

ILLINOIS STATE WATER PLAN

CRITICAL ISSUES

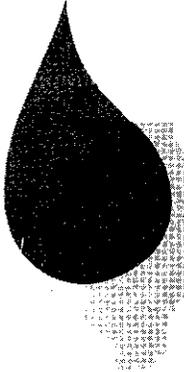
CROSS-CUTTING TOPICS

OPERATING ISSUES

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Illinois State Water Plan

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January 31, 1984

OFFICE OF THE
GOVERNOR

ILLINOIS GENERAL
ASSEMBLY, WATER
RESOURCES
COMMISSION

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BOARD

GOVERNOR OF THE STATE OF ILLINOIS

PRESIDENT OF THE SENATE

SPEAKER OF THE HOUSE

Gentlemen:

I am pleased to transmit the report "Illinois State Water Plan," which has been prepared after a three-year study by a Water Plan Task Force drawn from 12 Executive and Legislative Branch agencies.

The report addresses 10 critical issues and three cross-cutting topics which have either received inadequate attention or have been recognized as new problems. The report also deals with seven operating issues in which improvements can be made in the effectiveness of Illinois water resources management. A companion document outlines Water Plan implementation costs.

Water is a resource of great value to Illinois because of its relative abundance. Its wise management involves the challenges of achieving optimum benefits for our citizens, recognizing the limitations of the resource, conserving it, and mitigating the problems associated with the resource such as the extremes of flood and drought.

The Task Force is ready to assist the Executive and Legislative Branches in implementing the recommendations of the report.

Sincerely,

Donald R. Vonnahme
Chairman

Enclosure



EXECUTIVE SUMMARY

Introduction

The Illinois State Water Plan is intended to provide policy and program guidance in water resource management to State and local agencies, and non-governmental organizations.

A previous water plan issued in 1967 had become increasingly obsolete as a result of subsequent events such as the environmental movement, the energy crisis, changing and potential new demands upon the water resources, and the need to better coordinate the programs of existing agencies.

Task Force Activities and Interim Products

In 1980 Governor Thompson appointed a Task Force to prepare this State Water Plan. Activities during 1980, 1981, and 1982 are described in annual progress reports. The Task Force also issued a series of Special Reports, two Information Papers, and a periodic newsletter.

The work of the Task Force was greatly aided by two advisory groups, five regional committees, and by widespread public hearings held each year.

The water plan effort was aided by grants of \$245,200 and \$192,300 from the U.S. Water Resources Council in fiscal years 1980 and 1981, respectively. Regional communication was established with neighboring states which were engaged in similar planning activities. The Plan considers the broad social and economic trends reported in two recent reports, "Illinois: The Future" and "Illinois 2000".

Finally, since implementation of the Water Plan depends on agency programs, a consistency statement was adopted to ensure that agency programs will not conflict with the agreed Plan.

Problems Requiring Attention

The mission of the Task Force was established as the development of an improved water management system that is socially acceptable and operates within resource constraints. Goals were to utilize coordinated planning and implementation, to provide public participation, and to identify and establish any needed mechanisms for conflict resolution. The focus of the Water Plan became ten critical issues, three cross-cutting topics, and seven operating issues.

Critical Issues - These are identified as statewide problems which have either received inadequate attention or have been recognized as new problems. The 10 critical issues are: Erosion and Sediment Control, Protection of Underground Water, Flood Damage Mitigation, Water Conservation, Competition for Water, Aquatic and Riparian Habitat, Water-Based Recreation, Atmospheric Changes and Management, Drought and Emergency Interruption of Supplies, and Illinois Water Use Law.

Cross-Cutting Topics - These are broad problems or required actions which relate to and interact with other issues. The topics are: Integrated Water Management, Conflict Resolution, and Public Participation.

Operating Issues - These are concerned primarily with ongoing multi-agency programs which can be made more efficient through coordination and joint action. They are: Stream and Lake Use Management, Stream Data Measurements, Stream Indexing, Natural Resource Information System, Water Resources Permit Coordination, Water Research and Education, and Reservoir and Lake Operations.

Priority Order - The issues and topics within each category are shown in their general order of importance using criteria such as statewide importance, the involvement of multiple agencies, immediacy of need for action, and readiness of information and institutional mechanisms. Many of the issues and topics are highly interrelated.

Findings and Recommendations

The heart of the Water Plan is contained in the report's Findings and Recommendations summarized in the following compressed statements for each of the ten critical issues, three cross-cutting topics, and seven operating issues.

CRITICAL ISSUES

Erosion and Sediment Control - Excessive soil erosion on 9.6 million acres of Illinois farmland is threatening their productive capacity, degrading water quality, accelerating eutrophication of reservoirs, silting streams, and degrading fish and wildlife habitat. Control of erosion and sediment is difficult because of the large number of individual farms; the technical effort in locating specific high problem areas; the unquantified link between erosion and water quality; the large number of agencies involved; limited incentives; the attitudes, levels of knowledge and action of individual landowners; and reduced federal program assistance.

Recommendations call for the Department of Agriculture and cooperating agencies to continue program coordination with existing advisory committees and implementation of long-range plans. They also call for meeting established soil erosion goals by completing soil surveys and adding additional staff which will be directed into areas of the greatest problems. Some 900,000 acres now in row crop production will need to be converted to less intensive use; a strengthened educational program is required, and more effective incentives need to be developed. Erosion control programs will be evaluated and deficiencies corrected.

Protection of Underground Water - More than 1700 community water supplies and approximately 40 percent of the State's population are dependent on underground water sources. Concern over the protection of this resource against contamination and overdrafts is widespread. This issue was added late in the Water Plan process, and progress to date is limited.

Recommendations include a policy statement to protect and manage underground water for the economic, health, and social well-being of the people. Levels of protection will be established, uses and responsibilities will be determined, and the resource inventoried. Areas of degradation and depletion will be identified. Implementation programs will be developed, and although statutory and regulatory changes may be required, these are not yet determined.

Flood Damage Mitigation - Flooding continues to cause significant damage as a result of existing and continuing unwise development of floodplains. A vigorous program of structural and non-structural measures is required in planning, construction, and regulatory programs at all levels of government.

Recommendations call for an accelerated program to reduce the \$250 million backlog of projects. State leadership will be established in rural flood control, including the evaluation of the cumulative effect of levees. The flood insurance and floodplain regulatory management programs will be actively supported. The State will assist local governments in dealing with stormwater through the use of model ordinances and manuals.

Water Conservation - The conservation of water is an important element in wise management to preserve the resource, to reduce costs, and to minimize the use of energy. Except for the regulated area in the Lake Michigan service area attention to water conservation has been primarily limited to periods of drought.

Recommendations of the Task Force call for continued promotion of water conservation programs through information and education programs. Attention will be focused on water-deficient regions. Water conservation devices will be marketed to plumbing wholesalers, retailers and contractors. Model plumbing codes will be encouraged, as will industrial conservation. Water conservation devices will be installed in up to 17,000 low income residences. The State will work with local officials and will monitor the effectiveness of the program.

Competition for Water - There is rising concern that water demands may exceed available supplies in some regions of Illinois resulting in water shortages and conflicts between competing users. Proposals for major new water demands include coal slurry pipelines, synthetic fuel plants, and increasing irrigation. Additionally, there is increased interest in protecting the ecology of our streams by the maintenance of minimum instream flows and water levels.

The Task Force has conducted an evaluation of the balance of supplies vs. projected demands to the year 2000 for regions of the State. This has identified specific areas of potential competition for water. Monitoring of emerging water demands will be continued with attention given to directing new, consumptive uses to regions with ample supplies.

Aquatic and Riparian Habitat - Illinois' streams, lakes, wetlands, and their adjacent lands are important in maintaining ecological balance, because they have economic and aesthetic value, and because they are essential to recreation. Yet there has been a relentless loss of riparian habitat in the absence of adequate understanding and limited regulatory authorities.

Improved habitat protection will result from planning based on accurate information provided by computerized data bases such as the Illinois Streams Information System (ISIS) and the proposed inventory of Illinois wetlands. This planning by targeting existing resources will improve the effectiveness of existing and lead to new programs. Rules and regulations for the Act in Relation to Rivers, Lakes, and Streams of 1911 will be adopted that specifically include environmental considerations in water resources planning, permitting, and development. Interim standards will be set for a minimum protected flow in Illinois streams for water quality, aquatic life, recreation, and other benefits.

Water-Based Recreation - There is increasing disparity between the demand for and supply of opportunities for water-based recreation in Illinois. Creating artificial lakes has slowed for economic and environmental reasons. Therefore, there is need for more effective planning and management to improve the stream and lake environments, provide better access, and revitalize urban waterfronts for recreational and economic benefits.

The Task Force will soon recommend an urban waterfront renewal policy based on its 1983 sponsored study. Existing recreational data will be added to the Illinois Streams Information System (ISIS) to identify and better manage Illinois' most recreationally important waters. Access site information recently collected will be analyzed to better guide the State's local boating assistance program.

Atmospheric Changes and Management - Illinois climate is changing with greater precipitation extremes causing both floods and droughts. Man's influence is also leading to increasing urban storminess and acid rain. Studies of long-range climate prediction and weather modification are hindered by the withdrawal of federal support.

A research and monitoring program for climate change and man-made effects will be maintained. Public awareness and access to climate data will be improved, and research on weather modification will be maintained. A Climate Detection and Assistance Team should be established to develop policy and plans for floods, droughts, and unfavorable atmospheric modifications.

Drought and Emergency Interruption of Supplies - Droughts are a recurring experience with major effects on crops, water supplies, and aquatic environments. Similarly, supplies may be interrupted as a consequence of the release of contaminants or failure of facilities.

Existing State and federal programs for drought and emergency interruption of supplies will be organized and maintained in a state of readiness. This involves a continuation of monthly water condition reports, formation of a special Task Force, and execution of a series of specific response steps. It is also recommended that rate adjustments be considered by the Illinois Commerce Commission for proprietary water systems during water emergencies.

Illinois Water Use Law - Water use law in Illinois is an uncodified collection of court decisions and statutes which can lead to uncertainty. Specific shortcomings are the inability to prevent water shortages or to protect instream flow uses.

The powers of the State to preserve and protect public waters will be precisely defined and identified, and appropriate rules developed. State agencies will work with groundwater users to create local groundwater management districts where needed. Legislation should be introduced for the protection of minimum flows and lake levels. When regional imbalance cannot be rectified by local action, legislation may be required to use State emergency powers to manage and allocate water for the duration of the shortage.

CROSS-CUTTING TOPICS

Integrated Water Management - Most water quality and quantity programs are managed under single-purpose, agency authorities. However, recently recognized problems such as minimum stream flows and the need for improved coordination point to the need to coordinate program authorities for improved problem resolution.

A successor to the Water Plan Task Force will be established as the appropriate forum for policy and technical exchanges and resolution. Geographic priorities will be identified, required data bases will be managed, and a system of accountability will be established in part through annual interagency agreements.

Conflict Resolution - Conflicts involving water rights among individuals or institutions in Illinois have not been frequent except for the problems of limited resources and their allocation in the Chicago region.

The Task Force concludes that conflicts can be avoided or minimized without creating new mechanisms and by adherence to available concepts of resolution at the lowest feasible level, clarifying the law with respect to public waters, using supply/demand information to anticipate shortages, encouraging local districts to allocate water resources, having the Task Force and the Natural Resources Sub-Cabinet resolve issues between agencies, utilizing interstate agreements, employing existing institutions regarding Great Lakes questions, and using courts as the means of last resort for conflict resolution.

Public Participation - Water is not only a subject of considerable importance, but is one in which there is widespread public interest and desire for involvement. Furthermore, active public participation assures that the Water Plan will reflect public values and priorities, and thereby enhance the probability of Plan implementation.

The Task Force will provide widespread visibility to the Plan, and means will be continued for incorporating refinements and additions. An awareness program will be conducted with committees of the legislature, to be followed by public hearings and other available means for visibility.

OPERATING ISSUES

Stream and Lake Use Management - Although existing authorities provide for hazard intervention, they generally are inadequate for normal periods with respect to conflicting instream and offstream demands.

The Task Force proposes to use the Illinois Water Quality Management Plan (WQMP) as a vehicle to codify state agency water authorities and management priorities.

The Task Force recommends the identification of state management authorities and priorities on a watershed and reach basis, the codification of this information in the WQMP, resolving conflicts, and identification of the roles of each agency leading to interagency agreements.

Stream Data Measurements - The collection and dissemination of streamflow, water quality, and suspended sediment data suffer from reduced funding resulting in part from program fragmentation and the non-participation of many users.

Network analyses are now underway as is a survey of the data needs of users.

The Task Force agrees that upon completion of the analyses and surveys now underway, it will identify minimum networks required and seek future funding for them. It is also recommended that the base of support for funding be broadened.

Stream Indexing - Water resources planning, management, and research would be enhanced if a uniform system of stream and river mile identifications were devised and adopted. The problem is complicated by the fact that substantial investments have been made in a variety of existing agency systems.

Since no agreement could be reached on a single, uniform system at this time, a cross-reference table will be prepared by the Water Survey to facilitate coordination of interagency activities. Changed river mile data will be identified by the Department of Conservation and made available to and adopted by the other State agencies.

Natural Resource Information System - Major issues involving natural resources could be resolved more efficiently through a centralized information facility.

An Illinois Natural Resources Information Center (INRIC) has been established. It began operation in August 1983 as a referral service relating to any aspect of natural resources data or expertise.

The concept of INRIC will be continued by the State Water Survey while continuing to explore the use of computer storage of additional information and eventual direct user access to the system.

Water Resource Permit Coordination - The permitting process is a widespread activity of State government and one which can be improved through coordination, and expansion of permit participation to agencies not now covered.

Substantial progress has been made through the activity of a Work Group which has identified common problems, and has dealt with several problem areas such as land application of sludge and control of erosion at construction sites.

The Water Resources Permit Coordination Work Group will continue the discussion and resolution of issues. Several have been identified such as procedures for permit review, the construction grants program, and landfills on floodplains.

Water Resources Research and Education - Development of the Water Plan has identified many problems which require study to provide the basis for State water policies and improved management. Periodic assessments and continuing coordination are required for ongoing research and research needs. A need for funds also exists to provide training at the universities for water resources professionals.

State agency personnel and university and Scientific Survey staff will maintain a mutually beneficial dialogue. A means for this is annual meetings and special topic workshops which should include managers of industry and utilities. Particularly in light of reduced federal support, Illinois will maintain a vigorous and responsive program of research and training.

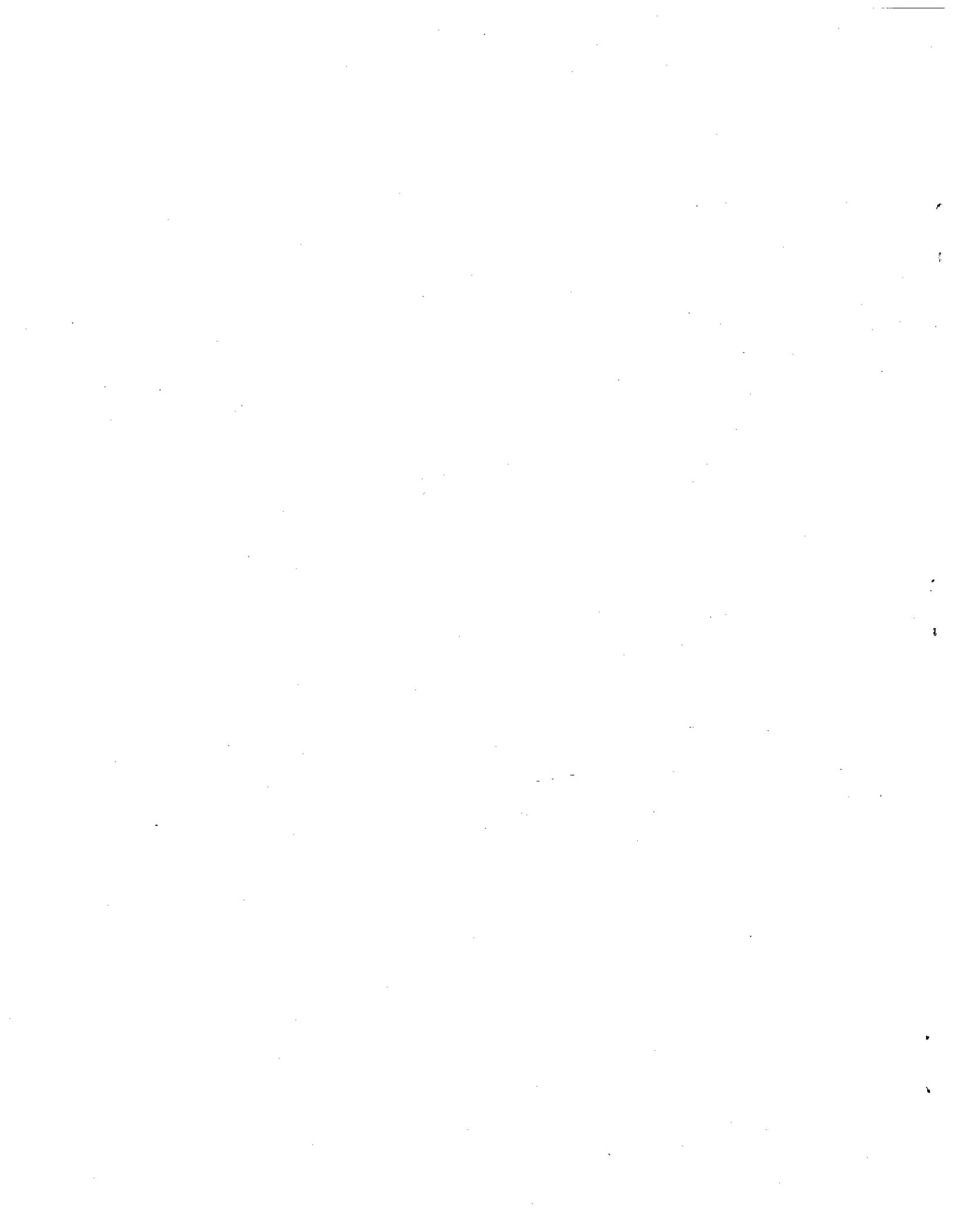
Reservoir and Lake Operations - Manmade impoundments are valuable developments, but do create management problems such as low flow regulation, flooding, sedimentation, and water quality deterioration.

State agencies will carry out improved management steps during the planning phase of all new reservoirs and the interaction of State and Federal agencies in the operation of existing lakes. Interim low-flow standards, lake water quality and watershed protection, annual meetings of the concerned agencies, attention to agricultural flooding, coordinated reviews, optimization of available storage, and a continuation of reservoir sedimentation surveys will be carried out.

FUTURE DIRECTIONS

Water Plan Implementation Costs - Since implementation of the Water Plan involves considering the cost of Plan recommendations, the Task Force has prepared a companion report entitled, "Illinois State Water Plan Estimated Cost of Implementation, Fiscal Years 1984 through 1986".

Task Force Continuation - A successor Task Force of the same character will be continued to monitor implementation of the Plan; to continue the process of communication, coordination, and joint actions of the agencies; and to deal with new problems and priorities.



PREFACE

Introduction

The report which follows is a final report on the Illinois State Water Plan, which is intended for policy and program guidance. This effort began during the spring of 1980 with the appointment of a Water Plan Task Force by Governor Thompson. Activities and accomplishments during 1980 are contained in the report "Plan of Study, Illinois State Water Plan," dated March 1981. Activities during 1981 are summarized in the report "1981 Progress Report, Illinois State Water Plan," dated January 1982. Activities during 1982 are in the report, "1982 Progress Report, Illinois State Water Plan: Emerging Issues", dated January 31, 1983.

Need for State Water Plan

The need for an Illinois State Water Plan has been increasingly evident for several years. The most recent plan was published in 1967 and has become obsolete in a number of respects. During the intervening years a number of events on a state, national, and international scale have resulted in changing and competing demands upon the available water resources. Among these were the energy crisis and the strong demand for Illinois crop production. There has also been a dramatic increase in environmental concern which has resulted in changed values. More recently attention has focused upon conservation and non-structural approaches to solving water problems. On the State level a number of changes in water-related agencies have taken place, and the lack of adequate program integration is still present.

Under consideration for about two years, the decision to proceed with a State Water Plan was triggered by action of the Executive Branch of the U.S. Government. Through administration by the Water Resources Council, funding under Title III of the Water Resources Planning Act of 1965 (P. L. 89-80) was substantially increased. This provided a grant to Illinois and other states to increase planning for the management of water and related land resources at the state level. The U.S. Water Resources Council and its planning grant were terminated on September 30, 1982.

Water Plan Task Force

Membership of the State Water Plan Task Force consists of policy level individuals from State water agencies. The Governor designated the Director of the Division of Water Resources in the Department of Transportation as Task Force Chairman. The Chairman, in turn, retained an Executive Director and provided professional and supporting staff. The Task Force met first on May 6, 1980, and generally has met monthly since that time.

The Illinois State Water Plan represents a consensus of those agencies who participated in the Task Force.



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SUMMARY OF TASK FORCE ACTIVITIES

1980 TO 1983

Development of Plan Concept

An early decision of the Task Force was that the Water Plan should primarily provide policy guidance, and deal with the adequacy of programs and their coordination rather than with specific projects. It was further agreed that the Plan would not be a one-time effort, but instead, would initiate a dynamic process which can be updated periodically. Thus, it addresses problems in an order of priority and current relevance.

It was decided not to focus directly upon institutions or agencies with respect to organization or reorganization, or to concentrate upon traditional and well-established programs, but instead to focus on problems at the margin of attention. That is, consideration was directed toward programs whose effectiveness in meeting current problems could be increased and on emerging issues not yet fully addressed.

Similarly it was decided in 1980 that this planning effort did not require a major, new inventory of water resources. A brief summary of Illinois water resources and uses was included in the 1981 report, and was subsequently issued as the first in a series of special reports.

Existing State agency staff was assigned to Plan development, with responsibilities for development of elements of the Plan established through a system of assignments to lead and supporting agencies. The agencies and individuals who participated in the Plan development are cited in the Appendix. Expanded descriptions of the missions and programs of the agencies are given in Appendix A of the 1981 Progress Report.

From Task Force deliberations there emerged agreement on the Water Plan mission, goals, and initial focus as follows:

Mission - Develop an improved water management system that is socially acceptable and that operates within resource constraints.

Goals - Achieve more efficient resource utilization through (a) coordinated planning and implementation, (b) public participation, and (c) establishing any needed mechanisms for conflict resolution.

Initial focus - The Water Plan focused initially on critical water issues not being sufficiently addressed by current programs, or emerging issues which can be anticipated to lead to future problems or conflicts.

A preliminary list of 18 issues which emerged in 1980 was reduced to 10 plus three cross-cutting topics and seven operating issues, all of which are subsequently defined.

External Review

Considerable Task Force time was devoted to public participation in the program. Although Water Plan decisions were made by the Task Force, outside advice was sought and was clearly beneficial in Plan development.

Public Hearings - Public meetings were conducted late in 1980 before the Plan of Study was finalized so that public response could be considered as soon as possible in the planning process. Subsequently, public hearings were conducted throughout the State early in 1982 and 1983 as annual progress reports became available for public discussion. These were conducted by the Water Resources Commission with support by State agency personnel.

Public hearings held in the fall of 1980 were in Chicago, Peoria, DeKalb, Carbondale, and Edwardsville. Those held early in 1982 were at Grayslake, Quincy, Fairfield, Carlyle, Decatur, Starved Rock, and Freeport. Those held in 1983 were at Danville, Lawrenceville, Rock Island, Alton, Herrin, Orland Park, Rockford, and Macomb. Members of the Illinois General Assembly were present at each hearing.

The public hearings were helpful in setting the relative priorities of problems, they led to the addition of an issue on "Protection of Underground Water", and raised a variety of concerns for the Task Force to address. There was general endorsement of the plan and identified problems.

Advisory Groups and Regional Advisory Committees - A Federal Agency Advisory Group was established and held its first meeting on October 16, 1980. It has subsequently met twice annually to review progress and draft reports.

Similarly, a Future Development Advisory Group was established and held its first meeting on October 21, 1980. This diverse group of Illinois citizens and representatives of interested groups and associations also met semi-annually. The purpose of this group is to ensure that the State Water Plan is developed with full consideration of broader environmental and developmental trends.

Five Regional Committees were organized in the fall of 1980 and have continued to contribute valuable suggestions as the Water Plan evolved.

Names of active members of the advisory groups and regional committees are cited in the Appendix.

Problems Requiring Attention

Problems requiring attention under the Illinois State Water Plan fall into three categories: Critical Issues, Cross-Cutting Topics, and Operating Issues. These are defined as follows:

Critical Issues - These are statewide problems not being sufficiently addressed by current programs, or emerging concerns that may lead to future problems or conflicts.

Cross-Cutting Topics - These are broad problems or required actions that relate to and interact with the other issues.

Operating Issues - These are concerned primarily with ongoing multi-agency programs which can be made more efficient through multi-agency coordination and joint action.

Priority Order of Issues and Topics

Issues and topics and their lead agencies are shown below in their general orders of importance within each category. This ordering focuses attention on the most critical statewide problems, but does not include all water resource problems requiring attention for management, development, or conservation. Regional priorities may vary from this State-wide ranking. The criteria for this judgement are complex and have evolved over the three-year life of the Water Plan activity, and represent the judgement of the Task Force in consideration of the views of the advisory groups, the regional committees, and repeated public hearings. They employ the following considerations:

1. The problems are of statewide importance.
2. They involve two or more agencies.
3. The ordering within the issue and topic categories involves a consideration of immediacy of need for action.
4. The issues consider the readiness of existing or recommended institutional mechanisms for immediate action with proper funding.
5. The information bases for the recommendations related to each issue and topic are sufficiently complete to assure success of the recommended course of action.

Many of the issues and topics are highly interrelated and the success in achieving action in one is dependent upon action to implement other issue recommendations.

INSTITUTIONAL LEADERSHIP OF ISSUES AND TOPICS

| <u>Critical Issues</u> | <u>Lead Agency</u> |
|---|---|
| Erosion and Sediment Control | Department of Agriculture |
| Protection of Underground Water | Environmental Protection Agency |
| Flood Damage Mitigation | Division of Water Resources |
| Water Conservation | Department of Commerce and Community Affairs |
| Competition for Water | Water Survey |
| Aquatic and Riparian Habitat | Department of Conservation |
| Water-Based Recreation | Department of Conservation |
| Atmospheric Changes and Management | Water Survey |
| Drought and Emergency Interruption of Supplies | Division of Water Resources |
| Illinois Water Use Law | Division of Water Resources |

INSTITUTIONAL LEADERSHIP OF
ISSUES AND TOPICS, Cont.

Cross-Cutting Topics

| | |
|-----------------------------|---------------------------------|
| Integrated Water Management | Environmental Protection Agency |
| Conflict Resolution | Water Plan Executive Director |
| Public Participation | Water Resources Commission |

Operating Issues

| | |
|-------------------------------------|---|
| Stream and Lake Use Management | Environmental Protection Agency |
| Stream Data Measurements | Water Survey |
| Stream Indexing | Department of Conservation |
| Natural Resource Information System | Water Survey |
| Water Resources Permit Coordination | Environmental Protection Agency |
| Water Research and Education | Water Survey/ Water Resources Center |
| Reservoir and Lake Operations | Division of Water Resources |

The nature, progress, and recommendations for each issue and topic are given in a later section of this report.

Water Resources Council Grant

Support of the Water Plan effort under Title III of the Water Resources Planning Act was provided by the U.S. Water Resources Council. The amounts received were \$245,200 in FY 1980 and \$192,300 in FY 1981 which were required to be at least matched by State funds. The start of the grant year was established by the Task Force as June 1, 1981. Grant funds were allocated by internal action of the Task Force among the several issues and topics according to priorities and needs.

Title III planning support expired on September 30, 1982, and the Water Resources Council became inactive.

Consistency of Water Plan with Agency Programs

At its July 1981 meeting, the Task Force considered and adopted a Statement on Consistency for the Illinois State Water Plan. Consistency is interpreted to mean that agency programs are not in conflict with the agreed State Water Plan.

Since developing the State Water Plan is not an end in itself, the value of the Plan rests in whether or not there is a commitment on the part of the planning participants to seek to implement the Plan. Moreover, the Plan is to be utilized as the basis for coordinated, consistent, and informed decision making through agency programs. Further detail is given in the 1981 Progress Report.

Reports on the Future of Illinois

The State Water Plan Task Force considered broad social and economic trends and the future problems and opportunities of the State. This concept was incorporated during 1981 by reviewing two recent and authoritative reports, "Illinois: The Future" and "Illinois 2000" which are briefly referenced here and treated in some detail in Appendix C of the 1981 Progress Report.

The report "Illinois: The Future" dated January 1980 was authored by a statutory Task Force. It presents a future of the State and its government, projects population and the economy to the year 2000, and considers transportation, natural resources, and energy. An updated State Water Plan is recommended.

The report "Illinois 2000" was released in 1979 by an organization affiliated with the Illinois State Chamber of Commerce. It projects population, and considers resources and various influences for future growth. It is particularly concerned with Illinois' economic climate.

Illinois Water Resources

To plan for wise use and to solve and anticipate our future water problems, it is necessary to know the quality and quantity of the water resources available and what uses are presently being made of them.

An early decision of the Task Force was that a detailed inventory of water resources and uses was not required to be an initial major occupation of Water Plan development. The 1967 report "Water for Illinois, a Plan for Action" remains generally useful in this regard, and the reports of State and Federal agencies on the subject are readily available. However, as noted in several issues, organization of existing water resources information for particular planning needs is a pressing problem.

The 1981 Progress Report contains a summary section on Illinois water resources and uses. This same material was published as Special Report No. 1.

The Regional and National Setting

It is an old truism that nature, including the location and movement of water resources, does not respect political boundaries. Yet, our political areas such as states, are in many ways the logical units within which to organize activities including planning.

Since about 1980 there has been a trend to shift water resources planning from the federal level to the states, from which the regional and national plans will be built. This gave a great deal more importance to the Illinois State Water Plan.

To provide regional context, the Illinois Task Force concluded in 1981 that it should coordinate its activities with surrounding states. Thus, communications were established with our immediate neighbors - Iowa, Missouri, Kentucky, Indiana, Michigan, and Wisconsin.

The Illinois issues and topics appear among the activities of a number of other states. The most frequently mentioned problems and activities in neighboring states are water quality including groundwater pollution, flooding problems, and water conservation. Various activities such as public information and participation, data acquisition and management, and determination of funding priorities have been seen by neighboring states as essential steps in solving the major water resources problems.

Publications of the Water Plan Task Force

Prior to release of the final report on the State Water Plan, several reports have been published by the Task Force, as identified below. These reports were useful in reporting progress to State agency personnel, members of the Legislature, members of advisory groups and regional committees, and to the general public, especially those people who attended the public hearings. These reports are identified by title and date in each of the several categories as follows:

Progress Reports - These were printed and issued annually by and are available at the Division of Water Resources, Department of Transportation. Titles and dates are:

"Plan of Study, Illinois State Water Plan," March 1981.

"1981 Progress Report, Illinois State Water Plan," January 18, 1982.

"1982 Progress Report, Illinois State Water Plan, Emerging Issues, January 31, 1983.

Special Reports - These reports are products of the Water Plan effort which are independently useful. Copies can be obtained from the Division of Water Resources, Department of Transportation. They are:

"Special Report No. 1, Illinois Water Resources and Uses," by University Water Resources Center, January 18, 1982.

"Special Report No. 2, Atmospheric Changes and Management Issues," by State Water Survey, August 1982.

"Special Report No. 3, Drought Contingency Planning," by Division of Water Resources, June 1983.

"Special Report No. 4, Water Conservation," by Department of Commerce and Community Affairs and University Water Resources Center, in press.

"Special Report No. 5, Illinois Water Research Needs and a Catalog of Water Research in Illinois," by University Water Resources Center, March 1983.

"Special Report No. 6, Instream Flow Protection: A Planning Standard for Illinois Streams," by Department of Conservation and Division of Water Resources, October 1983.

"Special Report No. 7, Urban Waterfront Renewal: The Illinois Experience," by Department of Conservation, in press.

Information Papers - At advisory group meetings and public hearings questions were frequently asked about hydropower and navigation. Although these subjects did not fit within the established criteria for issues or topics, it appeared desirable to publish brief reports on these subjects as noted below. These two reports were prepared and published by the Division of Water Resources, and summaries appear in the 1982 Progress Report.

"Information Report No.1, Hydropower," October 1982.

"Information Report No.2, Inland Waterway and Deep Draft Navigation," October 1982.

Newsletters - The widest distribution of Water Plan information on activities and progress occurred through periodic publication of five issues of a newsletter entitled "Illinois Water." This was prepared and published by the University of Illinois Water Resources Center.

FINDINGS AND RECOMMENDATIONS

The heart of the report is this section on Findings and Recommendations, in which 10 critical issues, three cross-cutting topics, and seven operating issues are discussed under brief statements of the problem and recommendations.

Where this is possible, specific agency responsibilities are indicated.

Ordering of Issues and Topics - The findings and recommendations reported in this chapter follow in the order of (1) Critical Issues, (2) Cross-Cutting Topics, and (3) Operating Issues. Within each of these three categories the individual issues or topics are arranged in a priority order as discussed in the earlier section on "Summary of the Task Force Activities - 1980 to 1983."

Interrelations of Issues - By definition the Cross-Cutting Topics relate to most of the 10 Critical Issues and may involve one or more Operating Issues. However, the Critical Issues and Operating Issues also involve numerous interrelations. For example, Illinois Water Use law is related to Competition for Water and to Conflict Resolution. Water Conservation is related to Drought and Emergency Interruption of Supplies. Stream Data Measurements and Water Research and Education clearly affect the ability to advance most of the issues. Numerous other examples could be cited.

Water Plan Implementation Costs - The Task Force is eager for its recommendations to be adopted, and advice from the several sources is strongly in support of Plan implementation.

Adoption of Plan recommendations must involve a consideration of the attendant costs. Therefore, the Task Force has estimated the costs of the recommendations associated with each of the issues, and topics, and these costs are displayed for the fiscal years 1984, 1985, and 1986. Implementation costs are also organized as to State or Federal sources, capital and operating charges, and as to whether additional appropriations are required.

These implementation cost estimates are not included in the present Final Water Plan Report. Instead they are given in a companion report entitled "Illinois State Water Plan Estimated Cost of Implementation, Fiscal Years 1984 Through 1986" which is being issued at the same time. Having a separate publication recognizes that budgetary circumstances will change from year to year. Thus, the implementation cost report can be updated as needed without rendering the Water Plan obsolete.

Task Force Continuation - The present report is designated as a final report, and it is hoped that it will serve as a policy and program guide to government for some years with respect to major State water problems.

However, it has been recognized from the outset that planning is a dynamic process, and thus, it is not possible to close the book for an indefinite time on needed actions. New problems arise and the State's priorities change. It has also been learned through the Task Force process that communication, coordination, and joint actions have been measurably improved through the regular meeting of agency representatives. Thus, it is recommended that a successor Task Force of essentially the same character be continued in the interest of good government and service to the citizens of Illinois to coordinate the programs of agencies and their interactions with other levels of government.

CRITICAL ISSUES

EROSION AND SEDIMENT CONTROL

Statement of Problem

Excessive soil erosion on 9.6 million acres of Illinois farmland is threatening the productive capacity of our soil resource base, degrading water quality, accelerating eutrophication of reservoirs, silting in streams and rivers, and degrading fish and wildlife habitat. Excessive suspended sediment, resulting from soil erosion on cropland is the major non-point source pollutant in Illinois. The control of non-point source pollutants is a critical step towards improving overall water quality.

The development of a program to control soil erosion and promote soil and water conservation is difficult because of (1) the large number of individual farms, (2) the technical effort needed to locate specific problem areas, (3) unquantified link between soil erosion and degraded water quality, (4) the large number of agencies working with soil and water conservation programs, (5) limited incentives to promote conservation work, (6) the attitudes, levels of knowledge and actions of individual landowners, and (7) reduced federal technical and financial assistance.

Recommendations

Under the Illinois Department of Agriculture and its cooperating federal and district cooperators and committees:

1. Continue soil and water conservation program coordination.
 - a. Maintain the Soil Erosion and Water Quality Advisory Committee (SEWQAC) and two subcommittees.
 - (1) State Watershed Priority Committee
 - (2) Education Committee
 - b. Complete a State soil erosion and water quality long-range plan.
 - (1) Encourage all state and federal agencies to develop long-range and annual work plans consistent with the plan.
 - (2) Provide a forum to discuss annual work plans.

2. Encourage all SWCD's to meet established soil erosion goals.
 - a. Complete a modern soil survey in all counties by the year 1991, with additional federal, state, and local resources as specified in the report "Estimated Cost of Implementation Fiscal Years 1984 through 1986".
 - b. Add employees to the Soil and Water Conservation District staffs.
 - c. Assure the efficient and effective use of financial and technical resources by targeting resources into areas with the greatest resource concerns and needs.
 - d. Provide state cost-sharing assistance for the installation of conservation practices on land for which a valid complaint has been filed under the soil erosion and sediment control program.
 - e. Convert 900,000 acres of land currently in row crop production to a less intensive land use (pasture, trees, etc.) because it cannot meet "T" values with current soil and water conservation technology.
 - (1) Initiate a statewide inventory to specifically identify all such areas.
 - f. Maintain and expand educational programs to increase the public awareness of soil and water conservation issues.
 - (1) Short range objective - educate adult decisionmakers.
 - (2) Intermediate range objective - target education programs to high schools and colleges.
 - (3) Long-range objective - target education programs for grade schools and junior high students.
 - g. Develop new and refine existing incentives to encourage landowners to adopt soil conservation practices.
 - (1) More effective use of existing incentive programs.
 - (2) Development of new incentives.
 - h. Encourage and support expanded research in conservation economics and the development of new conservation practices.
 - i. Establish an interagency program to use and apply conservation research.
3. Evaluate implementation of the Water Quality Management Plan.
 - a. Utilize established IEPA evaluation criteria in the 1984 progress evaluation of the Water Quality Management Plan.

- b. Identify and correct program deficiencies.
 - c. Support the Statewide measurement programs for stream flow, water quality, and sedimentation as measures of the problem and progress.
4. Continue to coordinate existing watershed programs, and initiate a complimentary State program to direct resources into projects which will help protect important water resources and control erosion on agricultural land.

PROTECTION OF UNDERGROUND WATER

Statement of the Problem

Concern over the protection of underground water is widespread and growing. The addition of this topic to the State Water Plan's list of issues was the direct result of public comments expressed during the 1981 Progress Report hearings. Approximately 40 percent of the State's population is dependent upon underground water with its useage concentrated in the northern half of Illinois. There are over 1700 community water supplies dependent on underground water. Responsibility for protecting underground water resources in Illinois is distributed among nine state agencies. However, in many cases, protection of underground water use is included in the statutes as a secondary objective. As a result, some statutes and regulations are only partially effective for the protection of underground water.

Since this issue was adopted rather late in the Water Plan process, the recommendations which follow are limited to a policy statement and an outline of future steps to be taken. Considerable interagency coordination will be required.

Recommendations

The Water Plan Task Force has adopted a policy statement proposed by its Underground Water Work Group as follows:

"It is the policy of the State Water Plan Task Force to protect, preserve, and manage the underground water resources of the State, as a natural and public resource. The Task Force recognizes the essential and pervasive role of groundwater in the economic and social well-being of the people of Illinois and its vital importance to the general health, safety and welfare.

It is further recognized as consistent with this policy that the underground water resources of the State be utilized for beneficial and legitimate purposes; that unreasonable waste and degradation of the resource be prevented; and that the underground water resource be managed and developed to allow for maximum sustained utilization."

Seven recommendations follow:

1. Establishment of Levels of Protection Desired:

Under this recommendation, underground waters of the State will be classified into four categories based on existing and potential use as follows:

- a. Domestic Use and Food Processing Underground Waters are those which can be taken from the ground and used directly for domestic consumption and food processing with minimal or no treatment.

- b. General Non-Domestic Use Underground Waters are those which can be used for general non-domestic uses as defined in Section 11 of the Illinois Environmental Protection Act.
 - c. Limited Use Underground Waters are those which are unusable for domestic or other consumptive uses in the foreseeable future due to naturally occurring characteristics or man-made contamination.
 - d. Imminent Surface Return Flow Underground Waters are those flowing toward springs, streams, and ponds.
2. Determine Users and Uses of Underground Waters:

Identify users and uses of underground waters and compile these data to assist classification as part of the State Water Survey inventory program.
 3. Development of Resource Inventory:

Develop a resource inventory and assessment of the quality, quantity, and location of underground waters, recharge areas and regional flow systems by the State Water Survey.
 4. Analyze the Treatability and Interconnection of Underground Waters:
 - a. Treatability of water is concerned with the levels of contaminants (naturally occurring or caused by man) and options available to make the water usable for specific purposes. Emphasis is placed on prevention of contamination and adequate siting to minimize existing or future problems.
 - b. Interaquifer exchange may be caused by natural or man-made pathways by which the water in one aquifer may travel to others, thus affecting quality in the receiving aquifers. Fissures, for example, may provide a natural pathway. In addition, most industrial and water supply wells draw from multiple aquifers. Damaged casings and abandoned wells are examples of man-made pathways. Consideration of these aspects in permit issuance and renewal by the State will help minimize problems.
 5. Determine Local, State and Federal Responsibilities for Protection of Underground Water:

Evaluate the roles and responsibilities of public, private and governmental interests. Define the legal water rights and needs at the State level. While six State agencies have statutory jurisdiction significantly affecting underground waters, the Illinois Pollution Control Board and the Illinois Environmental Protection Agency have an extremely broad mandate to protect waters of the State.
 6. Identify Degradation and Depletion of Underground Waters:

Identify sources of degradation, susceptibility to contamination, and causes of depletion. Evaluate the control strategies available.

7. Develop and Implement Programs

The preceding six recommendations help define the underground water problems, and provide a basis by which to protect, enhance and preserve underground water quantity and quality, and implement the programs which are developed. This may require statutory and regulatory changes, new authorities, and other basic changes to existing conditions.

FLOOD DAMAGE MITIGATION

Statement of the Problem

Flooding continues to cause significant property damage and disruption of business activity annually in the State of Illinois.

Flood damages are the result of unwise development of floodplains, and the State's policy is to protect such developments where economically justified and to prevent further damageable construction. The necessary technical and institutional means to mitigate flood damages and regulate floodplain development are available. They consist of a mix of planning, construction, and regulatory programs administered at the Federal, State, and Local levels. Flood damage reduction programs in Illinois are delayed by inadequate dedication of manpower and budgets at all levels of government. Federal assistance is impeded by conflicting policies and little resolve to address the problems. Inadequate staffing also limits administration and enforcement of regulatory programs to prevent future damages.

Recommendations

1. Urban flood damage mitigation planning in the State of Illinois has proceeded to a level where there is now a backlog of economical flood damage reduction projects. This backlog will require over 250 million dollars for implementation. Flood problem area planning is continuing, although the time required for planning is considered excessive and diminishes the level of local support. With respect to the Division of Water Resources, therefore:
 - a. Required State expenditures for flood damage reduction measures should, at a minimum, be maintained at a level of \$10 million annually in order to effectively reduce the backlog in planned projects.
 - b. Project planning procedures will be revised to include evaluations of realistic non-structural alternatives, shorten study duration, and assure early termination of unacceptable project proposals.
 - c. Policies for flood damage mitigation will stress local government participation and State-Federal cooperation.
 - d. Hydraulic, hydrologic, and economic analysis models for flood prone watersheds will include foreseeable, future changes.
 - e. Technical planning procedures and regulatory flood analyses will incorporate rainfall frequency values based on current climatic records and trends, to be assessed by the State Water Survey.

- f. Federal planning policies should be revised to remove arbitrary distinctions between types of flood damage problems and appropriate mitigation measures.
 - g. A flood warning system involving a weather radar and meteorologists should be implemented for a multi-year demonstration effort in northeastern Illinois by the State Water Survey.
2. Rural flood control project implementation has languished in Illinois due to the lack of State agency leadership and coordination further complicated by everchanging Federal priorities. Also, the cause of flooding problems in some rural areas is now being recognized as the cumulative increase on flood stages due to the construction of rural agricultural levees. Therefore:
- a. State leadership and programmatic responsibility for rural flood control project planning and implementation will be maintained through the staff of the Illinois Department of Agriculture.
 - b. A detailed basin by basin analysis of agricultural levee placement will be conducted in order to improve planning and permitting decisions in rural areas.
 - c. Land use planning for soil erosion and sediment control will be included as a component of rural flood control projects.
3. The State's flood damage mitigation program cannot exist successfully without a strong and broadly supported flood insurance and floodplain regulatory management program at the State and local level. Therefore:
- a. Statewide regulation of floodway construction will require an increased level of staffing in the Division of Water Resources.
 - b. All known violations of the State's floodplain regulations should be brought into compliance with timely investigation and enforcement.
 - c. Consideration for protecting natural conditions will become a part of the State's permit review process.
 - d. The Federal Emergency Management Administration's floodplain management technical program should be completed for all flood-prone communities and updated for developing communities in order for local governments to have a sound technical basis for floodplain regulation. Federal flood insurance rate reductions should be also allowed for non-structural flood proofing measures.

- e. The State should continue to seek federal funding and develop State and local funding of programs to rebuild or relocate flood damaged buildings so they are protected from future flooding.
 - f. The floodplain information repository will be maintained at the State Water Survey to (1) provide best available flood elevation data to floodplain managers (2) provide management support in the form of new flood-related reports and flood discharge values, and (3) assist local communities with amendments and revisions of insurance studies.
4. Inadequate stormwater management planning and regulation by local governments can often create localized and downstream flooding and drainage problems where none existed previously. Therefore:
- a. Local governments should address stormwater management with legislation, such as a model ordinance for stormwater management presented in the Division of Water Resources Local Assistance manuals on stormwater management.

WATER CONSERVATION

Statement of the Problem

There are increasing signs that serious water shortages loom in the future of this nation because of limited supplies and increased consumption. This forecast is somewhat in contrast to past Illinois experience where supplies have generally been adequate to meet demands. Shortages in Illinois, however, have occurred for limited geographical areas and during occasional periods of drought. Most of our water conservation efforts have been limited to those communities sharing in Lake Michigan allocations and to periods of drought, but far more can be accomplished, particularly through education. Water conservation contributes to energy conservation through reduced pumping and heating, as well as reduced costs of water and sewer system expansions.

State agencies have participated in intermittent water conservation efforts by developing educational materials and practical information, by conducting workshops, and by working with local communities. This is viewed as the appropriate role rather than the recommendation of further State regulations.

Recommendations

The Task Force will continue to promote water conservation statewide through information and educational programs, recognizing the general benefits of water conservation, especially its contribution to energy conservation. However, the Task Force will target State technical assistance resources at source-deficient water supply systems of the State where conservation can be a cost-effective alternative to resource development.

1. The Division of Water Resources (DWR) working with the Illinois Environmental Protection Agency and the Department of Commerce and Community Affairs will identify communities of the State that face eminent water shortages, and DWR will coordinate and target State technical assistance resources at these communities which will include the promotion of water conservation.
2. Under leadership of the Department of Commerce and Community Affairs (DCCA) the State will develop education materials on water conservation as well as utilize material from organizations such as the American Water Works Association. It will work with school officials and the media to educate the public and to promote water conservation.
3. The DCCA will promote the marketing of water conservation devices by working with appropriate trade associations and retailers.
4. The Department of Public Health will revise the State plumbing code to include water conservation fixtures. The adoption of the revised code will be recommended in water-deficient communities. The State will also adopt these codes for new State construction and building rehabilitation.

5. The State will promote industrial water conservation through workshops and other technology transfer programs, and will conduct and evaluate pilot projects at State institutions.
6. The State will work closely with local officials and utilities of communities facing water shortages to assist in guiding the development of water conservation plans that include viable financial structures that reflect actual water costs. Attention will be given both to demand management as well as adequate supply and distribution development by coordination with the Division of Water Resources.
7. The curriculum for water plant operators should be enlarged to encompass water conservation practices and financial planning to accommodate conservation practices.
8. The Department of Commerce and Community Affairs will retrofit up to 17,000 low-income residences with water conservation devices under the Illinois Home Weatherization Assistance Program.
9. The State will monitor and evaluate the effectiveness of water conservation programs through the water use inventory program.

COMPETITION FOR WATER

Statement of the Problem

The water resources of Illinois have historically been considered to be sufficient in quantity to meet the demands of all existing and projected new water developments within the State. A major exception is in the Chicago Region where the overdraft of the deep aquifers could lead to conflicts among users and permanently deplete a major groundwater resource. However, State management of Lake Michigan water allocations is directed toward a stabilization of the overdraft. Planners, developers, business interests, and governmental entities have, therefore, always assumed that except for rare drought events, the availability of a dependable water supply source is a given and not a factor which might limit or modify future plans and decisions.

Over the last ten years, proposals for development of major consumptive uses of water within Illinois have raised concerns about the impacts of these new demands on the currently available regional supplies. Examples of these new demands are coal slurry pipelines, synthetic fuel developments, and widespread irrigation. Coupled with these possibilities is the increasing recognition of the need to protect the ecology of our streams, lakes, and wetlands, which may require the maintenance of minimum instream flow or water levels.

To determine whether, when, or where regional competition for water may become a serious issue, evaluations using a regional basis for a comparison of existing and future water demands¹ with available water supplies were made. The regions selected for analysis are the nine Crop Reporting Districts. These districts represent divisions with similar climate, soils, and types of farming.

It is planned to issue a special Water Plan Task Force report describing the supply/demand comparison in detail. Based on the results of these evaluations, there is sufficient water to meet demands for the year 2000 in each district. Within districts, however, regional competition for water may become an issue. These are summarized below.

¹Special thanks is given to a University of Illinois College of Agriculture Committee chaired by Professor John T. Scott, Jr. who estimated irrigation demand.

Northwest District

It is unlikely that increases in withdrawals for the three major uses of water, public water supply, self-supplied industrial, and irrigation will lead to conflicts. Major surface water withdrawals for both self-supplied industrial and public water supply use are from the major rivers, the Mississippi, Illinois, and Rock Rivers. Bedrock, sand and gravel aquifers are capable of supplying increases in withdrawals for systems dependent upon groundwater. Although the projected demands for irrigation are large, soils identified as suitable for irrigation are associated with highly productive sand and gravel aquifers.

Northeast District

Depletion of the deep aquifers in pumping centers outside the present area receiving allocations of lake water will continue to require alternate water supplies before the year 2000. Large irrigation demands are projected for this district. There are potential use conflicts between public and self-supplied industrial systems and irrigation systems that use groundwater. There are soils suitable for irrigation in the district that do not overlie adequate groundwater for irrigation. It is not certain if local surface water supplies are adequate for irrigation in these areas. Importation of water may be required to meet irrigation demands.

West District

Available water in the West District is more than adequate. However, there are communities with marginal groundwater supplies with respect to both quality and quantity that would benefit from regional water supply systems.

Central District

Because of increasing demands and declining reservoir yields due to sedimentation, public water supply systems dependent upon surface water may seek to supplement their supplies from groundwater. The most likely sources of groundwater are the Havana Lowlands in Mason and Tazewell Counties and the buried Mahomet Bedrock Valley. High irrigation demands are projected for the Havana Lowlands, and development for public systems may conflict with irrigation use. Development from the Mahomet Bedrock Valley would impact existing public systems dependent upon groundwater and, locally, supplies for rural households and livestock.

East District

High irrigation demands are projected for Kankakee and Iroquois Counties. It is not certain if available groundwater supplies are adequate to meet these demands. Conflicts in use may develop. Importation of water, if economically feasible, may be required.

Other Districts

For the four remaining Districts; the West-Southwest, the East-Southeast, Southwest, and Southeast Districts, roughly the southern half of Illinois, future conflicts in use are not evident, based on the supply-demand evaluation. Two types of soils were identified in these Districts as suitable for irrigation: sands and claypans. The sands generally overlie productive sand and gravel aquifers. Unless economic conditions are extremely favorable, only minimal irrigation demands are projected for the claypan soils. If economic conditions become favorable, large irrigation demands are projected for the East-Southeast, Southwest, and Southeast Districts. Since the claypans do not overlie productive aquifers, it would be necessary to develop local surface water supplies or import water for irrigation.

It should be noted that these Districts would be likely locations for coal gasification facilities. It was expected during the 1970's that development of Illinois' enormous coal reserves could result in numerous coal gasification facilities within the State. These facilities are major consumptive users of water with demands as large as a modern power plant or city the size of Peoria.

It is not clear today if and when the synthetic fuel industry on a large scale will be implemented in Illinois. The most likely source for water supply development for the synthetic fuel industry would be the major rivers such as the Mississippi, Ohio, and Wabash Rivers.

Proposals have also been offered for the development of coal slurry pipelines to transport Illinois coal to other regions of the nation. These pipelines would be major consumptive users of water that effectively export large quantities of water along with the coal resources. Demand projections for coal gasification facilities and coal slurry pipelines were not made because of the uncertainty of their development.

Recommendations

- 1) To identify future conflicts, the State Water Survey will continue to monitor water use on a statewide basis and periodically evaluate the balance of supplies and demands on a regional basis.
- 2) Illinois water resources agencies will continue to monitor and participate in the planning and development of new consumptive water uses and direct all such developments to regions of the State with sufficient water supply sources.
- 3) The State will develop the necessary methods and procedures to assist new and expanding water users in evaluating impacts of proposed developments.

AQUATIC AND RIPARIAN HABITAT

Statement of the Problem

Illinois' streams, lakes, wetlands, and their adjacent lands provide habitat necessary for the survival of thousands of species of plants and animals. Continued existence of these plants and animals and their habitat are important for a variety of reasons including: (1) their role in maintaining ecological balance, (2) the economic and aesthetic value of these species and their associated environment in maintaining the quality and quantity of our water resources and (3) the opportunities these habitats provide for activities such as fishing, boating, hunting and nature study which provide enjoyment to millions and contribute importantly to Illinois' economy.

Unfortunately, these and other considerations have neither been sufficiently understood nor persuasive enough to prevent the relentless loss of Illinois' aquatic and riparian habitat. Only minimal restraints exist on the continuing habitat destruction by agricultural, industrial, and urban expansion. The insufficiency of these restraints is especially evident when viewed in terms of the limited authorities and resources for protecting Illinois' habitat. Therefore, the primary thrust of the following recommendations is directed at developing strategies, based on accurate information, to protect and improve Illinois' aquatic and riparian habitat. These strategies emphasize expansion of existing authorities to better protect the public's interest in the full range of values, including environmental as well as economic, of Illinois' waters.

Recommendations

1. Much data exists on Illinois' water resources. Unfortunately, these abundant data are not always available in a useable form to answer basic questions. Without such information, habitat protection programs are difficult to develop and implement, and available resources for habitat protection cannot be targeted for maximum effectiveness. Therefore,
 - a. The Department of Conservation (DOC), working with Task Force agencies, will continue development of the Illinois Stream Information System (ISIS) requesting funding for ISIS at a level sufficient to keep pace with and provide information on aquatic habitat values to IEPA's use-based water quality standard setting effort.
 - b. The DOC, working with the Natural History Survey and the U.S. Fish and Wildlife Service, will initiate an inventory of Illinois' wetlands and integrate the resulting data into ISIS.
 - c. The DOC will add available data on Illinois' lakes, natural and man made, to ISIS to complete a water resource information system.
 - d. Based on information from these systems, the DOC will identify the most ecologically, recreationally, and economically important aquatic and riparian habitats and develop programs to protect them through management, regulation, acquisition, and legislation.

- e. Task Force agencies will cooperatively develop a comprehensive statewide resource information system by establishing, as a first step, a formal mechanism for inter-agency coordination of existing resource inventory and information system efforts. (See Natural Resource Information Systems operating issue.)
2. Currently, environmental protection of Illinois' waters is limited by the lack of formal authority for the Illinois Department of Transportation, Division of Water Resources (DOWR), to condition or refuse permits for construction activities along Illinois' rivers, lakes, and streams on environmental grounds. Therefore,
 - a. DOWR will adopt formal rules and regulations for "An Act in Relation to Rivers, Lakes, and Streams of 1911", that explicitly include environmental considerations in water resources planning, permitting, and development.
 - b. DOWR, working with IEPA and DOC, will implement these rules and regulations by informing permit applicants and by conditioning and, where necessary, rejecting applications on environmental grounds.
 3. Currently, there is no accepted, common understanding of what should constitute minimum protected flow in Illinois' streams to maintain water quality, perpetuate aquatic life forms, and support recreational and other beneficial uses. Therefore,
 - a. The Task Force will adopt a state interim instream flow policy, planning and research agenda, and an interim standard that will protect flows while achieving an acceptable balance with other legitimate uses of Illinois water for agriculture, water supply, and industry.
 - b. State agencies will implement the policy, agenda, and standard in agency operations and communicate them to water development interests and other affected parties.
 - c. DOWR and DOC will develop mechanisms for revising the standard based on research and experience in implementation.

WATER-BASED RECREATION

Statement of the Problem

There is an increasing disparity in Illinois between the demand for popular water-based recreation activities such as swimming, fishing, boating, and canoeing and the supply of opportunities for these activities. Creating artificial lakes to meet this demand has slowed in the last decade due to both economic factors and an increased awareness of the environmental damage to rivers and streams by impoundment construction.

Therefore, more effective planning and management have become increasingly important considerations in order: (1) to maintain and improve water quality and the stream and lake environments on which water-based recreation depends and (2) to provide better access to these resources for recreation. Awareness needs to be increased of the importance of recreation to Illinois' economy, for example, of water-based recreation in the revitalization of urban waterfronts.

Recommendations

1. In 1979, the federal government abolished the Heritage Conservation and Recreation Service and eliminated its previous federal coordinating role for urban waterfront renewal. Therefore,
 - a. The Department of Conservation, (DOC) working with the Department of Commerce and Community Affairs (DCCA), will develop and implement a State urban waterfront renewal policy based on the 1983 study Urban Waterfront Renewal: The Illinois Experience, funded by the State Water Plan Task Force, with federal Water Resources Council monies, and the urban waterfront renewal workshop held in June, 1983.
 - b. Future workshops on selected issues related to urban waterfront renewal will be held, cosponsored by the DOC and other interested agencies and organizations.
2. Existing data on the recreational use of Illinois' waters is inadequate for effective planning and management. Therefore,
 - a. The DOC will add statewide information on the existing and potential recreational uses of Illinois' streams to the Illinois Streams Information System (ISIS). This work is being funded by USEPA, through the IEPA, with DOC staff coordination and data collection.
 - b. The DOC will use this recreation information, in conjunction with data on the natural, ecological, and cultural values of Illinois' water resources to identify Illinois' most important streams and develop programs to better protect and manage these waters to meet recreation demands. Specifically, this information will be used to both guide IEPA's use-based revision of water quality standards and the interagency coordination of stream and lake management.

3. Although many access sites have been developed in Illinois during recent years, many through the DOC's local boating assistance program, additional, more effectively located, access is needed. Therefore,
 - a. As part of the statewide assessment of recreational use (2. above), the DOC will collect information on the location of existing access sites statewide.
 - b. The DOC will analyze the statewide access site data to provide improved direction to the DOC's local boating assistance program in locating new sites.
4. The DOC, DCCA, and others will increase public awareness of existing opportunities by distributing the DOC's 1983 "Illinois Directory of Boat Livery and Charter Boat Services".

ATMOSPHERIC CHANGES AND MANAGEMENT

Statement of the Problem

The climate of Illinois is changing, after an unusually stable period (1956-1973), becoming colder with greater precipitation extremes. In the past six years, Illinois has had two moderate droughts, the hottest and driest summer since 1936, two near record wet years, six major floods, and four record cold and snowy winters. These aberrations are impacting Illinois' water resources, as reflected in the recent agricultural and community water shortages in 1977, 1980, and 1981, and three extreme floods in 1982. In addition to these large-scale climate fluctuations, it is recognized that man's accidental influence on the atmosphere is altering the volume of rainfall, increasing urban storminess, and leading to acid rainfall.

Illinoisians, in reacting to these recent aberrations, have (1) questioned the adequacy of our urban flood protection works; (2) realized that diversions from Lake Michigan are influenced by urban induced additions of rainfall; and (3) have attempted to increase summer rainfall by cloud seeding to improve water supplies and crop production.

The study and monitoring of these atmospheric aberrations leading to better predictability, are hindered by withdrawal of federal support for climate monitoring and research in the state. Uncertainty over two emerging capabilities (weather modification and long-range prediction) to deal with these climate changes need to be resolved.

Attention to these issues has led to the establishment of a 15 station statewide climate network.

Since January 1981, the Water Survey prepares and issues a monthly water status report for Illinois which reviews the precipitation conditions of the past month, season, and year, as well as, predictions for regional precipitation in future months and seasons. Educationally, the Water Survey launched a brochure series dealing with weather and climate issues, and conceived the statewide Winter Storm Preparedness Week. The Water Survey has attracted federal grants to enhance the Illinois Climate Center so as to establish a computerized system linking the Center with state agencies impacted by weather/climate.

Recommendations

1. A research and monitoring program will be sustained by the State Water Survey to detect and predict climate shifts and changes due to man-made effects such as acid rain and heavier rains in metropolitan areas.
2. The Illinois Climate Center of the State Water Survey will continue to develop means to improve user access to long-range climate predictions and climate data, and enhance public and institutional awareness of climate change.

3. Research concerning planned weather modification will be pursued to determine how to increase precipitation (including project organization), and scientific assessments of private projects by the State Water Survey.
4. A Climate Detection and Assistance Team should be organized by the State Water Survey to develop drought and flood contingency plans, and to develop policy positions and regulatory recommendations regarding unfavorable atmospheric modifications including acid rainfall.

DROUGHT AND EMERGENCY INTERRUPTION OF SUPPLIES

Statement of the Problem

Observations over the past 100 years document the recurrence of droughts in Illinois which affect human activities, with the most serious economic impacts being damages to crops. The communities whose public water supplies are most frequently impacted are also known. Various elements of the environment, including aquatic organisms, can be affected.

Similarly, there are occasions of "interruption" of supplies as a consequence of the release of contaminants or failure of facilities which can create an emergency.

Illinois and the federal government have excellent programs which essentially span the needs of drought and emergency response. However, they need to be brought together, coordinated, and placed in a state of constant readiness.

Recommendations

1. Adequate planning and early warnings are necessary requirements for an effective Statewide drought response program. The Illinois State Water Survey now publishes a monthly report on Illinois climatic conditions and trends. Therefore:
 - a. The State Water Survey will continue to issue monthly reports and projections of climate and water supply conditions as a principle means of alerting agencies at various levels to the current drought potential.
2. State Water Plan Special Report No. 3 entitled, "Drought Contingency Planning" summarizes the drought-related activities of Illinois State agencies. Therefore, the drought response framework described in this report will be broadened in scope, and the following elements will be implemented:
 - a. Identification of the onset of drought or emergency
 - b. Assessment of the extent, severity, and duration of drought or emergency
 - c. Convening response task force
 - d. Developing appropriate levels of public notices
 - e. Reassessment based upon condition reports
 - f. Encouragement of appropriate local level response
 - g. Initiation of coordinated assistance of state agencies

- h. Issuance of disaster declaration from the Governor
 - i. Seeking federal disaster assistance
 - j. Seeking supplemental funding for the State Disaster Fund
 - k. Carry out public education
3. Illinois' various programs for drought and emergency response need to be coordinated and placed in a constant state of preparedness Therefore:
- a. Illinois State agencies will rename members and alternates to the State Drought and Emergency Response Task Force. This Task Force shall meet annually to review readiness and shall be co-chaired by the Director of the Division of Water Resources and Head of the IEPA Public Water Supply Section.
4. One special problem that exists in drought and emergency events is the demand placed on proprietary water systems regulated by the Illinois Commerce Commission. Therefore:
- a. The Illinois Commerce Commission should consider rate adjustments for proprietary water systems during water emergencies to promote conservation and compensate for lost revenue.

ILLINOIS WATER USE LAW

Statement of the Problem

Water use law in Illinois is an uncodified collection of court decisions and State statutes. This body of law is incomplete, confusing and uncertain in prescribing the rights, duties, and governmental responsibilities relating to the development, protection, use, and management of water supply sources within Illinois.

One major problem with Illinois' current water use law is that there is no direct means to prevent water shortages from occurring; since any water user may withdraw from a source until the supply is inadequate for all users. Outside of northeastern Illinois, allocation of supply in a water shortage emergency can only be sought through adjudication. In addition, existing law does not provide clear recognition or means for the protection of instream flow uses through preservation of minimum streamflows. Recently enacted legislation (P.A. 83-700) is the first step toward control of use of groundwater.

Recommendations

1. The State of Illinois has conferred broad powers on the Department of Transportation to preserve and protect the "public waters" of the State in the "Rivers and Lakes Act of 1911," Ill. Rev. Stat. Ch. 19, Sec. 52-78. The full scope of these powers is presently unknown because of the lack of a clear definition of the term "public waters." A determination of the "public waters" of the State is important because it affects the implementation of many of the recommendations in this Plan. Therefore:
 - a. The State of Illinois through the Department of Transportation Division of Water Resources will undertake a comprehensive investigation to precisely define and identify the "public waters" of the State of Illinois.
 - b. The Department will also develop appropriate administrative rules and a regulatory program to protect the public's rights and interests in the "public waters".
2. There are evolving statutes which provide for the management and protection of the quantity of water in the prime groundwater aquifers of the State. As yet, there is no adequate enabling authority for groundwater management districts in Illinois. These districts have been successful in other regions of the nation. Therefore:
 - a. The State agencies will work with groundwater users to develop legislation and a program to provide for the creation of local groundwater management districts where needed to manage water supplies.

- b. The State Water Survey will provide groundwater data to soil and water conservation districts in fulfilling requirements of P.A. 83-700, and added support is essential.
3. There is currently no legislation or program which provides for the determination of minimum flows or levels in Illinois streams and lakes for the protection of aquatic life, minimum water quality standards, and instream water uses. Therefore:
 - a. The State will develop a program and evaluate the need for legislation which will allow for the determination and protection of minimum instream flows and lake levels within the State of Illinois. (See Aquatic and Riparian Habitat)
4. Conflicts in Illinois over water use and development generally do not become apparent until the occurrence of a prolonged drought event. These conflicts and droughts are generally of a regional nature. The regions can be defined with reasonable accuracy through application of water balance models and drought-duration-frequency analysis. Therefore:
 - a. Through the State Water Survey the State will continue to monitor water use on a statewide basis and evaluate the balance of supplies and demands on a regional basis.
 - b. When regional imbalances of supplies and demands become apparent which cannot be rectified by local action, legislation may be required to use State emergency powers to manage and allocate water in such regions during the water shortage emergency.

CROSS-CUTTING TOPICS

INTEGRATED WATER MANAGEMENT

Statement of the Problem

Traditional water quantity or water quality management problems such as navigation needs, public water supply, and sewage treatment plant construction have been separately handled under single purpose authorities. However, more recent water quality and water quantity management problems such as the protection of minimum stream flows, underground water protection, or nonpoint source pollution control are more complex and involve more than one program or authority. The purpose of the integrated water management issue is to establish the basis for coordinated exercise of program authorities towards problem resolution. This effort is specifically directed towards those problems which cannot easily or properly be resolved under any one agency's authority or require compromise to assure the achievement of statutory mandates.

Recommendations

There is a need to develop methods and procedures to coordinate the application of various agency authorities toward the emerging water resource issues facing the State. This integrated approach to water resource problem solving and management must include a conflict resolution process to reconcile competing demands on the resource base as well as provide equitable management solutions for water use problems. It is recommended that the following activities be undertaken in this regard:

1. A Successor Group to the State Water Plan Task Force will be established:

Cooperative decisionmaking can only continue if the process is shared by member agencies. The continuation of the State Water Plan Task Force format will provide the basis for a technical and policy forum for major water management concerns. This approach will provide necessary program and technical exchanges to assist the the Governor's Sub-Cabinet on Natural Resources.

2. Identify the Location of Geographic Priorities:

Identification of common local, regional and statewide priorities will provide more effective use of available management resources. It is expected that a relative ranking of basin segments, derived in part from an analysis of current agency program activities, will be used to develop these priorities.

3. Develop Incremental Data Base Management:

A unified water resources data base system for the State is not immediately achievable. The quickest way to achieve such a goal is to incrementally link existing systems.

Therefore, identify what data as a minimum can be used by the majority of State water resource agencies and what are the compatibility requirements of the data for compilation purposes. The development of this incremental approach will be linked to the process of priority setting.

Note should be made of the Operating Issues of this report concerning Stream Indexing and Natural Resources Information System.

4. Establish a System for Accountability:

Interagency agreements will be used as a means to integrate water management programs on complex issues and provide a system for accountability.

CONFLICT RESOLUTION

Statement of the Problem

There is always the opportunity for conflict among individuals and the institutions through which they function. This is true within the field of water resources which includes the quality and quantity aspects of surface supplies, ground water, and atmospheric moisture. Illinois has been remarkably free of water disputes because of its generally ample supplies of this resource. A major exception in northeastern Illinois has involved over-development of a deep groundwater supply, competition among communities, interstate conflict, a U.S. Supreme Court decision, and a State allocation and conservation program which has stabilized earlier problems.

The resolution of conflicts by increasing useful supplies through reservoir storage or diversion is not always possible because of high construction costs, limited financial resources, and increased public concern about environmental damage.

Recommendations

Throughout its life of more than three years, the Task Force has maintained an awareness of the possible need to recommend new or modified means for conflict resolution with regard to water resources. In the end, it is concluded that no sweeping changes in existing mechanisms are required, but that a whole series of refinements, as indicated below, will insure that future water conflicts can be resolved promptly and equitably. These refinements are:

1. Conflicts should be resolved at the lowest feasible level of government.
2. As discussed in another section of this report, on Illinois Water Use Law, the statutes with regard to public waters will be clarified through interpretation.
3. Maximum continuing use of improved supply/demand information will be employed through planning by the agencies individually and collectively through interagency mechanisms to anticipate shortages, competition, and possible conflicts. Such actions are particularly important during periods of low flow, and should be anticipated in drought contingency planning.
4. Maximum support and encouragement will be given to the use of local districts which are possible under existing or additional enabling legislation, and which have the power to allocate water resources to various uses within their district boundaries.
5. A successor to the Water Plan Task Force will be established as the first line for resolving interagency conflicts. The Natural Resource Sub-Cabinet will be used in any conflicts which cannot be resolved at the Task Force level.

6. Where useful, interstate agreements will be sought with neighboring States - particularly Wisconsin and Indiana - for the management of shared resources. Along the border streams - the Mississippi, Ohio, and Wabash - adequate monitoring of water quality and quantity and existing liaisons will be maintained to anticipate and possibly avoid interstate and Federal/State problems including permits, construction, and operation.
7. Problems arising on Lake Michigan and the Great Lakes including water quality and lake levels are properly addressed by existing agencies such as the Great Lake Commission and the International Joint Commission. Illinois will maintain an active presence and participation in these agencies.
8. The courts will be relied upon as a means of last resort for the resolution of conflicts which cannot be managed under any of the foregoing mechanisms.

PUBLIC PARTICIPATION

Statement of the Problem

The Water Plan Task Force recognizes that water is a subject of considerable importance and widespread interest. The public wishes to be involved in policy and program decision making, and public involvement and support are required if a Plan is to be implemented. Furthermore, policies, programs, and plans will better reflect statewide values and priorities if the public is actively involved.

The State Water Plan was developed with the assistance of outside advisory groups, regional committees, public hearings, and a variety of feature articles originated by the agencies and the interested media.

The problem of public participation now becomes one of giving wider visibility to the conclusions of the Plan, as well as incorporating refinements and providing for the addition of new water issues of emerging importance.

Recommendations

1. The Task Force plans an "Awareness Program" for the leadership of the General Assembly and the members and staff of the standing committees which pertain to water. Those in the Senate are the Agriculture, Conservation and Energy Committee; both Appropriations Committees; Local Government Committee; and Transportation Committee. Those in the House of Representatives are the Agriculture Committee; both Appropriations Committees; Cities and Villages Committee; County and Townships Committee; Energy, Environment and Natural Resources Committee; and Transportation and Motor Vehicles Committee.
2. The Illinois Municipal League (IML) through its Board of Directors, staff and monthly publication "Illinois Municipal Review" should be utilized to publicize the Plan recommendations. Starting with the most critical issue, an article would appear each month in the publication. Also at the Annual IML Conference held in September in Chicago, a public hearing should be conducted by the Water Resources Commission; and a "Public Information Booth" should be made available by the Water Resources Commission so members of the Task Force can answer any questions about the State Water Plan.
3. It is planned to contact the Illinois Association of County Board Members and the Township Officials of Illinois at their zone and state meetings to acquaint them with the Plan and seek their involvement and suggestions.

4. The established Federal Agency Advisory Group, Future Development Advisory Group, the Five Regional Advisory Committees and the public hearings conducted by the Water Resources Commission will be continued through the preparation and public release of the Final Report in early 1984.
5. The agencies involved in the Water Plan effort will continue to utilize their available means such as news releases, feature articles, and short courses to inform the public about the issues and recommendations of the State Water Plan and its Final Report.

OPERATING ISSUES

STREAM AND LAKE USE MANAGEMENT

Statement of the Problem

Existing program authorities dealing with stream and lake use management provide for hazard intervention, but do not generally respond to optimum uses of water during average conditions. In order to meet future water resource uses during periods of normal flow, geographic priorities pertaining to agency mandates need to be identified to respond to conflicting instream uses and competition for off stream demands.

Progress to Date

The work group has proposed the use of the Illinois Water Quality Management Plan (WQMP) as a vehicle to codify State agency water authorities and management priorities. This effort would accompany the standards effort basin-by-basin. The Sangamon River Basin would be the first basin completed, the Fox second and the Des Plaines third. The identification of management priorities proposed by the agencies would reflect their statutory and regulatory mandates. The use of the WQMP provides for public participation, consideration of multiple-management authorities, cross-compliance, annual updates, codification and due process.

Recommendations

The Stream and Lake Use Management Work Group will continue pursuing the following recommendations. These recommendations include:

1. Identification of state management authorities and priorities on a reach basis within watersheds.
2. Codification within the Illinois Water Quality Management Plan of these management authorities and priorities.
3. Responding to and resolving conflicts or gaps of authority and management priorities.
4. Identification of roles and responsibilities that each agency will play in these efforts and development of interagency work plans on an annual basis.

STREAM DATA MEASUREMENTS

Statement of the Problem

The collection and dissemination of streamflow, water quality, and suspended sediment data suffers from serious funding problems resulting in part from the fragmentation that exists in planning, operation, and funding of these important information networks. Furthermore, end users of the data take the data collection effort for granted and do not participate in planning or funding.

The stream gaging network suffers from the fragmentation of multi-agency participation. Fifty percent of the funding comes from three primary sources: the Illinois Department of Transportation, Division of Water Resources (DWR); the Illinois Department of Energy and Natural Resources, Water Survey Division (SWS); and the U.S. Army Corps of Engineers (COE). All of these funds are matched by a fourth agency, the U.S. Geological Survey (USGS), which also operates the network and publishes the data. Each of the three primary funding agencies (including four COE districts) sponsors the gages primarily for their respective missions in contrast to statewide network considerations. Recent severe reductions in funding from all of these agencies have resulted in the elimination of a number of gaging stations. This in turn has prompted the initiation of comprehensive network planning efforts.

The streamflow network further serves as the basis for the water quality network operated by the Illinois Environmental Protection Agency (IEPA) and the suspended sediment network operated by the SWS. Since streamflow data are required by these networks, reductions or changes in the streamgaging network impacts directly upon them.

Progress to Date

The final product of a Stream Data Measurements Work Group is somewhat dependent on the results of ongoing streamgage network analyses by the SWS and the USGS. Each of these studies has been in progress for over a year, and completion is expected by the end of calendar 1983. The Work Group will examine the results of these studies and make a recommendation regarding a minimum network requiring state support.

In a related effort, each of the members of the Work Group has prepared an analysis of his agency's use of stream measurements data. They have also included lists of data users served

directly or indirectly by their agencies. The Work Group is also reviewing a questionnaire designed to identify users of stream measurements data and the uses of that data. The results of the questionnaire will be part of the Work Group's final report to the Task Force. It is hoped that the results of the questionnaire will be helpful in broadening the base of support of the networks.

Recommendations

1. That upon completion of the streamgaging network analyses, the Work Group will bring to the Task Force a recommended minimum streamgaging network for consideration.
2. That upon study of the Work Group's recommendation, and the results of the network analyses, the Task Force will identify a minimum network and assist in seeking future funding of that network.
3. That network evaluations be performed as well on the water quality network and the suspended sediment network.
4. That the base of support for the networks be broadened by identification of users and user benefits, both in state and out of state.
5. That requests for stream measurement data be made known to sponsoring agencies.

STREAM INDEXING

Statement of the Problem

Water resource planning, management, and research in Illinois could be improved by use of more uniform stream indexing procedures by State and federal agencies. Stream indexing, consisting of stream identification and river mile indexing (RMI), is necessary for filing, retrieving, manipulating, and communicating stream-related data.

Stream indexing in Illinois is complicated for two reasons. First, many Illinois streams have the same name, e.g., there are at least 12 Indian Creeks. As a result uniquely identifying individual streams often involves confusing descriptions of hydrologic relationships, county(s) through which the stream flows, or other descriptive information. Secondly, State agencies have already developed a number of different methods to uniquely identify streams, namely assigning streams unique numbers of alphanumeric codes.

Another complication is the substantial alteration of stream courses in Illinois through activities such as channelization which, in many instances, change stream length and river mile measurements of features along streams. In making river mile measurements, most state agencies rely on the USGS publication, River Mileages and Drainage Areas of Illinois Streams (1979) which lists RMI's for confluences and major features such as bridges. Over time, stream alterations have resulted in altered river distances.

Recommendations

1. Since the stream identification procedures in use and under development by state agencies represent a substantial investment, are to a large extent integral parts of existing computerized water resource information systems, and were developed to meet objectives specific to individual agencies:
 - a. A stream number/code cross-reference table will be prepared by the State Water Survey indicating the various stream identifying numbers and codes used by different agencies by stream.
 - b. Agencies will utilize the cross-reference table when conducting interagency activities involving stream-related information, i.e., agencies will, identify streams by their own number/code, and, if appropriate, by other agencies' number/code.
2. For many agencies, RMI's are used primarily for locating individual stream-related features such as gaging stations. For other agencies, accurate river mile to river mile measurements of features such as riparian vegetation are needed for planning and analysis purposes. Based on the Department of Conservation's Sangamon River Basin data

collection and analysis experience, two basic levels of needed changes were found in the USGS publication for RMI's in the basin: major changes of one or more miles and minor adjustments generally of .1 to .5 miles. Given the variety of uses of RMI's:

- a. The Department of Conservation, in cooperation with other agencies will identify these major changes to the USGS publication for the Sangamon River Basin, and for other basins as the Illinois Stream Information System (ISIS) is completed, and provide this information to other agencies represented on the State Water Plan Task Force.
 - b. That agencies will recognize and utilize these corrected RMI's when conducting interagency activities involving stream-related information.
3. Since collection of water resource information is an ongoing process and agencies continually develop, revise, and expand their water resource information systems, a mechanism is needed for agencies to keep abreast of new developments and resolve issues such as stream indexing when they may impact interagency water resource information transfer. Therefore:
- a. The agencies will continue to meet as needed to review progress and resolve issues related to stream indexing and water resource information in general.

NATURAL RESOURCE INFORMATION SYSTEM

Statement of the Problem

Many of the major issues facing Illinois today focus on natural resources and the environment. These issues include sources of energy; management of waste; and pollution of land, water, air, and rainfall. In addition, changing weather and climate, protection of endangered species, siting of installations such as nuclear power stations, and various conflicts over uses of land and water must be considered. Making informed decisions on management of our natural resources can only come from the use of reliable data and information. The State cannot now serve effectively many requests for information because of the backlog of requests and the time required to serve them. There is also recognition that there are many potential users of natural resources information who are not utilizing information but who could be served by a centralized information facility.

Progress to Date

A committee of the Department of Energy and Natural Resources (DENR) consisting of representatives from the State Water Survey, State Natural History Survey, State Geological Survey, State Museum, and the Division of Energy and Environmental Affairs is directing the implementation of the Illinois Natural Resources Information Center (INRIC). The Water Survey is the lead agency in this effort.

INRIC will begin operation in May of 1984, with its initial function as a referral service. An 800 phone number will be available for requests relating to any aspect of natural resources data or expertise. The INRIC operator, at the State Water Survey, will have access to an index of "experts" within each of the Surveys and other participating agencies around the state.

The "expert index" of the Surveys is under preparation and will be used as a guide for other participating agencies. Contacts with other agencies to determine the types of services INRIC might provide for them will begin in January. Participating agencies will also be asked to provide input to INRIC by sitting on a user policy committee. Members of the Water Plan Task Force will be asked to serve as core members of the user committees.

One objective of INRIC's first year of operation will be to gather data about users and their requests for information. The types of information requested, and the frequency and distribution of those requests, are needed to determine the future direction and shape of INRIC.

In addition to the referral service provided by INRIC, certain data and information will be available directly. Initially, this direct service will include items such as flood elevations and discharges, physical data on reservoirs and lakes, and certain climate information. Again the information provided is not limited to that of ENR. It is anticipated that other agencies might find this method of information dissemination useful as part of their overall information program.

Through new communications available at the University of Illinois and at the Surveys, the INRIC operator will have direct access to the University's computing facilities, the new PRIME computer at the Natural History Survey, and the new ALTOS based "Climate and Pest" service at the Water Survey. Direct telecommunications links are also being established with DENR and the State system in Springfield.

Recommendations

1. Functions of the statewide natural resources information center will be expanded as feasible by the Illinois State Water Survey.
2. A work group of the Water Plan Task Force will be established as the core membership for an INRIC user policy committee.
3. A referral service will be continued as the first phase of INRIC operation.
4. The concept of a computer center to support INRIC and provide natural resources data and services to users will continue to be explored.

WATER RESOURCES PERMIT COORDINATION

Statement of the Problem

The permitting process is a widespread activity of State government and one which the Task Force is seeking to improve through a Work Group. Issues involved are improved coordination among agencies, expansion of permit authority to activities not now covered, and involving agencies not now having permit authority.

Progress to Date

Since a September 1982 Progress Report, the Department of Mines and Minerals has joined the Work Group. This was done in order to facilitate the discussion of surface mining problems and permit coordination. In January of 1983, a day-long seminar for state agency staff members involved or interested in permitting was held. In March, the Illinois EPA and the Division of Water Resources made a presentation at an environmental seminar conducted by the Consulting Engineers Council of Illinois in cooperation with the Illinois Society of Professional Engineers. These activities correspond to recommendations contained in the September 1982 Progress Report.

In addition, the system of notification for landfill applications has been expanded by Illinois EPA to include the Department of Conservation, Department of Agriculture, and the Division of Water Resources. The Division of Water Resources has also initiated the development of a brochure for general use discussing the permitting process and concerns involved in the channelization of natural streams.

Beyond these activities, the Water Resources Permit Coordination Work Group has served as a forum for discussion of several problems common to the member agencies. For example, the land application of sludge for agricultural purposes and the control of erosion on construction sites have been two major topics.

Recommendations

Although the establishment of a formal interagency project review team, as recommended in the September 1982 report, has not yet occurred, efforts will continue to implement this recommendation. Communications among the staffs of the agencies involved, including joint field visits, has continued, providing momentum to implement this recommendation. Other recommendations for this issue include:

1. Initiate the development of an inventory of wetlands in the State (DOC) for use by the agencies involved in present permit authority (DOWR), and for possible use in outright purchase (DOC).

2. Continue downstate, the series of educational seminars for consultants and project sponsors on the explanation of the permitting functions and authorities augmented by an explanation of the concerns of these agencies plus the concerns of agencies which do not have permit authority but have an interest.
3. Organize a project review team composed of staff members of each of the concerned agencies to meet regularly and with a set agenda to discuss projects under review by one or more of the agencies.
4. Continue to develop an inventory of stream crossings both aerial and underground to aid the permit-review functions of the involved agencies.
5. Develop a series of seminars for people in the field including Federal, State and local agencies, and private organizations, to cover the subjects of the State's role in permit authority and the State's concern with other environmental issues related to construction in wetlands, floodways, floodplains, sludge management, and lake rehabilitation.
6. Develop educational pamphlets on the subjects of erosion control, and channelization and hydrologic modification emphasizing the permit authorities of the state. This effort could also be undertaken by an outside private organization with advice and counsel by the State.
7. Continue with the discussions of additional topics, to expand and explore further the possible options of program changes.
8. Develop a policy for use by all affected agencies to prohibit the siting of landfills in floodplains.

WATER RESOURCES RESEARCH AND EDUCATION

Statement of the Problem

In developing the issues of the Illinois State Water Plan, the Task Force members have identified many problems that should be studied to provide information for developing State water policies and for improving the management of the State's water resources. In light of the federal government's new emphasis on state management of its water resources and funding of water research, the Task Force proposed to examine the current water research program and research needs of Illinois.

Progress to Date

The Water Resources Center of the University of Illinois (WRC) sponsored a day-long conference on May 7, 1982 that brought together representatives of the Task Force agencies and researchers from State universities and State and federal agencies to examine Illinois water research needs, with particular attention to the State's water planning efforts. One hundred and forty-eight research areas were identified. At the request of the Task Force, the WRC conducted a survey of the water research projects that State agencies and researchers were conducting or supporting in June 1982. Twenty-four agencies, universities, and consulting firms responded, reporting more than 160 projects. The WRC then issued a report in March 1983 entitled "Illinois Water Research Needs and a Catalog of Water Research in Illinois," State Water Plan Special Report No. 5 that summarized the findings of the conference and survey. Its purpose was to identify research that might already be addressing information needs of the Task Force and to stimulate research in the identified areas that were not being addressed.

Recommendations

The Illinois State Water Plan Task Force recommends that State agencies, colleges, and universities work closely together to provide research and information for the management of the State's water resources. It also recommends that sufficient State funds be allocated to support university water resources-related curricular and research opportunities to continue to provide an adequate number of trained professionals in water resources planning and management. Specific recommendations are as follows:

1. With the assistance of the March 1983 report, State agency personnel will contact researchers identified as conducting research relevant to their needs and begin a mutually beneficial dialogue.
2. Researchers at Illinois universities and State scientific surveys will consult with State agencies and begin addressing the research needs of the State Water Plan.

3. State water resource planners and researchers will continue to meet at least annually to share information on water resources research and research needs. More frequent workshops on selected topics should be supported and encouraged. Representative water managers and major water users from industry, municipalities, agriculture, water supply utilities, waste treatment utilities, legislators, state and federal agencies and universities should be invited to these meetings.

4. In light of the current federal philosophy that water resources planning and management are state responsibilities and federal cutbacks in water research funds, the State agencies will closely coordinate its support of water data collection and research programs. The State Water Survey has the broad mandate in its enabling legislation to coordinate water resources research in Illinois. Local government and private industry are urged to support a program of water research and data collection programs in Illinois. This program should (1) address the problems and research needs of local government and agencies managing the water resources of Illinois and (2) provide opportunities for students at our colleges and universities to participate in water resources research to ensure that qualified professionals will continue to be available to Illinois agencies and industries in the future.

RESERVOIR AND LAKE OPERATIONS

Statement of the Problem

Manmade surface water impoundments have long been recognized as valuable developments of Illinois water resources for such purposes as water supply, recreation, lake fisheries, and flood control. These same impoundments have also created a unique set of management problems and demands on Illinois' water resource agencies. Issues and concerns include such reservoir management problems as low flow regulation, high flow regulation and associated flooding, multi-purpose reservoir demands and conflicts, sedimentation, and water quality deterioration.

Progress to Date

The sub-issues selected by the Work Group for definition and evaluation are as follows:

1. Low flow releases
2. Reservoir and lake water quality problems
3. Multi-purpose reservoir development policies
4. Management conflicts and opportunities for State/Federal Multi-Purpose Reservoirs
5. Downstream Agricultural Flooding
6. Reservoir Development and Rehabilitation Permit Coordination
7. Sizing and optimization of reservoir developments
8. Reservoir sedimentation

Recommendations

Resolution of most reservoir and lake operations and management issues can be reached through a concentrated effort to activate pre-development interagency project planning and review for all proposed public and private reservoir developments. Likewise, management opportunities and resolution of conflicts for existing reservoirs and lakes in Illinois will require a clarification and interaction of State and Federal agency policies and management programs with local and private interests.

The following recommendations and suggested actions address resolution of specific reservoir and lake operations and management issues in each of the sub-issues.

1. The Division of Water Resources and the Department of Conservation will develop an interim protected instream flow standard and procedures for implementation of the interim standard for all new reservoir projects.

2. The Illinois EPA as lead agency will further develop and implement a Reservoir and Lake Protection and Enhancement Program for Illinois to include technical assistance regarding lake quality protection, management, and restoration with an integrated approach to lake use enhancement including watershed protection.
3. All State water resource agencies will take an active role in the pre-project planning and resolution of the multi-purpose operational procedures and policies for all newly proposed reservoir projects. DOWR is designated lead agency for State sponsored multi-purpose reservoir projects.
4. Affected water resources agencies of Illinois and the Corps of Engineers should meet annually during the second week of April to discuss operation and management issues and opportunities at all Illinois State-Corps Reservoirs.
5. All water supply impoundments with controlling gates should balance reservoir inflows with outflows during floods so that damages to agricultural floodplain lands are not increased.
6. All non-State reservoir developments will be processed as a "multi-agency permit coordination review" issue.
7. The State water resources agencies will work with all water supply impoundment developers to insure that all projects optimize the available water supply storage and minimize environmental degradation.
8. The State Water Survey will continue to conduct lake sedimentation surveys and pursue research on methods for reducing reservoir sedimentation rates.

APPENDIX

AGENCIES AND INDIVIDUALS WHO PARTICIPATED IN THE STATE WATER PLAN DEVELOPMENT

WATER PLAN TASK FORCE

Following are the agencies and the principal individuals who participated in the Water Plan Task Force:

Office of the Governor

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University Water Resources Center

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Department of Conservation*

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Emergency Services and Disaster Agency

Thomas Zimmerman

Capital Development Board

Fred C. Garrott

Task Force Officers and Staff

Frank Kudrna, Chairman, May 1980-June 1982
Donald R. Vonnahme, Chairman, July 1982-Present
William C. Ackermann, Executive Director
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FEDERAL AGENCY ADVISORY GROUP

Following are the agencies and the principal individuals who participated in the State Water Plan.

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