funds. At the hearings the Department shall consider the following effects of the transportation route program:

(aa) residential and neighborhood character and location

(bb) conservation, including air, erosion, sedimentation, wildlife, and general ecology of the area

(cc) noise, air, and water pollution

(dd) multiple use of space

(ee) replacement housing

(ff) displacement of families and businesses

(gg) recreation and parks

(hh) aesthetics

(ii) public health and safety

(jj) fast, safe, and efficient transportation

(kk) civil defense

(ll) economic activity

(mm) employment

(nn) fire protection

(oo) public utilities

(pp) religious institutions

(qq) conduct and financing of government including the effect on the local tax base and social service costs

(rr) natural and historic landmarks

(ss) property values

(tt) education, including the disruption of school district operations

(uu) engineering, right-of-way, and construction costs of the project and related facilities

(vv) maintenance and operating costs of the project and related facilities

(ww) operation and use of existing transportation routes and programs during construction and after completion.

The State agency officials named above shall make a report at the public hearings indicating the environmental effects of the proposed transportation route or program. The Department of Transportation shall not construct or reconstruct any portion of the transportation route or program unless the Secretary of Transportation makes a written finding published in the Pennsylvania Bulletin that:

(aa) No adverse environmental effect is likely to result from such transportation route or program.

(bb) There exists no feasible and prudent alternative to such effect, and all reasonable steps have been taken to minimize such effect.

5.8.3 Special Purpose Districts, Regional and Field Divisions

Special purpose districts in Pennsylvania are the means by which a State agency's program is implemented and administered. The types and sizes of districts vary with the different agencies. In practically all cases, district divisions are along county lines, and a district usually consists of several counties.

5.8.3.1 Forests Districts

The nearly two million acres of State forests are managed and protected by 20 forests districts that cover the entire State. Each district is under the charge of a district forester with a staff of one or more technical foresters and a varying number of nontechnical forest foremen. The district forester is the representa-

tive for the safety and efficient management of the State forests in his district.

5.8.3.2 State Park Regions

The State parks in Pennsylvania, which currently total approximately 300,000 acres (January, 1971), are administered locally through the four State park regional offices. These regions cover the entire State, and are approximately equal in size. Individual State parks within each region are managed by park superintendents who are responsible for the maintenance and improvement of park facilities and the enforcement of rules and regulations.

5.8.3.3 Flood Control Districts

The flood control district is a local area within a watershed that has been identified as needing flood protection. The concept originated in the Flood Control Act of August 7, 1936 (P.L. 106), as the basic unit with which to plan projects and administer funding. Since that time, other devices have developed as the more pressing flood control problems were solved, and the district concept has been used with less frequency. The flood control district requires certain stipulations, such as the needed lands for a project from the local benefactors of flood protection, thus constituting an agreement between the local governing body and the State agency providing the protection.

5.8.3.4 Soil and Water Conservation Districts

Pennsylvania's program for the conservation of soil and water resources and prevention of soil erosion are administered by county units known as soil and water conservation districts. The program is voluntary, and all but two Pennsylvania's counties are so organized. Each district is managed by a board of directors consisting of seven members, one of which is a county commissioner. The remaining six members are appointed by the board of county commissioners and consist of four practical farm directors and two urban directors. The State Soil and Water Conservation Commission approves and coordinates the program of several soil and water conservation districts or projects; appropriates among the several cooperating organizations any funds alloted from State or Federal sources; and is responsible for the expenditures of such funds by the districts.

5.8.3.5 Fish Regions

The enforcement program of the Pennsylvania Fish Commission is administered by four regional offices. These regions cover the entire State, and consist of groups of counties. The county is the basic jurisdictional unit of local waterway patrolmen. The basis of selection of appointees to the Fish Commission itself is by geographic regions of the Commonwealth, and at all times there will be only one member for each of the eight regions.

5.8.3.6 Game Field Divisions

The programs of Pennsylvania's Game Commission are administered through six field division offices. These field divisions cover the entire State in groups of counties. With the exception of the propagation programs, the field division offices are responsible for the administration of Game Commission programs and duties within their respective field divisions. The principal responsibilities on the field division level are the enforcement of game laws and regulations and the management of State game lands or land leased by the Commission.

5.3.8.7 Sanitary Engineering Districts

The administration of Pennsylvania's water pollution control abatement programs is handled through six regional offices. The main regional responsibilities include inspections of local treatment facilities for operating efficiency, stream monitoring for pollution loadings, investigations of complaints, and the review and field investigation of plans for proposed new sewage treatment facilities for efficiency and regional comprehensiveness. These regions are currently being adapted into the human services districts recently created by executive order.

5.8.3.8 Human Services Districts

The State was recently divided into six regions to administer Pennslyvania's health and welfare programs on the local level. The

regions were set up to contain roughly equivalent populations, and therefore regions in urban areas contain fewer counties than regions in rural areas. The regions are also the basis for air pollution abatement administration.

5.8.3.9 Regional Planning

At present, areawide or regional comprehensive planning in Pennsylvania is being undertaken under several State and Federal programs and by a variety of local organizations. The State has recently undertaken a major reevaluation of this activity and is now initiating actions designed to consolidate and strengthen regional planning and development in the Commonwealth.

Twelve metropolitan planning commissions and one "non-metropolitan" regional commission have been declared eligible for Federal comprehensive planning assistance funding ("701") by the Pennsylvania Department of Community Affairs and the U.S. Department of Housing and Urban Development (HUD). Four of the metropolitan commissions and one "non-metropolitan" commission serve multi-county jurisdictions. The remaining eight are single county programs. All 13 are designated metropolitan clearinghouses under U.S. Office of Management and Budget (OMB) Circular A-95. These agencies are authorized to undertake a broad variety of planning activities, including transportation, housing, open space, water supply, waste disposal, economic studies, and land use. In addition to HUD funding, comprehensive planning agencies receive financial and technical support from the Pennsylvania Department of Community Affairs and the State Planning Board (through purchase-of-service agreements).

The Intergovernmental Cooperation Act of 1968, implemented by U.S. Office of Management and Budget Circulars A-95 and A-98, established a mechanism whereby State, metropolitan, and regional "clearinghouse" agencies possessing planning competence could review and comment upon projects receiving Federal assistance prior to formal application and approval. The 15 clearinghouses now functioning within the Commonwealth cover 34 counties. Seven of these are multi-county and eight serve single counties. Designation is made by the Governor with the advice of the State Planning Board. The State Planning Board, acting as the State clearinghouse, provides coordination and technical assistance to metropolitan and regional clearinghouses.

Seven Local Development Districts in 52 Appalachia counties have been organized under the Appalachia Regional Development Act of 1965. Districts plan, coordinate, and provide technical assistance in economic development and related concerns and assist in administration of an Appalachia program. Several districts have (or are moving toward) combined comprehensive planning and development functions and at least three have been designated as Regional Clearinghouses under U.S. OMB Circular A-95. The program is administered by the Pennsylvania Department of Commerce (Bureau of State and Federal Aid) using State and Federal funding (Appalachia Regional Commission).

Three Economic Development Districts (EDD) covering 18 Appalachia counties have been designated by the U.S. Department of Commerce based upon economic criteria (unemployment, etc.). In Pennsylvania the EDD programs are combined with the Appalachian Local Development Districts. The Districts are charged with planning for solutions to areawide economic problems. The program is administered and funded directly by the Economic Development Administration, U.S. Department of Commerce.

5.8.4 Political Subdivisions

5.8.4.1 Counties

The Pennsylvania county is the chief political subdivision of the Commonwealth; its history began with the Penn Proprietary. In the absence of a strong township government, the county had a vigorous growth in Pennsylvania. However, during the past century, the powers and activities of county government have changed, even though its structure and organization have not. Many of its functions, such as the construction and maintenance of roads and the welfare programs, were taken over by State agencies. In recent times the county has expanded its activities and services in such fields as physical planning (which includes water and land resources), housing, and redevelopment. Such services are highly beneficial in heavily populated urban areas, in which there are numerous cities, boroughs, and townships, many of which are too small to provide modern urban services of government.

There are 67 counties in Pennsylvania, including the consolidated city-county of Philadelphia, and all the people in the State live in and come under the jurisdiction of one of them. The largest in population is Philadelphia with approximately two million people; the smallest is Forest, in the northwestern part of the State, with less than 5,000. For purposes of legislation the counties are divided into nine classes, but, while the larger urban counties differ in needs and activities from the small rural ones, all counties (except Philadelphia) have the same basic organization and powers.

The main functions of the Board of County Commissioners are the administration of elections, the assessment of property for local tax purposes, the construction and maintenance of county buildings and other public facilities, the local administration of welfare, and administration of justice corrections. Other officials who, because they are elected, are to a large extent independent of the Board of County Commissioners include the sheriff, coroner, district attorney, prothonotary, clerk of the courts, registrant of wills, recorder of deeds, two jury commissioners, and financial officers. The county court, the elected officers, and the county commissioners also appoint additional officials and other personnel as needed.

The county is the local unit for soil conservation districts, and all but two of Pennsylvania counties are so organized. Pennsylvania's Department of Agriculture coordinates these activities with Federal programs of the U.S. Department of Agriculture. Groups of counties are used as bases for field office administration of other State agencies.

5.8.4.2 Big Cities

There are four classes of cities in Pennsylvania, so designated by State law on the basis of population for purposes of legislation. Philadelphia is the only city of the first class, Pittsburgh the only city of the second class, and Scranton the only city of second class A. The 48 other Pennsylvania cities are of the third class.

5.8.4.3 Cities of the Third Class

More than a million and a half people live in the 48 cities of the third class. The cities range in population from 5,000 to 140,000, although new cities of the third class must have a population of 10,000, and those over 135,000 may become cities of the second class A.

Under the Optional Third Class City Charter, two additional forms of city governments are available. The present commission form and the two additional forms are outlined below.

(1) Commission

The mayor and four other members constitute the council and governing body of the city with the mayor acting as president. Each member is in charge of one of the five major departments: public affairs (always headed by the mayor), accounts and financial, public safety, streets and public improvements, and parks and public property. These officials, along with the controller and treasurer, are elected at large. The council appoints all other officers and employees, notably the city clerk, the city engineer, and the city solicitor.

(2) Mayor-Council or "Strong-Mayor"

The city council has five, seven, or nine members elected at large for overlapping terms. A mayor and a controller are also elected. The council has legislative powers exercised by ordinance. It may create, reorganize, and abolish departments which cannot exceed 10 in number, including a Department of Administration. This is headed by a business administrator under the direction of the mayor. The council appoints a city clerk, but the mayor appoints all the other officers and department heads with the consent of council. The department heads appoint subordinates with the consent of the mayor. The mayor is the city's chief executive and enforces its ordinances. He may attend meetings of the council but has no vote. He may veto ordinances, but two-thirds vote of council may override the veto. The mayor supervises the work of all the city departments and submits an annual budget for council approval.

(3) Council-Manager

In this system, all authority is lodged with the council which is composed of five, seven, or nine members elected at large for overlapping terms. The council elects one of its members as mayor, who presides at council meet-

ings and may vote, but has no veto. The council appoints the city clerk, the city treasurer, and the city manager. The manager is the chief administrator of the city. He executes and enforces laws and ordinances, participates in council meetings but has no vote, makes recommendations to the council, prepares and enforces the budget, and investigates the affairs of any officers and departments under his jurisdiction. He appoints and may remove department heads and subordinates, and may authorize department heads to appoint and remove their own subordinates.

As of January 1971, there were 32 commission cities, 10 mayor-council cities, and 6 council-manager cities. In recent years, a number of commission cities have appointed a managing director as assistant administrator to each department head. A city wishing to change from a commission type to another form must present a referendum to the voters to establish a charter commission, which draws up a plan of government within nine months, and the electorate must vote favorably on the adoption of the optional plan. If the vote fails, the city must keep its original commission form, and cannot reconsider the plan voted on for four years, although a new plan may be considered in two years. If the new plan is adopted, it cannot be discarded for four years.

5.8.4.4 Boroughs

The present type of borough government, known as the "weak-mayor" form, governed all incorporated municipalities within the State during the 19th and early 20th centuries. Most of the present cities were boroughs first and became cities as their populations increased. Characterized by a strong and dominant council, a weak executive, and the presence of the other elected officers with powers independent of the council, it can best be described as decentralized and fragmented. Of the 960 boroughs in the State, 54 have a population of more than 10,000, and 372 have less than 1,000 inhabitants. The total population residing in boroughs is approximately 2.8 million.

The governing body of the borough is an elected council and mayor. They are assisted by other officials such as the solicitor, engineer, manager, secretary, tax assessor, tax collector, treasurer, auditors or controller, justices of the peace, constables, chief of police, fire chief, health officer, planning board members, zoning commission, and other personnel depending upon the size of the borough and its activities. Some of these are elected: the tax collector, tax assessor, justice of the peace, and the auditors. Most of the others are appointed by the borough council. When the borough is not divided into wards there are seven councilmen; in boroughs divided into wards, at least one and not more than two are elected from each ward. The powers of the council are broad and extensive, covering virtually the whole range of urban municipal functions. Its decisions are presented in the form of ordinances and resolutions. To be effective, these must be passed by the majority of members voting and signed by the mayor. If he vetoes an action of council, another majority can override it.

In almost one hundred of the Pennsylvania boroughs, the chief administrative officer is a borough manager appointed by the council. He is responsible for carrying out the policies and enforcing the ordinances of council, thus relieving the members of the council from much of the routine administration. The manager, usually a trained and experienced administrator, is given authority to manage the affairs of the borough, subject to the will of the council. Where there is no manager, the members of council working in committees undertake direction of the borough's affairs.

5.8.4.5 Townships

Pennsylvania has two classes of townships. First class townships are located on the periphery of large cities and boroughs. There are close to 100 first class townships in the State, and their total population is more than a million. Second class townships are found in the more rural areas of the State. There are approximately 1,500 second class townships with a total population of more than 3 million. First class townships have more governmental services than second class townships, but second class townships have the power to carry on almost as many functions as first class townships and boroughs.

To become a first class township, a second class township must contain at least 300 persons per square mile, but it may remain in the second class if it wishes. Parts of second class townships may be annexed to cities and boroughs upon the affirmative vote of the residents of the territory to be annexed, but in first class townships such action requires the affirmative majority of all residents of the township. Thus, townships of the first class are protected from being divided up in case

some of their residents want to be attached to neighboring municipalities.

The chief difference between these two classes of townships is not in the powers they may exercise, but in the structure of the governing bodies and their administration. In first class townships, there are five commissioners when the township is divided into less than five wards or has no wards at all, and one for each ward where there are more than six (with a maximum of 15 wards, thus 15 commissioners). This feature allows for representation of various geographic areas and settlements within the township. The governing body of second class townships is composed of three supervisors elected at large, except as otherwise provided.

Other township officials in both classes include assessors, tax collectors, the justice of the peace, the constable, auditors, and a treasurer, all of whom are elected in second class townships. Appointed officers include the secretary, the treasurer, the township manager, chief of police, fire chief, engineer, solicitor, and others as the activities and the population of each township warrant.

The strictly rural townships of the State are mainly concerned with township roads for which they receive sizeable grants in highway aid from the Commonwealth. Sometimes they contract with a neighboring borough or other local units for such services as police and fire protection, water supply, and sewerage.

5.8.4.6 Municipal Authorities

The municipal authority is a special kind of local unit. It is a body politic and corporation established by law for the purpose of acquiring, holding, constructing, improving, maintaining, and operating projects for public use. In the water resources field, these include flood control projects, park and recreation facilities, sewers and sewage treatment works, water supply systems, and swimming pools. The projects must be devoted wholly or partially to public uses. They may not at any time pledge the credit or taxing power of the Commonwealth or any of its subdivisions, nor can the State or local governments be liable for the payment of the principal or interest on any of its obligations. In other words, the costs incurred by the municipal authority for its projects—construction, maintenance, and operation—must be met from revenues earned by the project itself such as water rates and sewer rentals.

The authority is established in the form of an ordinance by action of one or more municipalities, including counties, cities, towns, boroughs, townships, and school districts. The governing bodies of the parent local unit or units appoint the members of the authority's board. This board, if incorporated by one local unit, has five members appointed for staggered five year terms. If the authority is incorporated by two or more municipalities, it has at least the number of local units incorporating the authority, but no less than five. This board carries on the work of the authority which is empowered by law to acquire property, undertake projects, make regulations for the management of the projects, appoint officers and employees, charge and collect rates for the purpose of paying the expenses of the authority, borrow money and issue bonds, make contracts, have power of eminent domain, and carry on other business of the Authority within the terms of the Municipality Authorities Act of 1945.

Authorities were first established in Pennsylvania in 1933 for Allegheny County alone, but in 1935 the legislation was extended to include other local units, and later to include school districts also. The main reason for their original establishment was the restrictive limits in the borrowing power of local units imposed by Pennsylvania's constitution. At that time, the overall limits were 7 percent of the assessed valuation of taxable property, and only 2 percent without approval of the electorate. During the economic depression of the 1930s, local revenues from taxation were sharply reduced and demands for new facilities increased sharply. Many local units reached their borrowing limits and thus were unable to finance necessary projects. Authority legislation made it possible to borrow outside the constitutional limitations, thus allowing local units to expand their revenue-producing facilities. The legislation also provided a means for joint operation of such facilities by more than one local unit. When the construction of projects such as water supply and sewage systems has been completely financed, the buildings and facilities may be transferred to the municipalities which originally established the authority.

5.8.5 Mechanisms for Coordination

5.8.5.1 Interstate

Pennsylvania's Commission on Interstate

Cooperation is an advisory body that promotes cooperation with adjacent States through compacts. The 21 members of the Commission include 7 State officials appointed by the Governor from different executive agencies, 7 members of the Senate, and 7 members of the House of Representatives. The Governor is an honorary member of the Commission.

In addition to dealing with isolated problems that are common to Pennsylvania and other States, the Commission studies and advises on comprehensive problems of regional scope, such as a major river basin. The river basin States form a compact agreement for mutual assistance in handling the water resources problems in the basin. Pennsylvania is a partner in such compacts which, areawise, cover the entire State.

The oldest of these, the Delaware River Basin Commission, developed into a unique public institutional arrangement for the management of water resources. It became, upon ratification by Congress in 1971, the first Federal-interstate compact in the nation. By this arrangement the signatory States (Delaware, New Jersey, New York, and Pennsylvania) became partners with the Federal government in the implementation of water resources planning and management within the Delaware River basin. This partnership put the States on an equal level with the Federal government in the decision-making process.

In January 1971, a similar Federal-interstate compact became effective for the Susquehanna River basin. This involves the States of Maryland, New York, and Pennsylvania. Like the Delaware River Basin Commission, the Susquehanna compact is a partnership arrangement between Congress and the involved States for the management of water resources within that basin. As of January 1971, the organizational structure for the Susquehanna compact had not been formed; but since its functions are quite similar to those of the Delaware River Basin Commission, its organization should also be similar.

The same type of Federal-interstate compact is being considered by Congress for the Potomac River basin, a small portion of which drains the southern part of Pennsylvania. The States involved are Maryland, West Virginia, Virginia, and Pennsylvania. These States are already in a compact agreement concerned with the abatement of the water pollution in the basin.

The remaining basins in Pennsylvania, the Great Lakes Basin and the Ohio River basin, are associated with the Federal Water Resources Council. The States in the Great Lakes Basin formed a compact in 1967 under Title II of the Water Resources Planning Act (P.L. 89–90), and the same type of arrangement was formed (January 1971) by the States in the Ohio River basin.

Pennsylvania is also a party in the regional development compact between the Federal government and the 13 states having portions of the economically depressed region known as Appalachia. In Pennsylvania, this region covers all counties except those in the southeastern portion of the State, i.e., the lower portions of the Delaware and Susquehanna basins. While economic development is the principal goal of this compact, known as the Appalachia Regional Development Commission, the development of water resources is one of the significant devices in this effort.

5.8.5.2 Federal-State

In Pennsylvania, the Department of Environmental Resources coordinates comprehensive water resources studies and activities involving Federal and State agencies. The Secretary of the Department represents Pennsylvania, as designated by the Governor, on coordinating committees for river basin studies, and is the Governor's alternate on the Delaware River Basin Commission. The Department also has liaison with the Federal Water Resources Council in the development of criteria for water resources planning. The Department coordinates the programs of the U.S. Army Corps of Engineers to the needs of the State, and works closely with the Soil Conservation Service of the U.S. Department of Agriculture on P.L. 566 projects in the State. Due to its diversified functions, the Department also coordinates Federal programs concerned with forestry, water-related recreation, and water pollution.

Federal grants-in-aid are administered directly by those State agencies concerned with their respective programs through the Bureau of the Budget of the Governor's office. However, there is one exception, the State Planning Board, which along with Pennsylvania's Department of Commerce, plays a leading role as representative on the Appalachia Regional Development Commission.

5.9 Wisconsin

Statutory responsibilities for water and re-

lated land resources in Wisconsin are listed in Addendum B, Table S20–22.

5.9.1 State Departments and Agencies

All State agencies are involved with water resources in some way. However, recent reorganizations have centralized most water resource management in the Department of Natural Resources, with certain other water functions remaining in four other agencies.

5.9.1.1 Department of Natural Resources

The Department of Natural Resources was created in 1967 to consolidate natural resources functions of State government within a single department. This reorganization was designed to improve both the legislative policy-making capability of the State of Wisconsin and the capability of the executive to carry out such policies to facilitate communication between citizens and government, and to assure efficient and effective administration of legally established policies. By transfers, a number of agencies and programs were consolidated in the new Department of Natural Resources under the direction and supervision of the Natural Resources Board. These include the former Department of Conservation, Department of Resource Development, Board of Commissioners of the Public Lands, Wisconsin Council on Natural Beauty, Natural Resource Committee of State Agencies, Recreation Committee, State Board for the Preservation of Scientific Areas, the artificial lake creation function of the State Soil and Water Conservation Committee, and the Conservation Youth Camps Program of the State Department of Public Welfare.

5.9.1.2 Natural Resources Board

The Natural Resources Board was created to exercise the rule-making powers formerly vested in the Conservation Commission, the Resource Development Board, and the Geographic Board. It is made up of seven members, nominated by the Governor, and with the advice and consent of the Senate. The Board has the following functions:

(1) to review the budget requests as they affect the natural resources policies of the State

(2) to make a continuing study of the natural resources problems of the State and to review for all State agencies their proposed new programs involving natural resources

(3) to make a continuing study of structure, organization, and management of natural resources programs administration in the State

(4) to coordinate the planning of State agencies whose activities have a direct impact on the natural resources of the State of Wisconsin.

5.9.1.3 Natural Resources Council of State Agencies

The Natural Resources Committee of State Agencies was renamed the Natural Resources Council of State Agencies and reconstituted to have a membership of 15. The Council is attached to the Department of Natural Resources for administrative purposes. Present membership consists of the Governor, the Attorney General, and representatives from the Public Service Commission, the Board of Regents of State Universities, the Departments of Administration, Agriculture, Local Affairs and Development, Public Instruction, Transportation, and the Division of Health. The Department of Natural Resources has two representatives, one representing the former Division of Conservation and one the former Division of Resources Development. The University of Wisconsin designates three members to represent the Cooperative Extension Services, the Geological and Natural History Survey, and the Water Resources Center.

The function of the Council, as provided in Section 23.26, is to promote the welfare of the State of Wisconsin by providing a method of collecting, analyzing, and interpreting information and of making recommendations to the several State agencies on matters relating to the soils, waters, forests, fish, wildlife, and other natural resources of the State, and to provide a means whereby several State agencies may better coordinate their efforts and activities in managing and regulating such natural resources and their protection, development, and use.

Most of the water management functions of the Department of Natural Resources are centered in three bureaus of the Division of Environmental Protection. Other bureaus that have significant water management functions are also described below. Bureaus having functions that are not directly related to water are not discussed here.

(1) Bureau of Water Supply and Pollution Control

This Bureau administers regulations and programs and conducts surveys relative to the protection of public health and welfare. It controls industrial and municipal waste treatment facilities, as well as municipal and other domestic water supplies. Its powers and duties are summarized in Section 144.025 of the Wisconsin Statutes, as follows:

(a) It may issue temporary emergency orders without prior hearing when the Division determines that the protection of the public health necessitates such immediate action.

(b) It may issue general orders and adopt rules for construction, installation, use, and operation of methods for preventing and abating pollution.

(c) It may issue special orders directing owners to secure such operating results toward control of pollution as prescribed.

(d) It shall make special investigations and inspections to insure compliance with orders and may require submission and approval of plans.

(e) It shall consult with and advise owners on water supply and sewage disposal.

(f) It shall establish a program for certification of waterworks and sewage disposal.

(g) It may require certain operating results if it finds that a system or plant tends to create a nuisance or menace to health or comfort, and may order modification of a municipal system or plant or construction of a new system.

(h) It may conduct public hearings on potential water quality degradation and may issue orders to all owners including towns, town sanitary districts, and metropolitan sewerage districts.

(i) It may cause the abatement of nuisances affecting State waters where a local governing body fails to act and may take action directed by the order and collect costs from the owner to whom the order was directed, in cases of noncompliance.

(j) It governs the use and installation of septic tanks. The specifications for septic tanks and their installation must have the approval of the bureau as of January 1, 1967. In this regard it may prohibit the installation or use of septic tanks in any area of the State where such use would impair water quality or areas where soil conditions do not provide an adequate septic field. It shall prescribe alternate methods for waste treatment and disposal in such prohibited areas.

The Bureau has jurisdiction over tax incentives. It administers exemptions from local property taxes to all property purchased, constructed, installed, and operated with the approval of the Bureau, the State Board of Health, a city council, and a village or county board for the purpose of abating or eliminating pollution of the waters of the State or of the air. A one-year write-off period for rapid amortization or depreciation on pollution abatement facilities is also authorized if purchased, constructed, and installed following the order or recommendation of the Division or its preceding agencies, pursuant to Sections 70.11(21)(a)(d), 71.04(26)(b), and 71.05(1)(b) of the Wisconsin Statutes.

Every owner is required to file with the Bureau a certified copy of complete plans of a proposed system, a plan, or proposed extension within a prescribed time for approval or disapproval under Section 144.04 of the Wisconsin Statutes.

The Bureau authorizes discharge of effluent when plans are approved and restricts discharge to certain lakes pursuant to Section 144–05 of the Wisconsin Statutes. It supervises municipalities adopting ordinances requiring connection to public water and sewer systems pursuant to Section 144.06 of the Wisconsin Statutes. It may require that the sewerage system of one municipality be connected to the system of another municipality, thus creating joint sewer systems pursuant to provisions of Section 144.07 of the Wisconsin Statutes. Municipalities must periodically submit operating reports and records for water and sewerage systems pursuant to Section 144.09 of the Wisconsin Statutes.

The Bureau must be furnished information it requires from industries and may not be refused admittance to such industries. Intended new wastes must be reported by industries showing steps to be taken to protect against water quality degradation pursuant to Sections 144.55 and 144.555 of the Wisconsin Statutes.

The Bureau has general supervision responsibilities over public and certain institutional water supplies. It reviews plans and specifications for new water systems or changes in existing systems to insure satisfactory functioning of facilities. It keeps records on pumpage, water levels in wells, chemical addition, fluoridation, softening, purification, and cross connections to determine proper operation of systems. A program of routine water sample analysis is maintained with the State Laboratory of Hygiene and laboratories

certified by the State Board of Health and Social Services.

(2) Bureau of Standards and Surveys

This Bureau has the prime responsibility for evaluating the State's environment. In relation to water management, it conducts a stream survey program; operates 35 stream quality monitoring stations; supervises chemical treatment of water for suppression of algae, aquatic weeds, swimmer's itch, and other nuisance-producing plants and organisms; acts with the U.S. Geological Survey in determining the sanitary and the extent of other characteristics of the natural water supplies of the State; has the responsibility to adopt rules setting standards of water quality to be applicable to the waters of the State; conducts scientific experiments, investigations, waste treatment demonstrations, and research on any matter under its jurisdiction; and establishes policies and makes plans for the efficient use, conservation, development, and protection of the State's water resources pursuant to Sections 144.025 and 144.26 of the Wisconsin Statutes.

(3) Bureau of Water and Shoreland Management

The Bureau is principally concerned with the regulation of water use, flood plain and shoreland management, and well drilling and private water supply. Its functions may be outlined as follows:

(a) It regulates developments adjacent to and in navigable waters of the State by granting permits subject to the provisions of Sections 30.11, 30.12(2), 30.13(3), 30.19, 10.195, and 31.23(3), of the Wisconsin Statutes.

(b) It regulates and supervises dredging contracts and grants permits for sand blankets pursuant to Sections 30.12(b) and 30.20 of the Wisconsin Statutes.

(c) It administers irrigation and diversions pursuant to Section 30.18 of the Wisconsin Statutes.

(d) It has regulatory authority over hydropower. It issues permits for the construction of new dams, authority for operation of existing dams including levels held by all dams, permits to raise or enlarge existing dams, permits to transfer or abandon dams, and orders for maintenance or repair of dams. These duties are carried out pursuant to Sections 31.02 through 31.35 of the Wisconsin Statutes.

(e) It approves projects within farm drainage districts and supervises the Wisconsin River levees near Portage pursuant to Sections 31.02, 31.36, 88.05, 88.31, and 88.90 of the Wisconsin Statutes.

(f) It approves or disapproves plans for all dam construction, reconstruction, and maintenance subject to Sections 31.02, 31.12, 31.23, and 31.33 of the Wisconsin Statutes.

(g) It administers flood control regulations as provided in Chapter 87 and Section 31.02(1) of the Wisconsin Statutes.

(h) It conducts investigations of all water law violations as provided in Chapters 30.31, 87, and 88 of the Wisconsin Statutes upon complaint or damage.

(i) It administers flood plain and shoreland management provisions subject to Section 59.971 and 87.30 of the Wisconsin Statutes.

(j) It regulates shorelands through supervision over land-use zoning, regulation of land subdivisions, and sanitary controls and administers the financial assistance to counties to offset additional costs.

(k) It administers statutory provisions regulating ground water and its use through licensing and regulation and recommendation of legal action pursuant to Chapter 162, Sections 144.04 and 144.025(2) (e) of the Wisconsin Statutes.

(4) District Directors

District directors and district advisory boards have been set up to carry out the functions of the Division of Environmental Protection within the five water resources districts in the State. An eight-member advisory board advises the district and the Division on water problems of the district. Five citizen members of the board are appointed by the Governor, and an official of the Division, who is also the district director, serves as the executive secretary. One representative from the Department of Natural Resources and one from the State Board of Health also serve on the Board.

(5) Assistant to the Administrator

The Assistant to the Administrator administers the financial assistance program which empowers the Division of Environmental Protection to determine the financial as-

sistance for the construction of facilities for maintaining desirable water quality characteristics in order to promote the public good, health, and welfare based on the following:

(a) criteria for program eligibility by municipalities

(b) the eligibility of municipalities applying for program participation as provided in Section 144.21 of the Wisconsin Statutes.

The Assistant to the Administrator enters into agreement in behalf of the Division with municipalities that finance approved projects through bond issues and other forms of borrowing for the approximate net interest costs it incurs over the term of the bond issue, or to sublease and eventually acquire from the Division the approved project for which the Division has entered into lease and sublease agreements with nonprofit corporations.

(6) Bureau of Fish Management

The Bureau of Fish Management is directly concerned with water resource management and has several important programs relating to the waters of the State. These programs fall into two broad categories: the collection of surface water data and action programs related to management of the State's fishery.

A Statewide program of providing lake and stream inventories on a county-by-county basis throughout the State is more than three-fourths complete. Detailed maps are being prepared on all lakes. As these are completed, they are made available to the public. Along with these programs, inventories and special studies are made on both the inland waters and the Great Lakes. Lake use plans are being developed on individual lakes upon request of local units of government. These plans contain detailed information on the lake and provide management recommendations as to actions that should be taken to regulate both land and water use.

Action programs include rough fish removal, rearing and stocking of game fish, rehabilitation of lakes by chemical treatment, land acquisition and management of both lake and stream frontage, acquisition of public access rights, and licensing of private fish hatcheries.

Fish managers are located at the State office and at district offices throughout the State. They are available for consultation on all matters relative to fish management.

(7) Bureau of Research

The Bureau of Research conducts research and special studies for the entire Department. Most of this research is designed to provide information or solve problems necessary to the functioning of the various programs in the Department. An important part of the research is related to water management.

(8) Bureau of Parks and Recreation

This Bureau is concerned with the acquisition, development, and operation of State parks. At present, there are 53 State parks occupying approximately 90,000 acres of land. These parks comprise a major segment of the outdoor recreation facilities of the State. They are important to both the residents of the State and the tourists who visit Wisconsin.

5.9.1.4 Department of Health and Social Services

Water and related land resource functions of the Department are confined to the Division of Health. The policies followed by the Division are determined basically by the Health and Social Services Board of the Department of Health and Social Services. This Board is composed of nine members nominated by the Governor and appointed with the advice and consent of the Senate. The Division of Health has an advisory body called the Council of Health, which also functions in an advisory capacity to the Health and Social Services Board. The powers, duties, and functions of the former State Board of Health are now vested in the State Health Officer. The Division of Health is administered by the State Health Officer who is appointed by the head of the Department with the approval of the Council on Health.

Water resource management functions are vested in the Bureau of Environmental Health which was created in 1919 as the Bureau of Sanitary Engineering of the then existing State Board of Health. It exercised general supervision and guidance over public water supply and sewerage systems until August 1, 1966, when Section 144 of the Wisconsin Statutes transferred these functions to what is now the Department of Natural Resources. The Bureau exercises responsibility in water and related land resources in relationship to general public health, safety, welfare, and

those statutory functions discussed below.

(1) Orders creating or dissolving town sanitary districts must be filed with the Board. Procedures are prescribed in Section 60.303 of the Wisconsin Statutes.

(2) The rules of the Division relating to lot size and lot elevation necessary for proper sanitary conditions in a subdivision not served by a public sewer must be complied with a basis for plat approval under Section 236.13 of the Wisconsin Statutes. Furthermore, when the lands in the plat lie within 500 feet of the ordinary high-water mark of any navigable stream, lake, or other body of navigable water, the Board may require assurance of adequate drainage areas for private sewage disposal systems and building setback restrictions, or provisions by the owner for public sewage facilities for waters of the State, industrial wastes, and other wastes, if they are necessary for the protection of public health and safety under Chapter 236 of the Wisconsin Statutes. There are further conditions of plat approval.

(3) The Division has power to make and enforce rules and regulations relating to any subject matter under its supervision to protect public health, life, and safety as provided in Section 140.05 of the Wisconsin Statutes.

(4) The Division is authorized to adopt rules prohibiting the operation of boats equipped with toilets on inland waters of the State unless the wastes are retained for shore disposal under Section 30.71(1)(2) of the Wisconsin Statutes.

(5) The Division and the Industrial Commission are authorized to administer the Radiation Protection Act, to promulgate a Radiation Protection Code, and to order abatement of radiation as provided under Sections 140.5 to 140.60 of the Wisconsin Statutes.

(6) The Division has responsibility to examine, certify, and register sanitarians, under Section 140.45 of the Wisconsin Statutes.

(7) The Division is authorized to supervise the sanitary conditions of all the charitable, curative, reformatory, and penal institutions of every county including their sewage and water facilities as provided under Section 144.055 of the Wisconsin Statutes.

(8) Any source of filth or sickness may be ordered abated or removed or be abated by the Division under Section 146.14 of the Wisconsin Statutes.

(9) The sanitary conditions in mobile homes, campgrounds, and recreational camps are supervised under Chapter 140 of the Wisconsin Statutes and hotels and restaurants are supervised under Chapter 160 of the Wisconsin Statutes. In these programs, water supply, liquid and solid wastes, pools and beaches, and land use in general are supervised.

(10) The Division approves plans of public pools and facilities at public bathing beaches. The approval and surveillance program includes regulating water safety, physical facilities, water quality, land use, and related public health and safety features under Section 140.05(3) of the Wisconsin Statutes.

(11) The regulation of private sewage disposal systems is contained in the State Plumbing Code which is adopted pursuant to Chapter 145 of the Wisconsin Statutes. In addition, the Division gives direct service to the local level of government and to citizens on matters relating to septic tank and soil absorption design and operation. Regulations covering private sewage disposal systems include requirements controlling the disposal of liquid and sludge removed from septic tanks by commercial scavengers or the individual property owner.

(12) Sanitary investigations are performed by staff of the Division's Bureau of Environmental Health, particularly in urbanizing rural areas having private liquid waste or water supply problems pursuant to Section 140.05(3), Wisconsin Statutes.

5.9.1.5 University of Wisconsin

Aside from the research and teaching carried out in the academic departments, the University has three organizations that are directly concerned with water. The Water Resources Center and the University Extension activities are discussed below. The Soil Conservation Board is discussed in the following section on boards, councils, and commissions.

(1) Water Resources Center

The University has had an interdisciplinary committee on ground water for many years. In 1946 a committee on lakes and streams was brought together for research and in 1963 a Water Resources Committee was appointed. The Water Resources Committee has taken over the responsibilities of the older committees and upon its recommendation the University has established a Water Resources Center within the Graduate School.

The statutory instrument establishing the

Water Resources Center of the University of Wisconsin is provided under Sections 36.245 and 36.30 of the Wisconsin Statutes. It was established for the purpose of joint accelerated water resources research, data collection, and instruction. The Director is advised by the Water Committee of the Natural Resources Council of State Agencies.

Since 1950 an interdepartmental seminar in river basin planning has been functioning, with formal participation from time to time by professors in civil engineering, political science, economics, law, and regional planning. Graduate students taking the seminar for credit have come from all these fields and also from meteorology, agricultural economics, agricultural engineering, and urban land economics.

A number of training programs are available in civil engineering, limnology, hydrogeology, soil science, water chemistry, regional planning, and natural resources economics that are specifically designed to prepare the specialists in the water field. In addition to granting graduate degrees in the traditional departments, the Graduate School offers an interdisciplinary degree of Master of Science in Water Resources Management.

The Federal Water Pollution Control Administration sponsors a large number of research fellowships and traineeships at the University of Wisconsin and provides support for research, especially in the area of studies on eutrophication of natural waters. On May 21, 1965, the Center was awarded initial research funds under provisions of the Federal Water Resources Research Act of 1964. The Federal government, under Public Law 88–379, administered by the Office of Water Resources Research, Department of the Interior, approves requests for funds. The bulk of these funds are directed toward the support of noncontract research projects that require the professional abilities of several disciplines. The Center is eligible to receive $100,000 annually toward the support of its activities.

The Center has developed an active eutrophication program. The program consists of a multidisciplinary research effort on several facets of the overenrichment of lake waters. Coupled with the research is a eutrophication information collection and dissemination activity which gathers useful information, processes it into a useful format such as abstracts, and makes it available on a nationwide basis.

In keeping with present policy and the current activities, an outline of functions is as follows:

(a) the planning, proposing, and guiding of interdepartment research on water which calls for integrated work by persons from diverse disciplines

(b) the improvement and development of graduate curricula dealing with the physical, chemical, biological, economic, legal, and social aspects of water resources

(c) the rendering of a service function through publication and supplying of water research findings to governmental and nongovernmental entities

(d) the collecting in one place and keeping current a working library of water research materials, and an inventory of current water research and its progress

(e) the conducting of water research seminars and conferences for water specialists from State, local, and Federal agencies, the private sector of the economy, and university staffs

(f) state funds made available for joint accelerated water resources research and data collection administered and coordinated by the Director of the Water Resources Center of the University as prescribed by subsection 36.245.

(2) The University Extension

The University Extension now includes the Cooperative Extension, the General Extension, the Radio-Television Broadcasting Services, and the State Geological and Natural History Survey. The Extension is active in the areas of planning, research, and education. It draws on resources from all University campuses to meet the changing problems of the people of Wisconsin through extension programs, the county extension organizations, the institute, and the radio-television media.

The statutory provisions creating and authorizing the Extension with the responsibilities of education, training, research, investigations, and demonstrations of the expanding horizons of knowledge from the University and State universities are under Chapters 36 and 37 of the Wisconsin Statutes. The diffusion and use of practical knowledge is the purpose of its creation.

In the area of water and related land resources, the Extension develops educational programs to aid in resolving water and natural resource problems in the State. These programs include soil and water conservation, improved forestry, the organization of watershed groups, assistance with local zoning

ordinances and sanitary codes, use of soil survey information and participation in regional planning commission programs.

The Geological and Natural History Survey arm of the Extension was created by Sections 36.29 and 36.30 of the Wisconsin Statutes and has been recently transferred to the University Extension by the 1967 reorganization law. It is authorized to carry out investigations, mapping of the State's natural features, geological surveys, and the reporting of its activities. It investigates the geological resources of the State, including ground water, with regard to quantity, quality, and present and future economic value. It is authorized to cooperate with the United States Geological Survey in its programs. It is directed to investigate the water powers of the State by gauging the flow of streams, making surveys of stream profiles, a study of the effect of the drainage of lands upon stream flow, and other necessary studies. It has responsibility for long-range collection of data on waters of the State through well observation, pumping tests, and areal investigations.

5.9.1.6 Department of Local Affairs and Development

This Department is mainly involved with water resource management through its program of community assistance planning, usually at the city, village, or county level. Included in these plans are community needs for sewer and water service, storm sewers, land use and development of shoreland areas, and other projected development needs and problems.

5.9.1.7 Public Service Commission

The Commission has responsibilities for setting municipal water rates under Chapter 196, Wisconsin Statutes. It also licenses power generating plants and sets electric rates.

5.9.1.8 Special Purpose Districts

(1) Conservancy

Although Wisconsin has no conservancy districts or other districting provisions for the development of major waterways of the State, Wisconsin shortly after the turn of the century brought into existence two important "general reservoir companies," the Wisconsin Valley Improvement Company (WVIC) and the Chippewa and Flambeau Improvement Company (Chippewa), which operate on the Wisconsin and Chippewa River systems. These private corporations, originally chartered under the general incorporation laws of the State, but whose shareholders are limited to corporations generating hydroelectric power and capable of being benefited by stream-flow management, were formed for the purpose of eliminating floods, storing high-flow waters, and releasing the flow for the downstream hydropower and industrial interests. WVIC in 1907 (and also in 1939) and Chippewa in 1911 were authorized by the State legislature to construct and operate extensive reservoir systems within their respective geographical areas, to exercise the power of eminent domain to acquire reservoir sites, and to meet operating expenses and obtain a return on invested capital by collecting tolls from the benefited power and industrial concerns downstream. The reservoir companies are subject to general supervision and regulation by the Wisconsin Public Service Commission regarding proposed reservoir projects and financing schemes. The two companies as water-quality management agents have developed extensive storage capacities. WVIC reservoirs have a present capacity of approximately 18 billion cubic feet and major Chippewa reservoirs (Rest Lake and Flambeau) store approximately one-third to one-half the capacity of the WVIC system.

(2) Flood Control

Chapter 87, Wisconsin Statutes, establishes the nature of a flood control board and its duties and activities. These boards function as a special purpose flood control district within the suggested special purpose framework of this subsection. No flood control boards exist at this time.

(3) Sanitary

Wisconsin Statutes 60.30–60.315 provide for the establishment of town sanitary districts. Such districts may be created for the purpose of purchasing, establishing, or constructing surface or storm water sewers, drainage improvement, sanitary sewers, or a system of waterworks, sewerage, garbage, refuse dis-

posal, or sewage collection within a town or towns or portions thereof. Ten to twenty new sanitary districts or extension of existing districts occur annually. An equal number cease to exist as a result of annexation of the lands to core cities. In most instances the districts are formed to provide sanitary sewer service.

(4) Drainage

The year 1891 marked the beginning of the drainage district law in Wisconsin. The basic concept envisioned by draftsmen of the 1891 law was a quasi-public corporation organized under close judicial supervision—a special governmental district set up for a limited purpose and with limited though important powers. This basic concept has not changed materially over the years. Each district is an independent governmental agency with powers to construct and maintain drains, borrow money, acquire and own property necessary for accomplishing its work, and levy assessments on the lands in the district and collect the assessments as delinquent taxes if necessary.

In 1925 organization of new drainage districts under the drainage district law was forbidden, but existing districts were allowed either to continue to operate under the drainage district law or to reorganize as farm drainages under the farm drainage law which had been enacted in 1919.

The year 1919 was a year of major change in the drainage laws. The drainage district law was thoroughly revised and some important provisions designed to prevent unwise drainage were written into the law. Moreover, the old county and town drain laws were repealed and in their place was enacted the so-called farm drainage law.

The manner of organization and the powers of farm drainages did not differ greatly from that of drainage districts. The principal difference between the two types of drainage organizations was that under the farm drainage law there was only one supervisory board for all the farm drainages in the county, while under the drainage district law each district had its own board. Another difference was that farm drainages operated under the jurisdiction of the county courts, while drainage districts were under the jurisdiction of the circuit courts.

Several safeguards against unwise drainage were incorporated in the farm drainage law, including a provision that, in any project exceeding 200 acres, the farm drainage board must secure a report from the State chief engineer on the adequacy of the engineering features of the proposed drainage and a report from the college of agriculture as to the quality of the soil and the suitability for agricultural uses; a provision requiring the board to take into account whether the proposed drainage would adversely affect groundwater supplies and streams in the area; and a provision requiring notice of all proceedings under the farm drainage law to be given to the conservation commission.

In 1959 and 1961 the Wisconsin legislature authorized a study and revision of the drainage laws which culminated in a new drainage law which took effect on January 1, 1965.

For the most part, the new law did not make any major changes. One of its main objectives was to bring all farm drainage organizations in the State under a single law patterned after the farm drainage law enacted in 1919. This objective was only partly achieved. All the old town drains were to be reorganized as drainage districts under the new law by January 1, 1967, or go out of existence, but drainage districts organized prior to 1925 were permitted to elect to continue to operate under their individual boards rather than come under the jurisdiction of the county drainage boards. In most other respects, however, they are governed by the same law as other drainage organizations. Farm drainages automatically became drainage districts under the new law. Another feature of the new law is an improved procedure for repair and maintenance of drains.

(5) Soil and Water Conservation Districts

A soil and water conservation district is any county whose Board of Supervisors has by resolution declared it to be such a district. The broad function of the district is to provide for the conservation of soil and water resources as provided by Chapter 92 of the Wisconsin Statutes.

A soil and water conservation district is a governmental subdivision and can exercise public powers. It is governed by a Board of Supervisors which is composed of the members of the agriculture committee of the County Board of Supervisors.

(6) Other

Metropolitan sewage districts are au-

thorized by Wisconsin Statutes 66.20 to 66.209 for all places excepting in any county having a population of 500,000 or more. Milwaukee, the only county over 500,000 in population, is specially considered in Section 59.96 of the statutes. There are currently three such districts in the State: Milwaukee, Madison, and Green Bay. A fourth, the Waterford-Rochester district, located in Racine County, has been established by the court but is not otherwise functional.

Wisconsin Statutes 144.07 permits the sewerage system or sewage disposal plant of any town, village, or city to be so planned and constructed that it may be connected with that of any other town, village, or city. This section also permits two or more municipalities to organize under this procedure.

Wisconsin Statutes 66.072 allows towns, villages, and cities of the third and fourth class to establish utility districts for sewers and water for fire protection. A few townships have used this procedure for provision of sewer services in specifically designated areas of the township.

5.9.1.9 Political Subdivisions

(1) Municipalities

The Wisconsin Statutes define municipalities as including cities, villages, and towns. Many water and related land resource functions of State agencies also apply to municipalities. Under Chapter 30 of the Wisconsin Statutes, municipalities are allowed to establish bulkhead lines with the approval of the Department of Natural Resources. Municipalities may enact ordinances in the interest of the protection and preservation of their harbors or of public rights in navigable waters; they may use the beds of the Great Lakes for public utilities if situated within 50 miles of the Basin; they are authorized to make harbor improvements; they may organize harbor railway beltlines; they may accept liability for all claims and damages whenever the U.S. government aids in any flood control project or in harbor improvements by dredging or harbor channels; they may regulate boating if the ordinances conform to State laws, but they may not enact any regulations requiring local numbering registration or licensing of boats or charging of fees for inspection; they may regulate the safety, landing, and take-off of seaplanes; and they may receive State aid for municipal water safety patrols. The above provisions are covered in Sections 30.11, 30.21, 30.30, 30.33, 30.31, 30.77, 30.78, and 30.79 of the Wisconsin Statutes. Every municipality may authorize the acquisition, construction, and maintenance or repair of dams across any lake or stream adjoining or within the limits of such municipality and may locate such dams within or without such limits; they may purchase or condemn lands within and, when necessary, without its limits in order to protect any property situated within such limits; they may make special assessments on account of benefits resulting to the property from the improvements, acquisition, and maintenance of a dam; and the Department of Natural Resources, upon the request of a municipality, shall assist in the formulating assessment districts under Section 31.38 of the Wisconsin Statutes. Under Section 29.536 of the Wisconsin Statutes, municipalities may establish and maintain fish hatcheries.

Any town, village, or city may construct, acquire, or lease any plant and equipment located within or outside of the municipality, and including interest in or lease of land, for furnishing water, light, heat, or power to the municipality and may provide for purchasing, acquiring, leasing, constructing, extending, adding to, improving, conducting, controlling, or managing a public utility from the general fund, or from the proceeds of municipal bonds, mortgage bonds, or mortgage certificates under Sections 66.065 and 66.066 of the Wisconsin Statutes. The regulation of waterworks, water rates, connection of the facility outside the city limits, water meters, distribution of mains for supplying automatic sprinklers, proper ventilation and trapping of all drains, soil pipes, and fixtures are provided for under Section 66.071 of the Wisconsin Statutes. The establishment of utility districts in municipalities of the third and fourth class, and the construction, acquisition, or lease and improvement of any plant and equipment for the collection, treatment, and disposal of sewage are authorized under Sections 66.072 and 66.076 of the Wisconsin Statutes. Combining of water and sewer facilities for fourth class cities is permitted under Section 66.077 of the Statutes. Provisions regulating metropolitan sewage districts, their formation, their commissions, plans, construction, maintenance and operation, additions, special assessments, compensation for taking existing sewers, and service charges to State, county, or municipality are under Sections 66.20 to 66.209 of the Wisconsin Statutes.

Any municipality may apply for and obtain grants or any other aid which the United States government or any agency has authorized or agencies within the State or States for the construction of public improvements, including all necessary preliminary action for the purpose of prevention or abatement of water pollution under Section 66.33 of the Wisconsin Statutes. They are authorized to participate in the State financial assistance program for construction and financing of pollution prevention and abatement facilities established under Section 144.21 and may enter into agreements with the Department of Natural Resources for that purpose.

Municipal cooperation with an agency of the Federal government under its powers and in conformity with State law is permitted under Section 66.45. A municipality may enter into an agreement for the construction, operation, and maintenance of any Federally authorized river, harbor, or water resource management or control project.

Every owner of a sewerage system, including municipalities, is required to obtain the approval of the Department before a proposed system or plant can be constructed, operated, or maintained, and only such approved systems complying with the requirements of the Department may discharge effluent into any stream or drain pursuant to Sections 144.04 and 144.05 of the Wisconsin Statutes. The Department may require the sewerage system or refuse disposal plant of any municipality to be so planned as to be connected with that of any other municipality and may order connections in accordance with the provisions of Section 144.07 of the Wisconsin Statutes. A joint sewerage system may be constructed by any two adjoining municipalities under this section.

The powers of municipalities under the utility law and the actions they can take to acquire public utilities are provided in Chapter 97 of the Wisconsin Statutes.

(2) Counties

The main provisions for the powers, functions, and responsibilities of counties are in Chapter 59 of the Wisconsin Statutes. The authority of a county is lodged in the County Board of Supervisors. It has authorization to establish, maintain, and operate fish hatcheries and facilities for raising game birds; to appropriate money to assist in creating and developing watershed protection areas or projects beneficial to the county; to appropriate money for the purpose of maintaining, dredging, and improving any artificial lake existing on July 1, 1965; and may appropriate funds to a soil and water conservation district which includes lands within the county under Sections 59.07(24), 59.07(60), 59.07(66), and 59.872 of the Wisconsin Statutes. The Board approves plans of the County Park Commission to lay out, improve, maintain, and govern all parks and open spaces and to provide for the disposal of sewage arising from the use of parks and preventing pollution of park or parkway areas. The provisions of Chapter 30 of the Wisconsin Statutes apply to counties and other units of local government within them with regard to navigable waters, harbors, and navigation.

The County Board may carry out a program of coordinated fish management projects, game management projects, or county bounties on wild animals with the approval of the Division of Fish and Game, Department of Natural Resources, under Section 29.09(18) of the Wisconsin Statutes. It is also authorized under its powers and in conformity with State laws to enter into an agreement with an agency of the Federal government to cooperate in the construction, operation, or maintenance of any Federally authorized rivers, harbors, or water resources management or control project or to assume any potential liability appurtenant to such a project pursuant to Section 66.45 of the Wisconsin Statutes.

If the Department of Natural Resources determines the need for flood control works in any part of the State, a Flood Control Board of three members for that improvement is appointed by the Governor. The members are appointed from the county board of supervisors of the counties in which the major part of the improvement is located, in which the largest amount of properties to be benefited is located, and from the drainage area. The Board directs the construction, operation, and maintenance of such improvement under Section 87.12 of the Wisconsin Statutes. Counties must also adopt flood plain zoning pursuant to Section 87.30 of the Wisconsin Statutes.

The County Board, under Section 92.05 SS, may declare its area to be a soil and water conservation district in order to control soil erosion, prevent floodwater sediment damages, and thereby preserve natural resources. The supervisors of such a district may adopt land-use regulations for the county.

Counties are required, under Section 144.26

SS, to enact regulations to protect shoreland areas. These regulations include land subdivision, land use, and sanitary provisions.

(3) Towns

Most of the regulations affecting municipalities and counties apply to towns, since municipalities are defined to include towns, villages, or cities by law. The statutory provisions regulating the responsibilities, organization, and powers of towns are contained in Chapter 60A of the Wisconsin Statutes. The Town Board is authorized to acquire by gift, grant, device, donation, purchase, or condemnation a sufficient tract or tracts of land for public use of river fronts, lake shores, picnic groves, fire outlooks from hilltops, or historical places under regulations approved by the Natural Resources Board, and it may erect or maintain dams within such tracts pursuant to Section 60.18(15) of the Wisconsin Statutes. It may raise money to assist in creating and developing watershed protection areas and to assist in the development of a soil conservation district. The Town Board may cause improvements to be made in any lake situated in such a town; it may enter and contribute to regional and county planning programs; it may appropriate not more than $5,000 annually to conserve its natural resources with the consent and approval of the State Natural Resources Board; it may establish a sanitary district for the purpose of purchasing, establishing, or constructing surface or storm sewers, drainage improvements, sanitary sewers, a system of waterworks, or sewerage, garbage, or refuse disposal after a petition and hearing attended by representatives of the State Board of Health and Department of Natural Resources pursuant to Sections 60.30 to 60.315 of the Wisconsin Statutes. Under these sections, it has authorization to appoint or elect commissioners for the town sanitary district; it may borrow money or issue bonds; it may make special assessments; the district may be altered subject to provisions; and if the Division of Environmental Protection in the Department of Natural Resources finds that private sanitary facilities in a town cause a menace to health or comfort, or pollute surface waters, and determines that no local action can correct such a situation, it shall certify the facts to the Town Board for the latter to order the establishment of a sanitary district without the necessity of a petition. If the Town Board fails within 45 days, the Department shall issue an order establishing a district, subject to judicial review.

The Board may make special assessments for deficiencies in waterworks or may issue special improvement bonds for such public works pursuant to Sections 60.63 and 60.64 of the Wisconsin Statutes. Towns are also qualified for the State financial assistance program for the construction and financing of pollution prevention and abatement facilities, and State aid for municipal water safety patrols.

Municipal laws of service charge for sewerage system and other public utilities, combining water and sewer facilities, and special assessments for public utilities in Chapter 66 of the Wisconsin Statutes apply to towns. The Board may levy special assessments for soil conservation and snow removal expenditures, and it may cooperate in Federal programs on rivers, harbors, or water resource projects subject to State laws.

Subject to approval by the court, any town drain in existence on June 13, 1964, may become a drainage district under Section 88.15(2) to (7) of the Wisconsin Statutes.

5.9.1.10 Other

(1) Regional Planning Commissions

Regional planning commissions are created by the Governor upon petition by the governing bodies of local units of government and after a hearing on the petition.

A commission is made up of a member appointed by the County Board of each county, two members from each county appointed by the Governor, and one ex-officio member designated by the Secretary of the Department of Local Affairs and Development.

Their water and related land resources functions include the authorization to conduct all types of research studies of the region, to collect and analyze data and make plans for the physical, social, and economic development of the region, and to adopt an official plan for the region; authorization to prepare a master plan for the region to include public areas: parks, parkways, recreational areas, waterways, routes for public transit, the general location and extent of main and interceptor sewers, water conduits, and other public utilities whether privately or publicly owned; and other details. The master plan is prepared to guide and accomplish a coordinated and

harmonious development of the region. The commission may be authorized by local units and State agencies to act in approving, examining, and reviewing of plats.

The main provisions establishing regional planning commissions are under Sections 66.945 and 236.10(4) of the Wisconsin Statutes.

The Fox Valley Council of Governments is a council of cities that have banded together for planning purposes. It is not a regional planning commission, but many aspects of it are similar to those of a regional planning commission.

(2) Regional Advisory Boards

The State has been divided into five districts, each having a regional advisory board as required in Section 144.025(4) and (5). Each regional advisory board is composed of the District Director of the Division of Environmental Protection who serves as the Executive Secretary, an employee of the State Division of Health, another employee of the Department of Natural Resources, and five citizen members appointed by the Governor. The boards are required to advise the Department on regional water quality standards and other water problems of the region, act as liaison to the public, promote the development of sanitary districts; and to report evidence of water pollution to the Department.

(3) State Advisory Board

The State Advisory Board to the Division of Environmental Protection consists of one representative selected annually by each regional advisory board from its citizen members. A technical advisory committee of the Board comprises a representative of the State Board of Health, the former Division of Conservation in the Department of Natural Resources, the Soil Conservation Board, and the Geological and Natural History Survey, each appointed by his agency head.

The Board is charged with the responsibility of advising the Division of Environmental Protection on the setting of water quality standards and other State water problems pursuant to Section 144.025 of the Statutes.

(4) Soil Conservation Board

The Board is composed of one representative from the University Extension, the College of Agriculture of the University of Wisconsin, the Department of Natural Resources, the U.S. Department of Agriculture Soil Conservation Service, and the Wisconsin Association of Soil and Water Conservation Districts as ex-officio members, and four practical farmers appointed by the Governor for terms of three years each. All the farmer members must be cooperators with a soil and water conservation district. The Board elects its own chairman annually.

The broad functions of the Board are to enhance sound soil and water resources management as provided by Chapter 92 of the Wisconsin Statutes. Specifically, the Board offers appropriate assistance to supervisors of soil and water conservation districts, approves and coordinates the programs of districts, and has supervisory responsibility over Public Law 83–566 watershed projects. The Board has cooperated with other agencies to produce an inventory of soil and water conservation needs and of private recreational facilities in the State.

The Board has entered into multi-agency agreements which outlined to district supervisors how they can cooperate to achieve sound soil and water management practices in community watershed projects. These participating agencies now include the University of Wisconsin Agriculture Extension Service, Wisconsin Department of Natural Resources, Soil Conservation Service, the Farmers Home Administration, and the Agricultural Conservation and Stabilization Service of the United States Department of Agriculture.

Seventy-two soil and water conservation districts have been formed throughout the State.

Section 6

MECHANISMS FOR COORDINATION AND PROBLEM SOLUTION

6.1 State and State-Federal

6.1.1 River Basin Commissions

Title II of the Water Resources Planning Act provides for the establishment of river basin commissions. These are composed of States that share bodies of water (rivers and lakes).

Each river basin commission includes members from the Federal agencies concerned with the problems of water and related land resources, and each State in the river basin commission is also represented. The chairman of each river basin commission is appointed by the President. The principal responsibility of a river basin commission is to implement the will of Congress as expressed in the Water Resources Planning Act.

River basin commissions have the authority to hold hearings on the subject of water resources. They can request the services of personnel from any State or Federal agency in furtherance of their activities, and they can contract for technical services necessary to the fulfillment of their missions.

An important function of a river basin commission is that of coordination. Heretofore, government agencies at all levels concerned with water resource problems have tended to function independently. Some exceptions to this may be found where two or more States have entered into a compact or agreement to work together on common problems, or where coordinating committees composed of Federal and State agencies were established. River basin commissions, however, are specifically charged with the responsibility for coordinating these efforts. The successful result of this endeavor can mean more efficient use of money, manpower, and technical knowledge, which will result in more effective action for all concerned.

6.1.2 Great Lakes Basin Commission

The Great Lakes Basin Commission was established by Executive Order Number 11345 in 1967, under Title II of Public Law 89–80. The Commission is composed of the following representatives:

(1) Chairman: appointed by the President
(2) Federal agencies:
  (a) Department of Agriculture
  (b) Department of Army
  (c) Department of Commerce
  (d) Department of Health, Education and Welfare
  (e) Department of Housing and Urban Development
  (f) Department of Interior
  (g) Department of Justice
  (h) Department of Transportation
  (i) Federal Power Commission
(3) States:
  (a) Illinois
  (b) Indiana
  (c) Michigan
  (d) Minnesota
  (e) New York
  (f) Ohio
  (g) Pennsylvania
  (h) Wisconsin
(4) One member from each interstate agency created by an interstate compact to which the consent of Congress has been given and whose jurisdiction extends to the waters of the defined Great Lakes Basin.

These are the principal duties of the Great Lakes Basin Commission:

(1) to engage in such activities and to make studies and investigations necessary to conserve, develop, and utilize the water and related land resources of the Great Lakes on a comprehensive and coordinated basis by the Federal Government, States, localities, and private enterprise, with the cooperation of all affected Federal agencies, States, local gov-

ernments, individuals, corporations, business enterprises, and others concerned

(2) to engage in such activities and make such studies and investigations as are necessary and desirable to do the following:

(a) serve as the principal agency for the coordination of Federal, State, interstate, local, and nongovernmental plans for the development of water and related land resources of the Great Lakes

(b) prepare and keep up-to-date, to the extent practicable, a comprehensive, coordinated, joint plan for Federal, State, interstate, local, and nongovernmental development of water and related land resources, provided that the plan shall include an evaluation of all reasonable alternative means of achieving optimum development of water and related land resources of the Great Lakes Basin. It may be prepared in stages, including recommendations with respect to individual projects.

(c) recommend long-range schedules for priorities for the collection and analysis of basic data for investigation, planning, and construction of projects

(d) foster and undertake such studies of water and related land resources problems of the Great Lakes area necessary in the preparation of the plan described in clause (b) above.

Michigan's designated representative to serve on the Great Lakes Basin Commission is the Director of the Department of Natural Resources, with the Executive Secretary of the Water Resources Commission serving as the alternate. In addition, virtually every State agency concerned with the management of water and related land resources is involved in the formulation of the various studies presently being conducted under the authority of the Great Lakes Basin Commission.

6.1.3 Great Lakes Commission

The Great Lakes Commission was created by Article IV of the Great Lakes Basin Compact (Michigan Act 28, P.A. 1955). The Commission is by statute composed of not less than three nor more than five commissioners from each party State as designated or appointed in accordance with the law of the State which they represent.

The purposes of this Compact are to do the following through means of joint and cooperative action:

(1) to promote orderly, integrated, and comprehensive development uses, and conservation of the water resources of the Great Lakes Basin

(2) to plan for the welfare and development of the water resources of the Basin as a whole as well as for those portions of the Basin which may have special problems

(3) to make it possible for the States of the Basin and their people to derive the maximum benefit from utilization of public works, in the form of navigational aids or otherwise, which may exist or which may be constructed from time to time

(4) to advise in securing and maintaining a proper balance among industrial, commercial, agricultural, water supply, residential, recreational, or other legitimate uses of the water resources of the Basin

(5) to establish and maintain an intergovernmental agency so that the purposes of this Compact may be accomplished more effectively.

There are five permanent standing committees within the Great Lakes Commission, two of which are chaired by the State of Michigan. These are the Fisheries and Wildlife Committee and the Pollution Control Committee. The Shoreline Use and Recreation Committee, the Water Resources Committee, and the Seaway, Navigation and Commerce Committee also have Michigan representation. Designated representatives from Michigan are the Attorney General, the Director of the Department of Natural Resources, Executive Secretary of the Water Resources Commission, Director of the Department of Commerce, and one member appointed by the Governor.

6.1.4 Great Lakes Fishery Commission

The Great Lakes Fishery Commission was established by the Convention on Great Lakes Fisheries between Canada and the United States, ratified on October 11, 1955.

The treaty area includes Lake Ontario (including the St. Lawrence River from Lake Ontario to the 45th parallel of latitude), Lake Erie, Lake Huron (including Lake St. Clair), Lake Michigan, Lake Superior, and their connecting waters. The Convention also applies to the tributaries of each of the above waters to the extent necessary to investigate any stock of fish of common concern, the taking or habitat of which is confined predominately to the Convention Area, and to eradicate or minimize the populations of the sea lamprey in the Convention Area.

The Great Lakes Fishery Commission is composed of two national sections, a Canadian section and a United States section. Each section is composed of four members appointed by the respective contracting parties. Under the provisions of Article II of the Convention, the United States Section has established an advisory committee for each of the Great Lakes; the Canadian Section has not. In 1965 the Commission established four standing committees:

(1) Finance and Administration Committee

(2) Scientific Advisory Committee

(3) Sea Lamprey Control and Research Committee

(4) Management and Research Committee.

A lake committee was further established for each of the Great Lakes to develop and coordinate studies and to encourage the implementation of their findings, and to consider other management or research matters referred to it by the Commission through the Management and Research Committee. Representatives from Michigan are presently, or have been in the past, Chairmen for each of the Great Lake committees except that involving Lake Ontario.

Duties of the Great Lakes Fishery Commission are as follows:

(1) to formulate a research program or programs designed to determine the need for measures to make possible the maximum sustained productivity of any stock of fish in the Convention Area, which, in the opinion of the Commission, is of common concern to the fisheries of the United States of America and Canada and to determine what measures are best adapted for such purposes

(2) to coordinate research pursuant to such programs and, if necessary, to undertake the research

(3) to recommend appropriate measures to the contracting parties on the basis of the findings of such research programs

(4) to formulate and implement a comprehensive program for the purpose of eradicating or minimizing the sea lamprey populations in the Convention Area

(5) to publish or authorize the publication of scientific and other information obtained by the Commission in the performance of its duties.

6.1.5 International Joint Commission

The International Joint Commission was established by Article VII of the Boundary Waters Treaty of January 11, 1909. The purposes of the Treaty are set out in its preamble:

(1) to prevent disputes regarding the use of boundary waters

(2) to settle all questions (then) pending between the United States and Canada involving the rights, obligations, or interests of either in relations to the other, or to the inhabitants of the other, along their common frontier

(3) to make provision for the adjustment and settlement of all such questions as they arise.

The Treaty provides that any problem concerning the rights or interests of either country may be submitted to the International Joint Commission. The procedure for submission of problems is through the U.S. State Department and Canada's Department of External Affairs. Investigations cannot be made, however, until the reference from the two governments is received by the two secretaries.

The Commission appoints advisory boards of technical experts to direct field investigations and prepare a report of technical findings. The report of the Commission is then prepared, including recommendations to the two governments.

The International Joint Commission also has jurisdiction over, and passes upon, all cases involving the use, obstruction, or diversions of the waters with respect to raising or lowering the water level on either side of the boundary or to the interfering with its flow.

The International Joint Commission has no authority for direct enforcement of pollution abatement measures since this is largely a function of State and Provincial governments. It does have full authority to carry out investigations, summon witnesses, and hold public hearings.

There are presently 27 boards established to advise the International Joint Commission upon specific problem areas. The State of Michigan is represented on two of these boards, the Advisory Board on Control of Pollution of Boundary Waters and the Advisory Board on Lake Erie Water Pollution, by the Executive Secretary of the Water Resources Commission.

6.1.6 Upper Great Lakes Regional Commission

The Upper Great Lakes Regional Commis-

sion was created under the provisions of the Public Works and Economic Development Act of 1965. Title V of this Act provides for the establishment of regional commissions to mount multi-State assaults on economic problems.

In 1966 the Secretary of Commerce, following recommendations from the State governments of Michigan, Minnesota, and Wisconsin and from members of Congress representing the region, designated a 119-county area in the upper parts of Michigan, Minnesota, and Wisconsin as the Upper Great Lakes Economic Development Region. This paved the way for the formal organization of the Upper Great Lakes Regional Commission in 1967.

The mission of the Commission is to stimulate economic development in the 116,000 square miles of the 119-county region and thus bring a more prosperous life to the 2,700,000 people of the region. The Upper Great Lakes Economic Development Region includes 45 counties in Michigan, 38 counties in Minnesota, and 36 counties in Wisconsin.

The Governor of each member State serves as that State's representative to the Commission. In addition, Michigan has established an advisory task force to better deal with the problems that arise before the Commission.

6.1.7 Enforcement Conferences

The Federal Water Pollution Control Act (P.L. 84-660), Section 10, provides for creation of an institutional arrangement designed to abate interstate water pollution. This provision of the statute has been used for pollution problems occurring on three of the Great Lakes.

Under Section 10, the Secretary of the Interior, on his own authority or on the request of a Governor of a State that is being affected by pollution originating in another State, may call an enforcement conference consisting of representatives of the Department of the Interior and the concerned States. The operating procedure of such pollution abatement conferences is first to determine that interstate pollution is occurring, and the nature of the pollution. Then agreement is reached on a suitable abatement program. Once the conferees have agreed to a program, it is forwarded to the Secretary for his approval. After approval, required action becomes enforceable under the Federal Act. However, Federal enforcement would take place only if the State in which the pollution was occurring failed to act.

Six Federal-State enforcement conferences have been called in the Great Lakes Region. All of the Great Lakes States have participated in at least one of these conferences. Michigan has participated in enforcement conferences on the Detroit River-Lake Erie, Lake Michigan, Lake Erie, Lake Superior, and the Menominee River.

6.1.8 International St. Lawrence River Board of Control

The International St. Lawrence River Board of Control supervises the regulation of Lake Ontario, and consequently the St. Lawrence River, in accordance with the International Joint Commission's Orders of Approval dated October 29, 1952, and July 2, 1956. An operating committee consists of the Ontario Hydroelectric Power Commission, the Quebec Hydroelectric Power Commission, the Power Authority of the State of New York, the St. Lawrence Seaway Development Corporation, and the Department of Transport of the Dominion of Canada.

6.1.9 International Field Year on the Great Lakes

The International Field Year on the Great Lakes is a program for data collection and analysis on Lake Ontario which was organized as a portion of the International Hydrologic Decade. Its Steering Committee will coordinate efforts among a number of United States and Canadian federal agencies, university interests, and individual scientists. These efforts have been integrated with those of the National Academy of Sciences, the Smithsonian Institution, and the Great Lakes Basin Commission staff through the Steering Committee. The program comprises a number of interrelated studies on water movement, lake meteorology, energy budget, terrestial water balance, and ancillary biochemical programs. Lake Ontario was chosen for its size, location, and availability of outlet control. The program will extend over an 18-month period, concentrated in calendar year 1972. The work will utilize the major data collection capabilities of the participating agencies during the most of the activity period. The implications of the program are most significant to the success of

the proposed special Great Lakes Study of limnological systems analysis for the insights it can provide into the complex interrelationships among the various lake environmental sub-systems.

6.1.10 International Great Lakes Study Group

The International Great Lakes Study Group, formed in October 1962 as a Lake Erie study group, is an informal organization composed of representatives of governmental agencies and academic institutions in Canada and the United States engaged in basic and applied research and engineering investigations relating to the conservation, development, and use of Great Lakes waters. The primary purpose of the group is to facilitate the exchange of information and to encourage coordination among the various research activities relating to the Lakes and their basins. The group provides a forum for assisting coordination and minimizing duplication. It sponsors a data repository for the cataloging, storage, and dissemination of basic data.

The Canadian section has been oriented primarily toward basic research. The United States section has involved university people but has been primarily interested in, and influenced by, Federal agencies.

The Group concerns itself with two principal tasks: it attempts to establish priorities for various research efforts, and it attempts to establish procedures to insure that data collected are made readily available.

The primary benefit of the study group is as a communications device in affording researchers an opportunity to discuss mutual problems and to influence governmental agencies to support desired research.

6.1.11 St. Lawrence Seaway Development Corporation

The St. Lawrence Seaway Development Corporation was established by Congress to construct, maintain, operate and promote the United States portion of the navigation facility on the St. Lawrence River providing ocean access to Great Lakes deep-draft shipping. Included among the Seaway Corporation's goals are the promotion of greater use and development of ports along the Great Lakes, development of the intermodal transportation aspects of commerce within the Great Lakes Basin, the increased use of the Seaway by United States and foreign interests, implementation of the President's export program, implementation of the Administration's Merchant Marine program, and the development of a greater civic and industrial interest in the Seaway. To achieve these goals the Corporation has considerable latitude in coordinating efforts of various echelons of navigation and transportation interests.

LIST OF REFERENCES

1. Block's Law Dictionary 345–6 (4th Ed. 1951).

2. *United States* v. *Miller*, 236 F. 798.800 (W. D. Wash. 1916).

3. *American Law of Property*, 6A, p. 156, Sec. 28.56 Casner ed. 1954, Supp. 1962.

4. Farnham, William F., *Report of the Temporary State Commission on Water Resources Planning*; 1965, Leg. Doc. (1965) No. 27, p. 132.

5. Pennsylvania's Water Rights Act of June 24, 1939, as amended, P.L. 842, vests in the Water and Power Resources Board certain powers and authorities for the conservation, control, and equitable use of the waters within the interests of the people of the Commonwealth; "making available for public water supply purposes, water rights heretofore or hereafter acquired but not used." The courts of Illinois, Michigan, Minnesota, and Ohio have also taken the position that municipal water uses are reasonable and that any use which interferes with municipal water needs are unreasonable. New York State also gives water supply highest priority.

6. 77 U.S. (10 Wall) 557, 563 (1871) is important because the commerce clause of the United States Constitution (art. 1, sec. 8) has been construed to give the Federal government final authority over the uses to which a Federally navigable water body may be put.

7. *Gibbons* v. *Ogden* 22 U.S. (9 wheat) 1 (1824), *U.S.* v. *Rio Grande Dam and Irr. Co.* 174 U.S. 690 (1899), *Sinnot* v. *Davenport* 63 U.S. (22 How.) 227 (1859), *U.S.* v. *Appalachian Electric Power Co.* 311 U.S. 377 (1940).

8. Minnesota case *Lamprey* v. *State*, 52 Minn. 181, 198, 53 N.W. 1139, 1143 (1893), and the Wisconsin case (*Muench* v. *Public Service Comm.* 261 Wis. 492, 53 N.W. 2 d 514). See also Illinois' rule allowing public use of natural lakes meandered by the government; *People* v. *Economy Light and Power Co.*, 241 Ill. 290, 332 (1909).

9. *Attorney General* v. *Taggart*, 306 Mich. 432; *Collins* v. *Gerhardt*, 237 Mich. 38, 44; *Giddings* v. *Rogalewski*, 192 Mich. 319.

10. Wis. Stat. Gnn.—Sec. 59.07 (1) (a) 1957, as amended, Ch. 27, 2 (Leg. Service Supp. 1967); Wis. Stat. Gnn. Sec. 6018 (15) 1957; Wis. Stat. Gnn. Sec. 61. 34 (3), as amended (Supp. 1967).

11. *Huber* v. *Merkel*, 117 Wis. 335, 94 N.W. 354 (1903).

12. *Erickson* v. *Crookston Waterworks Power and Light Co.*, 105 Minn. 182, 117 N.W. 435 (1908).

13. Restatement of Torts Sec. 846 (1939).

14. Part 611, Use and Protection of Waters, Rules and Regulations, Issuance of Permits under Conservation Law, Art. V, Part III-A, as amended by the Water Resources Commission on January 3, 1969, prevents certain encroachments from being placed in channels in New York State.

15. Michigan Act 167, P.A. 1968, requires permit for flood plain alteration or occupation. Also, Act 288, P.A. 1967, permits State Water Resources Commission to determine flood plain limits.

16. Wisconsin also has a Cranberry law similar to the Talconite law—94.26 WSA.

17. "Water Resources Management—Six Year Progress Report," Temporary State Commission on Water Resources Planning, Leg. Doc. (1965) No. 27, P. 34.

18. Conservation Law, Section 427.

19. Conservation Law, Section 410.

20. Conservation Law, Sections 1-0801 throuth 1-0803; Navigation Law, Article 11.

21. Henry J. Crawford, "Home Rule and Land Use Control," Western Reserve Law Review, Vol. 13, No. 4, September 1962.

Addendum A

LAWS, POLICIES, AND INSTITUTIONAL ARRANGEMENTS BY SUBJECT

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TABLE S20–3 Water Use Doctrine

1. Does the State follow the riparian doctrine or the doctrine of prior appropriations?

ILLINOIS: Riparian doctrine.
INDIANA: Riparian doctrine.
MICHIGAN: Riparian doctrine.
MINNESOTA: Riparian doctrine as modified by State.
NEW YORK: Riparian doctrine.
OHIO: Riparian doctrine. Each riparian owner is entitled to his own reasonable use of water in the stream.
PENNSYLVANIA: Riparian doctrine.
WISCONSIN: Riparian doctrine.

2. Is the riparian doctrine for surface waters modified by a proviso known as the reasonable use rule?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes. For domestic uses, the riparian may take all the water he wants. For commercial or industrial purposes, he may be required to limit his use to provide water for other users. *Canton* v. *Shock*, 66 O.S. 19 (1902).
PENNSYLVANIA: Not specifically. The user must not injure the rights of other users.
WISCONSIN: Yes

3. Have the State courts accepted or rejected the "source of title" test for determining riparian rights?

ILLINOIS: There have been no State court decisions regarding this test.
INDIANA: There have been no decisions by the State courts.
MICHIGAN: The Michigan courts have ruled that riparian rights are not applicable to lands physically separated and not bordering the natural watercourse although belonging to the same owner.
MINNESOTA: No.
NEW YORK: Riparian rights can accompany only fee title to land bordering water.
OHIO: The source of title test does not apply. Lands once considered riparian, but later conveyed separately from the portions abutting on a stream, may regain their riparian status if reunited with these portions.
PENNSYLVANIA: There have been no decisions by the courts.
WISCONSIN: State courts have not acted on question, but the Department of Natural Resourses uses the source of title test.

4. Is the test of navigability for the purposes of determining bed ownership a commercial test?

ILLINOIS: Yes.
INDIANA: The State follows the Federal test of navigability, applied as of 1816, the year of Statehood.
MICHIGAN: No. The riparian owns to the thread of the stream on both navigable and non-navigable natural waterways except the Great Lakes.
MINNESOTA: Yes.
NEW YORK: No. The State follows the "navigable in fact" test.
OHIO: Yes. A body of water is "navigable" if it is susceptible to being used, in its ordinary or improved condition, as a highway for commerce.
PENNSYLVANIA: Yes, for those streams so defined by Federal decision.
WISCONSIN: Yes.

5. Has the State supplemented the test of commercial navigability with a test of floatability or recreational navigability?

ILLINOIS: No.
INDIANA: Not to date.
MICHIGAN: Qualified yes. Cases have been determined on basis of recreational use and floatability. No clear-cut common law test of navigability.
MINNESOTA: Yes.
NEW YORK: Not applicable.
OHIO: Yes. *Coleman* v. *Schaeffer*, 163 O.S. 202; *Mentor Harbor Yachting Club* v. *Mentor Lagoons, Inc.* O.S. 193.
PENNSYLVANIA: Yes. It applies in most of the streams in the State not covered by Federal decision.
WISCONSIN: Yes.

6. Does the ownership of beds of navigable streams lie with riparian owners or with the State in trust for the public?

ILLINOIS: Riparian owners always are subject to the easement of navigation.
INDIANA: For streams meeting Federal navigability test as of 1816, the State owns streambeds to the ordinary high-water mark. For streams navigable by common law or by statute, the riparian is considered to be the owner.
MICHIGAN: The riparian owns to the center of the stream, subject to State regulation for protection of the public trust.
MINNESOTA: The State owns to the ordinary high-water mark.
NEW YORK: The State owns beds for larger rivers and lakes. The riparian owns where the deed so states on other waters.
OHIO: Riparian owners own land to middle of stream or as specified on deed. They may wharf only to navigability line established by Federal government. *State of Ohio* v. *the Cleveland & Pittsburgh Railroad Co.*, 94 O.S. 61.
PENNSYLVANIA: The State owns beds in trust for the public. Such ownership is limited to lands below low-water marks. Lands between low- and high-water marks are subject to public rights for navigation and fishing.
WISCONSIN: Riparian owners, subject to State as trustee.

7. Does the ownership of beds of navigable lakes lie with riparian owners or with the State in trust for the public?

ILLINOIS: The State. *Middleton* v. *Pritchard*, 4 Ill. 309 (1842).
INDIANA: For lakes meeting Federal navigability test as of 1816, the State owns lake beds in trust for the public. For lakes navigable by common law or by statute, the riparian is the owner.
MICHIGAN: Same as No. 6. (160 Mich.-680), except for the Great Lakes.
MINNESOTA: The State.
NEW YORK: Same as No. 6.
OHIO: Riparians own only to low-water line. State owns remainder of lakebed.
PENNSYLVANIA: Same as No. 6.
WISCONSIN: The State in trust for the public.

8. Does the ownership of beds of non-navigable streams and lakes lie with riparian owners or with the State in trust for the public?

ILLINOIS: Riparian owners. *Rockwell* v. *Baldwin*, 53 Ill. 22 (1869).
INDIANA: Riparian owners.
MICHIGAN: The riparian owns to the center. The State does not differentiate between the ownership of navigable and non-navigable waterway beds, but rather as to the applicable public or private rights and reasonable use.
MINNESOTA: Riparian owners.
NEW YORK: Riparian owners where deed so states
OHIO: Ownership lies entirely with riparians.
PENNSYLVANIA: Riparian owners. In the case of lands abutting on such waters, ownership extends to the middle of the stream. Riparian rights do not apply when bed ownership is different from adjoining land ownership.
WISCONSIN: Riparian owners.

9. What waters of the State are subject to public rights for use in boating, canoeing, swimming, skating, and similar activities?

ILLINOIS: Commercially navigable lakes and streams.
INDIANA: (a) Commercially navigable lakes and streams. (This answer is assumed; no specific cases.) (b) Lakes that have been used by the public with acquiescence of riparian owners.
MICHIGAN: (a) All lakes with public riparian ownership. (b) All lakes with a navigable inlet or outlet with public access. (c) All streams and rivers not otherwise determined non-navigable by the courts.
MINNESOTA: All lakes and streams susceptible to such public use.
NEW YORK: Those with State ownership, and those the State has acquired for such purposes, e.g., fishing easements.
OHIO: All navigable waters. This does not include the right to trespass on riparian owners' lands.
PENNSYLVANIA: All water surfaces defined as navigable, including tidal waters, are subject to such uses. Riparian owners can, however, deny access across their property.

TABLE S20–3 (continued) Water Use Doctrine

10. What waters of the State are subject to public rights for fishing?

ILLINOIS: All natural watercourses unless fish are "captured" in a pond or lake wholly upon a landowner's land.
INDIANA: Same as No. 9. Also, private water stocked by the State.
MICHIGAN: Same as No. 9.
MINNESOTA: Possibly same as No. 9, but may depend on bed ownership.
NEW YORK: (a) Marine waters, (b) Fresh waters where State has ownership or easement.
OHIO: Same as No. 9.
PENNSYLVANIA: Same as No. 9.
WISCONSIN: Same as No. 9

11. What waters of the State are subject to public rights for use in trapping?

ILLINOIS: Commercially navigable bodies of water.
INDIANA: Same as No. 10.
MICHIGAN: Publicly owned bottom lands or by riparian consent.
MINNESOTA: Possibly same as No. 9, but may depend on bed ownership.
NEW YORK: Same as No. 10.
OHIO: Same as No. 9.
PENNSYLVANIA: All waters except those within game refuge areas.
WISCONSIN: Same as No. 9.

12. May non-riparians trespass private property to gain access to navigable bodies of water?

ILLINOIS: No, not without riparian owner's permission.
INDIANA: No, not without riparian owner's permission.
MICHIGAN: No, not without riparian owner's permission.
MINNESOTA: No, not without riparian owner's permission.
NEW YORK: No, not without riparian owner's permission.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No, not without riparian owner's permission.

13. Does the riparian right of access include the construction of wharves, landings, and piers?

ILLINOIS: Yes, subject to right of navigation.
INDIANA: Yes, subject to regulatory approval of the State.
MICHIGAN: Yes, subject to regulatory assent of the State.
MINNESOTA: Yes.
NEW YORK: Yes, subject to regulatory assent of the State.
OHIO: Yes, to the line of navigability.
PENNSYLVANIA: Yes, subject to regulatory assent of the State.
WISCONSIN: Yes, however, right is subject to regulation by statute laws; 30.14 (2) and 30.12.

14. In the absence of statute, does the State follow the English rule or the American rule of ground-water use?

ILLINOIS: English rule.
INDIANA: English rule, shaped to meet the conditions of life in Indiana.
MICHIGAN: American rule.
MINNESOTA: American rule.
NEW YORK: Not clear, due to conflicting judicial expressions.
OHIO: English rule. *Frazier* v. *Brown*, 12 O.S. 294 (1861).
PENNSYLVANIA: English rule or common law application is followed.
WISCONSIN: English rule.

15. May public water uses be "withdrawal uses"?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

16. May water rights be acquired through condemnation for public purposes? By whom?

ILLINOIS: Yes, by any public body vested with the power of eminent domain.
INDIANA: Yes, by Federal, State, local, and private utilities.
MICHIGAN: Yes, for certain purposes, by the State, governmental subdivisions thereof, and public bodies, including those incorporated.
MINNESOTA: Yes, by any public agency with eminent domain.
NEW YORK: Yes, by the State or municipality.
OHIO: Yes.
PENNSYLVANIA: Yes, by the State for public water supplies.
WISCONSIN: Yes, for certain purposes.

17. Have statutes been adopted that establish priorities or preferences or the forfeiture of unexercised water rights?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, but extremely limited in application. Iron Ore Benefication (Act 143, P.A. 1959) and Surplus Waters (Act 20, P.A. 1964).
MINNESOTA: No.
NEW YORK: Yes, statute generally known as "Save Harmless Law," Conservation Law, Art. 5, Part III-B, Sec. 429-j.
OHIO: No.
PENNSYLVANIA: Yes, a withdrawal permit for public water supply is void if no withdrawal is made within two years.
WISCONSIN: No.

18. Does statute permit the use of waters (a) on non-riparian lands or (b) on lands that do not overlie the ground-water source?

ILLINOIS: No.
INDIANA: Yes, however, the matter has never been tested or litigated in Indiana.
MICHIGAN: Yes, for mining; also Act 20, P.A. 1964, permits sale of "surplus waters," Act 205, P.A. 1967, permits use of Great Lakes waters for irrigation districts.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: No. Note, however, that courts have ruled that lands held in common by several tenants, even though some do not abut on a stream, nevertheless carry riparian water use rights. Non-riparian municipalities may gain access to water in streams, but riparian owners must be compensated for damages.
PENNSYLVANIA: No.
WISCONSIN: Yes, for certain cases such as mining and cranberry production.

19. If so, is compensation to riparian owner required?

ILLINOIS: Not applicable.
INDIANA: No.
MICHIGAN: No, unless danger may be proven by litigation. Construction of law should avoid such happening.
MINNESOTA: Not applicable.
NEW YORK: Yes, with the exception of the Board of Water Supply Act (pertaining to New York City) which sets up special procedures. Riparian owners must take recourse through courts if not fairly compensated.
OHIO: Not applicable.
PENNSYLVANIA: Not applicable.
WISCONSIN: No.

20. Do the State courts generally apply the (a) common enemy, (b) civil law, or (c) reasonable use rule when deciding cases concerning the diverting of diffused surface waters for property protection?

ILLINOIS: Civil law.
INDIANA: Common enemy rule, with exceptions.
MICHIGAN: Civil law (reasonable use rule).
MINNESOTA: Common enemy.
NEW YORK: Common enemy.
OHIO: Civil law rule.
PENNSYLVANIA: The civil rule has been followed in rural areas, however, the reasonable use rule has had greater application in urban areas.
WISCONSIN: Common enemy.

TABLE S20–4 Surface Water Supply

21. Has the State modified by statute, to any degree, the common law rules governing surface water use and withdrawal?

ILLINOIS: Yes.
INDIANA: Yes. Acts of 1955, Chapter 251, as amended (Burns 27-1401: 27-1409).
MICHIGAN: Yes; (a) through powers exercised by the State Water Management Agencies; (b) Act 20, P.A. 1964, the Surplus Waters Act; and (c) Act 143, P.A. 1959, diversion for mining beneficiation (Act 205, P.A. 1967, Irrigation District).
MINNESOTA: Yes.
NEW YORK: Yes, through powers exercised by the New York State Department of Environmental Conservation; Conservation Law, Article 5.
OHIO: No.
PENNSYLVANIA: Yes, by restricting pollution, by requiring permits of public water supply agencies for the acquisition of such rights in surface waters, and by requiring minimum discharges from stream impoundments.
WISCONSIN: Yes

22. What waters of the State are subject to regulatory statutes changing common law rules of water withdrawal?

ILLINOIS: Commercially navigable waters.
INDIANA: Ground water, surface water, and public freshwater lakes.
MICHIGAN: All surface waters, but only under order of the State Water Resources Commission.
MINNESOTA: All waters.
NEW YORK: Navigable waters.
OHIO: None.
PENNSYLVANIA: All surface waters.
WISCONSIN: Ground water and streams.

23. What is the major purpose or feature of the regulatory statute or statutes?

ILLINOIS: Issuance of permits for use of water or non-riparian land for manufacturing, industrial, and public utility purposes.
INDIANA: (a) Requires a permit to withdraw more than 100,000 gallons of ground water per day in restricted use areas. (b) Permits use of flood water on non-riparian lands, and allows riparian to impound water in excess of existing reasonable uses at the time of impoundments. (c) Requires a permit to do anything that would affect level, natural resources, or beauty of public lakes.
MICHIGAN: Act 20, P.A. 1964, permits impoundment and sale of excess flood waters. Act 143, P.A. 1959, authorizes the Water Resources Commission to grant permits for drainage, diversion, control, or use of water when necessary for operation of low grade iron ore mining. Act. 205, P.A. 1967, permits use of Great Lakes waters on non-riparian lands, within established district.
MINNESOTA: Regulates all water use, but does not permit use of water on non-riparian lands.
NEW YORK: (a) Apportionment of water for public water supply system. (b) Control of well drilling and commercial and industrial withdrawals on Long Island. (c) Permit required to disturb streambeds, to dredge and fill in navigable waters, and to construct dams and docks.
OHIO: Not applicable.
PENNSYLVANIA: To control and regulate withdrawals by public water supply companies and authorities.
WISCONSIN: Requires permit to withdraw more than 100,000 gallons per day of ground water. In certain circumstances permits use of water on non-riparian lands for certain mining purposes. Permits diversions from one stream to another to regulate flows.

24. What is the duration of water use permits?

ILLINOIS: 40 years.
INDIANA: Ground water; unlimited duration, but may be revoked for cause.
MICHIGAN: Act 143, P.A. 1959, permits may not exceed 50 years. The duration of other permits is prescribed by Water Resources Commission.
MINNESOTA: ---
NEW YORK: No specific duration.
OHIO: No water use permits
PENNSYLVANIA: For the duration of existence of the public water supplier.
WISCONSIN: No provision.

25. Can the administering agency refuse to grant permits for withdrawal of water in order to maintain minimum water levels for navigation, pollution control, or fish and wildlife protection?

ILLINOIS: Yes.
INDIANA: Yes, on navigable water and public freshwater lakes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes, although in practice this might be in terms of modification rather than refusal.
OHIO: Not applicable.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

26. Can the administering agency refuse to grant permits for withdrawal of water in order to maintain minimum water levels for protection of recreational uses or aesthetic purposes?

ILLINOIS: Yes.
INDIANA: Yes, on public freshwater lakes.
MICHIGAN: Yes.
MINNESOTA: Probably for recreation; possibly for aesthetics.
NEW YORK: (a) Recreation, yes. In practice this might be in terms of modification, rather than refusal. (b) Aesthetic, no.
OHIO: Not applicable.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

27. Are there any priorities or preferences established by (a) statute? (b) case law?

ILLINOIS: Ill. Rev. Stat. c 19 s65 seems to indicate that municipalities have preferred right to the water of a "public" body of water.
INDIANA: Domestic uses accord preferential treatment.
MICHIGAN: (a) No. (b) Riparian rights permit use of water for general purposes such as domestic water supply, bathing, and livestock watering (252 Mich. 198).
MINNESOTA: (a) Not expressly. (b) ---
NEW YORK: The acquisition, storage, diversion, and use of water for domestic and municipal purposes shall have priority over all purposes (C.L., Article 5).
OHIO: Domestic water use has priority, as established by court rulings.
PENNSYLVANIA: Withdrawals from navigable lakes are regulated for any user.
WISCONSIN: Not expressly.

28. Are there any uses that are exempted from regulation under the statutes?

ILLINOIS: No.
INDIANA: Ground-water use is exempt if well was installed prior to the time the system was instituted.
MICHIGAN: No.
MINNESOTA: (1) Domestic use by less than 25 persons. (2) Beneficial uses existing before July 1, 1937. (3) All beneficial uses originating within municipalities and existing on July 1, 1959.
NEW YORK: Yes, all withdrawal uses except water supply.
OHIO: Not applicable.
PENNSYLVANIA: No. The statutes apply only to water withdrawals.
WISCONSIN: No.

29. Do the State courts view municipal water uses as a "reasonable" use?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: *Canton* v. *Shock*, 66 O.S. 19 (1902). A municipality that abuts the stream may take all the water it needs for domestic use.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

30. Does the State have authority to construct water supply reservoirs for local units of government?

ILLINOIS: Yes.
INDIANA: Yes. Acts of 1963, Chapter 322 (Burns 27-1901: 27-1908).
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: The State may construct water supply reservoirs in the Adirondack Forest Preserve, subject to certain limitations. Conservation Law, Article 5.
OHIO: Yes. Section 1501.20, O.R.C., grants this authority to the Department of Natural Resources.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

TABLE S20–4 (continued) Surface Water Supply

31. Must public water supply treatment operators be certified by the State?

ILLINOIS: Yes.
INDIANA: No, but a voluntary certification program exists.
MICHIGAN: Yes, Act 98, P.A. 1913.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes. 144.025 (21) Wisconsin Statute Law.

32. At what point does a water supply system become public (i.e., when how many individuals are serviced by a system)?

ILLINOIS: Ten or more lots or separate properties.
INDIANA: All water for sale for public consumption.
MICHIGAN: All water supplies that produce and sell water to the public.
MINNESOTA: All water supplies that produce and sell water to the public.
NEW YORK: Five or more dwellings, places frequented by the public, schools, and factories.
OHIO: Policy is two or more housing units; no statutory definition.
PENNSYLVANIA: No limit specified.
WISCONSIN: When it serves 10 or more premises (R.D. 14).

33. May public water supplies be withdrawn from one basin and returned to another?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: No.
PENNSYLVANIA: Only by approval of State.
WISCONSIN: No, at least not to a major extent.

34. Must downstream riparians be compensated for damages caused by municipal water supply diversions?

ILLINOIS: Private remedy.
INDIANA: No.
MICHIGAN: No statutory provision for compensation. Damages determined on a case-by-case basis.
MINNESOTA: No statotory provision for compensation. Damages determined on a case-by-case basis.
NEW YORK: Yes.
OHIO: No.
PENNSYLVANIA: No provision.
WISCONSIN: No.

35. Are all public water supplies regulated by the State (including municipal, institutional, resort, etc.)?

ILLINOIS: Yes.
INDIANA: Yes, Acts of 1913, Ch. 76.
MICHIGAN: Yes, Act 98, P.A. 1913.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

36. Is public water sampling mandatory? What unit does the sampling (i.e., county, State, city, etc.)?

ILLINOIS: Yes, State analyzed.
INDIANA: Yes, State Board of Health.
MICHIGAN: Yes, by the municipal unit involved.
MINNESOTA: Yes, State Board of Health.
NEW YORK: Yes. Depends on adequacy of local program.
OHIO: Yes. Director of Department of Health can require records from owner of system.
PENNSYLVANIA: Yes, by the Department of Environmental Resources.
WISCONSIN: Yes, by the State-municipal unit involved.

37. Is there a State statute controlling the use of fluorides in water supplies?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes, Act 346, P.A. 1968, requires fluoridation unless deemed undesirable by public referendum.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes, for cities of 20,000 or more, fluoride was to be added by January 1, 1971, and for cities of 5,000 to 20,000, by January 1, 1972. Several communities have voted it down in referendum.
PENNSYLVANIA: No.
WISCONSIN: No.

38. Is there a legislated State policy in regard to public water supply use?

ILLINOIS: Yes.
INDIANA: No; however, State has assumed strong regulatory role for the protection of public health.
MICHIGAN: No; however, State has assumed strong leadership role for the protection of public health.
MINNESOTA: Yes.
NEW YORK: Yes, Conservation Law, Art. 5, Sec. 401, 450.
OHIO: No; however State has assumed strong regulatory role for public health protection.
PENNSYLVANIA: No.
WISCONSIN: No.

TABLE S20–5 Irrigation

39. Does the State have a statute expressly controlling irrigation as a water use?

ILLINOIS: No.
INDIANA: No; however, there is a dictum in an old Indiana case which approves the use of water for "agricultural purposes." *City of Valparaiso* v. *Hagen*, 1899.
MICHIGAN: No. Common law of natural use governs.
MINNESOTA: No. Permit system controls.
NEW YORK: No; however, by declaration of policy in Conservation Law, irrigation is a public purpose and use of the water of the State. Conservation Law, Art. 5, Sec. 401.
OHIO: No.
PENNSYLVANIA: No; however, the "Water Withdrawal" Statute would apply.
WISCONSIN: Yes. Section 30.18 Statutes.

40. Are all waters of the State covered by the statute(s)?

ILLINOIS: Not applicable.
INDIANA: No statute.
MICHIGAN: Not applicable.
MINNESOTA: ---
NEW YORK: Not applicable.
OHIO: Not applicable.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, except pothole lakes.

41. Is a permit system established to regulate the construction or operation or maintenance of irrigation facilities?

ILLINOIS: Yes, under the Rivers and Lakes Act of 1911, as amended.
INDIANA: Permit is required for any alteration or construction of any work in a floodway, Flood Control Act, Acts of 1945, as amended (Burns 27-1101:27-1123a). Permit is required for withdrawal for irrigation purposes from navigable water.
MICHIGAN: Under Act 205, P.A. 1967, Irrigation Boards have power to make rules and regulations governing Irrigation Districts. These districts must obtain Water Resources Commission approval to begin operation. (Applies to Great Lakes waters only.)
MINNESOTA: Yes.
NEW YORK: Yes, if from Barge Canal System.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Permit required for withdrawal. No permit required for facilities unless they modify or encroach on channel.

42. Does the State regulate the amount of water which can be used for irrigation purposes?

ILLINOIS: Yes.
INDIANA: Yes, in case of navigable water.
MICHIGAN: No, common law governs.
MINNESOTA: Yes.
NEW YORK: Yes, if from Barge Canal System.
OHIO: No. Irrigation use is not illegal unless it reaches an "unreasonable" amount, causing injury. *Montelious* v. *Elsea*, 11 Ohio Ops 2d 57 (1959), Common Pleas Court, Pickaway County.
PENNSYLVANIA: No, in non-navigable streams and lakes.
WISCONSIN: Yes.

TABLE S20–5 (continued) Irrigation

43. Can waters be diverted between drainage basins for irrigation purposes?

ILLINOIS: No.
INDIANA: Has never been litigated in Indiana. Statute authorized diversion of flood water for any beneficial purpose.
MICHIGAN: No, except surplus waters under provisions of Act 20, P.A. 1964.
MINNESOTA: No.
NEW YORK: Not specifically.
OHIO: Yes. *Canton* v. *Shock*, 66 O.S. 19 (1902), indicated that such diversion is illegal, but other cases indicate that a complaining party must show injury.
PENNSYLVANIA: No.
WISCONSIN: No.

44. Have the courts upheld the diversion of water from lakes for irrigation as a reasonable use?

ILLINOIS: Yes.
INDIANA: Yes. *City of Valparaiso* v. *Hagen*, 1899.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: ---
OHIO: Yes.
PENNSYLVANIA: Not tested.
WISCONSIN: Yes.

45. Can a riparian withdraw water for irrigation of non-riparian lands?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: Yes, if there are no damages to lower riparian.
MINNESOTA: No.
NEW YORK: ---
OHIO: Not explicitly, but he would not be stopped unless downstream riparian could prove damage.
PENNSYLVANIA: Not tested.
WISCONSIN: Yes, if there are no "actual damages" to lower riparians.

46. Do statutory regulations vary between the use of ground or surface waters for irrigation?

ILLINOIS: ---
INDIANA: Yes, the only State statutory authority requires permit if water is withdrawn from navigable waters.
MICHIGAN: Yes, the only State statutory authority permits use of Great Lakes water for Irrigation Districts.
MINNESOTA: No.
NEW YORK: ---
OHIO: Yes. Ground-water use is unlimited unless there is clear evidence of a well defined flow of water through the acquifer, in which case riparian rights apply. Surface water use is limited only to "reasonable use."
PENNSYLVANIA: No statute for either source.
WISCONSIN: Yes. Surface: (30.18) Statute); ground: high capacity well.

47. May the State share in the cost of constructing irrigation works?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes, by Chapter 1515, O.R.C., as amended on November 6, 1969. Legislation is still untried.
PENNSYLVANIA: Yes, if part of a P.L. 566 project.
WISCONSIN: No.

48. Is there a statutory provision that permits local municipal or special purpose districts to regulate or finance irrigation projects?

ILLINOIS: ---
INDIANA: Yes. Conservancy Act, Acts of 1957, Chapter 308, as amended (Burns 27-1501: 27-1599).
MICHIGAN: Yes. Act 205, P.A. 1967, the Irrigation Districts Act. Local units may also cooperate in P.L. 566 projects.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes. Several.
PENNSYLVANIA: Yes, if associated with a P.L. 566 project.
WISCONSIN: No.

49. What is the name and composition of the irrigation regulating agency?

ILLINOIS: ---
INDIANA: Department of Natural Resources and only to extent shown in No. 42.
MICHIGAN: State Water Resources Commission.
MINNESOTA: Department of Natural Resources.
NEW YORK: Department of Transportation regulates irrigation withdrawals from Barge Canal System.
OHIO: None. Funds mentioned in previous question come through the Department of Natural Resources.
PENNSYLVANIA: None.
WISCONSIN: Department of Natural Resources.

50. Is there a strong State policy in regard to irrigation water use?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No. Reasonableness is the governing criterion.
MINNESOTA: No.
NEW YORK: See No. 39.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No. "Reasonable use" governs.

TABLE S20–6 Power, Processing, and Cooling

51. Are power company facilities under State regulation for (a) construction, and (b) maintenance?

ILLINOIS: (a) Yes. (b) Yes.
INDIANA: Yes. (a) Flood Control Acts of 1945, Chapter 318. (b) Public Service Commission Act of 1913.
MICHIGAN: (a) Yes. (b) Yes.
MINNESOTA: (a) No. (b) No.
NEW YORK: (a) Thermal discharge criteria, hydroelectric water allocation in waters where State has properietory interest. (b) Thermal discharge criteria. Public Health Law, Art. 12.
OHIO: No. State (Public Utilities Commission) can only respond to complaints regarding service quality. Section 4905.26 O.R.C.
PENNSYLVANIA: Yes, if hydropower dams. Recent authority controls environmental impacts.
WISCONSIN: Yes.

52. Is a permit system established to regulate the construction, operation, or repair of power generation facilities?

ILLINOIS: Yes.
INDIANA: Yes, by authority of Public Service Commission.
MICHIGAN: Yes, for dam construction. Also, new use permit required for discharge.
MINNESOTA: No.
NEW YORK: Yes. Public Service Commission issues permits prior to construction if a new franchise is involved. There are no specific PSC regulations for maintenance of facilities, but certain inspections are made and the PSC could order specific maintenance work under its general powers. Atomic and Space Development Authority issues permit for discharge from nuclear plants. Department of Environmental Conservation issues permit to assure that thermal discharges are in compliance with thermal discharge criteria.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, for dams and appurtenant structures.

53. Are all waters of the State (inland and Great Lakes) covered by such regulation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

54. Do criteria vary between interstate and intrastate waters as to thermal water use standards?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

55. Are hydropower dams under State regulations?

ILLINOIS: Yes.
INDIANA: Yes, under Public Service Commission.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: Yes, under Streams Protection Act, Department of Environmental Conservation. Also, Power Authority of the State of

TABLE S20–6 (continued) Power, Processing, and Cooling

New York may construct hydropower dams on the Niagara and St. Lawrence Rivers, and pumped storage plants anywhere in the State.
OHIO: Dams in general are regulated under Chapter 1521 O.R.C. (See Dams and Lake Levels.)
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

56. Is a permit system established to regulate the construction, operation, or repair of hydropower dams?

ILLINOIS: Yes.
INDIANA: Yes, by authority of Public Service Commission.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: Department of Environmental Conservation issues permits for construction on lake and streambeds under Streams Protection Act.
OHIO: Permits are necessary for dam construction in general, but not for power facilities.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, (approval system for maintenance), 31.05 Statutes.

57. Is abandonment or transfer of facilities possible? Under what conditions?

ILLINOIS: Yes, if to municipalities, no approval required, if to others, ICC approval needed.
INDIANA: Yes, by authority of Public Service Commission.
MICHIGAN: Yes.
MINNESOTA: Yes, Department of Natural Resources.
NEW YORK: (a) Yes, subject to approval of the Public Service Commission. Transfer of utility property regulated by PSC, Public Service Law, Sec. 70. (b) Only those that may be prescribed in permit.
OHIO: Section 4905.20 O.R.C. prohibits abandonment. Section 4905.21 O.R.C. describes procedures for getting approval of Public Utilities Commission to abandon.
PENNSYLVANIA: Yes, by permit from Department of Environmental Resources. Abandoned dams must be breached.
WISCONSIN: Permit procedure for both under Section 31.185 Statutes.

58. Are there differences in regulations governing commercial, industrial, and power cooling water use regulations?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: No.
OHIO: ---
PENNSYLVANIA: No.
WISCONSIN: No.

59. What State agency is responsible for power plant project approval?

ILLINOIS: Illinois Commerce Commission.
INDIANA: Department of Natural Resources, if plant is located in a floodway.
MICHIGAN: Department of Natural Resources, Hydrological Survey Division, for dam construction, pipeline construction, and site development lakeward of the ordinary mean high-water mark; Water Resources Commission for use discharge water quality criteria.
MINNESOTA: None.
NEW YORK: Hydroelectric and thermal criteria, Department of Environmental Conservation; Nuclear, Atomic and Space Development Authority.
OHIO: None. Local building codes do apply, however.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Public Service Commission issues building permits; Department of Natural Resources issues discharge permits and enforces air and water pollution laws.

60. Is there a strong State policy in regard to cooling water withdrawal and discharge?

ILLINOIS: Yes.
INDIANA: None other than water quality standards regarding thermal pollution.
MICHIGAN: Only as relates to State water quality standards. Cooling and Processing Uses--in Michigan, processing water has not been considered an unreasonable use. No restrictions upon use other than thermal pollution standard. On interior streams, evaporation losses resulting from water quality control are not held to be necessarily a good use of water. This will be prevented by the Michigan Interior Water Quality policy rather than reliance upon court decision.
MINNESOTA: Yes.
NEW YORK: Yes. Withdrawal: Stream Protection Laws regarding intakes. Discharges: thermal criteria.
OHIO: Only in Water Quality Standards.
PENNSYLVANIA: Yes.
WISCONSIN: Water Quality Standards set maximum allowable standards for varying uses (RD, 2.02).

TABLE S20–7 Waste Disposal and Water Pollution

61. What is the name and composition of the pollution control agency?

ILLINOIS: The Pollution Control Board. Five full-time members, no more than three of one political party. Appointed by the Governor with the advice and consent of the Senate.
INDIANA: Indiana Stream Pollution Control Board. Ex-officio from: (a) Secretary, State Board of Health; (b) Director, Department of Natural Resources; (c) Lt. Governor; (d) Governor appoints four members, no more than two from one party.
MICHIGAN: Water Resources Commission. Seven members; Directors of Departments of Agriculture, Highway, Health, and Natural Resources; three members appointed by Governor to represent conservation, municipalities, and industry.
MINNESOTA: Pollution Control Agency. Seven members and one director appointed by Governor with advice and consent of Senate.
NEW YORK: New York State Department of the Environmental Conservation carries out pollution control program.
OHIO: Water Pollution Control Board. Six members: Directors of Departments of Health, Commerce, Natural Resources, and Agriculture; two members appointed by Governor to represent municipalities and industry.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Department of Natural Resources, under the direction and supervision of the appointed seven-person citizens Natural Resources Board.

62. Are any governmental entities established to advise the pollution control agencies?

ILLINOIS: Yes.
INDIANA: State Board of Health, Bureau of Engineering, under the direction of the Technical Secretary, Stream Pollution Control Board.
MICHIGAN: Not specifically. Department divisions and Attorney General serve as technical advisors.
MINNESOTA: Water Pollution Control Advisory Committee.
NEW YORK: Yes. Department of Law, Environmental Board.
OHIO: Not specifically. The Division of Engineering, Department of Health, serves as the technical arm of the Board.
PENNSYLVANIA: Yes. Citizens Advisory Council of the Department of Environmental Resources.
WISCONSIN: Water Resources Advisory Board; Natural Resources Council of State Agencies.

63. Has the State adopted (a) interstate and intrastate water quality standards? (b) Do they contain an antidegradation clause (c) Must existing water quality be raised to meet the standards if it currently does not?

ILLINOIS: (a) Yes. (b) Yes. (c) No.
INDIANA: (a) Yes; Stream Pollution Control Regulations, SPC Ir-2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. (b) Yes. (c) Yes.
MICHIGAN: (a) Yes. (b) Yes. (c) Yes.
MINNESOTA: (a) Yes. (b) Yes. (c) Yes.
NEW YORK: (a) Yes. Codes, rules and regulations, Parts 700-703 (Classifications and Standards Governing the Quality and Purity of Waters of New York State). (b) Yes, adopted subsequent to

TABLE S20–7 (continued) Waste Disposal and Water Pollution

standards. (c) Yes.
OHIO: Water quality standards have been adopted by the State for most streams. They do not permit degradation of present water quality. The standards are taken as goals and water quality is to be raised, where necessary, to comply with them.
PENNSYLVANIA: Water quality standards have been adopted. Degradation permitted in streams already polluted by acid mine drainage. Existing water quality must be raised to meet the standards.
WISCONSIN: (a) Yes. (b) No. (c) Yes.

64. What are the designated use categories for the standards?

ILLINOIS: (1) Primary contact use; (2) Public and food processing water supply; (3) Restricted use waters; (4) High quality waters.
INDIANA: (1) Public water supply and food processing; (2) Industrial water supply; (3) Aquatic life; (4) Recreation; (5) Agricultural water and stock watering.
MICHIGAN: (1) Water supply--domestic and industrial; (2) Recreation--total and partial body contact; (3) Fish, wildlife and other aquatic life; (4) Agricultural; (5) Commercial and other.
MINNESOTA: (1) Water Supply--domestic and industrial; (2) Recreation--total and partial body contact; (3) Fish, wildlife, and other aquatic life; (4) Agricultural; and (5) Commercial and other.
NEW YORK: (1) Water supply with chlorination only; (2) Water supply with complete treatment; (3) Bathing and recreation; (4) Fishing; and (5) Agricultural drainage and industrial processing. Special consideration may be given to trout waters for any of the first four categories.
OHIO: (1) Water supply; (2) Aquatic life A and B; (3) Recreation (including body contact); (4) Industrial; and (5) Irrigation and stock watering.
PENNSYLVANIA: (1) Aquatic life; cold and warm water and migration fish; (2) Water supply; domestic, industrial, livestock, wildlife, and irrigation supplies; (3) Recreation; boating, fishing, water contact sports, natural areas, and conservation areas; (4) Other; power, navigation, and treated waste assimilation.
WISCONSIN: (1) Minimum standards; (2) Public water supply; (3) Fish and other aquatic life; (4) Recreational use; (5) Industrial and cooling water use.

65. Are all surface waters of the State covered by the standards?

ILLINOIS: Yes.
INDIANA: Yes, except privately owned ponds.
MICHIGAN: Yes. Standards also cover drainage ditches.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes, although standards for some parameters have not been established for some streams.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

66. Is a public hearing required before waters are classified or standards established?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: No, however, hearings are held in conformance with State Water Resources Commission policy.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Generally yes, but hearings on amendments recommended by the Ohio Water Commission may be waived by that body. Sec. 6111.041 O.R.C.
PENNSYLVANIA: No, but hearings have been held.
WISCONSIN: No, but hearings have been held voluntarily.

67. Can the agency stop pollution where quality standards have not been established?

ILLINOIS: Yes.
INDIANA: Not applicable.
MICHIGAN: Yes, dischargers cannot violate Orders of Determination for use. Also Act 245, P.A. 1929, as amended, specifically prohibits pollution.
MINNESOTA: Apparently not.
NEW YORK: Yes. (Now academic because standards have been adopted for and assigned to all waters of the State.)
OHIO: Polluters must have permit from the Board. Lack of permit or violation of the terms of the permit are sufficient grounds for action.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

68. Who can invoke action by the agency?

ILLINOIS: The Environmental Protection Agency or any person.
INDIANA: The agency, by a quorum vote.
MICHIGAN: Water Resources Commission staff, other public agencies, or any citizen.
MINNESOTA: No provision.
NEW YORK: A local board of health, or any citizen or full age resident in the municipality where the duty should be performed or the act done, or by the agency itself.
OHIO: All complaints are investigated and necessary action is taken.
PENNSYLVANIA: Anyone.
WISCONSIN: Any six citizens.

69. Does the agency have the power to: (a) enter upon and inspect premises; (b) subpoena records; (c) subpoena witnesses?

ILLINOIS: (a) Yes. (b) Yes. (c) Yes.
INDIANA: (a) Yes. (b) Yes. (c) Yes.
MICHIGAN: (a) Yes. (b) No, must act through courts. (c) No, must act through courts.
MINNESOTA: (a) Yes. (b) Yes. (c) Yes.
NEW YORK: (a) Yes. (b) Yes. (c) Yes.
OHIO: (a) Yes. (b) Yes. (c) Yes.
PENNSYLVANIA: (a) Yes. (b) Yes. (c) Yes.
WISCONSIN: (a) Yes. (b) Yes. (c) Yes.

70. Are any persons or uses exempted from operation of the water quality standards? If so, identify.

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes. Section 6111.04 O.R.C. exempts (a) water used in washing sand, gravel, etc., when all water is disposed of on the land where it is used; (b) discharge of lime where it is beneficial to waters in opinion of Pollution Control Board; (c) excrement from domestic and farm animals, but not from mass commercial production and feed lots; (d) discharge into sewer systems maintained by the State or political subdivisions.
PENNSYLVANIA: No.
WISCONSIN: No.

71. Does the definition of pollution expressly include: (a) thermal pollution; (b) radiation pollution; (c) turbidity; (d) harm to fish and wildlife; (e) harm to recreational uses; (f) harm to aesthetic uses?

ILLINOIS: (a) Yes. (b) Yes. (c) No. (d) Yes. (e) Yes. (f) Yes.
INDIANA: (a) Yes. (b) Yes. (c) Yes. (d) Yes. (e) Yes. (f) Yes.
MICHIGAN: (a) No. (b) No. (c) No. (d) Yes. (e) Yes. (f) No, although not expressly stated, definition which in part states "...any substance which *is* or *may become* injurious..." would include all listed pollutants.
MINNESOTA: (a) No. (b) No. (c) No. (d) Yes. (e) Yes. (f) No.
NEW YORK: (a) Yes. (b) By implication. (c) Yes. (d) Yes. (e) Yes. (f) Yes, as related to color, odor, and visible solids.
OHIO: According to Section 6111.04 O.R.C., "'Pollution' means the placing of any noxious or deleterious substances in any waters of the State or affecting properties of any waters of the State in a manner which renders such waters harmful or inimical to the public health, or to any animal or aquatic life, agricultural purposes, or for recreation."
PENNSYLVANIA: (a) Yes. (b) Yes. (c) No, but is included as part of water quality criteria. (d) Yes. (e) Yes. (f) No, but is implied through the use category "natural area".
WISCONSIN: (a) No. (b) No. (c) No. (d) Yes. (e) Yes. (f) No.

72. Is the agency authorized to halt or prevent potential pollution?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, See No. 71
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Board is authorized to issue orders to cease and desist pollution.

TABLE S20–7 (continued) Waste Disposal and Water Pollution

Violation results in petitions to seek compliance. Fines, injunctive actions, etc., result from court orders. Section 6111.03 O.R.C. specifically speaks of "prevention" as "abatement" and "control" of pollution. Board can prevent discharges simply by denying permits to discharge.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

73. Must the agency hold a hearing before it can issue orders, or can it issue orders first which become final if the polluter seeks no hearing?

ILLINOIS: Yes. In emergency it may seek immediate court injunction or seal offending facility. It may require posting of performance bond.
INDIANA: Hearing must be held first.
MICHIGAN: Order of determination may be issued without hearing; injunctive relief can be sought in emergencies without a hearing.
MINNESOTA: Can issue orders first.
NEW YORK: Must hold hearing unless polluter defaults, admits, or waives.
OHIO: The usual procedure under Section 6111.06 O.R.C. requires hearing before issuance of orders. In emergency, however, an order may be issued without a hearing. A hearing may be requested by the polluter after the order. No emergency order can remain in effect without a hearing for more than 60 days.
PENNSYLVANIA: Agency can issue orders first.
WISCONSIN: General orders require a hearing. A special order can be issued without a hearing, but hearings are provided. Temporary emergency orders can be issued without a hearing if protection of public health necessitates such action.

74. Is the agency authorized to issue summary orders or seek injunctive relief without the necessity of any hearing at all in emergencies?

ILLINOIS: Yes.
INDIANA: Injunctive relief may be used in emergencies.
MICHIGAN: Injunctive relief may be used in emergencies.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes. See No. 73.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, if public health is involved.

75. Is the agency required to seek court enforcement of orders that have not been complied with?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No, however, State policy requires enforcement unless alternative solution reached.
MINNESOTA: No.
NEW YORK: No.
OHIO: Sec. 6111.07 O.R.C. specifies that fines shall be imposed for violations of orders. It states that the Attorney General will prosecute such violations "upon request of the board."
PENNSYLVANIA: No. A recent Executive Order by the Governor directed such action in cases of chronic polluters.
WISCONSIN: Yes.

76. Are orders, findings, and conclusions of the agency to be affirmed on review if supported by substantial evidence on the record, or is de novo review instead provided for?

ILLINOIS: They are affirmed if supported by substantial evidence on the record.
INDIANA: De novo review in court action can be brought by either party.
MICHIGAN: On record; Michigan is no longer de novo.
MINNESOTA: De novo, but agency findings are presumed to be valid.
NEW YORK: Affirmed or reviewed if supported by substantial evidence on the record.
OHIO: The former. Section 6111.07 O.R.C.
PENNSYLVANIA: The former.
WISCONSIN: On record.

77. Are orders of the agency stayed during appeal?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: No, due to spacing Sequence provided in Act 245, P.A. 1929, as amended.
MINNESOTA: No.
NEW YORK: Not automatically.
OHIO: Left to the court's discretion.
PENNSYLVANIA: No, unless granted court.
WISCONSIN: No.

78. Can the agency carry out its own orders, and bill the polluters for costs of facility construction?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No, however, similar results can be obtained through court orders and court order bond sales.
MINNESOTA: No.
NEW YORK: Only if the particular case of pollution constitutes a public health nuisance.
OHIO: No.
PENNSYLVANIA: No, but the Department of Environmental Resources can act to abate a public health nuisance and impose a lien upon the property.
WISCONSIN: Yes.

79. Are non-municipal polluters given power of condemnation where necessary to effect compliance with orders?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: No, only political subdivisions of State and public utilities.
MINNESOTA: No.
NEW YORK: Yes, in certain instances and only in municipalities or public utility corporations.
OHIO: No.
PENNSYLVANIA: Yes, under certain specific circumstances.
WISCONSIN: Yes, in certain instances.

80. Must the plaintiff in a private nuisance suit prove the portion of his total damage for which each defendant is responsible, or are all defendants jointly liable for full damages suffered?

ILLINOIS: Common law and nuisance law would apply. Plaintiff must prove portion of total damage.
INDIANA: Plaintiff must prove the portion of his total damage for which each defendant is responsible.
MICHIGAN: Common law and nuisance law rules would apply. Portion of total damages must be shown.
MINNESOTA: Common law would apply. Defendant is liable only for the portion of damage he caused.
NEW YORK: Common law rules apply to nuisance suits but any full-age resident citizen may require enforcement action by agency.
OHIO: Generally, plaintiff may sue any one defendant for the entire damages, but if the defendant can show that the damage would not have occurred from his actions alone, then the plaintiff must sue several defendants together. He would probably not need to qualify the damages sustained from each.
PENNSYLVANIA: In most situations, joint liability would be imposed.
WISCONSIN: Probably must prove portion of damage in most cases.

81. Is there a fine provided for violation of the statute?

ILLINOIS: Yes.
INDIANA: Yes. A $100 a day fine with each day constituting a new violation.
MICHIGAN: Yes. A minimum of $500 per day. Municipalities are exempted, however, State law provides for monetary recovery of natural resources damages.
MINNESOTA: Not expressly.
NEW YORK: Yes. Up to $2,500 for first violation. Up to $500 for each additional day.
OHIO: Yes. Up to $500 per day.
PENNSYLVANIA: Yes.
WISCONSIN: $10-$5,000 per day.

82. Is there a penalty of incarceration for violation of the statute?

ILLINOIS: Yes.
INDIANA: Yes. Maximum of 90 days.
MICHIGAN: No.
MINNESOTA: Not expressly.
NEW YORK: Yes.
OHIO: Yes, up to one year.
PENNSYLVANIA: Yes.
WISCONSIN: No.

83. Is the agency expressly authorized to require any persons to maintain records?

ILLINOIS: Yes.
INDIANA: Yes, by agency regulation.
MICHIGAN: Yes, both by agency regulation and statute.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: Yes. Section 6111.05, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

84. Is the agency expressly authorized to establish effluent standards of quality?

ILLINOIS: Yes.

TABLE S20–7 (continued) Waste Disposal and Water Pollution

INDIANA: Yes.
MICHIGAN: Yes, the Water Resources Council "...has authority to make regulations and orders restricting the polluting content of any waste material, or polluting substances discharged..."
MINNESOTA: ---
NEW YORK: No, but permits do specify effluent limitations.
OHIO: According to Section 6111.03 (J), O.R.C., "The board may specify in permits for discharge of sewage, industrial waste, and other waste the volume and strength of such sewage, industrial waste, and other waste, which may be discharged."
PENNSYLVANIA: No.
WISCONSIN: Not expressly.

85. Is there a provision that enlarges the statutory authority of municipalities to levy taxes and to issue debt paper, and/or that requires municipalities to raise money to the extent of their authority in order to comply with agency orders to install or refurbish treatment facilities?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, court order bonds may be issued in excess of imposed bonding limitations. Communities may also voluntarily issue court order bonds.
MINNESOTA: Yes, and the agency is empowered to take charge of local government to the extent necessary to effect levy and collection of taxes.
NEW YORK: Yes, regardless of others
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No statute to enlarge statutory authority; can require levy up to extent of authority.

86. Is State approval required for the design of pollution control facilities?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, Department of Public Health.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes
WISCONSIN: Yes, 144.04 W.S.L.

87. Must a permit for new or expanded use of public waters be approved before discharge is permitted?

ILLINOIS: Yes.
INDIANA: No, but plans for all wastewater disposal and treatment facilities must be approved.
MICHIGAN: The Water Resources Council issues orders that place specific restrictions on new discharges and increased uses.
MINNESOTA: ---
NEW YORK: Yes.
OHIO: Any discharge requires a permit.
PENNSYLVANIA: Yes, if supplied through a public system.
WISCONSIN: No, but approval of plans is necessary.

88. Are there any exempted uses under the permit system?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: Yes, only industrial wastes and sewage discharges are covered. Industrial waste is defined to exclude dredging operations.
WISCONSIN: No.

89. Are non-municipal treatment facilities in any way exempted from general property taxes and excise taxes?

ILLINOIS: Yes
INDIANA: Yes. Industrial waste treatment facilities are exempt from ad velorem personal property taxes when certified by the Stream Pollution Control Board.
MICHIGAN: Yes, exemptions permitted from property, sales, and use taxes.
MINNESOTA: ---
NEW YORK: Yes, industrial waste treatment facilities.
OHIO: Yes. Sections 6111.34-6111.37 allow exemption from real property taxes, franchise tax, and sales or use taxes.
PENNSYLVANIA: Yes, in certain limited situations: Manufacturing waste treatment facilities have exemption from property taxes and some relief from State and use taxes.
WISCONSIN: Exempted from property tax; not exempted from excise tax.

90. Is any deduction allowed from State income taxes for the installation of facilities (beyond ordinary deductions for depreciation)?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: There is no Ohio State income tax.
PENNSYLVANIA: Accelerated deduction for depreciation if part of a manufacturing process.
WISCONSIN: Can amortize entire cost in first year.

91. (a) Are voluntary pollution abatement agreements enforceable by court action? (b) Are municipalities held responsible for the wastes of their residents?

ILLINOIS: (a) No such agreements. (b) Yes.
INDIANA: (a) Yes. (b) Yes.
MICHIGAN: (a) Yes. Act 245, P.A. 1929, as amended by Act 200, P.A. 1970. (b) Yes. Act 245, P.A. 1929, as amended.
MINNESOTA: (a) Yes. (b) Yes.
NEW YORK: (a) No. (b) Yes.
OHIO: (a) No voluntary agreements. (b) State can go to individual, but local governments are generally held responsible in practice.
PENNSYLVANIA: (a) Yes. (b) Yes.
WISCONSIN: (a) Not applicable. (b) Yes.

92. Does the State have a program of low flow augmentation for water quality?

ILLINOIS: Yes.
INDIANA: No, but provision for low flow regulation is encouraged, where needed, for all publicly financed reservoirs.
MICHIGAN: No, permissive to local governmental units, however.
MINNESOTA: No.
NEW YORK: Black-Hudson River Regulating District, and any other such districts to be formed.
OHIO: Yes, the Northwest Ohio Water Development Plan includes several reservoirs, one function of which is low flow augmentation.
PENNSYLVANIA: No, however, the Department of Environmental Resources authorizes minimum flows from reservoirs.
WISCONSIN: No.

93. Does the State have a strong policy regarding nutrient removal for waste treatment facilities?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, 80 percent phosphorus removal required by significant industrial and municipal discharges.
MINNESOTA: Yes.
NEW YORK: Yes, but presently applicable only to the Great Lakes.
OHIO: Plants processing one million gallons a day or more must have phosphorus removal facilities. Goal is reduction of total Ohio load to 20 percent of raw wastes.
PENNSYLVANIA: Yes, for major old discharges and all new discharges.
WISCONSIN: Yes, Natural Resources Board policy.

94. Does the State certify industrial waste treatment plant operators?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, Act 245, P.A. 1929, as amended by Act 209, P.A. 1968.
MINNESOTA: No.
NEW YORK: Only if sewage is included in the effluent.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes.

95. Must industrial by-products, waste-products, and materials used in manufacturing processes be registered with the State Pollution Control agency?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, Act 245, P.A. 1929, as amended by Act 200, P.A. 1970.
MINNESOTA: No.
NEW YORK: No.
OHIO: No explicit statutory requirement, but power of Ohio Water Pollution Control Board to require this information is implied in the law.
PENNSYLVANIA: Not at present, but authority does exist.
WISCONSIN: No.

96. Are industrial and commercial discharges assessed a surveillance

TABLE S20–7 (continued) Waste Disposal and Water Pollution

fee to share the cost of discharg e monitoring?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, Act 245, P.A. 1929, as amended by Act 200, P.A. 1970.
MINNESOTA: No.
NEW YORK: No.
OHIO: They must keep their own records of discharge. State does not monitor discharges.
PENNSYLVANIA: No.
WISCONSIN: No.

97. Does the State license industrial liquid waste haulers?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, Act 136, P.A. 1969.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No. Done by local governments.
PENNSYLVANIA: Not at present, but authority exists.
WISCONSIN: No.

98. Is the use and sale of persistent pesticides, insecticides, etc., regulated by the State? To what extent? Are commercial applicators licensed?

ILLINOIS: Yes, regulations emanate from Special Committee, and limit some types. Applicators are licensed.
INDIANA: No.
MICHIGAN: (a) Yes. Act 297, P.A. 1949, as amended. (b) registration of both chemical and operator. Act 233, P.A. 1959, as amended. (c) Yes.
MINNESOTA: Yes.
NEW YORK: (a) Yes. (b) Restricted pesticides. (c) No, but permit must be issued for use of restricted pesticides.
OHIO: Director of Ohio Department of Agriculture maintains a list of restricted pesticides. Applicators must be licensed and must maintain application records for three years after date of pesticide application.
PENNSYLVANIA: Yes, through new regulations of pertinent agencies that specify types and dosages for various uses. Licenses are being considered.
WISCONSIN: (a) Yes. (b) Effective Nov. 1, 1970. NR80 pesticides regulated for non-harm to wildlife, Ag. 29 regulates for non-harm to human life and property. (c) Now under consideration.

99. Does the State require or provide pump-out facilities for recreational watercraft at Great Lakes marinas?

ILLINOIS: No. Provided by municipality or park district.
INDIANA: Not yet, but planned.
MICHIGAN: Yes. Act 167, P.A. 1970.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: No, July 1, 1973 sanitary waste discharges from watercraft on Lake Erie will be regulated. If holding tanks are required, pump facilities may be provided by the State.
PENNSYLVANIA: Yes.
WISCONSIN: No.

100. Does the State have a strong policy in regard to the degree of treatment required (secondary, tertiary, etc)?

ILLINOIS: Yes.
INDIANA: Yes, secondary or higher.
MICHIGAN: Yes, treatment equal to secondary or higher with 80 percent phosphate removal a minimum
MINNESOTA: Yes, secondary.
NEW YORK: Yes, secondary minimum.
OHIO: Yes, minimum of secondary treatment, tertiary is required wherever low flow problems occur on streams.
PENNSYLVANIA: Yes. Secondary treatment, with phosphorus not to exceed 1 mg/l.
WISCONSIN: Yes, Water Quality Standards.

TABLE S20–8 Navigation

101. Is there a statute setting forth the State's responsibility concerning recreational and commercial navigation? Specify reference.

ILLINOIS: Yes.
INDIANA: Commercial: 1961 Port Commission Act, as amended (Burns 68-1201: 68-1227). Recreational: Acts of 1957, Chapter 221, as amended (Burns 68-813: 68-871).
MICHIGAN: Yes. State Waterway Commission, Act 320, P.A. 1947; Department of Commerce Act 251, P.A. 1966; Port Districts, Act 234, P.A. 1925.
MINNESOTA: Not expressly.
NEW YORK: Yes. Article 3, Section 30, NYS Navigation Law in toto. In addition, Section 10 of the Canal Law governs the New York State Barge Canal System.
OHIO: Yes. Chapter 1547, O.R.C., deals mostly with recreational navigation.
PENNSYLVANIA: Yes, concerned primarily with recreational boating, but is applicable to all vessels in inland and boundary waters.
WISCONSIN: Not expressly.

102. Are there any case law decisions modifying the governing statute(s)?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Not applicable.
NEW YORK: Yes.
OHIO: Yes. Most important is *McElroy* v. *Akron*, 173 O.S. 189, which gives preemptive authority to the State for regulation of navigation on State waters and which allows municipalities to charge fees for navigation on municipal water supply reservoirs.
PENNSYLVANIA: No.
WISCONSIN: Yes, definition of navigability.

103. What agency(s) regulates navigation? Is the agency expressly authorized to establish regulating rules and standards?

ILLINOIS: Department of Public Works and Buildings, Department of Conservation. Yes.
INDIANA: Department of Natural Resources, recreational. Indiana Port Commission, commercial. Yes.
MICHIGAN: Department of Natural Resources, Commerce and Port Districts (with certain exceptions). Waterways Commission and Port Districts may enact regulations.
MINNESOTA: Department of Natural Resources.
NEW YORK: Office of Parks and Recreation (Division of Motorboats), navigation generally; Department of Transportation, the Barge Canal System. Yes.
OHIO: Division of Watercraft, in the Department of Natural Resources. The Division is expressly authorized to establish regulating rules and standards (Section 1547.61, O.R.C.).
PENNSYLVANIA: Fish Commission for recreational and commercial boating not otherwise under Federal regulation. The Navigation Commission for the Delaware River has concurrent jurisdiction on the tidal waters with the Commonwealth. The agencies are authorized to establish regulating rules and standards.
WISCONSIN: Department of Natural Resources.

104. Does the agency have powers to: (a) acquire, (b) construct, and/or (c) maintain channels and facilities for recreational vessels in navigable waters?

ILLINOIS: (a) Yes. (b) Yes. (c) Yes.
INDIANA: Yes, Indiana Port Commission, commercial. Department of Natural Resources, recreational.
MICHIGAN: Waterways Commission and Port Districts, yes. Department of Commerce, no.
MINNESOTA: No.
NEW YORK: (a) Yes. (b) Yes. (c) Yes.
OHIO: Yes. Sections 1547.71 and 1547.72 of the O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: In general, no.

105. Does the State participate in recreational navigational facility (a) construction, (b) maintenance, and (c) operation?

ILLINOIS: (a) Yes. (b) Yes. (c) Yes.
INDIANA: Yes. Indiana Port Commission, commercial. Department of Natural Resources, recreational.
MICHIGAN: Waterways Commission and Port Districts, yes. Commerce, only in planning.
MINNESOTA: No.

TABLE S20–8 (continued) Navigation

NEW YORK: (a) Yes. (b) Yes. (c) Yes.
OHIO: Yes. Can cooperate with Federal Government under Section. 1547.76, O.R.C.
PENNSYLVANIA: Yes. Navigational aids are maintained. Refuge harbors are being planned and boat marinas are under construction at Presque Isle at Erie.
WISCONSIN: (a) No. (b) No. (c) No.

106. Does the State administering agency have the power of condemnation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Waterways Commissions and Ports, yes. Department of Commerce, no.
MINNESOTA: No.
NEW YORK: Yes, through Office of Parks and Recreation, Department of Transportation, and Office of General Services, depending on jurisdiction.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: Not for navigation purposes.

107. Does the State play a role in managing port district development?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, through the Department of Commerce and through regulatory permits required by the Department of Natural Resources.
MINNESOTA: No.
NEW YORK: Port Districts are established by State legislative action. Authority members generally appointed by Governor.
OHIO: No.
PENNSYLVANIA: Indirectly through local authorities.
WISCONSIN: Yes.

108. Do Port Districts have the power of condemnation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Not applicable
PENNSYLVANIA: No.
WISCONSIN: Port and harbor regulation authority is largely delegated to municipalities.

109. Are waterfront developments reviewed and regulated by the State agency:

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, Department of Natural Resources.
MINNESOTA: No.
NEW YORK: Yes, as they pertain to use of underwater State lands, encroachments on navigable waters, and effluent discharges.
OHIO: Yes, if State participates in construction.
PENNSYLVANIA: No.
WISCONSIN: Yes, those portions in the water.

110. Does the State exercise any responsibility for commercial navigation other than port development?

ILLINOIS: Yes, pollution control.
INDIANA: No.
MICHIGAN: Yes, pollution control (Act 167, P.A. 1970).
MINNESOTA: No.
NEW YORK: Barge Canal.
OHIO: No.
PENNSYLVANIA: Yes, by controlling cargo and maintaining navigational aids.
WISCONSIN: Yes, indirectly through boating laws.

111. Does the State play a role in encouraging commercial navigation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes, as with all modes of commercial transport.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No.

112. Are marinas located on the Great Lakes licensed?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: Yes, bottom lands leased from Department of Natural Resources under Act 247, P.A. 1955, as amended, and Act 291, P.A. 1965, as amended.
MINNESOTA: No.
NEW YORK: No. See No. 116.
OHIO: No.
PENNSYLVANIA: Yes, by permit from the Department of Environmental Resources.
WISCONSIN: Yes, if a solid structure.

113. Has the State adopted rules to control the discharge of sewage from recreational watercraft?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, by statute (Act 167, P.A. 1970).
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes. Discharges are prohibited, but Lake Erie, the Muskingum River, and the Ohio River are exempted from rules. Sec. 1547.33, O.R.C.
PENNSYLVANIA: Yes, but the rules are limited to the discharge of sewage into a water supply source and to "objects and substances" on watercourses.
WISCONSIN: Yes.

114. Has the State adopted rules to control the discharge of sewage from commercial watercraft?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes, by statute (Act 167, P.A. 1970).
MINNESOTA: Yes.
NEW YORK: No.
OHIO: Yes. Effective on navigable waters as of July 1, 1973.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, on the Mississippi, St. Croix, and inland waters.

115. Are watercraft owners held responsible (by statute) for oil spill clean-up and damage, or State incurred costs for clean-up of oil spills into the waters of the State?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes (Section 7, Act 167, P.A. 1970).
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes, they are held for criminal action under Wisconsin Statute 29.29 and under emergency conditions specified in Wisconsin Statute 144.025 (2)(b)(2). However, there can be no reimbursement under the law as now stated, except reimbursement can be attempted under civil law.

TABLE S20–9 Fish and Wildlife

116. Does the State regulate the commercial fisheries industry?

ILLINOIS: Yes.
INDIANA: Yes. Fish and Wildlife Act, Acts of 1969, Chapter 70 (Burns 11-101: 11-705).
MICHIGAN: Yes, through statutory acts (Act 218, P.A. 1955 and Act 184, P.A. 1929).
MINNESOTA: Yes.
NEW YORK: Yes. Fishing gear, open seasons, fishing areas and types of fish are regulated by a combination of State fish and game statutes and Department of Environmental Conservation orders (Conservation Law Part VIII).
OHIO: Yes. Chapter 1533, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

117. Is a permit or licensing system established to regulate the commercial fisheries industry?

ILLINOIS: Yes.
INDIANA: Yes. Fish and Wildlife Act, Acts of 1969, Chapter 70 (Burns--see No. 116).
MICHIGAN: Yes. Specific license provisions administered by Department of Natural Resources.
MINNESOTA: Yes.
NEW YORK: Yes. Licensing of all commercial fishermen, and issuing of special permits. C.L., Section 196, 281.
OHIO: Yes. Section 1533.32, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

118. On what grounds can the administering agency refuse to grant permits or licenses?

ILLINOIS: When a permit has been confiscated, another permit cannot be obtained for one year. Section 49, Fish Code.
INDIANA: Acts of 1969, Chapter 70, and Discretionary Order #F-3 (Burns--see No. 116)
MICHIGAN: Licenses are refused to individuals not qualified under rules established by

TABLE S20–9 (continued) Fish and Wildlife

administrative procedure.
MINNESOTA: Licenses are refused to individuals not qualified under rules established by administrative procedure.
NEW YORK: Previous violations of license provisions. Department of Environmental Conservation has discretionary power to permit commercial fishing in most inland non-trout waters. C.L. Part VIII and Section 217.
OHIO: For convictions twice in one fishing season for possession of undersized fish; setting or using gear during prohibited times or in prohibited locations; fishing without a license; failure to submit accurate monthly records; and taking illegal species of fish. Section 1533.68, O.R.C.
PENNSYLVANIA: Violation of regulation. Aliens may not obtain permits. Improper species (with reference to commercial hatcheries).
WISCONSIN: Fishing history. There is a quota on permits issued in most instances. Limited entry on Lake Superior.

119. Are any persons or species exempted from licensing or catch regulations?

ILLINOIS: No.
INDIANA: Yes. Section 3.03, Fish and Wildlife Act, Acts of 1969, Chapter 70 (Burns--see No. 116).
MICHIGAN: Statutes and rules protect certain species from commercial use. Statutes specifically forbid nonresidents from being issued licenses on Lakes Huron and Erie.
MINNESOTA: Yes.
NEW YORK: Free permits may be issued to allow taking of trash fish. Certain species may not be taken commercially. C.L., Section 196, 282.
OHIO: Section 1533.322 exempts persons licensed by State or sovereignties with which Ohio has reciprocal agreements. Section 1533.32 exempts severely handicapped persons. Some species of fish are exempted in specified waters.
PENNSYLVANIA: No.
WISCONSIN: Inland lakes are limited to rough fish removal.

120. Is the administering agency expressly authorized to establish regulatory rules and standards for commercial fisheries management?

ILLINOIS: Yes.
INDIANA: Yes. Section 3.03 of the Fish and Wildlife Act, Acts of 1969, Chapter 70 (Burns--see No. 116).
MICHIGAN: Yes. Director and Natural Resources Commission have legislative authority.
MINNESOTA: Yes.
NEW YORK: Yes, except as limited by statutes. C.L., Section 281.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

121. Is there a fine provided for violation of the statute?

ILLINOIS: Yes.
INDIANA: Yes, license revocation and/or fines.
MICHIGAN: Fines and suspension provided by statute.
MINNESOTA: Yes.
NEW YORK: Yes, except as limited by statutes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

122. Does the State participate in any interstate organization for regulation and management of the Great Lakes fishery?

ILLINOIS: Yes, Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes Basin Commission.
INDIANA: Yes, Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes Basin Commission.
MICHIGAN: Yes, Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes Basin Commission.
MINNESOTA: Yes.
NEW YORK: Yes, Great Lakes Basin Commission, Great Lakes Commission, Great Lakes Fishery Commission.
OHIO: Yes, Great Lakes Commission, Great Lakes Basin Commission.
PENNSYLVANIA: ---
WISCONSIN: Yes, Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes Basin Commission.

123. Does the State designate trout waters?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: Yes. Director of Department of Natural Resources has authority under Act 169, P.A. 1929.
MINNESOTA: Yes.
NEW YORK: Yes, as classified by new Department of Environmental Conservation.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

124. Is there a State program for wildlife flooding?

ILLINOIS: Yes.
INDIANA: State has a wetlands program to preserve and acquire wetland areas.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Department of Environmental Conservation may regulate water levels on State or leased private lands for wildlife purposes.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes.

125. Does the State have a wetlands preservation ordinance?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: Yes. C.L., Section 429, protects wetlands adjacent to navigable waters.
OHIO: Yes, public wetlands are subject to regulation by the Chief of the State Division of Wildlife.
PENNSYLVANIA: No.
WISCONSIN: Yes, local ordinances.

126. Does the State operate or finance wildlife preserves?

ILLINOIS: Yes.
INDIANA: Yes, hunting and fishing areas.
MICHIGAN: Yes, program financed through Pittman-Robertson funds, game protection funds, State bonding monies, and sportsman license fees.
MINNESOTA: Yes.
NEW YORK: No, where public hunting prohibited. Yes, for both State owned and State-Federal jointly funded areas, where some public hunting is permitted.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

127. Does State policy favor inland or Great Lakes sport fisheries development?

ILLINOIS: Favors both, but source of income guides development.
INDIANA: State policy favors both; Great Lakes sport fishery potential, however, relatively untapped.
MICHIGAN: State policy favors both; Great Lakes sport fishery potential, however, relatively untapped.
MINNESOTA: Favors both.
NEW YORK: Favors both; inland areas are fairly well managed, but Great Lakes have vast undeveloped sport fishery potential.
OHIO: Yes, in equal priority with commercial fishery.
PENNSYLVANIA: State policy favors both.
WISCONSIN: Favors both.

128. Does the State encourage expansion of the commercial fishery industry?

ILLINOIS: Encouragement by proper use.
INDIANA: Yes, but not at the expense of the sport fishery.
MICHIGAN: Greater economic efficiency is encouraged, but expansion is not encouraged.
MINNESOTA: Yes.
NEW YORK: Only where it is not detrimental and can be well controlled.
OHIO: Yes, in equal priority with sport fishery.
PENNSYLVANIA: Yes, however, commercial fishery is now at an all time low.
WISCONSIN: Yes, for greater economic efficiency.

129. Does the State encourage the introduction of new fish species?

ILLINOIS: Yes, but only on recommendation by fisheries biologists.
INDIANA: Yes, if felt to be potentially beneficial.
MICHIGAN: Yes, when there are recreational benefits.
MINNESOTA: No, not specifically. Is not opposed where ecological effects have been analyzed and would be favorable.
NEW YORK: Yes, if they produce recreational, ecological, or economic benefits without harmful long-range effects.
OHIO: No, not specifically. Is not opposed where ecological

TABLE S20–9 (continued) Fish and Wildlife

effects have been analyzed and would be favorable.
PENNSYLVANIA: Yes, when there are recreational benefits.
WISCONSIN: Yes, where beneficial.

130. Does the State have a strong policy regarding future Great Lakes fishery?

ILLINOIS: No.
INDIANA: Yes, enhancement of the sport and commercial fishery, with emphasis on recreational fishery.
MICHIGAN: Yes, enhancement of the sport and commercial fishery, with emphasis on recreational fishery.
MINNESOTA: Yes, enhancement of the sport and commercial fishery, with emphasis on recreational fishery.
NEW YORK: It is becoming stronger as the need and potential for sport fishing in the Great Lakes becomes more apparent.
OHIO: Seeks to preserve and improve fishery. No specific priorities between commercial and sport species.
PENNSYLVANIA: Yes, enhancement of sport and commercial fishery.
WISCONSIN: Yes, enhancement of the sport and commercial fishery, with emphasis on recreational fishery.

131. Does State policy lean toward expansion and improvement of fish and wildlife habitat?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

132. Does State policy favor nonresident participation in fishing and hunting activities?

ILLINOIS: Yes.
INDIANA: Yes, but not to the detriment of resident participation.
MICHIGAN: Yes, sport fishery encouraging nonresident participation.
MINNESOTA: Yes.
NEW YORK: Yes. Revenues from resident and nonresident sport fishermen and hunters are a major source of income to many Great Lakes communities. License monies directly support much of the State's fish and wildlife program.
OHIO: No, not specifically. Policy is oriented around the preservation of species and habitat rather than exploitation as a tourist attraction.
PENNSYLVANIA: Yes.
WISCONSIN: The State allows nonresident participation.

133. Does the State encourage the introduction of new wildlife species?

ILLINOIS: Only after research has demonstrated that their introduction will not have any detrimental effect on native species.
INDIANA: Yes, after extensive research and analysis.
MICHIGAN: Yes, after extensive research and analysis.
MINNESOTA: Yes, after extensive research and analysis.
NEW YORK: Yes, but only after careful research and analysis of possible adverse effects.
OHIO: Yes, but only after screening of ecological effects.
PENNSYLVANIA: Yes.
WISCONSIN: --

134. Does the State have a strong policy regarding wetlands protection and development?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Definitely yes. Favors both protection and development.
MINNESOTA: Definitely yes. Favors both protection and development.
NEW YORK: Yes, but more effort will be required to better control Great Lakes marshes. Recent legislation and bond issues for acquisition have helped to prevent wetland destruction.
OHIO: Yes.
PENNSYLVANIA: Yes, through the State game and forestry lands programs.
WISCONSIN: Yes.

TABLE S20–10 Recreation and Scenic Preservation

135. Does the State have a program of scenic preservation?

ILLINOIS: Yes.
INDIANA: Yes. Chapter 266, Acts of 1967 (Burns 60-888: 60-888i). As used in this Act, the word "area" means an area of land or water or both, whether in public or private ownership, which retains or has reestablished its natural character (although it need not be undisturbed) or has flora or fauna or has biotic, geological, scenic or paleontological features of scientific or educational value.
MICHIGAN: Yes. Scenic preservation is a feature of the State parks program, and other State land ownership programs (forests, game areas, etc.). Also, under Natural Rivers Act (Act 231, P.A. 1970), Great Lakes Shore Management and Protection Act (Act 245, P.A. 1970), and Natural Beauty Roads Act (Act 150, P.A. 1970).
MINNESOTA: Yes.
NEW YORK: Yes, through coordination of Federal, State, local and private legal and financial tools for preservation of scenic and open spaces; and by advisory services to local governments. Also, State bond issues for acquisition and development of parks, recreation areas, and other State agency programs.
OHIO: Yes. A State scenic rivers law provides for a program through the Director of the Department of Natural Resources (Section 1501.16–1501.19, O.R.C.).
PENNSYLVANIA: Yes, as part of State parks development.
WISCONSIN: Yes.

136. Are there any priorities or preferences established by statute for scenic area preservation?

ILLINOIS: Yes.
INDIANA: Priorities are established for preservation of areas with unique flora, fauna, and geologic features.
MICHIGAN: Yes, Act 218, P.A. 1919, prescribes preference for lands bordering Great Lakes and inland waters.
MINNESOTA: Yes.
NEW YORK: Constitution has declared Adirondack Forest Preserve to be kept "forever wild." Hudson River Valley Commission (Chapter 345, Laws of 1966).
OHIO: No.
PENNSYLVANIA: Historical site preservation.
WISCONSIN: Yes, highways and wild rivers.

137. What agency administers the scenic preservation program?

ILLINOIS: Department of Conservation.
INDIANA: Department of Natural Resources.
MICHIGAN: Department of Natural Resources.
MINNESOTA: Department of Natural Resources.
NEW YORK: Office of Parks and Recreation and Department of Environmental Conservation. Other State agencies include scenic preservation in their programs as applicable.
OHIO: Department of Natural Resources.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

138. Does the State have a program of historic site preservation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, under Act 169, P.A. 1970.
MINNESOTA: Yes.
NEW YORK: Yes. New York State Historic Trust has historic site preservation program, conducts research and other related activities.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

139. Does the State have a program of wild and scenic rivers preservation?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes. Act 231, P.A. 1970.
MINNESOTA: Yes.
NEW YORK: No, under study.
OHIO: Yes, scenic rivers
PENNSYLVANIA: Only as a planning

TABLE S20–10 (continued) Recreation and Scenic Preservation

criteria.
WISCONSIN: Definitely yes.

140. What agency administers the State public access site program?

ILLINOIS: Department of Conservation and Department of Public Works and Buildings.
INDIANA: Department of Natural Resources.
MICHIGAN: Department of Natural Resources, Waterways Commission.
MINNESOTA: Department of Natural Resources.
NEW YORK: Office of Parks and Recreation, Division of Marine and Recreation Vehicles for recreational boating. Transportation Department for Barge Canal System. Department of Environmental Conservation for fishing access sites and public fishing rights easement.
OHIO: Natural Resources, Division of Watercraft. Section 1547.72, O.R.C.
PENNSYLVANIA: Fish Commission, Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

141. Does this program encompass the Great Lakes as well as inland waters?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

142. Does this authority include development, maintenance and operation of public access sites?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

143. Is the State agency authorized to participate financially in site acquisition and project development?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

144. Does the State have the power to zone surface water areas for specific recreational uses?

ILLINOIS: No, legislation pending.
INDIANA: Yes.
MICHIGAN: Yes. Boating Control Act, Act 303, P.A. 1967.
MINNESOTA: No, proposed.
NEW YORK: No, under study.
OHIO: Yes, on State-owned lakes.
PENNSYLVANIA: Yes.
WISCONSIN: No.

145. May the number of participants be limited?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes. Number of boats may be regulated.
MINNESOTA: No.
NEW YORK: Not applicable.
OHIO: Can, but have not to date.
PENNSYLVANIA: Yes, by agency regulations.
WISCONSIN: Not applicable.

146. Is the development of waterside recreation favored over other recreation?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, in general.

147. Is management of surface water use encouraged?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes.
MINNESOTA: ---
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

148. Does the State have a policy governing the leasing of Great Lakes bottom lands for recreational uses?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes. Bottom lands are leased for marina development under specific stipulations by State.
MINNESOTA: Yes.
NEW YORK: For public recreation purposes, easements may be granted to non-State agencies for nominal fee.
OHIO: Lease concessions on park lands, but no lease is necessary for private development elsewhere; such developments may not "prejudice" public rights, however.
PENNSYLVANIA: Yes, by permit from Department of Environmental Resources.
WISCONSIN: Yes.

149. Does the State have a strong legislated policy regarding access site provision?

ILLINOIS: No.
INDIANA: No legislative policy, but there is an active program.
MICHIGAN: Yes. Act 337, P.A. 1939, as amended.
MINNESOTA: Yes.
NEW YORK: Yes. State "next step" program bond issue to aid development of these sites.
OHIO: Policy is to provide and improve access. No legislated policy.
PENNSYLVANIA: Yes, under agency regulation.
WISCONSIN: Yes.

150. Does the State have a policy regarding the use of public lands for private enterprises (i.e. concession stands, boat rentals, etc.)?

ILLINOIS: Yes.
INDIANA: Yes. State law and Natural Resources Commission policy.
MICHIGAN: Yes. Policy permits concessions in State parks and forests subject to regulation. Also leases for marina purposes.
MINNESOTA: Yes.
NEW YORK: No boat rental concessions currently on State lands. Food, beach supply, and souvenir concessions are allowed.
OHIO: Will lease where service can be provided, but not for general commercial developments. No advertising allowed on State grounds.
PENNSYLVANIA: No.
WISCONSIN: Yes.

151. Are fees charged for use of State parks?

ILLINOIS: Yes, no entry fee, however.
INDIANA: Yes.
MICHIGAN: Motor vehicle entrance fee assessed, Act 149, P.A. 1960.
MINNESOTA: Yes.
NEW YORK: Yes. Parking, bathhouse, and boat launching fees are charged.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes.

TABLE S20–11 Great Lakes Shoreland Management

152. Is there State zoning?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No. State enabling legislation for local units of government.
MINNESOTA: No, proposed.
NEW YORK: No.
OHIO: No. This is a local situation.
PENNSYLVANIA: No. The Commonwealth's philosophy on development continues to emphasize the "home rule" concept.
WISCONSIN: State enabling legislation for local units of government.

153. Does the State have a shoreland management program?

ILLINOIS: No.
INDIANA: No shoreland management as such; however, the Acts of 1947, Chapters 181 and 301, as amended, require that alteration of the shoreline or bed of any public freshwater lake must be approved by the Natural Resources Commission. (Burns 27-654: 27-658; 27-620; 27-626).
MICHIGAN: Yes. Act 245, P.A. 1970, for management and Act 247, P.A. 1955, as amended, for protection and administration.
MINNESOTA: Yes.
NEW YORK: Yes. Shore erosion and hurricane protection for Long Island and Staten Island. Statewide wildlife and recreation programs are implemented along

TABLE S20–11 (continued) Great Lakes Shoreland Management

shorelands.
OHIO: To some extent. The Ohio Department of Natural Resources has jurisdiction over some phases of shoreline development and erosion. Ohio Department of Public Works has jurisdiction over some phases.
PENNSYLVANIA: Only at Presque Isle State Park.
WISCONSIN: Counties are empowered to regulate shorelands, with standards for such regulations set by the State. (59.971)

154. Does the State regulate the development of plats for beach protection?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Act 288, P.A. 1967, requires Water Resources Commission review of proposed plats.
MINNESOTA: No.
NEW YORK: Subdivision development responsibility delegated to local government.
OHIO: If such plats refer to subdivisions and specific land use development, the answer must be "No."
PENNSYLVANIA: No.
WISCONSIN: Statutes (Chapter 236) provide standards for platting.

155. Must plats be reviewed at State agency level?

ILLINOIS: No.
INDIANA: Only to the extent that housing developments of five lots or more along public freshwater lake shorelines must have the sewage disposal systems approved by the State Board of Health, Acts of 1947, Chapters 181 and 301, as amended. Burns--see No. 153.
MICHIGAN: Yes. Departments of Public Health, State Highways, Natural Resources and Treasury (Act 288, P.A. 1967).
MINNESOTA: No.
NEW YORK: No.
OHIO: No. This is within local, municipal, township, county, or conservancy district jurisdiction.
PENNSYLVANIA: No, except as assistance through the Department of Community Affairs.
WISCONSIN: Departments of Natural Resources, Local Affairs and Development, Health and Social Services, and Transportation review plats.

156. Is there a State beach erosion control agency? What are its compositions and responsibilities?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Water Resources Commission designated to cooperate and coordinate in matters concerning beach erosion control (Act 245, P.A. 1929, as amended). (Refer to No. 61 for composition.)
MINNESOTA: No.
NEW YORK: The Department of Environmental Conservation for the Atlantic Coast, municipalities for inland waters, and the State park commissions for State park lands.
OHIO: To some extent. The Ohio Department of Natural Resources, through its Division of Geological Survey and its Engineering Section, has control through permit system for erosion abatement structures.
PENNSYLVANIA: Yes. The Soil Conservation Commission of the Department of Environmental Resources. Its functions include the coordination of Federal P.L. 566 projects with local districts and other State agencies.
WISCONSIN: Yes. The Soil Conservation Board, an 8-man appointed Board, performs educational work with Soil and Water Conservation Districts and supervises P.L. 566 programs.

157. May the State construct or help finance beach erosion control works?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: State lands only. Local authority provided under Act 116, P.A. 1923, as amended, and Act 278, P.A. 1952.
MINNESOTA: No.
NEW YORK: Yes. Great Lakes Conservation Law, Art. XVI, Part I, Section 661. Atlantic Coast Unconsolidated Laws, Chapter 7, Section 1531.
OHIO: Under limited prescribed circumstances through a recognized local public entity.
PENNSYLVANIA: Yes.
WISCONSIN: Only on State-owned land.

158. Is there existing authority to permit State participation in beach erosion control projects and programs with the Federal government?

ILLINOIS: No.
INDIANA: Not for State participation.
MICHIGAN: State lands only. Local participation authority provided in Act 44, P.A. 1952 and Act 278, P.A. 1952.
MINNESOTA: No.
NEW YORK: Yes, see No. 157.
OHIO: Yes, Section 1507, O.R.C.
PENNSYLVANIA: Yes, through the Department of Environmental Resources.
WISCONSIN: No, not unless connected to State facilities.

159. Does the authority to participate include (a) State lands, (b) other public property, (c) private property?

ILLINOIS: Not applicable.
INDIANA: Not applicable.
MICHIGAN: (a) Yes. (b) No. (c) No (for State agency participation).
MINNESOTA: No.
OHIO: (a) Yes. (b) Yes. (c) Yes.
PENNSYLVANIA: (a) Yes. (b) Yes. (c) No.
WISCONSIN: (a) Yes. (b) No. (c) No.

160. Is there existing authority to permit State assistance to local governmental units for beach erosion control projects?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Financial assistance, no. Technical assistance, yes.
MINNESOTA: No.
NEW YORK: Yes, see No. 157.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, technical but not financial assistance.

161. If so, does this authority extend to private property, or is it restricted to public property?

ILLINOIS: Not applicable.
INDIANA: Not applicable.
MICHIGAN: ---
MINNESOTA: Not applicable.
NEW YORK: Extends to private property only for public benefit and where easements are obtained on private property.
OHIO: Extends to private property.
PENNSYLVANIA: Public property only.
WISCONSIN: Both public and private property.

162. Do local municipalities have the authority to contract with Federal agencies for the construction of beach erosion control projects?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, see No. 158.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: No. They must contact the Ohio Department of Natural Resources, and, in some cases, the Ohio Department of Public Works, before erosion control projects are initiated. Ohio requires a permit for any along-shore or offshore structure.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, either directly or through the Soil and Water Conservation District.

163. Does this authority to participate include (a) public property? (b) private property?

ILLINOIS: Yes, either or both.
INDIANA: (a) Yes. (b) No.
MICHIGAN: (a) Yes, if other than State-owned. (b) Yes.
MINNESOTA: Public property.
NEW YORK: (a) Yes. (b) Yes.
OHIO: Not applicable.
PENNSYLVANIA: (a) Yes, if not State-owned. (b) Yes.
WISCONSIN: (a) Yes. (b) Yes.

164. Does State law provide for the establishment of conservancy districts for purposes of beach erosion control?

ILLINOIS: No.
INDIANA: Yes. Acts of 1957, Chapter 308, as amended.
MICHIGAN: Yes, special purpose assessment districts (Act 116, P.A. 1923, as amended).
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes. Section 6101.4, O.R.C.
PENNSYLVANIA: No.
WISCONSIN: No.

165. Does the State have title to Great Lakes bottom lands?

ILLINOIS: Yes.

TABLE S20-11 (continued) Great Lakes Shoreland Management

INDIANA: Yes.
MICHIGAN: Yes, Act 247, P.A. 1955, as amended, specifies the ordinary high-water mark for each lake border.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

166. Does the State regulate erecting, maintaining, or operating marinas on bottom lands?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, regulated via 50-year (maximum) restricted leases on Great Lakes (Act 247, P.A. 1955, as amended).
MINNESOTA: Yes.
NEW YORK: Yes. The Department of Environmental Conservation under the Stream Protection Act.
OHIO: In most cases, yes.
PENNSYLVANIA: Yes.
WISCONSIN: In most cases, yes.

167. Does the State establish bulkhead lines beyond which no dredging or filling can be done?

ILLINOIS: Yes.
INDIANA: No. (a) For Lake Michigan, the Federal government establishes the bulkhead. The State shall provide authority to fill the area to the bulkhead line if the adjacent landowners petition to fill. Acts of 1907, Chapter 91. (b) No dredging or filling on public freshwater lakes shall be permitted without approval, Acts of 1947, Chapters 181 and 301, as amended (Burns 27-654: 27-626: 27-620: 27-626).
MICHIGAN: Yes. For inland waters, Act 291, P.A. 1955, as amended, provides for uniform bulkhead lines subject to approval by the Department of Natural Resources. For the Great Lakes, see No. 165.
MINNESOTA: No.
NEW YORK: No, but the City of New York has.
OHIO: Sand and gravel dredging areas are established by the Division of Geological Survey of the Ohio Department of Natural Resources. No definite bulkhead lines have been established.
PENNSYLVANIA: No. All such activities require individual approval except for prior Federal jurisdiction.
WISCONSIN: Yes.

168. Does the State regulate dredging, placing of spoil or other materials, filling, erecting or extending of piers and other structures which involve dredging or fill on bottom lands?

ILLINOIS: Yes.
INDIANA: Yes. Alterations are prohibited on public freshwater lakes without approval, Acts of 1947, Chapters 181 and 301 (Burns 27-654: 27-626: 27-620: 27-626). Also, Flood Control Act. Acts of 1945, Chapter 318 (Burns 27-1101: 27-1123a).
MICHIGAN: Yes. Act 291, P.A. 1965, as amended; Act 247, P.A. 1955, as amended; and Act 167, P.A. 1968, require review, approval, and permit from State.
MINNESOTA: Yes.
NEW YORK: Yes, see No. 166.
OHIO: Within Lake Erie, spoil dump areas have been established by U.S. Army Corps of Engineers; close to shore, the disposal of dredging materials or spoil, and the extending of piers is also within jurisdiction of Ohio Department of Public Works.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

169. Does the State regulate the enlargement of waterways through the construction of artificial canals, ditches, channels, lagoons, ponds, lakes or similar waterways where the purpose is ultimate connection with an existing navigable stream, lake, or the Great Lakes and their connecting waters?

ILLINOIS: Yes.
INDIANA: Yes. (a) Flood Control Act, Acts of 1945, Chapter 318 (Burns--see No. 168). (b) Acts of 1967, Chapter 210 (Burns 68-1231: 68-1233). An act to construct or improve canals and build industrial facilities for commercial navigation.
MICHIGAN: Yes. Acts 291 and 247, mentioned in No. 168, stipulate review, approval and permit procedures.
MINNESOTA: Yes.
NEW YORK: Yes, by the Departments of Transportation and Environmental Conservation.
OHIO: Generally, yes,
PENNSYLVANIA: Yes, except for certain waters involving the Port of Erie. Regulation and control of these waters was transferred to the City of Erie by the State in July, 1959.
WISCONSIN: Yes.

170. Does the State regulate the erection or extension of commercial or industrial piers on the bottom lands?

ILLINOIS: Yes.
INDIANA: Yes. Also, Indiana Port Commission on Lake Michigan. Acts of 1961, Chapter 11, as amended (Burns 68-1201: 68-1227).
MICHIGAN: Yes. Act 291, P.A. 1965, as amended, requires a permit; Act 247, P.A. 1955, as amended, requires formal agreement.
MINNESOTA: Yes.
NEW YORK: Yes, see No. 166.
OHIO: In Lake Erie, yes.
PENNSYLVANIA: Yes.
WISCONSIN: In most cases, yes.

171. Is there a State policy relevant to public ownership of lands adjacent to shoreline?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: State policy opposed to sale or release of State-owned water frontage property, except by exchange.
MINNESOTA: Yes.
NEW YORK: Underwater lands and filled lands not previously granted are owned by State. Policies in grants applications administered by Office of General Services.
OHIO: No strong policy, but State may purchase or accept and hold fee or lesser interest in shorelands as necessary.
PENNSYLVANIA: No.
WISCONSIN: None, except General Land Acquisition Agency policies.

172. Is State policy geared to Great Lakes shoreland preservation or development?

ILLINOIS: ---
INDIANA: Natural Resources Commission has adopted policy to prohibit further filling of waters of Lake Michigan.
MICHIGAN: Yes. Policy is management for maximum public use of this unique natural resource (Act 245, P.A. 1970 and Act 247, P.A. 1955, as amended).
MINNESOTA: No.
NEW YORK: No.
OHIO: Neither, specifically.
PENNSYLVANIA: Yes, for recreation uses.
WISCONSIN: Yes.

173. Is there a legislated State policy in regard to shoreland management?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes. 59.971 W.S.L.

TABLE S20-12 Flood Control

174. Does the State have a statutory floodway encroachment law?

ILLINOIS: No.
INDIANA: Yes. The 1945 Flood Control Act, as amended (Burns 27-1101: 27-1123a).
MICHIGAN: Yes. Act 167, P.A. 1968, prohibits occupation, alteration or filling without Water Resources Commission approval.
MINNESOTA: No, not as such, but State has authority to set standards.
NEW YORK: No.
OHIO: Sections 6105.131-6105.134, O.R.C., provide that the board of directors of a watershed district can designate specific stream channel reaches or restricted floodways. This is, in effect, zoning. Constitutionality has not been tested as yet. There is only one watershed district established in Ohio.
PENNSYLVANIA: Yes, for encroachments, within and along stream channels.
WISCONSIN: Not as such, but the State has authority to set standards for local flood plain regulation.

TABLE S20–12 (continued) Flood Control

175. What agency administers the law, and what is its composition?

ILLINOIS: Not applicable.
INDIANA: Natural Resources Commission with the Department of Natural Resources, Division of Water, as professional staff.
MICHIGAN: State Water Resources Commission. See No. 61.
MINNESOTA: Department of Natural Resources.
NEW YORK: Not applicable.
OHIO: Watershed district board of directors. Composed of five members representing the public, agriculture, industry, public water supply, and public recreation. Staggered five-year terms. Appointed by majority vote of presidents of county boards of commissioners of counties in the watershed.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

176. What are the principal features of the statute?

ILLINOIS: Not applicable.
INDIANA: (a) To prevent and limit floods, all flood control works and the alteration of natural or present water courses are regulated, supervised, and coordinated in design. (b) Floodways should not be inhabited or contain obstructions that will cause undue restrictions on their capacity. (c) Accumulate, preserve, and protect the water resources of the State beyond water required for reasonable and necessary use. (d) Develop a comprehensive water plan for the State to control floods and accumulate, preserve, and protect water resources.
MICHIGAN: It is unlawful to occupy, fill, or alter land or a channel within the flood plain without a permit from the Water Resources Commission. The Commission also delineates the flood plain limit.
MINNESOTA: Local governments (cities, villages, and counties) are required to enact zoning ordinances in areas where substantial damage may occur.
NEW YORK: Not applicable.
OHIO: Watershed districts constitute political subdivisions of the State. They have all the powers and responsibilities of other political subdivisions. The districts can control the development of stream reaches designated as restricted.
PENNSYLVANIA: Controls the placing of water obstructions in and along streams and any changes in course, current, or cross section of stream channels or bodies of water.
WISCONSIN: Local governments (cities, villages, and counties) are required to anact zoning ordinances in areas where substantial damage may occur.

177. Can the State establish the floodway?

ILLINOIS: No.
INDIANA: Natural Resources Commission may establish a Commission floodway, and has authority over natural floodways as well.
MICHIGAN: Yes, Water Resources Commission under authority of Act 167, P.A. 1968.
MINNESOTA: Yes, in cooperation with local units of government or if a local unit of government fails to do so.
NEW YORK: Not applicable.
OHIO: No, local perogative only.
PENNSYLVANIA: No, if for zoning purposes. Has authority to so designate in flood control program.
WISCONSIN: Yes, in cooperation with local units of government or if a local unit of government fails to do so.

178. Does the State have a statute that expressly authorizes flood plain zoning at the State level?

ILLINOIS: No.
INDIANA: No; not expressly. Local planning commissions may establish flood plain zones.
MICHIGAN: No. Local perogative.
MINNESOTA: No.
NEW YORK: No. Only cities, villages, and towns having zoning authority.
OHIO: No, local perogative only.
PENNSYLVANIA: No.
WISCONSIN: Yes.

179. Does the State have enabling legislation to permit local municipalities to zone for flood damage prevention? Is it compulsory?

ILLINOIS: (a) Yes. (b) No.
INDIANA: (a) Yes, for plan commissions which can be formed by a city, town, or county. (b) No.
MICHIGAN: (a) Yes, for cities, villages, townships, and counties with planning commissions or zoning board. (b) Yes.
MINNESOTA: (a) Yes. (b) Yes.
NEW YORK: (a) Yes, but not specifically for this purpose. (b) No.
OHIO: Statute does not mention zoning for flood damage prevention specifically, but it has been used for this purpose. It refers only to "promoting the public health, safety, and morals."
PENNSYLVANIA: It is not compulsory, but it encouraged through planning powers.
WISCONSIN: (a) Yes. (b) Yes.

180. Do local ordinances require State agency approval?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No, if State funds are not used.
WISCONSIN: Yes.

181. Does State law require that the plat map show all flood plain areas?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes. Act 288, P.A. 1967, and regulatory rules and regulations.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes. (State Board of Health approval not given without this.)

182. Does the State have the power to prohibit platting in the flood plain?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes (see No. 181).
MINNESOTA: No.
NEW YORK: State law permits approval by municipalities, but not by State.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

183. Does the State share costs in flood plain studies and project development?

ILLINOIS: It may.
INDIANA: Yes. (a) By providing mapping and data for Flood Plain Information Studies. (b) Cigarette Tax, Acts of 1965, Chapter 22, as amended (Burns 64-2912: 64-2928f). (c) By conducting specific studies.
MICHIGAN: Technical review and coordination provided by staff.
MINNESOTA: Yes.
NEW YORK: Flood plain studies, no. Project development, yes. (Consolidated Laws, Title 4, Chapter 1.)
OHIO: The State generally has not participated financially in flood plain studies or project development, but the statutes do not prohibit it.
PENNSYLVANIA: Yes, both with Federal and local governments and in interstate compacts.
WISCONSIN: Staff and computer time in studies, not in project development.

184. Does the State have legislation to authorize a State agency to undertake flood control projects on a statewide basis?

ILLINOIS: Yes.
INDIANA: Yes. 1945 Flood Control Acts, as amended (Burns 27-1101: 27-1123a).
MICHIGAN: No. May advise, negotiate and cooperate, however.
MINNESOTA: No.
NEW YORK: Yes. Department of Environmental Conservation.
OHIO: Department of Natural Resources has authority to study flood problems, plan for water development and finance reservoirs. Section 1501.20, O.R.C.
PENNSYLVANIA: Yes. Act of August 7, 1936, P.L. 106, as amended.
WISCONSIN: No.

185. Does the State law require local units to adopt building codes for purposes of flood protection?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.

TABLE S20–12 (continued) Flood Control

PENNSYLVANIA: No.
WISCONSIN: Yes.

186. Can unlawful encroachments be removed by the State through condemnation or abatement proceedings?

ILLINOIS: No.
INDIANA: Yes. Section 17, 1945, Flood Control Act, as amended (Burns 27-1101: 27-1123a). (This has not been tested in court.)
MICHIGAN: Yes, Act 167, P.A. 1968.
MINNESOTA: No.
NEW YORK: Not applicable.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No, except in channel or stream bed, or if they are in violation of a zoning ordinance.

187. Does State law require the disclosure of flood risks in the sale of flood plain property?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Not required; however, flood plain limits must be shown on all recorded plats. Restrictive deed convenants recorded with final plat specify minimum building requirements within or adjacent to flood plain.
MINNESOTA: No.
NEW YORK: No.
OHIO: No. State may post flood levels in public places, however.
PENNSYLVANIA: No.
WISCONSIN: ---

188. Does the State have legislation to enable local groups of property owners to organize special purpose districts to erect and maintain flood control works?

ILLINOIS: Yes.
INDIANA: Yes. Conservancy Act, Acts of 1957, Chapter 308, as amended (Burns 27-1501: 27-1599).
MICHIGAN: Yes, drainage districts, water management districts, soil conservation districts, and river management districts.
MINNESOTA: Yes.
NEW YORK: Yes, river regulating districts (Conservation Law, Art. 15, Part IX, Titles B, C). County small watershed protection districts (County Law, Art. 5-D).
OHIO: Conservancy districts. Chapter 6101, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: No, but Chapter 87 provides for creation of a flood control board which can accomplish many of the same purposes.

189. Does statute provide for (a) private dam plan review and issuance of permits, and (b) control of residential building development within flood plain areas?

ILLINOIS: (a) Yes. (b) Yes.
INDIANA: (a) Yes. (b) No.
MICHIGAN: (a) Yes. Act 184, P.A. 1963 and Act 291, P.A. 1965, as amended. (b) Yes. Act 167, P.A. 1968, and Act 288, P.A. 1967.
MINNESOTA: (a) Yes. (b) No.
NEW YORK: (a) Yes. Department of Environmental Conservation. (b) No.
OHIO: (a) Private dam plan review and issuance of permits are provided for under Section 1521.06, O.R.C. (See Dams and Water Levels.) (b) There is no statute providing for State control of residential development in flood plains.
PENNSYLVANIA: (a) Yes. (b) No.
WISCONSIN: (a) Yes. (b) No.

190. Does State policy favor flood plain management over protective works construction?

ILLINOIS: No.
INDIANA: Yes, where possible.
MICHIGAN: Yes, where at all possible.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: Yes.
PENNSYLVANIA: Yes, through the planning programs of the Department of Community Affairs.
WISCONSIN: Yes.

191. Is there a legislated State policy encouraging channelization projects over impoundments?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

192. Does emphasis appear to be shifting to State or local control for flood plain management?

ILLINOIS: Yes.
INDIANA: Possibly
MICHIGAN: State, for uniform management standard.
MINNESOTA: Yes.
NEW YORK: Under study.
OHIO: Power rests with local governments. State is developing a stronger information and technical assistance program.
PENNSYLVANIA: Toward local control.
WISCONSIN: County control.

193. Is there a strong State policy in regard to flood control?

ILLINOIS: Yes. Flood Control Act of July 17, 1945.
INDIANA: Yes. Acts of 1945, Chapter 38, as amended.
MICHIGAN: Yes. Emphasis on damage-preventive management, rather than corrective project expenditures.
MINNESOTA: Yes.
NEW YORK: Yes. Conservation Law, Art. 5, Section 401.
OHIO: Yes. Emphasis is on public information for the purpose of prevention of damageable structures on flood plains.
PENNSYLVANIA: Yes, as evidenced by broad statutory powers and programs.
WISCONSIN: Not strong, RD 15 and 16

TABLE S20–13 Soil Conservation

194. Does the State have a specific statute to control erosion and sedimentation at the State level?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Not specifically. However, Act 245, P.A. 1929, and the State's water quality standards, give authority to regulate sediment and erosion pollution. Also authority is provided for local units of government and special purpose districts.
MINNESOTA: Yes.
NEW YORK: No, except in cooperation with Federal programs and in areas where the State has fishing easements.
OHIO: Not specifically. Definitions in water pollution legislation are general enough that the law might be interpreted to include sediment. Section 1513.161, O.R.C., directs strip miners to divert surface water to minimize the discharge of sediment.
PENNSYLVANIA: Yes.
WISCONSIN: Can apparently regulate "unnecessary siltation."

195. Are any persons or uses exempted from operation of the statute?

ILLINOIS: No.
INDIANA: Not applicable.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: Not applicable.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

196. Is there a fine for violation of the statute?

ILLINOIS: No.
INDIANA: Not applicable.
MICHIGAN: Penalty provisions provided in Act 245, P.A. 1929, as amended.
MINNESOTA: No.
NEW YORK: Not applicable.
OHIO: Only as described in Table S20-7.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

197. Does the State have a stream bank stabilization program?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Minor program on State-owned lands.
MINNESOTA: No.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: Yes, as part of its stream clearance program.
WISCONSIN: No.

198. Does the State have legislation to enable local groups of property owners to organize special purpose

TABLE S20–13 (continued) Soil Conservation

districts to effect soil conservation practices?

ILLINOIS: Yes.
INDIANA: Yes. Conservancy Act, Acts of 1957, Chapter 308, as amended (Burns 27-1501: 27-1599).
MICHIGAN: Yes, soil conservation districts formed under Act 297, P.A. 1937, as amended.
MINNESOTA: Yes.
NEW YORK: Yes. Soil and water conservation districts, county small watershed protection districts.
OHIO: Chapter 1515, O.R.C., provides for the organization of county-wide soil and water conservation districts. There is a district for each of Ohio's 88 counties.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

199. Does State law provide for the establishment of soil conservation districts for sediment and erosion control?

ILLINOIS: Yes.
INDIANA: Yes. Acts of 1965, Chapter 171.
MICHIGAN: Yes, see No. 198.
MINNESOTA: Yes.
NEW YORK: Yes. County Law. Art. 5-D, Section 299-1, provides for land treatment under soil conservation districts.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes. Wisconsin Statute 92.02

200. If so, do the soil conservation districts have (a) taxation powers, (b) condemnation powers and (c) land purchase powers?

ILLINOIS: (a) No. (b) Yes. (c) Yes.
INDIANA: (a) No. (b) No. (c) No.
MICHIGAN: (a) No. (b) No. (c) Yes.
MINNESOTA: (a) No. (b) No. (c) No.
NEW YORK: (a) No. (b) No. (c) No.
OHIO: Yes, through the board of county commissioners of the county comprising the respective district.
PENNSYLVANIA: (a) No. (b) Yes. (c) Yes.
WISCONSIN: (a) No. (b) Yes, as part of P-83-566 projects. (c) Yes.

201. Is pipeline construction, road building, etc., regulated to prevent sediment pollution?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes. Act 291, P.A. 1965, as amended, and Handbook of Specifications developed by State Water Resources Commission.
MINNESOTA: Yes. Permit required.
NEW YORK: Yes, in State road construction, in waters classified as C (T) or higher, and in navigable waters.
OHIO: No.
PENNSYLVANIA: Yes, by recent executive order of the Governor.
WISCONSIN: No.

202. Do local units of government have the authority to control sedimentation?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes, by local ordinance and special purpose district formation.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, in certain cases.

203. Does the State conduct sediment and erosion studies as related to land use management practices?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes. Division of Lands and Soil. Section 1511, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

204. Have sediment and erosion control programs received high priorities at the State or local levels in the past?

ILLINOIS: Yes.
INDIANA: Yes, in support of soil and water conservation districts and P.L. 566 projects.
MICHIGAN: Not in the past. The State is becoming increasingly concerned and active in this area, however.
MINNESOTA: No.
NEW YORK: Not in the past. Interest in problem increasing.
OHIO: Yes, through the soil and water districts, conservancy districts, and the State Division of Lands and Soil.
PENNSYLVANIA: Yes, since adoption of Project "500".
WISCONSIN: Yes.

205. Does State policy favor land management over construction of protective works for sediment and erosion control?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Control measure dependent upon specific situation. Management preferred if possible.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: Yes.
PENNSYLVANIA: Either of which has most feasible application.
WISCONSIN: Yes.

206. Do the State's water quality standards make provisions for sediment and erosion criteria?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, under suspended, colloidal, and settleable materials parameters.
MINNESOTA: Yes.
NEW YORK: Not directly from erosion. However, sediments in effluent discharges are covered.
OHIO: Yes, in the form of general standards applicable to all waters at all times and in all places.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, for suspended solids and any material deleterious to water quality.

207. Is there a legislated State policy in regard to sediment and erosion prevention?

ILLINOIS: Soil and Water Conservation Law, July, 1937.
INDIANA: Acts of 1965, Chapter 171.
MICHIGAN: Study proposals reflect increasing State agency concern for damage prevention.
MINNESOTA: Soil and Water Conservation Law.
NEW YORK: Beach erosion only. Unconsolidated Laws, Chapter 7,
OHIO: Only as implied by the creation and enabling of agencies to prevent or retard erosion and sedimentation.
PENNSYLVANIA: Yes. "Sediment" is defined as a pollutant.
WISCONSIN: Chapter 92 of Wisconsin Statutes.

TABLE S20–14 Drainage

208. Are common law drainage rights governed by the common enemy rule or rule of reasonableness?

ILLINOIS: Civil law rule
INDIANA: Modified common enemy rule (modified by rule of reasonableness).
MICHIGAN: Common enemy rule modified by rule of reasonableness.
MINNESOTA: Rule of reasonableness.
NEW YORK: Common enemy rule.
OHIO: In Ohio, the civil law doctrine is used where the natural drainage should not be changed. Civil law doctrine applies to rural areas, but doctrine of reasonable use applies in urban areas.
PENNSYLVANIA: Civil law rule.
WISCONSIN: Common enemy rule, modified by reasonableness.

209. Does the State have a statute expressly controlling land drainage?

ILLINOIS: Yes.
INDIANA: Indiana Drainage Code, Acts of 1965, Chapter 305, as amended (Burns 27-2001: 27-2606).
MICHIGAN: Act 40, the Drainage Code of 1956, provides for drainage district formations.
MINNESOTA: Yes.
NEW YORK: Yes. Formation of a drainage improvement district (which relates only to agricultural land) requires approval of Department of Environmental Conservation. (Conservation Law, Art. 5, Part VIII.)
OHIO: See No. 208.
PENNSYLVANIA: Civil law rule.
WISCONSIN: Yes.

TABLE S20–14 (continued) Drainage

210. Are any persons or uses exempted from operation of the statute?

ILLINOIS: No.
INDIANA: Yes. (a) Private and mutual drains. (b) Drains constructed in a city or town under the provisions of another act.
MICHIGAN: Non-beneficiaries and drains constructed in incorporated areas, if so chosen.
MINNESOTA: Private.
NEW YORK: Non-beneficiaries are exempted.
OHIO: No.
PENNSYLVANIA: ---
WISCONSIN: Agricultural uses have certain exceptions (Section 30.19, Statutes, farming).

211. Is a permit system established to regulate the construction or maintenance of drainage facilities?

ILLINOIS: Yes.
INDIANA: Yes. (a) If construction is in a floodway of a stream, Flood Control Act, Acts of 1945, Chapter 318, as amended (Burns 27-1101: 27-1123a). (b) If work is to be performed within 160 rods of a public freshwater lake of 10 acres or more, Acts of 1947, Chapter 285 (Burns 27-614: 27-619). (c) When the drain comes within 300 feet of a levee, Indiana Drainage Code Acts of 1965, Chapter 305, as amended.
MICHIGAN: Ordinarily, no permit required for agricultural drainage.
MINNESOTA: Yes.
NEW YORK: Within a drainage improvement district, initial approval required (see No. 209).
OHIO: No.
PENNSYLVANIA: No, but recent authority exists for municipal storm sewers.
WISCONSIN: Yes, except for agricultural drainage.

212. What agency administers the drain control laws?

ILLINOIS: Drainage districts.
INDIANA; County drainage board.
MICHIGAN: State Department of Agriculture and county drain commissioners.
MINNESOTA: Department of Natural Resources.
NEW YORK: Department of Environmental Conservation
OHIO: Department of Natural Resources.
PENNSYLVANIA: None, in rural areas. For urban areas, Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

213. Are drains held to be public waters?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes, on improved natural watercourses where public values are involved. No drain may be polluted.
MINNESOTA: Yes.
NEW YORK: Only where title obtained by State.
OHIO: They become so seven years after construction.
PENNSYLVANIA: Yes in urban areas, no in rural areas.
WISCONSIN: No.

214. Does the State exercise water quality controls over land drainage?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: State water quality standards could be applicable.
MINNESOTA: State quality standards could be applicable.
NEW YORK: Yes, in particular instances, such as livestock operations.
OHIO: No, but the courts have rules for the liability of polluters.
PENNSYLVANIA: No, but has power over a "potential pollution."
WISCONSIN: Yes.

215. Must fish and wildlife values, by statute, be considered in the construction of drainage projects?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: Only in P.L. 566 projects
OHIO: Yes.
PENNSYLVANIA: "Drainage project" is not defined.
WISCONSIN: Hearings are required at which time fish and wildlife values can be considered if applicable.

216. Are drainage districts permitted to contract with the Soil Conservation Service for P.L. 566 projects?

ILLINOIS: Yes.
INDIANA: Yes, conservancy districts and also county drainage boards for drainage works
MICHIGAN: Yes (water management districts).
MINNESOTA: Yes.
NEW YORK: Yes, County Law, Art. 5-D.
OHIO: Yes (conservancy districts).
PENNSYLVANIA: ---
WISCONSIN: No; however, the boards can sponsor action under P.L. 566 projects.

217. Can drainage districts enter into interstate agreement?

ILLINOIS: No.
INDIANA: Yes.
MICHIGAN: Yes (intercounty drainage districts and water management districts).
MINNESOTA: No.
NEW YORK: No.
OHIO: While not explicitly noted in the law, conservancy districts may make agreements with other States in practice.
PENNSYLVANIA: ---
WISCONSIN: Not expressly stated.

218. Do drainage districts have the powers of (a) taxation (b) condemnation?

ILLINOIS: (a) Yes. (b) ---
INDIANA: (a) No. (b) No.
MICHIGAN: (a) No, see No. 219. (b) Yes.
MINNESOTA: (a) Yes. (b) Yes.
NEW YORK: Yes.
OHIO: Soil and water districts and conservancy districts do.
PENNSYLVANIA: ---
WISCONSIN: (a) No, see No. 219 (b) Yes, 88.21 W.S.L.

219. Do drainage districts have cost assessment powers?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, based on benefits received.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Soil and water districts and conservancy districts do.
PENNSYLVANIA: ---
WISCONSIN: Yes, 88.48 W.S.L.

220. Are drainage projects combined with a broader water management program, i.e., pollution control, flood control, etc.?

ILLINOIS: Yes.
INDIANA: Yes, possible if undertaken by a conservancy district.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Permitted under Conservation Law, Art. 5, Title C.
OHIO: Yes.
PENNSYLVANIA: ---
WISCONSIN: Yes.

221. Does the State have a legislated policy relative to drainage and wildlife values?

ILLINOIS: No.
INDIANA: State has a wetlands program to preserve and acquire wetland areas.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: Conservation Law, Art 5, Part VIII, Section 536.
OHIO: Wildlife effects must be considered in any water projects.
PENNSYLVANIA: No.
WISCONSIN: No.

222. Is there a legislated policy that prevents damming up drainage ditches or drains?

ILLINOIS: No.
INDIANA: Dams may be constructed in drains with permission of county drainage board, Acts of 1965, Chapter 305, as amended.
MICHIGAN: Dams may be constructed in drains under provisions provided in Chapter 15, Drain Code of 1956, only with approval of drain commissioner.
MINNESOTA: Yes.
NEW YORK: Yes. Conservation Law, Art. 5, Part VIII, Section 535.
OHIO: No, but dams on public waters are under State regulation. Drains become public waters seven years after construction.
PENNSYLVANIA: No, if private.
WISCONSIN: No.

223. Is there a strong state program regarding land drainage? If so, state.

ILLINOIS: Yes. P.L. 566.
INDIANA: No.
MICHIGAN: No, but a very strong local program.
MINNESOTA: Yes.
NEW YORK: Yes. Conservation Law, Art. 5, Part VIII.
OHIO: No, but conservancy

TABLE S20–14 (continued) Drainage

districts and soil and water districts do have strong programs in some areas.
PENNSYLVANIA: Yes, in terms of soil and water conservation.
WISCONSIN: No.

TABLE S20–15 Dams and Lake Levels

224. Does the State have a statute expressly controlling private dam (a) construction (b) operation (c) maintenance?

ILLINOIS: (a) Yes. (b) Yes. (c) Yes.
INDIANA: (a) Yes, Flood Control Act, Acts of 1945, as amended (Burns 27-1101: 27-1123a). (b) Yes, see No. 222, also Acts of 1955, Chapter 251, as amended (Burns 27-1401: 27-1409). (c) Yes, Acts of 1961, Chapter 34 (Burns 22-1305).
MICHIGAN: (a) Yes, Act 184, P.A. 1963, as amended, requires construction permit for impoundment over five acres, or with a head over five feet; and Act 291, P.A. 1965, requires permit for all construction on navigable waters; (b & c) Dams constructed for inland lake level control (Act 146, P.A. 1961) require annual inspection and necessary maintenance repairs.
MINNESOTA: (a) Yes. (b) Yes. (c) Yes.
NEW YORK: (a) Yes. (b & c) Not specifically, but the State may order removal or repair where hazard exists to public safety.
OHIO: (a) Yes. Section 1521.06, O.R.C. (b) No. (c) Yes. Section 1521.062, O.R.C. Inspection at least once every five years by Chief of Division of Water. Law became effective December 18, 1969.
PENNSYLVANIA: Yes, in all cases: Act of June 25, 1913, P.L. 555, as amended.
WISCONSIN: (a) Section 31.05, Statutes. (b) Yes. Section 31.05, Statutes. (c) Yes. Section 31.05, Statutes.

225. Are any person or uses exempted from operation of the statute?

ILLINOIS: Yes.
INDIANA: No, unless all the following conditions apply: (a) drainage area above the dam site is less than one square mile. (b) height of dam above natural streambed or lowest point on valley floor will be not greater than 20 feet. (c) volume of water impounded by dam to emergency spillway will be less than 100 acre-feet. (d) rights of other property owners will not be affected.
MICHIGAN: Yes. Dams with impoundments of less than five acres, located on non-navigable waters having no public benefits. Fish passage must be provided if stream has an established fishery, however.
MINNESOTA: No.
NEW YORK: Only dams under a minimum size, capacity and drainage area, Conservation Law, Art. 5, Part III-A, Section 429.
OHIO: Yes, as noted in Section 1521.06, O.R.C. (a) Structures erected under conservancy district law. (b) Structures erected under soil and water conservation district law. (c) Dams less than 10 feet in height from natural streambed to spillway, unless product of impoundment in acre-feet and dam height is greater than 1,000. (d) Class exemption by Chief of Division of Water. (e) Dams to impound water to cover exposed coal strata to prevent acid mine drainage.
PENNSYLVANIA: No.
WISCONSIN: No.

226. Is a permit required for private dam construction?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes. See No. 224.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Yes. Section 1521.06, O.R.C.
PENNSYLVANIA: Yes. See No. 224.
WISCONSIN: Yes, on navigable streams. Non-navigable streams, approval of plans only.

227. Can a permit for dam construction be denied by the State? For what reasons?

ILLINOIS: Yes, for protection of riparian and public rights and safety.
INDIANA: Yes, for inadequate plans and specification, improper design, and rights of others affected without permission.
MICHIGAN: Yes, for protection of riparian and public rights and failure to comply with specified engineering.
MINNESOTA: Yes, discretion.
NEW YORK: Yes, if it adversely affects health, safety, general welfare, or other natural resources.
OHIO: Yes, for danger to life, health, or property. Section 1521.06, O.R.C.
PENNSYLVANIA: Yes, for safety and public interest reasons.
WISCONSIN: Yes, if it adversely affects the public interest, considering aesthetic, economic, and recreational values.

228. Can dams be abandoned?

ILLINOIS: Yes.
INDIANA: Not legally.
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: Yes.
OHIO: Not after structure is completed. Abandonment is possible udner Section 1521.06, O.R.C., if incompleted structure is modified so that it will not hold water and so that it will not endanger life, health, or property.
PENNSYLVANIA: No. Owners must either maintain or breach their dams. A permit is required for abandonment, which requires breaching.
WISCONSIN: Yes, if permit is granted.

229. For what purposes does the State construct dams, i.e., flood control, water supply, recreation, etc.?

ILLINOIS: Multipurpose.
INDIANA: For maintenance of established natural freshwater lake levels, flood control, fish and wildlife, regional water supply, and recreation.
MICHIGAN: For maintenance of established inland lake levels, the conservation of natural resources, and for recreational benefits.
MINNESOTA: Recreation and fish and wildlife.
NEW YORK: Navigation and recreation; and water supply in Forest Preserve at expense of the benefiting municipality.
OHIO: Usually multipurpose. Dams have been built by the State for a variety of purposes.
PENNSYLVANIA: Recreation, flood control, water supply, fish propagation, and stream regulation.
WISCONSIN: Game and fish management. Dams for habitat.

230. Does the State cost-share in the construction of dams?

ILLINOIS: Yes.
INDIANA: Private--no. Public--yes, under certain conditions.
MICHIGAN: Yes, where the State is a riparian.
MINNESOTA: No, local.
NEW YORK: Yes, under certain conditions.
OHIO: Yes.
PENNSYLVANIA: Yes, with Federal and local governments.
WISCONSIN: Yes, under certain conditions.

231. What is the name and composition of the regulatory agency?

ILLINOIS: Department of Public Works and Buildings.
INDIANA: Natural Resources Commission; 12 members, 7 ex officio and 5 gubernatorial appointees.
MICHIGAN: Department of Natural Resources; composed of five commissioners appointed by the Governor.
MINNESOTA: Department of Natural Resources.
NEW YORK: New York State Department of Environmental Conservation.
OHIO: Division of Water in the Department of Natural Resources.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

232. Does the State have a statute whereby legal lake levels may be established? Under what circumstances?

ILLINOIS: Yes.
INDIANA: Yes, see No. 233 for legislation. The Department of Natural Resources may petition

TABLE S20–15 (continued) Dams and Lake Levels

the circuit court in the county containing the major portion of the lake.
MICHIGAN: Yes, Act 146, P.A. 1961; the Department of Natural Resources or county board of supervisors upon petition of 2/3 of riparian owners.
MINNESOTA: Yes.
NEW YORK: Established for Lake George.
OHIO: Implied for all public waters, complete control in State-owned lakes.
PENNSYLVANIA: Yes, through permits required for impoundments.
WISCONSIN: Yes, Statute 31.02, any navigable body of water.

233. Does the State have a lake level control program?

ILLINOIS: Yes.
INDIANA: (a) Acts of 1947, Chapter 350 (Burns 27-627: 27-628). (b) Acts of 1957, Chapter 215 (Burns 27-627).
MICHIGAN: Act 146, P.A. 1961, provides for permissive lake level control by counties.
MINNESOTA: Yes.
NEW YORK: No general program although the level of some lakes is controlled by the State (e.g., Lake George, Barge Canal System).
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: State establishes lake levels, but does not construct or operate facilities.

234. Does the State participate in the cost of lake level regulatory projects?

ILLINOIS: Yes.
INDIANA: Yes. The State has a policy of helping finance regulatory structures on public freshwater lakes of natural origin which have public access, when budgetary limitations permit.
MICHIGAN: Yes, see No. 230.
MINNESOTA: Yes.
NEW YORK: Presently, only for lakes whose level is controlled by the State.
OHIO: No.
PENNSYLVANIA: Only when State parks are involved, or where involving flood plains.
WISCONSIN: No.

235. Is there a legislated State policy regarding dam construction?

ILLINOIS: Yes.
INDIANA: Natural Resources Commission has a policy that all publicly financed reservoirs should be built to the full capability.
MICHIGAN: Engineering feasibility permit required. Also, permit to alter bottom lands required.
MINNESOTA: No.
NEW YORK: Canal Law, Conservation Law, Art. 5, Part III-A, Part VI, Section 460.
OHIO: Several.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

TABLE S20–16 Ground-Water Supply

236. Does the State regulate water well drillers by licensing or permit? Are construction standards prescribed by the State?

ILLINOIS: ---
INDIANA: (a) Yes, Acts of 1959, Chapter 6. (b) Yes, State Board of Health Bulletin #SE-15.
MICHIGAN: (a) Yes, Act 294, P.A. 1965. (b) Yes (rules and regulations developed by well drilling advisory board).
MINNESOTA: (a) Permit. (b) No.
NEW YORK: Yes, on Long Island only.
OHIO: (a) No. (b) Yes, Department of Health prescribes standards for public water wells.
PENNSYLVANIA: (a) Yes. (b) Legislation pending.
WISCONSIN: (a) Yes. (b) Wisconsin Admin. Codes RD 12, 1970.

237. What agency regulates ground-water resource drilling activities?

ILLINOIS: ---
INDIANA: State Board of Health on public water supply wells, and Department of Natural Resources through licensing of well drillers and collection and maintenance of well logs.
MICHIGAN: Department of Public Health.
MINNESOTA: Department of Natural Resources.
NEW YORK: Department of Environmental Conservation.
OHIO: Division of Water, Department of Natural Resources.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Department of Natural Resources.

238. Are water well logs required to be filed with the State?

ILLINOIS: ---
INDIANA: Yes, Acts of 1959, Chapter 6.
MICHIGAN: Yes, required by Act 294, P.A. 1965.
MINNESOTA: Yes.
NEW YORK: On Long Island only.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Yes, Wisconsin Geological and Natural History Survey.

239. Does the State regulating agency designate "restrictive use areas" for regulation of the use of ground waters?

ILLINOIS: Yes.
INDIANA: State has the power to act, Acts of 1951, Chapter 29 (Burns 27-1301: 27-1313); however, the power has never been exercised.
MICHIGAN: No. However, Act 236, P.A. 1961, may specify amounts to eliminate nuisance or waste.
MINNESOTA: Yes.
NEW YORK: On Long Island only.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: Yes, but only to the point that only areas capable of producing high capacity wells (100,000 gpd) are permitted.

240. Does the State, by statute, conserve artisian well pressures?

ILLINOIS: ---
INDIANA: Yes, Acts of 1957, Chapter 309.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

241. Does the State control multi-aquifer well drilling to prevent interchanges that may be pollutant?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, for oil, gas, and brine drilling. No, for private water supply
MINNESOTA: Yes.
NEW YORK: Not normally developed on a multi-aquifer basin. Permitted on Long Island. However, withdrawals from contaminated upper aquifers may be restricted or prohibited on Long Island for public water supply, particularly. Criteria upstate depends on water quality.
OHIO: Statutes prohibit contamination of any waters of the State, including ground water, without a permit from the Ohio Water Pollution Control Board. Chapter 6111, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: No.

242. Must abandoned wells, test holes, and oil and gas wells be filled, capped, or plugged?

ILLINOIS: Yes.
INDIANA: Yes. Plugged. Acts of 1969, Chapter 123 (Burns 46-1733: 46-1740). Acts of 1947, Chapter 277, as amended (Burns 46-1701: 46-1727).
MICHIGAN: Yes, Act 61, P.A. 1939 and Act 315, P.A. 1969.
MINNESOTA: Yes.
NEW YORK: Yes, all three actions must be taken, depending on specific situations, for oil and gas wells only.
OHIO: Yes. New oil and gas wells must be plugged in accordance with requirements of Division of Oil and Gas, Ohio Department of Natural Resources.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

243. Does the State conduct ground water studies?

ILLINOIS: Yes.
INDIANA: Yes.
MICHIGAN: Yes, both alone and in conjunction with appropriate Federal programs.
MINNESOTA: Yes.
NEW YORK: Yes, in a cooperative program with U.S. Geological Survey.

TABLE S20–16 (continued) Ground-Water Supply

OHIO: Yes. The Department of Natural Resources carries out quality and quantity studies on ground-water supplies alone and in cooperation with U.S. Geological Survey and other agencies.
PENNSYLVANIA: Yes.
WISCONSIN: Yes.

244. Does the State have a program of ground-water storage?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: No.
NEW YORK: Not specifically, although in some cases water withdrawn from Long Island wells must be returned to the aquifer.
OHIO: No.
PENNSYLVANIA: No.
WISCONSIN: No.

245. Do State plat regulations prescribe a minimum lot size to prevent pollution of ground-water sources in non-sewered developments?

ILLINOIS: No.
INDIANA: No, except when five lots or more are developed along the shore of a public freshwater lake. The State requires a minimum of 15,000 square feet for lot size when the sewage disposal system is a septic system.
MICHIGAN: Department of Health rules require that lot sizes provide sufficient area for sewage disposal in a location properly isolated from water sources.
MINNESOTA: No.
NEW YORK: Only if prescribed by municipalities.
OHIO: Yes, in special sanitary districts around State-owned lakes. Other regulations are within local, municipal, township, county, or conservancy district jurisdiction.
PENNSYLVANIA: Yes.
WISCONSIN: Division of Health rules (H 65) set lot sizes for unsecured plats. Department of Health and Social Services and Transportation review plats.

246. Are solid waste disposal sites regulated to prevent location where ground-water contamination could occur?

ILLINOIS: Yes.
INDIANA: Yes, by State Board of health.
MICHIGAN: Yes, by State Department of Public Health.
MINNESOTA: No.
NEW YORK: Yes. New sites approved by local or State health department. Enforcement by local health department or Department of Environmental Conservation.
OHIO: Yes, by local or State health department.
PENNSYLVANIA: Yes.
WISCONSIN: Yes; flooding, surface water quality and other factors are also considered.

247. Are open dumps and/or sanitary landfills licensed by the State?

ILLINOIS: ---
INDIANA: Yes, only sanitary landfills permitted after January 1, 1971.
MICHIGAN: Yes. Act 87, P.A. 1965. Act also prohibits open dumping.
MINNESOTA: Yes.
NEW YORK: No.
OHIO: Yes.
PENNSYLVANIA: Landfills require permits; open dumps prohibited.
WISCONSIN: Yes. Wisconsin Statute 144.43 and 144.44.

TABLE S20–17 Minerals, Oil, Gas, and Disposal Wells

248. Does the State have a statute expressly controlling mining beneath the waters of the State?

ILLINOIS: Yes.
INDIANA: Yes, on navigable water. Acts of 1919, Chapter 60 (Burns 60-702: 60-729).
MICHIGAN: Yes. Act 291, P.A. 1965, the Inland Lakes and Streams Act, and Act 247, P.A. 1955, the Great Lakes Submerged Lands Act, require State's permit approval for any alteration or placement of structures on the bottom lands.
MINNESOTA: Yes.
NEW YORK: Yes. Public Lands Law requires license for mining and dredging, and protects mineral springs. The Conservation Law requires licensing of oil and gas wells, and the Stream Protection Act provides for a permit system for disturbance of beds of certain waters.
OHIO: Only beneath the water of Lake Erie. Onshore streams generally have riparian rights.
PENNSYLVANIA: Yes.
WISCONSIN: No.

249. Are all waters of the State (inland and Great Lakes) covered by the statute(s)?

ILLINOIS: Yes.
INDIANA: (a) Public freshwater lakes, navigable streams, and Lake Michigan. (b) Flood Control Act, Acts of 1945, Chapter 318 (Burns 27-1101: 27-1123a).
MICHIGAN: Yes.
MINNESOTA: Yes.
NEW YORK: No. Public Lands Law and oil and gas section of Conservation Law limit coverage to State-owned lands. Under Stream Protection Act, all navigable waters and those classified C (T) or higher are covered.
OHIO: No, see No. 248.
PENNSYLVANIA: Yes.
WISCONSIN: Not applicable.

250. Are any persons, areas, or minerals exempted from operation of the statute?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: Private lands, except as covered by Stream Protection Act, are exempted. Silver and gold, wherever found, are controlled by the Public Lands Law.
OHIO: No, see No. 248.
PENNSYLVANIA: No.
WISCONSIN: Not applicable.

251. Are there any specific laws contolling mining drainage?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes. Special permit for drainage may be granted for low grade iron ore mining under Act 143, P.A. 1959. Water Quality Standards also apply, as does Act 92, P.A. 1970, Mine Reclamation Act.
MINNESOTA: Yes.
NEW YORK: No. Legislation being considered.
OHIO: Yes, Section 1513.161, O.R.C.
PENNSYLVANIA: Yes.
WISCONSIN: No.

252. Are there any State controls regulating sand and gravel excavations for the protection of ground-water resources?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: The State's basic water pollution control statute, Act 245, P.A. 1929, as amended, provides for the protection of ground waters as well as surface water. Local control also provided through zoning.
MINNESOTA: Yes.
NEW YORK: Same as No. 251.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No.

253. May water be diverted between basins for mining purposes?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: Only by State permit, as provided in Act 143, P.A. 1959, for low grade iron ore mining. Protection of public and riparian rights and interests stipulated.
MINNESOTA: No.
NEW YORK: Same as No. 251.
OHIO: In practice, yes. Not by statute. Downstream riparian must prove damages to prevent transfer.
PENNSYLVANIA: All diversions require prior approval.
WISCONSIN: Yes. 107.05 Wisconsin Statutes.

254. Are there any special statutes modifying common law water rights relating to mining and drilling?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: Same as No. 253.
MINNESOTA: Yes.
NEW YORK: Same as No. 251.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: Same as No. 253.

255. Does the State have a statute expressly controlling the drilling

TABLE S20–17 (continued) Minerals, Oil, Gas, and Disposal Wells

of oil, gas, and mineral wells beneath the water of the State?

ILLINOIS: ---
INDIANA: Yes, on State-owned lands. Acts of 1947, Chapter 302.
MICHIGAN: Yes, see No. 248. Act 315, P.A. 1969, and Act 61, P.A. 1939, also apply.
MINNESOTA: Yes.
NEW YORK: No distinction between oil or gas drilling beneath land or water. Drilling on State underwater lands requires approval of Office of General Services, also.
OHIO: Yes, regulation of drilling for oil, gas, and mineral wells--O.R.C., Section 1509; Lake Erie--O.R.C., Section 1505.07 as amended 1970.
PENNSYLVANIA: Yes.
WISCONSIN: No.

256. Are there oil, gas, and mineral drilling regulations to protect fresh ground-water supplies?

ILLINOIS: ---
INDIANA: Yes, Acts of 1947, Chapter 277.
MICHIGAN: Yes, Act 315, P.A. 1969, Act 61, P.A. 1939, and Act 326, P.A. 1937, provide for permits, construction materials and practice standards, and surveillance.
MINNESOTA: Yes.
NEW YORK: Yes, Oil and Gas Law, Art. 3A, Section 74.4.
OHIO: Yes, O.R.C., 1509.
PENNSYLVANIA: Yes.
WISCONSIN: No.

257. Must oil and mineral well logs be filed with the State?

ILLINOIS: ---
INDIANA: Yes.
MICHIGAN: Yes. Act 61, P.A. 1939 and Act 315, P.A. 1969.
MINNESOTA: Yes.
NEW YORK: Yes. Oil and Gas Law, Section 75.1.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: No.

258. Are there spacing regulations for oil and gas wells?

ILLINOIS: ---
INDIANA: Yes.
MICHIGAN: Yes. Act 61, P.A. 1939.
MINNESOTA: No.
NEW YORK: Yes. Oil and Gas Law, Section 77.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No.

259. Does the State license or regulate by permit oil, gas, and mineral well drillers?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Oil, gas, and mineral well drillers regulated by permit from State, Act 61, P.A. 1939, and Act 315, P.A. 1969.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: No.

260. What is the name and composition of the agency regulating mining, oil, gas, and mineral well drilling?

ILLINOIS: Department of Public Works.
INDIANA: Natural Resources Commission; 12 members, 7 of which are ex officio.
MICHIGAN: Department of Natural Resources and State Water Resources Commission for use permit for disposal.
MINNESOTA: Department of Natural Resources.
NEW YORK: Office of General Services, for underwater State land; Department of Environmental Conservation, for oil, gas and mining, and streambed excavation.
OHIO: Division of Geological Survey, Ohio Department of Natural Resources.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Not applicable.

261. Does the State have statutory regulations governing waste disposal wells?

ILLINOIS: ---
INDIANA: Yes. Acts of 1947, Chapter 277 and Acts of 1957, Chapter 64.
MICHIGAN: Yes. Act 315, P.A. 1969 provides for permits, material and practice standards, and surveillance; Act 245, P.A. 1929, as amended, provides for new use permits for disposal.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: Yes. O.R.C., Section 1509.
PENNSYLVANIA: Yes.
WISCONSIN: No, covered in Wisconsin Admin. Code RD 12.12.

262. Are permits from the State required for waste well disposal?

ILLINOIS: ---
INDIANA: Yes. Permits for salt water disposal wells and approval of plans and specifications for others.
MICHIGAN: Yes, see No. 261.
MINNESOTA: Yes.
NEW YORK: Yes, both construction and operation.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Not allowed.

263. Are operating procedures regulated by State statute?

ILLINOIS: ---
INDIANA: No, but part of requirement for permit or approval of plans and specifications.
MICHIGAN: Yes, Act 315, P.A. 1969 regulates mineral well operations; Act 61, P.A. 1939, regulates oil and gas well operations; and Act 245, P.A. 1929, as amended regulates operations for pollution prevention.
MINNESOTA: No.
NEW YORK: Yes.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Not applicable.

264. Are construction standards prescribed by statute?

ILLINOIS: Yes.
INDIANA: No.
MICHIGAN: Yes. Construction standards provided for in acts listed in No. 263.
MINNESOTA: No.
NEW YORK: No.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Not applicable

265. Is State agency surveillance required by statute?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: Yes. Surveillance provided for in acts listed in No. 263.
MINNESOTA: No.
NEW YORK: Yes, on receiving waters. Also discharger provides surveillance on his effluent.
OHIO: Yes.
PENNSYLVANIA: Yes.
WISCONSIN: Not applicable.

266. What is the name and composition of the agency that regulates waste disposal well operation?

ILLINOIS: ---
INDIANA: Natural Resources Commission and Stream Pollution Control Board.
MICHIGAN: Department of Natural Resources and State Water Resources Commission (see No. 61 and No. 231).
MINNESOTA: Pollution Control Agency.
NEW YORK: Department of Environmental Conservation.
OHIO: Department of Natural Resources, State Division of Oil and Gas.
PENNSYLVANIA: Department of Environmental Resources.
WISCONSIN: Not applicable.

267. Does the State have regulations covering drilling and operating of dewatering wells, i.e., for controlling water levels during construction of buildings, bridges, sewers, waterlines, etc.?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: No.
MINNESOTA: Yes.
NEW YORK: On Long Island only.
OHIO: No.
PENNSYLVANIA: Yes.
WISCONSIN: No.

268. Is State policy opposed to deep well disposal?

ILLINOIS: ---
INDIANA: No.
MICHIGAN: No stated policy. Deep well disposal strictly regulated by permit, however, as to location, construction materials, operating practices and surveillance for pollution prevention.
MINNESOTA: No, though it is regulated by Pollution Control Agency.
NEW YORK: Yes, except where it can be shown to have a minimal effect on the environment--severe restrictions.
OHIO: No, but subject is controversial.
PENNSYLVANIA: No, but strict regulations and procedures must be adhered to.
WISCONSIN: Yes.

269. May State lands be drilled upon by private individuals?

ILLINOIS: ---
INDIANA: Yes, for oil and gas and with permission of the State.
MICHIGAN: Yes, by stipulated lease permit agreement.
MINNESOTA: No.
NEW YORK: Yes. Oil and Gas Law, Section 60, State park lands excepted. State underwater lands require approval of Office of General Services.
OHIO: Yes, if the Director or Natural Resources with the approval of the Governor and the Attorney General, agrees to lease, sell, or trade the necessary lands or land rights to the drillers, O.R.C. 1501.01.
PENNSYLVANIA: Yes, by special permit.
WISCONSIN: The issue has never arisen. If it did, it probably would be refused.

270. Is there a strong State policy regarding oil drilling beneath the waters of the State?

ILLINOIS: No.
INDIANA: No.
MICHIGAN: Yes. State policy is opposed to drilling beneath the waters of the State. Pollution hazard factors outweigh foreseeable benefits.
MINNESOTA: No.
NEW YORK: No definite policy. However, there is presently a two-year moratorium on drilling under Lake Erie for natural gas.
OHIO: Yes, especially in Lake Erie where it is forbidden at least until July 1, 1972.
PENNSYLVANIA: Yes, in connection with possible pollution.
WISCONSIN: No.

Addendum B

STATUTORY RESPONSIBILITIES FOR WATER AND RELATED RESOURCES BY STATE

TABLE S20–18 Illinois Statutory Responsibilities for Water and Related Resources

DAMS AND LAKE LEVELS

STATE
Ch. 19 #119, 120, 1026-1

SANITARY DISTRICTS
Ch. 42 E259-261

DRAINAGE

STATE
Ch. 19 #145.31-34

COUNTY
Ch. 34 #3101-3123

SANITARY DISTRICTS
Ch. 42 #1, 2
259-261, 270
Ch. 34 #3131

DRAINAGE DISTRICTS
Ch. 42 #1-19
1201, 1203,
354-359

DREDGING AND FILLING

STATE
Ch. 19 #60; 65a;
150-151; & 65

COUNTY
Ch. 34 #3101-3123

PORT DISTRICTS
Ch. 19 #152-212

PARK DISTRICTS
Ch. 105 #11,
79-85

FLOOD CONTROL

Ch. 19 #145.31-34;
1025

COUNTY
Ch. 34 #3115

SOIL AND WATER
CONSERVATION DISTRICTS
Ch. 5 #106-108

FISH AND WILDLIFE

STATE
Ch. 19 #69
Ch. 56 #141-191;
192-223; 224-232
Ch. 19 #135-157

SOIL AND WATER
CONSERVATION DISTRICTS
Ch. 5 #106-108

IRRIGATION

STATE
Ch. 127 #46.18

COUNTY
Ch. 34 #3106

MINING AND DRILLING

STATE
Ch. 19 #65 b, d, e;
& 145.16

NAVIGATION: PORTS AND HARBORS

STATE
Ch. 19 #47, 73, 53-65,
114, 146, 58 & 65c
Ch. 127 #46.25

COUNTY
Ch. 34 #429.15

SOIL AND WATER
CONSERVATION DISTRICTS
Ch. 5 #106-108

PORT DISTRICTS
Ch. 19 #152-212

PARK DISTRICTS
Ch. 105 #11

CONSERVATION: LANDS AND WATER

STATE
Ch. 19 #1031-1042
Ch. 57 1/2 #22-30,
Ch. 127 #63a, 49, 46, 56

COUNTY
Ch. 57 1/2 #1-15a 4.0

TOWNSHIP
Ch. 24 #11-98

VILLAGE
Ch. 24 #11-98

CITY
Ch. 24 #11-100

SOIL AND WATER
CONSERVATION DISTRICTS
Ch. 5 #106-135

PARK DISTRICTS
Ch. 105 #1-13

POWER

STATE
Ch. 19 #67

RECREATION

STATE
Ch. 19 #66, 1022
Ch. 105 #465-468, 501-508,
521-525, 531-535
Ch. 127 #55

COUNTY
Ch. 57 1/2 #15a 3.1

PARK DISTRICTS
Ch. 105 #2-13, 48-51,
79-85, 325b, 333

SHORELAND MANAGEMENT

STATE
Ch. 19 #52-68, 71

COUNTY
Ch. 34 #3

TOWNSHIP
Ch. 105 #219-231, 323

VILLAGE
Ch. 105 #323

TABLE S20–18 (continued) Illinois Statutory Responsibilities for Water and Related Resources

CITY
Ch. 105 #323

PORT DISTRICTS
Ch. 19 #152-212

PARK DISTRICTS
Ch. 105 #79-85
Ch. 155 #11

SOIL CONSERVATION

STATE
Ch. 5 #109-112

SOIL AND WATER CONSERVATION DISTRICTS
Ch. 5 #106-108, 113-127

WASTE DISPOSAL

STATE
Ch. 19 #61a, 145.1-145.22, 1021-1028, 145.31-145.34

COUNTY
Ch. 19 #145.12
Ch. 34 #3101-3123, 3131

TOWNSHIP
Ch. 19 #145.12
Ch. 42 #317

VILLAGE
Ch. 19 #145.12
Ch. 42 #317

CITY
Ch. 19 #145.12
Ch. 42 #317

SANITARY DISTRICTS
Ch. 42 #247-360, 412-447
Ch. 34 #3131
Ch. 19 #145.12

DRAINAGE DISTRICTS
Ch. 42 #1-19

WATER SUPPLY

STATE
Ch. 19 #61a, 65, 145.1-145.22, 1021-1028, 1001-1008.13, 435.3
Ch. 127 #55.03

COUNTY
Ch. 34 #3101-3123

CITY
Ch. 24 #11-130

SANITARY DISTRICTS
Ch. 42 #348-443
Ch. 34 #3131

PUBLIC WATER DISTRICTS
Ch. 111 2/3 #188-205

NOTE:

Chapters (Ch.) and Sections (#) as shown in Annotated Statutes of Illinois (Smith-Hurd), and Illinois Revised Statutes.

TABLE S20–19 Michigan Statutory Responsibilities for Water and Related Resources

DAMS AND LAKE LEVELS

STATE
281.61-281.86
281.131-281.115
281.731-281.752
281.301-281.315
307.1-307.7
P.A. 68, 1970[1]

COUNTY
46.21-46.24
281.61-281.86

SPECIAL PURPOSE DISTRICTS
282.1-282.16
281.61-281.86

CORPORATE
485.1-485.25
485.101-485.129
485.201-485.214
485.301-485.303
486.101-486.116
486.201-486.216

DRAINAGE

STATE
235.1-235.8
322.701-322.715
323.1-323.12
P.A. 200, 1970[2]

COUNTY
235.1-235.8
281.621-281.628
280.1-280.623

CITY
235.1-235.8
281.621-281.628
101.1-.18

VILLAGE
67.24-67.34
235.1-235.8
281.621-281.628

TOWNSHIP
235.1-235.8
281.621-281.628

SPECIAL PURPOSE DISTRICTS
281.621-281.628
119.1-119.15
323.301-323.320
280.1-280.623

DREDGING AND FILLING

STATE
281.731-281.752
281.901-281.930
322.701-322.715
254.1-254.32

COUNTY
281.901-281.930

CITY
281.901-281.930

VILLAGE
281.901-281.930
67.24-67.34

TOWNSHIP
281.901-281.930

SPECIAL PURPOSE DISTRICTS
281.901-281.930

CORPORATE
485.1-485.25
485.101-485.129
485.201-485.214
485.301-485.303
486.101-486.116
486.201-486.216

FLOOD CONTROL

STATE
322.701-322.715
323.1-323.12
45.491
P.A. 200, 1970[2]

COUNTY
281.621-281.628

CITY
281.621-281.628

VILLAGE
281.621-281.628

TOWNSHIP
281.621-281.628

SPECIAL PURPOSE DISTRICTS
281.621-281.628
282.1-282.16
323.301-323.320

FISH AND WILDLIFE

STATE
300.1-300.5
300.11
300.51-300.56
301.1-301.10
317.201-317.208
286.411-286.420
307.1-307.7
308.201-308.205
301.1-301.10

IRRIGATION

COUNTY
279.201-279.246

SPECIAL PURPOSE DISTRICTS
279.201-279.246

MINING AND DRILLING

STATE
322.701-322.715
323.251-323.258
325.221-325.240
319.1-319.27
319.51-319.81
319.301-319.303
319.211-319.234
P.A. 92, 1970

TABLE S20–19 (continued) Michigan Statutory Responsibilities for Water and Related Resources

CORPORATE
319.211-319.234

NAVIGATION: PORTS AND HARBORS

STATE
120.51-120.56
281.501-281.511
3.301
281.1001-281.1027
281.531-281.538
P.A. 167, 1970

COUNTY
281.541-281.543
46.21-46.24

CITY
97.1-97.6
117.4h
123.601-123.604
281.541-281.543

VILLAGE
67.35-67.39
281.541-281.543

TOWNSHIP
41.481-41.482
281.541-281.543

SPECIAL PURPOSE DISTRICTS
120.1-120.35
120.51-120.56
281.541-281.543

CORPORATE
485.1-485.25
485.101-485.129
485.201-485.214
485.301-485.303

CONSERVATION: LANDS AND WATER

STATE
281.301-281.315
281.731-281.752
281.901-281.930
299.3
323.1-323.12
3.601-3.607
16.350-16.360
286.411-286.420
P.A. 200, 1970[2]
P.A. 231, 1970
P.A. 127, 1970

COUNTY
46.21-46.24
281.901-281.930
P.A. 127, 1970

CITY
281.901-281.930
560.101-560.293
P.A. 127, 1970

VILLAGE
281.901-281.930
68.1-68.22
560.101-560.293
P.A. 127, 1970

TOWNSHIP
41.671-41.673
281.901-281.930
560.101-560.293
P.A. 127, 1970

SPECIAL PURPOSE DISTRICTS
323.301-323.320
281.901-281.930
P.A. 127, 1970

CORPORATE
P.A. 127, 1970

POWER

STATE
460.6

CITY
117.4f

CORPORATE
486.1-486.22
486.51-486.66
486.101-486.116
486.201-486.216
486.351-486.353
486.251-486.254

RECREATION

STATE
299.111-299.116
299.121-299.127
318.3-318.8
318.301-318.316
318.351-318.362
318.371-318.387
P.A. 231, 1970

COUNTY
46.351-46.367
318.51-318.54

CITY
318.51-318.54

VILLAGE
318.51-318.54

TOWNSHIP
41.421-41.425
41.441-41.446
318.51-318.54

SPECIAL PURPOSE DISTRICTS
119.1-119.15
P.A. 169, 1970

SHORELAND MANAGEMENT

STATE
281.61-281.86
281.731-281.752
281.901-281.930
322.701-322.715
323.1-323.12
P.A. 200, 1970[2]
P.A. 231, 1970
P.A. 245, 1970

COUNTY
281.61-281.86
281.601
281.621-281.628
281.901-281.930

CITY
123.581-123.583
281.601
281.621-281.628
281.901-281.930

VILLAGE
123.581-123.583
281.601
281.621-281.628
281.901-281.930
41.411

TOWNSHIP
281.601
281.621-281.628
281.901-281.930
41.411

SPECIAL PURPOSE DISTRICTS
281.601
281.621-281.628
282.1-282.16
281.901-281.930

SOIL CONSERVATION

STATE
323.1-323.12
P.A. 200, 1970[2]

COUNTY
281.621-281.628
281.601

CITY
281.621-281.628
281.601

VILLAGE
281.621-281.628
281.601
41.411

TOWNSHIP
281.621-281.628
281.601
41.111

SPECIAL PURPOSE DISTRICTS
282.1-282.16

WASTE DISPOSAL

STATE
323.1-323.12
323.101-323.103
323.111-323.128
323.151-323.162
323.201-323.203
325.201-325.214
325.281-325.287
325.291-325.298
323.371-323.382
323.401-323.412
323.351-321.358
P.A. 214, 1970[3]
P.A. 200, 1970[2]
P.A. 133, 1970[4]
P.A. 167, 1970
P.A. 176, 1970[5]

COUNTY
46.171-46.186
123.331-123.347
123.381-123.384
123.731-123.745
323.101-323.103
323.111-323.128
123.241-123.283
P.A. 214, 1970[3]
P.A. 133, 1970[4]
P.A. 234, 1970[6]

TABLE S20–19 (continued) Michigan Statutory Responsibilities for Water and Related Resources

CITY
101.1-101.18
117.4f
123.331-123.347
123.351-123.356
123.381-123.384
124.251-124.294
323.101-323.103
323.111-323.128
123.241-123.253
P.A. 214, 1970[3]
P.A. 133, 1970[4]

VILLAGE
67.24-67.34
123.331-123.347
123.381-123.384
124.251-124.294
323.101-323.103
323.111-323.128
41.411
123.241-123.253
P.A. 214, 1970[3]
P.A. 133, 1970[4]

TOWNSHIP
123.331-123.347
123.381-123.384
124.251-124.294
323.101-323.103
323.111-323.128
41.331-41.415
123.253-123.251
P.A. 214, 1970[3]
P.A. 133, 1970[4]

SPECIAL PURPOSE DISTRICTS
119.1-119.15
323.101-323.103
323.111-323.128
323.151-323.162
P.A. 214, 1970[3]
P.A. 133, 1970[4]

WATER SUPPLY

STATE
323.151-323.162
325.201-325.214

COUNTY
46.171-46.186
P.A. 234, 1970[6]
123.161-123.167
323.331-323.347
123.381-123.384
123.731-123.745

CITY
106.1-106.11
121.1-121.29
123.111-123.130
123.141-123.144
123.151-123.155
123.161-123.167
123.331-123.347
123.351-123.356
123.381-123.384
124.251-124.294
123.191-123.195

VILLAGE
71.1-71.11
121.1-121.29
123.141-123.144
123.161-123.167
123.331-123.347
123.381-123.384
124.251-124.294
41.411

TOWNSHIP
41.331-41.415
121.1-121.29
123.111-123.130
123.141-123.144
123.161-123.167
123.331-123.347
123.381-123.384
124.251-124.294

SPECIAL PURPOSE DISTRICTS
119.1-119.15
323.151-323.162

CORPORATE
486.551-486.571
486.301-486.318
486.401-486.402
486.501-486.508

NOTE:

These statutes were taken from the Compiled Laws of 1948 as altered by Legislative enactments through 1969 session. Legislative actions of 1970 are included and listed as Public Acts of 1970.

[1] P.A. 68, 1970, amends 281.131-281.133 and 281.135

[2] P.A. 200, 1970, amends 323.6, .7, .8, & .11; adds sections 6b & 13

[3] P.A. 214, 1970, amends 323.111

[4] P.A. 133, 1970, amends 323.112, .113, .115, .120, .121, .124, & .126

[5] P.A. 176, 1970, amends 323.401, .402, .404-.406, .410, & .412

[6] P.A. 234, 1970, amends 123.731, .737, .738, .740, .741, .742, & .744

TABLE S20–20 Ohio Statutory Responsibilities for Water and Related Resources

DAMS AND LAKE LEVELS

STATE
125.03-.04[1]
1523.01[2]
1523.14-.18[2]

COUNTY
6131.01-.64

CORPORATE
723.07[1]

DRAINAGE

COUNTY
5579.01
5589.06
6131.01-.64

TOWNSHIP
5579.01
5589.06

WATER AND SEWER DISTRICTS
6119.01

SANITARY DISTRICTS
6115.18

CONSERVANCY DISTRICTS
6101.04
6101.15

WATERSHED DISTRICTS
6105.01-.22

DREDGING AND FILLING

STATE
2921.13
2921.17
1507.01-.13[3]
1547.71-.78[4]

COUNTY
6156.01-.05
123.031
307.65
307.67

TOWNSHIP
721.04-.05 (Incorporated)
715.31-.32 (Incorporated)
717.01 (Incorporated)
721.08 & .11 (Incorporated)

VILLAGE
721.04-.05 (Incorporated)
715.31-.32 (Incorporated)
717.01 (Incorporated)
721.08 & .11 (Incorporated)

CITY
721.04-.05 (Incorporated)
715.31-.32 (Incorporated)
717.01 (Incorporated)
721.08 & .11 (Incorporated

SANITARY DISTRICTS
6115.18

CONSERVANCY DISTRICTS
6101.04
6101.15

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

PORT AUTHORITY
4582.06

CORPORATE
1723.07[1]

TABLE S20–20 (continued) Ohio Statutory Responsibilities for Water and Related Resources

FLOOD CONTROL

STATE
1523.01[2]

COUNTY
6131.01-.64

CONSERVANCY DISTRICT
6101.04

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

CORPORATE
1723.07[1]

FISH AND WILDLIFE

STATE
155.09 & .11
1531.01-.28[3]
1533.01-.29[3]

IRRIGATION

STATE
1523.01[2]

COUNTY
6131.01-.64

CONSERVANCY DISTRICTS
6101.04

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

MINING AND DRILLING

STATE
155.01
1505.01-.08[5]
1509.01-.41[6]
4151.02-.13[7]

COUNTY
303.01-.25
307.11

TOWNSHIP
303.01-.25

NAVIGATION: PORTS AND HARBORS

STATE
307.67
1507.01-.37
1547.51-.78[4]

COUNTY
307.67
307.67
4582.02

TOWNSHIP
721.04-.05 (Incorporated)
715.31-.32
4582.02

VILLAGE
721.04-.05 (Incorporated)
715.31-.32

CITY
721.04-.05 (Incorporated)
715.31-.32
4582.02

CONSERVANCY DISTRICTS
6101.04

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

PORT AUTHORITY
4582.01-.20

CONSERVATION: LANDS AND HARBORS

STATE
1501.01-.02[3]
1511.01-.02[8]
123.03

COUNTY
6156.01-.05
6133.01-.16

SOIL AND WATER
CONSERVATION DISTRICTS
1515.01-.22

CONSERVANCY DISTRICTS
6101.01-.34
6105.12K

WATERSHED DISTRICTS
6101.01-.22

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

POWER

STATE
1523.05[2]

RECREATION

STATE
755.08[9]
1541.01-.10[10]

PARK DISTRICTS
5145.01-.11

SOIL CONSERVATION

STATE
1507.01-.13[3]

TOWNSHIP
721.08 & .11 (Incorporated)

VILLAGE
721.08 & .11 (Incorporated)

CITY
721.08 & .11 (Incorporated)

SHORELAND MANAGEMENT

STATE
1507.01-.13[3]
159.01
163.01-166.22
123.03

COUNTY
123.031
163.01-166.22
307.08
307.15
6153.01-.26

TOWNSHIP
163.01-166.22
519.01
717.01 (Incorporated)
719.01-.02 (Incorporated)
721.08 & .11 (Incorporated)
743.01 (Incorporated)
761.01-.14 (Incorporated)

VILLAGE
163.01-166.22
717.01 (Incorporated)
719.01-.02 (Incorporated)
721.08 & .11 (Incorporated)
743.01 (Incorporated)
761.01-.14 (Incorporated)

CITY
163.01-166.22
717.01 (Incorporated)
719.01-.02 (Incorporated)
721.08 & .11 (Incorporated)
743.01 (Incorporated)
761.01-.14 (Incorporated)

CONSERVANCY DISTRICTS
6101.04

WASTE DISPOSAL

STATE
3701.12[11]
1525.01-.06[3]
3767.31-.33[4]
6111.01-.30[12]
1521.01-.13[2]
1523.01-.20[2]

COUNTY
6131.01-.64
307.151-.152

WATER AND SEWER DISTRICTS
6119.01-.42

SANITARY DISTRICTS
6115.01-.79

CONSERVANCY DISTRICTS
6101.04
6101.15

WATERSHED DISTRICTS
6105.12

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

PORT AUTHORITY
4582.06

WATER SUPPLY

STATE
3701.18[11]
6111.01-.30[12]
1521.01-.13[2]
1523.01-.20[2]

WATER AND SEWER DISTRICTS
6119.01-.42

SANITARY DISTRICTS
6115.01-79

CONSERVANCY DISTRICTS
6101.04
6101.15

WATERSHED DISTRICTS
6105.12

TABLE S20–20 (continued) Ohio Statutory Responsibilities for Water and Related Resources

OHIO WATER DEVELOPMENT AUTHORITY
Ch. 6121

JURISDICTION

[1]Board of Public Works
[2]Chief, Division of Water
[3]Department of Natural Resources
[4]Division of Watercraft
[5]Geological Survey Division
[6]Division of Oil and Gas
[7]Division of Mines
[8]Division of Land and Soil
[9]Board of Park Commissioners
[10]Division of Parks and Recreation
[11]Department of Health
[12]Water Pollution Control Board

TABLE S20–21 Pennsylvania Statutory Responsibilities for Water and Related Resources

DAMS AND LAKE LEVELS

STATE
55 PSA 291-239; 67 PSA 906
39 PSA 255, 191; 36 PSA 2912
71 PSA 1331, 74; PSA 11-13
32 PSA 136-138; 591-600, 621-625
32 PSA 681-691; 52 PSA 884
64 PSA 263, 138; 30 PSA 185, 191
15 PSA 1404; 35 PSA 2106
34 PSA 1311.606, 1311-610
67 PSA 1001, 1004.71-461, 468

COUNTY
16 PSA 2652, 2631, 2652
16 PSA 5754, 5717
53 PSA 1981, 1079
35 PSA 2105
32 PSA 659
18 PSA 3151, 4926

TOWNSHIP
53 PSA 2862
53 PSA 1081

BOROUGH
53 PSA 47203
53 PSA 46401

CITY
53 PSA 2831, 38491, 38409
53 PSA 2901

DRAINAGE

STATE
71 PSA 332, 951-956
52 PSA 682-685, 681.13
3 PSA 731-744
52 PSA 1373; 53 PSA 1724
52 PSA 872, 883
32 PSA 670-417
3 PSA 721-725

COUNTY
16 PSA 1947, 5716-5717
16 PSA 5905-5907
53 PSA 57025
16 PSA 2026, 5226
16 PSA 731-731
16 PSA 5186

TOWNSHIP
71 PSA 516; 3 PSA 741-744
16 PSA 5791
53 PSA 7101, et seq. 47120
53 PSA 4101-4103, 1724
53 PSA 1721, 57020-57024
53 PSA 57401, et seq.
53 PSA 66501, et seq.
53 PSA 66148, 65726

BOROUGH
16 PSA 5791
53 PSA 46801, 46802, 46804
53 PSA 46202, 1721, 46211
53 PSA 4101-4103, 1724
53 PSA [illegible]

CITY
16 PSA 5791; 36 PSA 105
53 PSA 4193, 1721, 1724
53 PSA 4600-4669, 47120
53 PSA 14961-14985
53 PSA 12263, 37801
53 PSA 24571, 38001
36 PSA 670-521

DREDGING AND FILLING

STATE
55 PSA 332.1-.2
55 PSA 362.368
32 PSA 653-677, 751.3
32 PSA 751.3

BOROUGH
53 PSA 46765

CITY
53 PSA 37403, 37960

FLOOD CONTROL

STATE
32 PSA 674-677[1]
71 PSA 470, 464, 465
71 PSA 1331; 53 PSA 2865
32 PSA 653-678.3, 701-706
32 PSA 802-805
71 PSA 1707.4, 1331
34 PSA 1311.906
71 PSA 1710.51
32 PSA 75, 76
32 PSA 201-706
18 PSA 4922
32 PSA

COUNTY
71 PSA 465, 470
16 PSA 1947, 5147
71 PSA 1710.51
51 PSA 63

TOWNSHIP
71 PSA 465
53 PSA 2861-2877
32 PSA 801-805
32 PSA 665

BOROUGH
71 PSA 465
53 PSA 2861-2877
32 PSA 801-805
32 PSA 665

CITY
71 PSA 465
53 PSA 2861-2877
53 PSA 23169
53 PSA 37403 (14)
32 PSA 801-805
53 PSA 23169, 37403
32 PSA 665

FISH AND WILDLIFE

STATE
30 PSA 200-204[2], 255, 191
30 PSA 249[2]
71 PSA 101, 102[2]; 32 PSA 668
71 PSA 691[2]-697
71 PSA 462, 671-675
34 PSA 1311.901-1311.907
34 PSA 1311.915-1311.938
71 PSA 766, 695, 250
55 PSA 486-488
34 PSA 1311.942, 1311.944
32 PSA 454
34 PSA 1311.610

COUNTY

71 PSA 102[2]
35 PSA 1451, 1452

CITY
53 PSA 14421-14425

IRRIGATION

STATE
Riparian Rights

MINING AND DRILLING

STATE
71 PSA 133, 134, 148[3]
35 PSA 760.1-.2
71 PSA 501-507, 1404, 462
71 PSA 176, 177, 1331, 1343-1352
32 PSA 645.3
52 PSA 71 et seq., 711 et seq.
52 PSA 30.1-30.9, 30.191-109
52 PSA 30.59-30.62 (see note)
32 PSA 4, 645.1-645.1
34 PSA 1311.94
36 PSA 2801, 2802
73 PSA 261-268

TABLE S20-21 (continued) Pennsylvania Statutory Responsibilities for Water and Related Resources

CONSERVATION: LANDS AND WATER

STATE
32 PSA 1-5, 31-32
71 PSA 670.1, 465, 1301
32 PSA 921-928
52 PSA 1396.1-1396.18
53 PSA 7284-7292
44 PSA 19.3
71 PSA 484, 465
18 PSA 3472
32 PSA 5, 161, 162, 166, 167, 169
71 PSA 1261-1265
71 PSA 1331
72 PSA 5591, 5502
6 PSA 604
32 PSA 701-705

COUNTY
71 PSA 465

TOWNSHIP
71 PSA 465

BOROUGH
71 PSA 465

CITY
71 PSA 465

POWER

STATE
71 PSA 141, 464, 468
32 PSA 136-138
32 PSA 591-600, 621-636
52 PSA 2
35 PSA 4003
53 PSA 25481-25498
67 PSA 1221
35 PSA 1424
15 PSA 2852-4, 1405, 1442
15 PSA 3
72 PSA 2181, 2181
15 PSA 1444

COUNTY
16 PSA 5157

TOWNSHIP
16 PSA 5157

BOROUGH
16 PSA 5157
53 PSA 47436, 47210, 4720

CITY
16 PSA 5159
53 PSA 37402, 37601
72 PSA 6161-6167
53 PSA 38401

RECREATION

STATE
32 PSA 921-928[4]
71 PSA 144[4]
71 PSA 471[4]
71 PSA 670.1, 466, 1331
11 PSA 901-904
71 PSA 1331

COUNTY
71 PSA 334, 961
16 PSA 6001-6935

TOWNSHIP
53 PSA 58001 et seq.
53 PSA 66901 et seq.

BOROUGH
53 PSA 315, 3181 et seq.
53 PSA 47701-47759

CITY
53 PSA 3151, 3181 et seq.
53 PSA 37402
53 PSA 3181

COUNTY
16 PSA 1955, 5155, 5157

TOWNSHIP
16 PSA 5157

BOROUGH
16 PSA 5157

CITY
16 PSA 5157

NAVIGATION: PORTS AND HARBORS

STATE
55 PSA 361-374
71 PSA 468, 471
32 PSA 101-104, 592, 690
55 PSA 551, et seq.
55 PSA 261-265, 281-283
55 PSA 291-293
55 PSA 483-492
64 PSA 291-295, 138
64 PSA 261-265
32 PSA 675-677
53 PSA 2381, 14217
74 PSA 11; 52 PSA 2
36 PSA 2911, 1912

COUNTY
55 PSA 311-314
55 PSA 321-322
55 PSA 332.1-.2

TOWNSHIP
55 PSA 311-314 (Incorporated)
55 PSA 321-322 (Incorporated)
55 PSA 332.1-.2 (Incorporated)
55 PSA 55301, 65301

BOROUGH
55 PSA 311-314 (Incorporated)
55 PSA 321-322 (Incorporated)
55 PSA 332.1-.2 (Incorporated)
55 PSA 55301, 65301
53 PSA 47601 et seq.

CITY
55 PSA 311-314 (Incorporated)
55 PSA 321-322 (Incorporated)
55 PSA 332.1-.2 (Incorporated)
53 PSA 37403
53 PSA 35601
53 PSA 2831, 23155
53 PSA 14191 et seq.

SHORELAND MANAGEMENT

STATE
32 PSA 675-77[4]
64 PSA 110-111[5]

COUNTY
55 PSA 311-314

TOWNSHIP
55 PSA 311-314 (Incorporated)

BOROUGH
55 PSA 311-314 (Incorporated)

CITY
55 PSA 311-314 (Incorporated)

SOIL CONSERVATION

STATE
71 PSA 1710.51
71 PSA 670.1; 71 PSA 462
3 PSA 849-864
32 PSA 75.76, 454

COUNTY
3 PSA 853-861

WASTE DISPOSAL

STATE
30 PSA 361-62; 32 PSA 192
35 PSA 691.3-.4, 691.201-213[3]
35 PSA 691.301-.317[3]
35 PSA 691.601-609[3]
35 PSA 701-703
71 PSA 149 2, 1404
35 PSA 731, 750.1-.15[3]
52 PSA 20.1-306
52 PSA 682-688
35 PSA 691.601-691.701

COUNTY
35 PSA 750.5-.15[3]
16 PSA 1975, 2396, 5175
16 PSA 5176, 5177-5179
16 PSA 5185-5187
16 PSA 5332

TOWNSHIP
35 PSA 750.1-.15[3]
16 PSA 5177, 5178, 5180
16 PSA 5181, 5183, 5184
53 PSA 47501 et seq. 65730
53 PSA 56527, 56901, 65708

BOROUGH
35 PSA 750.1-.15[3]
16 PSA 5177, 5178, 5180, 5181
16 PSA 5183, 5184, 5332-5333
53 PSA 47511 et seq.
53 PSA 47000 et seq.

CITY
35 PSA 750.1-.15
16 PSA 5177, 5178, 5180, 5181
16 PSA 5183, 5184, 5332-5333
53 PSA 4600-4669
53 PSA 37402, 38201 et seq.
53 PSA 2201 et seq.

WATER SUPPLY

STATE
71 PSA 149[2], 141, 464, 468
35 PSA 691.401-.403
35 PSA 691.501
35 PSA 711-716
71 PSA 539, 540
32 PSA 593, 598, 621-622
32 PSA 631-641, 645.1-645.13
18 PSA 4640
71 PSA 540
71 PSA 412

COUNTY
16 PSA 5176, 5186
16 PSA 12901-12915
16 PSA 2026, 5226

TABLE S20–21 (continued) Pennsylvania Statutory Responsibilities for Water and Related Resources

TOWNSHIP
53 PSA 57701 et seq.
53 PSA 2801 et seq.
32 PSA 631-634

BOROUGH
53 PSA 2905
53 PSA 2931-2934
53 PSA 2951-2967
53 PSA 2991-2993
53 PSA 2801 et seq.
53 PSA 47401-47461

CITY
53 PSA 14968
53 PSA 2901-2906
53 PSA 2931-2934
53 PSA 2961-2967
53 PSA 2991-2993
53 PSA 3801 et seq. 3151
53 PSA 14461-14460
53 PSA 2261, 2265
53 PSA 38501-38572

OTHER

STATE
Great Lakes Basin Compact
32 PSA 817.1-817.6

JURISDICTION

[1] Department of Forests and Waters
[2] Fish Commission
[3] Sanitary Water Board
[4] State Parks and Harbor Commission
[5] Land Office

PSA: Pennsylvania Statutes Annotated

NOTE:

Title 15, which deals with corporations, refers to the operation of mines within the State.

Title 30 covers statutes related to fish law.

Title 34 covers statutes related to wild game.

Title 52 covers statutes pertaining to mining.

Title 55, which deals with navigation, covers statutes pertaining to port and harbor authorities.

Title 58 includes statutes pertaining to oil and gas wells.

TABLE S20–22 Wisconsin Statutory Responsibilities for Water and Related Resources

DAMS AND LAKE LEVELS

STATE
Ch. 31 WSA
33.34[1]
31.02

COUNTY
31.05 WSA
31.38
67.04

TOWN
31.05 WSA
31.38
67.04

CITY
31.05 WSA
31.38
67.04

VILLAGE
31.05 WSA
31.38
67.04

CORPORATION OR INDIVIDUAL
31.05 WSA
31.08

DRAINAGE

STATE
Ch. 88 WSA

CORPORATION OR INDIVIDUAL
88.27
88.87 WSA

DREDGING AND FILLING

STATE
30.12 WSA
30.19-.20[1]

COUNTY
30.30 WSA
67.04

TOWN
30.30 WSA
67.04

CITY
30.30 WSA
67.04

VILLAGE
30.30 WSA

CORPORATION OR INDIVIDUAL
30.12(2) (b)
WSA

SOIL AND WATER DISTRICT
92.02 WSA

FLOOD CONTROL

STATE
Ch. 87 WSA[1]

COUNTY
87.30

CITY
87.30
67.04 WSA

VILLAGE
87.30

SOIL AND WATER DISTRICT
92.02 WSA

FISH AND WILDLIFE

STATE
Ch. 29[1] WSA
29.05[2]

COUNTY
29.536

TOWN
29.536

CITY
29.536

VILLAGE
29.536

CORPORATION OR INDIVIDUAL
29.52-.53
29.68

IRRIGATION

STATE
30.8 WSA

CITY
30.18 WSA

CORPORATION OR INDIVIDUAL
30.18 WSA

SOIL AND WATER DISTRICT
92.02 WSA

MINING AND DRILLING

STATE
107.01 WSA
107.05
30.20

CORPORATION OR INDIVIDUAL
107.05 WSA

NAVIGATION: PORTS AND HARBORS

STATE
24.39 WSA
30.01-.21
144.26

COUNTY
30.30-.38 WSA

TOWN
30.30-.38 WSA

CITY
30.30-.38 WSA
30.77

VILLAGE
30.30-.38 WSA

TABLE S20-22 (continued) Wisconsin Statutory Responsibilities for Water and Related Resources

SOIL AND WATER DISTRICT
92.02 WSA

POWER

STATE
30.21(2) (b)[1]
WSA
31.095

TOWN
30.21 WSA

CITY
30.21 WSA
31.095

VILLAGE
30.21 WSA

CORPORATION OR INDIVIDUAL
31.095 WSA

SOIL AND WATER DISTRICT
92.02 WSA

RECREATION

STATE
Ch. 27 WSA
27.30
23.99[3]

COUNTY
27.065

TOWN
27.13

CITY
27.08
27.14
27.15

VILLAGE
27.13

SHORELAND MANAGEMENT

STATE
59.971[1] WSA
144.46[1] WSA

COUNTY
59.971
236.45

TOWN
236.13 & .16
236.45

CITY
61.35
62.22 & .23
236.13 & .16

VILLAGE
61.35
62.32 & .23
236.13 & .16

SOIL CONSERVATION

STATE
Ch. 92

COUNTY
92.03

SOIL AND WATER DISTRICT
92.02

WASTE DISPOSAL

STATE
60.315 WSA
Ch. 144[1]

COUNTY
66.20-.209

TOWN
66.20-.209

CITY
66.20-.209

VILLAGE
66.20-.209

CORPORATION OR INDIVIDUAL
144.03

WATER SUPPLY

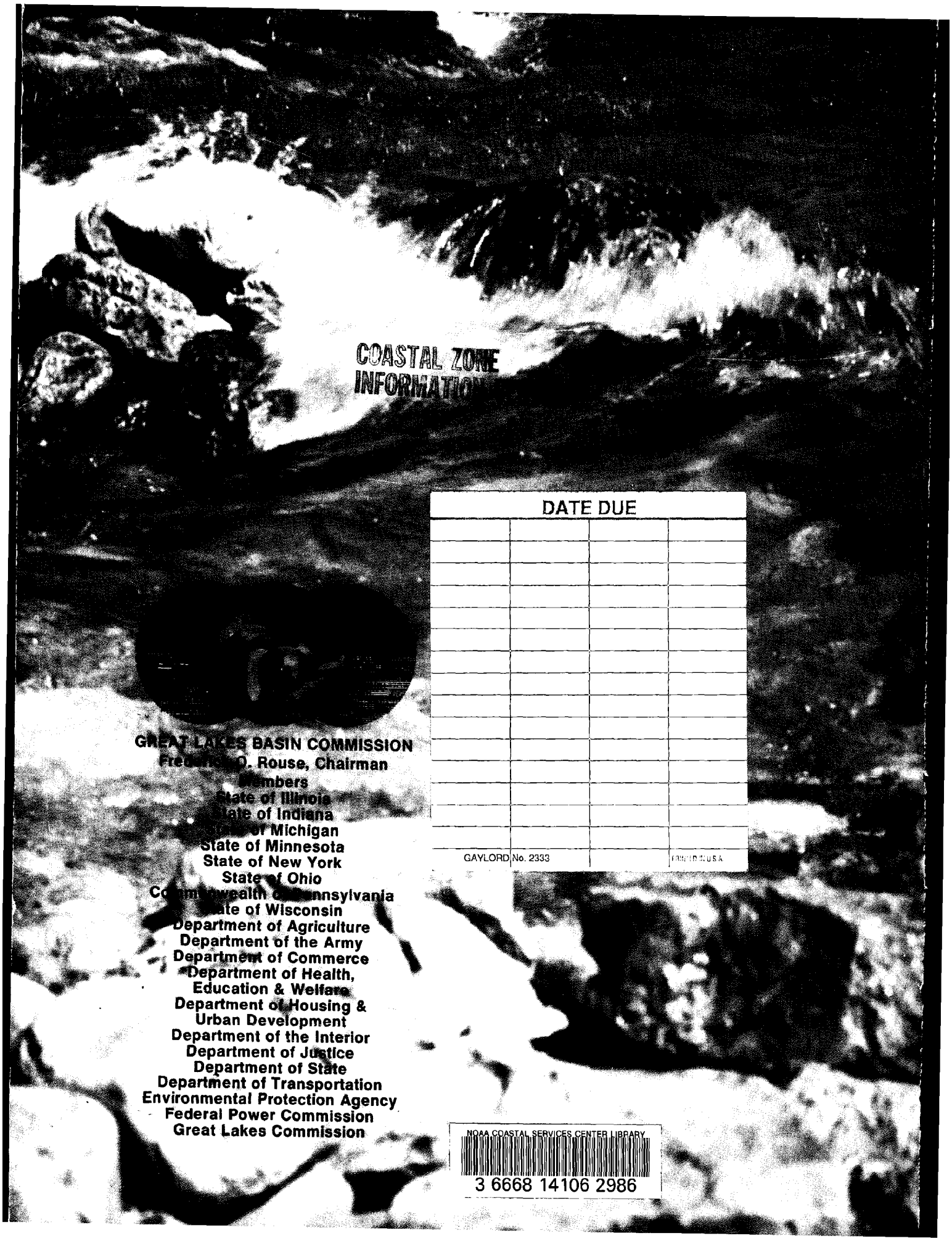
STATE
Ch. 162[1]

CORPORATION OR INDIVIDUAL
162.04

WSA: Wisconsin Statutes Annotated

JURISDICTION

[1]Department of Natural Resources
[2]Conservation Commission
[3]State Recreation Committee



COASTAL ZONE
INFORMATION

DATE DUE

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