ENVIRONMENTAL MANAGEMENT STRATEGIES:

Comparative Analysis and Selected Case Studies

Report No. 92-01
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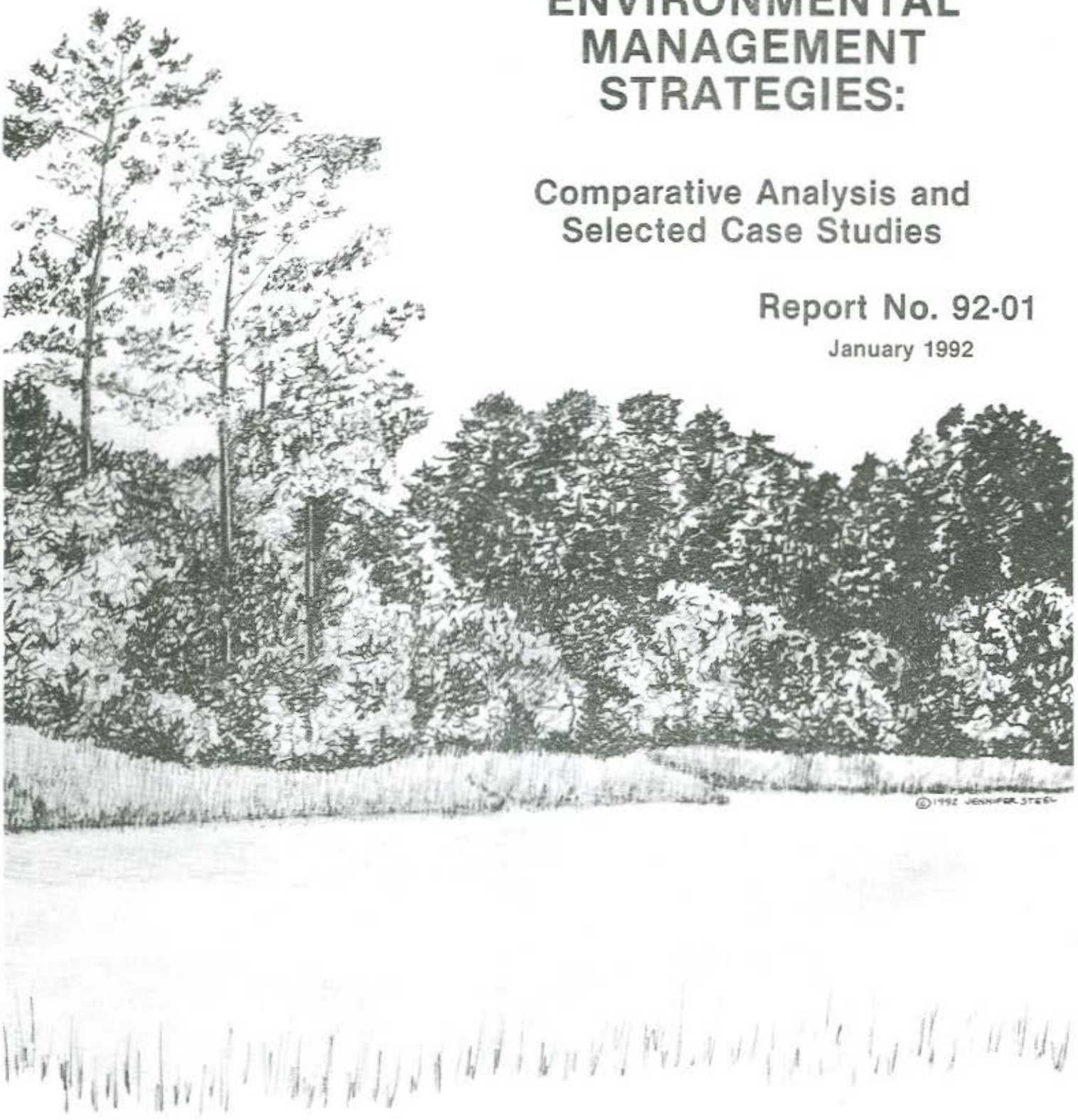

ALBEMARLE-PAMLICO ESTUARINE STUDY

NC Department of Environment, Health, and Natural Resources

ALBEMARLE-PAMLICO

Environmental Protection Agency National Estuary Program

ENVIRONMENTAL MANAGEMENT STRATEGIES:

Comparative Analysis and Selected Case Studies

Report to the

ALBEMARLE-PAMLICO ESTUARINE STUDY

Contract Number 92 - 01

January 1992

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ACKNOWLEDGEMENTS

The intent of this project has been to collect information from as many sources as possible and to present that information in a helpful format. The vast majority of our data collection came from individuals. While collecting the information for this report we talked to over 250 people who shared with us their knowledge about programs with innovative management strategies. Many of these individuals are listed in Appendix 2, List of Contacts. To each of them and to the many others who gave us their advice and recommendations we express our thanks.

Special thanks are given to the program managers of the nineteen programs that were selected for detailed description in Section 3. Several of the managers reviewed and commented upon our initial drafts, adding much clarification. Those individuals were Frances Flanigan, Sarah Taylor, Peter Clark, Michael Perry, Richard Eckenrod, Terrance Moore, Molly MacGregor, William Travis, Robert Delaney, and Christopher Roberts. We also wish to thank the members of the Management Conference who participated in the meeting where the nineteen programs were selected, and the members who reviewed and commented upon the first draft of this report.

The staff of the Albemarle-Pamlico Estuarine Study, Randall G. Waite, Theodore Bisterfeld and Jennifer Steel worked closely with us at every stage of the project. Our thanks go especially to them for their insights and dedication.

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Contents of the publication do not necessarily reflect the views and policies of the United States Environmental Protection Agency and the North Carolina Department of Environment, Health, and Natural Resources, nor does mention of trade names or commercial products constitute their endorsement by the United States or North Carolina Government.

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EXECUTIVE SUMMARY

INTRODUCTION

The National Estuary Program (NEP) contains seventeen estuary programs, including the Albemarle-Pamlico (A/P) Estuarine System. The NEP helps support work in these individual estuaries for five years by providing financial and technical support for management and research that is carried out locally. The goal of providing five years of support is to enhance the local capacity to protect, manage and restore the estuary. At the end of the five year Study, a Comprehensive Conservation and Management Plan (CCMP) for the A/P estuary will be developed and new working relationships will be formed to carry the work forward.

The purpose of this project was to identify, present and evaluate programs embodying innovative and successful management strategies that address environmental systems. Special attention was given to finding examples of federal-state-local partnerships and programs that address natural resource problems from a watershed framework. Over seventy programs were screened. Nineteen programs were selected for more detailed reporting. Information about each program, including its mandate, organization, decision making body, staff, budget and public involvement, was presented. Based on the overview of seventy programs and the more detailed analysis of the nineteen programs, the report presents the following recommendations to the A/P Management Conference for consideration while developing and implementing the Albemarle-Pamlico Estuarine Study's Comprehensive Conservation and Management Plan.

These recommendations grew out of the collective wisdom of numerous people in the organizations we contacted. The recommendations are intended to cover topics that are important to the success of implementing the Plan, whether this work is done by an existing or new organization. We refer to this organization variously as the Management Conference's "successor" or "oversight board," since we do not know what it will be called. The recommendations are organized by category: mandate, organization, and public involvement.

RECOMMENDATIONS

Mandate

Role of the CCMP implementation group/organization/agency: The A/P Management Conference should decide who will be responsible for CCMP implementation and define that "successor's" mandate and function.

Linking or networking existing programs: The A/P Management Conference should recommend that their successor's mandate be broad so that all issues regarding water quality and quantity can be addressed when necessary.

Watershed boundaries for the management framework: The A/P Management Conference should support the State's use of the watershed approach to permitting and

should adopt this concept throughout the implementation recommendations contained in the Comprehensive Conservation and Management Plan.

Property owner's actions: The A/P Management Conference's mandate should reflect a respect for individual property rights. At the same time, the Management Conference should comment on individual activities that could harm the watershed and its resources, or that are counterproductive to the goals of the Comprehensive Conservation and Management Plan.

Separating short-term crises from long-term conflicts: The A/P Management Conference should create a forum for groups and individuals to handle short-term topics so that such issues do not distract from long-term management efforts of the Albemarle-Pamlico estuarine complex.

Growth management: The A/P Management Conference should address growth management in the CCMP. The Management Conference should work with existing growth management and planning groups and ensure that planning is based on a regional ecosystem framework and incorporates a long-term planning horizon. This work should recognize local governments as the ultimate implementors of growth management policies.

State, local and county governments: The A/P Management Conference should examine government agencies' current mandates, responsibilities and capacities, find effective ways to promote collaboration, and reduce redundancy or overlap in environmental management programs.

Organization

Framework: The A/P Management Conference should discuss the advantages and disadvantages of its successor's framework of operation and organization.

Funding: The A/P Management Conference should provide its successor and local governments with the authority to raise funds to implement estuary and watershed protection, restoration, and management efforts through a variety of means. The Conference should also work with the nongovernmental organizations to help them obtain the necessary resources and funding to fulfill the responsibilities they have in CCMP implementation.

Alternative ways of handling funds: The A/P Management Conference should establish a non-profit institution to serve as a flexible mechanism for fulfilling future program needs that extend beyond the current fiscal framework.

Composition of the decision making bodies:

> **Authority of appointed members:** The A/P Management Conference should develop guidelines for membership on CCMP implementation committees and decision-making bodies to ensure that the members who represent various interests and agencies are able to speak with authority on policy issues and are able to make programmatic commitments. Guidelines should be developed to ensure the representation of all affected user groups in a balanced and uniform manner.

Responsibilities of membership: There should be explicit descriptions of the responsibilities of all boards, advisory groups, subcommittees, and of individual members, including such items as the authority of substitute members, attendance at meetings, and expectations of the group for individual members to communicate information among themselves and from their home organizations.

Tools for managing conflicts productively: The A/P Management Conference should recognize the potential contribution of dispute resolution techniques to CCMP development and implementation, and should provide training in teamwork and dispute resolution techniques to all interested persons.

Public Involvement

The role of nongovernmental organizations: The A/P Management Conference should encourage nongovernmental organizations (NGOs) to play a major role in CCMP implementation and ensure that they have the necessary resources and funding to fulfill these responsibilities.

Citizen oversight of management actions: The A/P Management Conference should continue to actively involve the public and invite their participation in creating innovative solutions to difficult problems. For example, when developing and implementing corrective measures for environmental problems, consideration should be given to providing incentives for compliance with management programs, as well as to providing punitive measures of enforcement.

Materials to explain programs and encourage public support: To increase and sustain public participation during CCMP implementation, the A/P Management Conference should support efforts and develop materials to inform local communities and other affected parties about the decision making process for the estuary, as it pertains to land use and water quality and the opportunity for public involvement.

Evaluation: The A/P Management Conference should incorporate methods to review plan implementation in the CCMP. This should include mechanisms for reassessing the technical foundations of the Plan, the progress related to the Plan's goals, the need to add, modify, or delete goals, and the efficiency of implementation. Parties representing all interests should be involved in this process.

SELECTION OF PROGRAMS

Information on seventy-five programs was compiled and presented. The information is summarized in a large table in Appendix 1. The A/P program managers and selected representatives of the Management Conference reviewed this survey of programs and selected nineteen programs for detailed review. These programs address topics of current concern to the A/P Management Conference. Since this project is specifically tailored to the current needs of the A/P Management Conference, the choice of the nineteen programs was naturally influenced by the unique political environment and outstanding issues faced by the State of North Carolina and the Management Conference.

The following programs were chosen by the A/P participants for inclusion in the final report:

- Chesapeake Bay Region:
  - Chesapeake Bay Foundation
  - Alliance for the Chesapeake Bay
- Maryland:
  - Critical Area Program
  - Nontidal Wetlands Program
  - Forest Conservation Program
- Delaware River Basin Commission
- Great Barrier Reef Marine Park Authority, Australia
- Lake Tahoe Basin Management Unit
- Minnesota:
  - Watershed Management Districts
  - Lake Improvement Districts
  - Joint Powers Organizations
  - Mississippi Headwaters Board
- Pinelands Commission, New Jersey
- Puget Sound Water Quality Authority
- San Francisco Bay Conservation and Development Commission
- Tampa Bay:
  - Agency for Bay Management
  - Surface Water Improvement Program
  - National Estuary Program
- Upper Mississippi Environmental Management Program.

1. INTRODUCTION

The Albemarle-Pamlico Estuarine Study (A/P Study) was the first National Estuary Program designated under the 1987 amendments of the Clean Water Act. With this designation, the State of North Carolina entered into a cooperative five-year partnership with the U. S. Environmental Protection Agency (EPA) to develop a comprehensive management plan for protecting the long-term productivity of the estuarine waters. The administrative framework for creating the plan is called the Management Conference, which entails the formation of policy, technical, and citizen advisory committees to combine scientific research, management, public involvement, and education efforts.

The A/P Study area covers 30,000 square miles of the watershed for Albemarle and Pamlico Sounds. Current knowledge about the ecosystem's environmental quality have been recently published in the Status and Trends Report of the Albemarle-Pamlico Study (1991). The Status and Trends document, along with results from continuing research, will serve as the foundation for the development of a final management plan, entitled the Comprehensive Conservation Management Plan (CCMP), in November of 1992. The CCMP will contain recommendations for coordinating various state, federal, and local programs that affect different aspects of the estuarine environment and its watershed. The plan will specifically address four broad areas of concern: the human environment, critical areas (submerged aquatic vegetation, wetlands, nursery areas, fishery habitats, and barrier island habitats), water quality, and fisheries.

1.1 Purpose and Scope of the Project

The purpose of this project is to provide information that will help A/P Management Conference develop an innovative and successful management strategy for implementation of the CCMP. To accomplish this, we collected and evaluated information about selected environmental management programs in the United States and other countries. The audience for this report is the members of the Management Conference and others who will assist in the development of the CCMP.

We collected and presented information on environmental management programs that are comparable and applicable to the A/P Study. The Management Conference did not need, and we were not asked to present a theoretical or exhaustive analysis of all possible management strategies. The scope of this project was to search broadly to find innovative and successful management strategies, and then to focus on a smaller number of useful and applicable programs. We did not conduct an analysis of management programs within North Carolina state government, since the major programs have already been analyzed by Robert C. Nichols *et al.* (1990), in a report entitled *Evaluation of State Environmental Management and Protection Programs in the Albemarle-Pamlico Region* (A/P Project 90-02).

Representatives of the Management Conference selected nineteen programs for further study based on their current interests. This selection was based on the individuals' knowledge of existing programs and environmental management issues that will need to be addressed by the CCMP. The nineteen selected programs provide useful insights and address the unique needs and challenges being faced by the A/P Management Conference in developing a CCMP.

This report is organized as follows: the remainder of this chapter provides background information on management strategies. The second chapter describes the

methods and approaches used in this project. The nineteen programs selected for analysis are described in the third chapter. This is followed by a fourth chapter that presents findings synthesized from the collected information. The final chapter contains conclusions and recommendations.

1.2 Definition of Management Strategies

The conventional definition of a strategy is "a plan, method or series of maneuvers or stratagems for obtaining a specific goal or result" (Random House Dictionary, 1969). Before developing a successful strategy, therefore, it is necessary to define the goals or results desired.

In designing a management strategy for the Albemarle-Pamlico Sound, the Management Conference will decide which attributes of the ecosystem are to be the focus or goals of restoration or preservation. Several goals are possible, such as the restoration of original structure and function, optimizing the harvest of a particular resource, or the partial restoration of some desirable characteristics (Westman, 1985). The Management Conference must set these goals before designing specific strategies for the Albemarle-Pamlico estuary.

Peter Drucker, the founding father of the science of management, refers to strategic planning as a continuous process of making decisions systematically, with consideration for an uncertain future, organizing systematically the efforts needed to carry out the decisions, and measuring the results of the decisions against the expectations through organized systematic feedback (Drucker, 1974). This description of the strategic planning process fits the needs of this study. An effective management strategy for Albemarle-Pamlico Sound will be one which facilitates the complex process of decision making within the exceedingly complex field of environmental protection - a series of maneuvers designed to achieve an environmental protection goal (yet to be specifically determined).

With this understanding as a base, we have studied other complex environmental programs to try to identify and understand as many of the issues involved, decisions that were made, methods of evaluation, system of feedback and elements of the success and failure as possible. Our objectives were to learn what we could from these programs and then, from what was learned, provide insights and recommendations for the development of a unique management strategy for the Albemarle-Pamlico Study.

2. METHODS: DATA COLLECTION AND ORGANIZATION

2.1 General Approach

The initial task of this project was to identify programs of potential interest to the A/P Study by contacting key individuals in environmental management programs and by conducting a literature survey. During this task, a list of programs of potential interest to A/P Study was developed using criteria listed below in 2.2. We used three sources of information to identify programs:

1. Telephone interviews with program managers in organizations that manage complex environmental projects.
2. Telephone interviews with environmental programs known to be similar in scope to the A/P Study, such as the Clean Lakes Program and other selected National Estuary Programs (NEPs).
3. Published articles in the environmental management literature.

Over seventy-five programs were identified through contacts with individuals. A literature search was conducted, and no additional programs of interest were identified. During telephone interviews with the program managers, we used the questionnaire shown in Table 2 - 1 to collect basic program information, such as mandate, staff and budget, and the unique characteristics of the program. In many cases, this information was supplemented by written material sent by the key individuals.

The original work plan for this project limited the search to approximately fifty programs, of which ten would have been selected for further analysis. However, we found more than fifty programs of potential interest. After discussing this with the A/P Study staff, we expanded the initial information collection task to include seventy-five programs and presented detailed information on nineteen, rather than ten programs.

2.2 Criteria for Identifying Applicable Management Programs

To identify environmental management programs of interest to the A/P Study, the Contractors worked closely with A/P staff to develop selection criteria. Based on these criteria, an initial list of programs was developed and refined. The criteria were used for guidance, and no single program was expected to meet all of the criteria. The following criteria were used to identify programs with characteristics of interest:

1. Works within existing organizational frameworks.
2. Coordinates work of two or more governments or organizations.
3. Provides significant opportunity for public involvement in decision-making.
4. Is undertaken by both governmental and nongovernmental organizations.
5. Includes novel problem-solving techniques, such as conflict resolution and environmental dispute resolution.
6. Is guided by the goal of environmental restoration and protection.
7. Meets environmental objectives while containing/reducing costs of the program involved.

2.3 Selection of the Nineteen Programs

The initial list of programs to be investigated was prepared and expanded as contact was made with people on the list, and the names of other professionals and programs of interest were suggested and added. The list of people contacted during this investigation is included in Appendix 2. This telephone survey resulted in the final list of seventy-five programs that met the criteria previously outlined

Information on the seventy-five programs was collected, compiled and presented. The information is arranged according to the programs' jurisdictions and is summarized in a large table that is presented in Appendix 1. The information in this summary table was provided to the A/P program managers and selected representatives of the Management Conference for review approximately half-way through the contract period. A notebook that contained detailed records of our telephone interviews was also provided to the A/P program staff prior to the selection process.

The A/P staff and representatives of the Management Conference discussed the interim findings with the Contractors and used this interim information to select programs for further investigation. The A/P staff and reviewers requested that the Contractors provide more detailed information on nineteen programs that address topics of current concern to the A/P Management Conference. Since this product was specifically tailored to meeting the needs of the A/P Management Conference, the choice of the nineteen programs was naturally influenced by the unique political environment and outstanding issues faced by the State of North Carolina and the Management Conference.

The following programs were chosen by the reviewers for the final report:

- Chesapeake Bay:
  - Chesapeake Bay Foundation
  - Alliance for the Chesapeake Bay
- Maryland:
  - Critical Area Program
  - Nontidal Wetlands Program
  - Forest Conservation Program
- Delaware River Basin Commission
- Great Barrier Reef Marine Park Authority, Australia
- Lake Tahoe Basin Management Unit
- Minnesota:
  - Watershed Management Districts
  - Lake Improvement Districts
  - Joint Powers Organizations
  - Mississippi Headwaters Board
- Pinelands Commission, New Jersey
- Puget Sound Water Quality Authority
- San Francisco Bay Conservation and Development Commission
- Tampa Bay:
  - Agency for Bay Management
  - Surface Water Improvement Program
  - National Estuary Program
- Upper Mississippi Environmental Management Program.

The following programs were also of great interest to the reviewers:

- 1,000 Friends of Florida
- Atlantic States Fisheries Commission

Big Stone Lake, Minnesota and South Dakota
Bureau of Land Management Stewardship Programs
Buzzards Bay NEP
Cape Cod Commission
Trust for Corkscrew Regional Ecosystem Watershed, Florida
Equador Coastal Program
Great Lakes International Joint Commission
Interstate Commission on the Potomac River Basin, Maryland
Maryland Targeted Watershed Project
Narragansett Bay NEP
North American Waterfowl Association
Northwest Power Planning Council
Virginia Council on the Environment
Washington Fishery Watershed Plan

2.4 Data Collection: The Interviews and Questionnaire

The majority of the information presented in this report was collected directly from two sources: telephone interviews with key individuals within the identified programs and written reports provided by these program representatives. The positions of these individuals within their organizations varied from public information officers and program managers, to bureau chiefs and executive directors. (Throughout this report we refer to the people we interviewed as "key individuals," "interviewees" or "program managers"). The accuracy of the information gathered during the interviews reflects the clarity and the quality of the information provided during these conversations.

To help us gather information consistently, a questionnaire was developed and used during the telephone interviews with the program managers. The questionnaire contains eighteen questions that cover facts and judgments about the program. After the two Contractors tested the questionnaire on three subjects each, their findings were discussed. It was decided that all eighteen items would remain in the questionnaire, even though the test interviews revealed some redundancy in the answers. The redundancy helped insure good coverage of the topics. The questionnaire is presented in Table 2 - 1.

To check the accuracy of the descriptions of the nineteen programs, the Contractors sent copies of the draft versions of the descriptions to the program managers. Eight of the program managers responded with detailed comments. In some cases, the person who responded to the draft was not the same person whom we had originally interviewed.

2.5 Literature Search

A literature search was conducted using the library computer at George Mason University in Fairfax, Virginia. Before conducting the search, a search strategy was developed and reviewed by A/P program staff. The strategy focused on searching the following data bases that contain environmental management abstracts:

Public Affairs Information Service (PAIS)
National Technical Information Service (NTIS)
Biological Abstracts
U.S. Department of Agriculture's data base (AGRICOLA).

Although a large number of entries, one hundred and ninety, were found, very few of these were useful in identifying other programs upon closer analysis. The literature review was discussed with the A/P staff at the interim review meeting, and several articles were pursued, but did not result in the identification of any additional programs.

2.6 Data Organization in the Summary Table, Appendix 1.

A summary of the findings from the initial investigation of seventy-five programs is presented in a table in Appendix 1. The programs are presented in groups, arranged by the jurisdictional scope of the program: interstate, state, international, foreign, and National Estuary Programs (NEPs). The table is organized to present information about each program according to the following topics:

Organization: Presents basic information, such as composition of the lead and affiliated organizations, date of establishment, and description of jurisdiction.

Representation of Decision-Making Body: Identifies members who comprise the decision-making body (federal, state, county, local, public interest groups, and trade and/or industry representatives).

Mandate: Describes the program's official and/or unofficial mandate along with the program's focus.

Public Involvement: Classifies the program's public involvement as either "traditional" or "nontraditional." Traditional public involvement is considered by the authors to mean public hearings, public comment periods, and open meetings -- those public involvement processes commonly used in federal and state environmental programs. Programs classified as nontraditional are those which extend their efforts beyond the traditional means to inform the public of their program, decision-making process, and objectives.

Review: Summarizes the program's method of review of activities potentially affecting their program. This section uses permits as the gauge, because it is assumed that programs are normally active in reviewing other program's plans, environmental impact statements, and regulations as part of the public comment process. Only the programs that issue or review permits, or have an enforcement authority are noted.

Unique Characteristics: Presents program details that are viewed by the authors as applicable or interesting facts and features.

TABLE 2-1 INTERVIEW QUESTIONNAIRE

1. Organization/Location:
2. Name of Contact, title: Telephone:
3. Mandate of organization:
4. Legislative authority: yes, by what acts?
   Does the program have authority to implement changes into affiliated organizations?
   How?
   Does your staff review and/or comment on permits?
5. Number of staff:
   Adequacy of staff to handle mandated programs?
6. Are federal, state, county, or local programs included in the project?
   How?
7. Roughly what percent of program effort goes to public outreach, involvement and education activities?
   What specific tools are used?
   Has your organization been involved in litigation ?
   Has the program ever used alternative dispute resolution techniques to resolve differences between parties or to build consensus?
8. Successes:
9. Failures:
10. Management elements of strength:
11. Management elements of weakness:
12. Does this program contain novel or innovative management approaches?
13. Are there any specific evaluation criteria for the program managers to use to evaluate it's success?
14. Sources of Funding:
    Adequacy and predictability?
    Does the program seek to meet goals and minimize costs simultaneously? How?
15. Recommendations: If you could start over, what would you do again in the same way?
    What would you do differently?
16. Other programs/persons we should talk to?
17. Sending written material?:
18. Close with an open ended question offering opportunity to comment on management of program off the record.

3. SELECTED CASE STUDIES

This section presents detailed information about environmental management strategies of interest to the A/P Study. The selection process was described earlier in Section 2, Methods. The programs are grouped geographically.

The nineteen programs range greatly in scope and organization. We have followed a similar outline for presenting information on the majority of them. The exceptions are the State of Minnesota's special purpose districts and the Tampa Bay programs. These programs were grouped for this presentation because they overlap in mandate, organization or mission.

Five programs from the Chesapeake Bay region are included, two regional, nongovernmental organizations, and three programs within Maryland state government. These programs are preceded by a brief discussion of the overall Chesapeake Bay management work.

3.1 CHESAPEAKE BAY

Nongovernmental Organizations in the Chesapeake Bay Region

Two organizations that are active in all of the states in the Chesapeake Bay region are described in the following pages. Both organizations are private, non-profit independent entities that support the work of the public agencies whose responsibilities for the Bay's protection and restoration were described in the Chesapeake Bay Agreement. The Agreement was signed in 1987 by the Governors of Virginia, Maryland and Pennsylvania, the Mayor of the District of Columbia and the Administrator of the US Environmental Protection Agency. It describes goals and responsibilities for accomplishing many major environmental management tasks.

In the Chesapeake region, numerous agencies, interagency and inter-jurisdictional task forces, working groups and nongovernmental organizations have been created to coordinate the work on the Bay. Much applied research has been conducted to support the management of the environment in the Chesapeake Bay region. Two nongovernmental organizations, the Alliance for the Chesapeake Bay and the Chesapeake Bay Foundation are described in this section. Three programs conducted by the Maryland Department of Natural Resources are also described in this section, these are the Critical Area Program, the Nontidal Wetlands Program and the Forest Conservation Program. Other related programs from the Chesapeake region are summarized in Appendix 1- specifically the Virginia Council on the Environment, the Maryland Environmental Leaders Survey and the Maryland Targeted Watershed Project.

The programs described in this section represent a very small percentage of the ongoing public and private efforts that work to achieve the goals of the Chesapeake Bay Agreement. There is another citizen-oriented organization in Maryland whose work should be mentioned in addition to the two private, nonprofit organizations described in the following pages, it is Save Our Streams. The mission of Save Our Streams is to assist citizens in identifying and correcting water-related problems through hands-on water quality testing, analysis of benthic invertebrates and local activism. Save Our Streams promotes citizen involvement through its "Adopt a Stream" projects which encourage individuals to become active in protecting and restoring their local watersheds.

Both the Alliance for the Chesapeake Bay and the Chesapeake Bay Foundation have regular publications to inform the public about contemporary issues and events. These publications are very helpful to people within and outside of the region who wish to keep informed about the numerous concurrent actions that are related to protection and restoration of the Chesapeake Bay. The Alliance compiled and published *Chesapeake Citizen Directory: A Guide to Agencies and Organizations* in 1988. This publication provides the names, addresses and a brief description of hundreds of public, private and volunteer groups whose work affects the Chesapeake Bay.

The Alliance for the Chesapeake Bay and the Chesapeake Bay Foundation are sometimes confused with the formal, public sector part of the management structure for the Chesapeake Bay. Although the Alliance has received support from EPA in the past, it carefully guards its status as a neutral, nonprofit, and independent entity. Both organizations play important roles in the estuary program through the clarity of their communications with people at many levels of involvement. They were included in the survey of programs because both organizations represent unique approaches to building and maintaining public support for the complex and long-term tasks required to address the problems of the Chesapeake Bay. The focus of the two programs overlaps somewhat,

but contains distinct aspects also. The Chesapeake Bay Foundation focuses much of its attention on children and teachers, and also supports policy-related research, advocacy for sound environmental management, demonstration farms and other policy and management-related projects. The major focus of the Alliance is to serve as a neutral and effective communications link between the public and private sectors' actions to improve the Bay.

Public Sector Programs in Maryland

The Environmental Protection Agency has supported research and management work on Chesapeake Bay for many years. EPA maintains an office in Annapolis, Maryland, the Chesapeake Bay Liaison Office that provides coordination for the Bay-related work that is done in Maryland, Virginia, Pennsylvania and the District of Columbia. The Liaison Office provides support for the numerous working committees that have been created to carry out the directives contained in the Chesapeake Bay Agreement.

The State of Maryland has a large number of public and private programs that handle environmental and Bay-related matters. The Maryland Governor's Office provides leadership for the state agencies by providing a small staff to coordinate the agencies' activities. The head of this staff is the Governor's Chesapeake Bay Coordinator. The Governor's Office also provides staff for coordinating the Maryland state agencies' communications on Bay-related work.

In addition to the three programs in the Department of Natural Resources (DNR) covered in this section of the report, there are many other programs within DNR, such as the Chesapeake Bay Trust and the Greenshores Program that provide interesting examples of innovative management strategies. The Maryland Departments of Agriculture and Environment are also important actors in environmental protection and resource management. The Office of State Planning provides assistance, especially for policy-related matters and for statewide land use mapping. Recently the Office of State Planning provided staff for the Governor's Commission on Growth Management. The University of Maryland System has many scientists and other academicians whose work supports the clean-up of the Chesapeake Bay.

3.1.1 Alliance for the Chesapeake Bay

660 York Road
Baltimore, Maryland 21212
Frances Flanigan, Executive Director 301/377-6270

Mandate

The mandate of the Alliance (ACB) is to facilitate the communication of environmental management ideas within the Chesapeake Bay watershed states. All of the Alliance's work is on public sector environmental issues. It has been in existence for 20 years, although the name has changed. The following items are the majority of ACB's mandate, to:

- improve the management of the Chesapeake Bay by bringing together the people who represent diverse interests in the Chesapeake Bay watershed,
- provide a neutral forum where people with diverse viewpoints about various aspects of Chesapeake Bay-related work can listen to and learn from one another, and
- serve as a link between the public and private sectors.

Organization

The Alliance is a private, nonprofit association of organizations and individual members. There are over 100 institutional/corporate members, with hundreds of individual members. The institutional members range from large trade associations to small neighborhood associations. The Alliance is overseen by a 25 member Board of Directors, who are elected by the membership.

Staff and Budget

The staff consists of fourteen professionals, located in offices in Maryland, Pennsylvania and Virginia. The staff has a good level of expertise and tends to be stable, with good morale. Staff longevity contributes to the overall strength of the Alliance, because it provides for depth in the institutional memory. They have made a strategic decision not to grow much larger, so that the staff can continue to be involved with one another's projects, and so that the organization will not develop a large bureaucracy.

In fiscal year 1990 the budget was approximately $835,000. The ACB receives two-thirds of its funding through grants from EPA, $400,000 from the USEPA Chesapeake Bay Liaison Office in Annapolis and another large portion from USEPA headquarters to work on NEP tasks. Recent deficits in state agency budgets have caused some concern about the adequacy and predictability of future budgets.

Authority

The Alliance staff reviews and comments on policy documents and proposed legislation, and provides expert testimony at legislative hearings. ACB has no legislative authority. It does not lobby and has not been directly involved with litigation.

Public Involvement

One hundred percent of program effort goes to public outreach, involvement and education activities. All of the activities are aimed at specifically targeted audiences: public decision-makers, agency managers and citizens who concern themselves with public agency and natural resource decisions. A wide array of tools are used: regular publications of general Bay related interest; official reports; field trips for local officials; tours; *ad hoc* reports; and workshops. ACB acts as a facilitator and consensus builder, but does not use the more formal alternative dispute resolution tools, such as mediation or mini-trials.

Discussion

The most fundamental success of the Chesapeake Bay program is the broadly based political support that has been developed for the Bay's restoration. Public decision-makers support the Bay work because they are well informed about the importance of the Bay, and because they regularly hear from their constituents that the Bay is important to them. Some of the credit for this broadly based knowledge and public support is attributable to the 20 years of work that the Alliance has invested.

Part of the success of the Chesapeake Bay program is also attributable to a fortunate combination of political leadership and timing. People in the Bay's watershed have come to understand the connections between issues that are subtle and long-term, *i.e.*, nonpoint source pollution issues and fisheries management. Understanding these connections provides a foundation for the restoration work, and allows people to take a long-term perspective on the Bay's restoration, and to not expect miracles overnight. However, the collective group of professional managers does understand the need to highlight short term successes and to link them to the long-term goals. The Alliance has nurtured and contributed to these understandings and the networks of people who are responsible for the Bay-related programs.

The organization and mandate of the ACB are novel for a private nonprofit organization. ACB has created an innovative management approach by working closely with resource management agencies to provide a liaison within the decision-making community and to provide outreach.

The management elements of strength are the partnerships that the Alliance has developed and cultivated with people at different levels of government, citizens and academics. Because the majority of the funding in the past has come from EPA and other public agencies, environmental advocacy groups, corporations and foundations are not easily convinced of their neutrality. The Alliance is working to diversify its sources of funding.

The evaluation criteria are varied, since the goals of the organization are diverse. Ms. Flanigan reports that the most satisfying form of evaluation is in the informal support she and her Board of Directors receive regularly from diverse sources. The membership and funding continue to grow steadily. When ACB has brought new ideas to EPA, even those that will require additional funding, they have usually been well received.

Recommendations

Develop and distribute publications from the beginning.

Provide staff for the Citizen's Advisory Committee from the beginning, although this part of the work is the most challenging to do well and to sustain over the long-term.

Build up the communications networks and keep them active.

In the first couple of years the Alliance contracted out many of their tasks to regional planning agencies, rather than building the Alliance's core staff. This was a mistake, because they could not maintain the quality of work or communication that was necessary to make it successful.

Based on her experience with the Chesapeake and other estuary programs, Ms. Flanigan observed that the institutional relationships within any NEP are probably the hardest thing to work out successfully.

3.1.2 CHESAPEAKE BAY FOUNDATION

162 Prince George Street
Annapolis, Maryland 21401
Dr. Michael F. Hirshfield, Senior Science Advisor 301/261-2350

Mandate

The Chesapeake Bay Foundation (CBF) was founded 24 years ago by a group of citizens to reverse the abuse and pollution in Chesapeake Bay. The goal of CBF is to promote and contribute to orderly management of the Chesapeake Bay with a special emphasis on maintaining a level of water quality that will support the Bay's diverse aquatic species. CBF uses a wide variety of educational, informative and legal tools to educate a wide variety of audiences and persuade them of the need to "Save the Bay."

Organization

CBF is a private, nonprofit organization with a large and diverse staff. It carries out projects throughout the Chesapeake Bay region. Policy oversight is provided by a 35-member Board of Trustees, who represent a variety of interests.

Most of the issues CBF works on involve public sector resource management. CBF is not officially attached to any public agency, but the staff participates in every aspect of public policy-making regarding the Bay. About half of the organizations' resources are used to promote environmental education among a variety of audiences.

Staff and Budget

There are 110 staff members, including environmental scientists, lawyers, managers, educators and support staff. Additional support is provided by numerous volunteers. The staff operates by consensus whenever possible and a fair amount of time is devoted to team-building and networking within the organization. CBF occasionally sponsors "retreats" for policy makers on Bay topics. There are offices in four locations.

The adequacy and predictability of funding have been relatively good. The annual budget is over $6 million. The sources of funding are: 40 % from membership, 28 % from grants, 20 % from education tuition, 10 % endowment and investments and 2% from merchandise.

The program seeks to meet goals and minimize costs simultaneously. Staff carpools to meetings, recycles and takes other related measures to make lifestyle changes to reduce resource consumption.

Authority

CBF has no legislative authority, it is an independent, private, nonprofit organization. CBF staff occasionally reviews permits, but only when the facility to be permitted is very large, is located in a critical habitat or sensitive area, or the issues involved are precedent setting.

CBF has been involved in litigation, and once had a US Supreme Court case named for it. There are usually a few cases pending. Having the ability to sue gives CBF

additional clout. Three cases are currently at various stages of progress in state courts in the watershed. CBF gets involved in supporting citizen suits in Maryland, and also intervenes in suits involving administrative aspects of Bay protection.

Public Involvement

The following percentages of program effort go to various public outreach, involvement and education activities: education - 50%; litigation - 5%; lobbying 3-4%, the rest supports public involvement and outreach.

The educational programs for children and teachers involve getting them physically in contact with the Bay in its three fleets of canoes, or other vessels including sailboats and other craft, out in watersheds, marshes and wetlands to experience the Bay and its related tributaries first-hand. Each year approximately 30,000 school age children take advantage of CBF's educational programs. Grassroots workshops are held on a variety of topics, a "Bay Watchers" program is supported and many more related programs are carried out.

Discussion

The cross-media focus gives a broad mandate to follow through on problems, rather than focus too narrowly. If it affects the Bay, it is within CBF's scope. Having the Bay, an overarching symbol and a resource that everyone around it loves, provides the "heart" of the organization.

Having both the educational and administrative/political activities provides a balanced approach. The hands-on educational programs give CBF broad visibility and goodwill. Members are well educated and supportive. Regarding litigation, having a technically credible staff gives substance to their testimony and trial preparations. Being able to back up contentious issues with a concerned membership also gives leverage. Having four dispersed offices in a watershed of 64,000 square miles creates some management and communications problems.

One indication of strength for a membership organization is for membership and funding continue to increase - and they do. CBF has over 80,000 members, mainly from states in the watershed. For an organization that works on policy and education, it is difficult to measure success separately from the actions of other organizations and agencies. CBF feels it has made a difference in promoting the Critical Areas and Nontidal Wetlands Programs in Maryland, on work to get Bay-wide bans on TBT, phosphates and CFC's. The reforestation bill that was passed by the Maryland General Assembly was supported by CBF. CBF contributed to the water quality regulations and compliance performance of publicly owned treatment works and some industrial dischargers. CBF initiated a land trust program that is being transferred Bay-wide.

The CBF programs for taking large numbers of school children and teachers out into the field each year are very popular. CBF owns and operates a farm that demonstrates techniques that are suitable to maintaining a clean Bay and sustainable agriculture that receives a wide variety of visitors. In addition to the farm, CBF owns or has easements on over 2,500 acres of land, including wetlands and islands in the Bay, where many different types of education and conservation practices are applied and demonstrated.

CBF worked for the passage of the growth management act in Maryland during the 1991 session of the General Assembly, and was disappointed that it did not pass. They consider one of the most difficult long-term challenges is the need to get individuals to confront and change their individual lifestyle patterns that cause pollution.

3.2 MARYLAND DEPARTMENT OF NATURAL RESOURCES PROGRAMS

3.2.1 MARYLAND CRITICAL AREAS PROGRAM

275 West Street, # 320
Annapolis, Maryland 21401
Dr. Sarah Taylor, Executive Director 301/974-2426
Thomas H. Ventre, Planner

Mandate

The mandate is to manage Maryland's Chesapeake Bay Critical Area Protection Program (CAP) created by law in 1984. The intent of the Law is to mitigate the cumulative impact of human activities from nonpoint source pollution in the watershed by protecting and buffering the shoreline edge. The Law created a state-local government partnership for regulating land use in the Critical Area to achieve water quality, habitat protection and growth management goals.

Maryland law defines the Critical Area (CA) as all waters of, and lands under the Chesapeake Bay and all land and water areas within 1,000 feet landward beyond the edge of tidal waters, tidal wetlands, and tributary streams up to the head of tide. The Critical Area comprises about 640,000 acres, approximately 10% of the State's land area.

Organization

The Law established a high-level 25 member Commission and charged it to develop criteria for local jurisdictions to use in developing and promulgating their own programs. These were developed and approved by the General Assembly in 1986. The 16 coastal counties and 44 municipalities implement the law after their proposed Programs were adopted at the local level and were approved by the state's Critical Area Commission. (This took 3-4 years for most jurisdictions). After 1989, the Commission's activities shifted to overseeing local programs and reviewing individual development projects proposed by state and local agencies.

The criteria are complex and far-reaching. They represent a comprehensive land use strategy based on focusing and containing new development in, or adjacent to, existing developed areas. All land in the Critical Area is required to be classified into a management category (see below), each category has specific land management goals. Specific criteria that were established in the law and regulations include the following:

1. An area 1,000 feet inland from the mean high water line or inland edge of tidal wetlands which must be managed to reduce pollutants entering the Bay (includes requirement for new development and redevelopment to reduce pollutant loads in runoff by 10%).
2. A minimum 100 foot naturally vegetated buffer along the shoreline to protect aquatics, wetlands, shoreline and terrestrial environments from human disturbances.
3. A minimum base of forestry resources to equal or exceed that which currently exists.
4. Management areas, based on land use existing in 1985, according to the following categories: Intensely Developed Areas (IDAs); Limited Development Areas (LDAs); and Resource Conservation Areas (RCAs).

5. Habitat designation and protection based on information from State and federal agencies.
6. Resource utilization activities (farming, forestry and mining) were all required to have plans for best management practices. Farming had a deadline for Soil and Water Quality Plans to be in place by 1991. Farming can have a 25 foot buffer. Forestry and mining are required to have best management practices in place, but were not given specific deadlines. Certain forest practices are allowed to take place within 50 of the 100 foot buffer.
7. State and local agency programs and projects taking place on state or locally owned lands are to be conducted in a manner consistent with the criteria and are to be approved by the Commission.

Staff and Budget

There are 20 full time staff. Through the Office of State Planning, the Critical Area Program funds three positions for staff who are located within municipal agencies (for the smaller local jurisdictions that did not previously have staff with environmental or planning experience). From 1985 to 1989 the Critical Area Program spent approximately $6.3 million of State funds. Approximately $3.9 million of that was passed on to the jurisdictions through grants to develop the local Critical Area programs.

Staff and funds have been mostly adequate so far, but never predictable. The counties and several municipalities contribute in-kind. Dr. Taylor estimates that for every dollar the State spends, the jurisdictions spend two to three dollars to see that the programs are implemented. The Critical Area Program seeks to meet goals and minimize costs simultaneously by using the "circuit rider" planners provided through the Office of State Planning and through cross training with other field scientists who work for public agencies.

Authority

Authority for this program comes from the 1984 Chesapeake Bay Critical Area Law. The Program has authority to implement changes into affiliated organizations through approval of municipal and county Critical Area programs.

Following the Commission's approval of the local Critical Area programs, the jurisdictions have primary responsibility for implementation, but the Commission Chair retains standing and the right and authority to intervene in any proceedings or to appeal concerning local project approvals. In addition to changes to a local government's plans and use of growth allocation, the staff reviews all variances, special exceptions, conditional uses, re-zonings and some building permits. The program has been involved in litigation, mostly regarding variances.

Discussion

The Critical Area Program provides the most comprehensive habitat protection ever adopted at the local level. The criteria are based on water quality and habitat protection goals, rather than on the traditional zoning and land use planning strategies of economic efficiency or development, aesthetics or community character.

The law specifically notes that growth has adverse environmental impacts, even when pollution is controlled. The Commission established a comprehensive regulation of land use on a regional scale. The regional scale was important because the Commission

determined that the values it hoped to achieve could not be accomplished solely by the use of prescriptive or performance standards on individual development sites.

In Maryland the Coastal Zone Management program uses Memoranda of Understanding and an Executive Order. In 1987 the Critical Area Law and criteria became incorporated into the State's Coastal Zone plan, thus requiring all federal projects to meet the consistency provisions. Other vehicles for accomplishing this could have been the use of the Special Area Management provisions in Section 309, after their funding in the Coastal Zone Management Act reauthorization.

The Critical Area Program became the ripple in the pool that evoked changes in many other programs around the Bay with respect to land use and development. The mandated criteria for local programs has spawned a stewardship-oriented approach to building, and not only in the Critical Area. More and more project plans are using the concepts of clustering, minimizing impervious surfaces, and minimizing tree cutting. The habitat protection aspects brought these issues to the public's attention and gave DNR's protection programs a management vehicle. The nontidal wetlands and forest conservation acts in recent years have built on the protective principles that are the foundation of the Critical Area Act.

The regulations are based on sound science, and the Critical Area Program does not focus on single issues. The program has had many successes, for a full listing, please see pages 130 - 133 in *A Summary of the Chesapeake Bay Critical Area Commission's Criteria and Program Development Activities, 1984-1988,* J. Kevin Sullivan, August, 1989.

Most of the criticisms the Critical Area Program has received stem from perceived limitations and inequities in the law. These are presented at length in Sullivan, pages 136-143. One of the major criticisms at the time the Act was being debated was that property values would plummet. However, this has not occurred; property values have increased, although not solely due to the Critical Area Program. There seems to be a growing body of evidence that building wisely in the first place can save jurisdictions money in the long run.

The following management elements of strength have contributed to the success of the Critical Area Program:

1. Public awareness of the problems with the Bay.
2. Strong support from Governor Hughes.
3. Composition and operation of the Commission and the leadership of Judge Solomon Liss, the first Chair of the Commission. Judge Liss was a highly respected retired judge who invested his intellect, influence and energy into developing criteria and making the program legally solid.
4. State funds were provided to allow the jurisdictions to develop and implement their local programs.
5. A wealth of technical information was available to support criteria and program development work.
6. Other elements that contributed include staff support provided by NGOs and private consulting firms who prepared many of the local programs, and provided key information and education about the Critical Area program to local publics.

The law mandated very rapid development of the criteria, and for the programs to be developed by the jurisdictions. Because of the novelty and complexity of the criteria, public understanding of the program was generally poor. This exacerbated the task

confronting local officials in their local plan development process. However, the short time frames lent urgency and an air of creative excitement to keep the momentum.

The Critical Area Program's effectiveness will be measured by whether or not further deterioration on near-shore waters and tidal tributaries is prevented. The law incorporates much proscriptive criteria. The Critical Area Program is also continuing to develop and refine a GIS system that will help them evaluate.

Recommendations

In retrospect, it would have been more protective to have included criteria for protecting the waterward side of the Critical Area.

The formula for marina slips was intended to control the numbers of boats, but it contains numerous loopholes, which have all been found and used.

Mandate clustered development, rather than just encouraging it, but do not dictate the size of the lot.

Take a watershed approach, at a minimum go up to the nontidal zone, rather than a set distance from the shoreline.

In the area of public outreach, find a way to keep some regional focus. Once the jurisdiction's plans get approved, it becomes very hard not to be very locally focused. The overall, regional aspects of the program need to be continuously brought to the public and decision makers' attention.

Realize that it is not possible catch all developments in the Critical Area. During the first two or three years of the program expect to find a lot of mistakes, and a lot of projects will slip by. Expect this and take the following measures:

1. Get the public involved in looking for problems. Develop a slide show of "boo-boo's," things that cause problems in the critical area, and show it to many groups.
2. Consider the people that the local jurisdictions have working out in the watersheds, and cross train them to notice problems in the critical area.
3. Do the same cross training with state employees.

3.2.2 MARYLAND NONTIDAL WETLANDS PROGRAM

Department of Natural Resources
Tawes State Office Building
Annapolis, Maryland 21401
Denise Clearwater, Natural Resources Planner 301/974-3841

Mandate

The mandate of the Nontidal Wetlands Program is to accomplish the following things: arrest the loss of wetlands in the State and have a net gain of wetland area; implement a permit system for wetlands outside of the Critical Area, (they do not regulate in the Critical Area); and train and certify wetlands delineators.

Organization

Nontidal wetlands cover approximately 4-6 percent of the State area. This program is located within the Department of Natural Resources (DNR), Maryland's natural resource management agency. The program uses the U. S. Army Corps of Engineers manual (404) to define wetlands. In the future they may receive delegation of this program. At present they operate in conjunction with the U. S. Army Corps of Engineers. For some types of permits they have an expedited review and the equivalent of final sign-off responsibility.

All public projects are required to comply. Future activities will include the development of comprehensive watershed management plans to guide management decisions.

Staff and Budget

There are now approximately 30 full time staff divided as follows: 15 permit reviewers, 5-8 education, agriculture and monitoring, 2-3 other planners, the rest are support. DNR has a separate section that handles the initial processing of permit applications, which also supports this work. Two of the counties requested and received delegation to handle the program at the local level. DNR handles it for all other jurisdictions.

There is approximately $1 million/year in state funds. One of the major categories of expense is the wetlands mapping.

Authority

The Nontidal Wetlands Protection Act of 1989 created the program. The program has authority to issue permits for activities that occur in the delineated nontidal wetlands. The staff tries to informally coordinate and consolidate reviews of wetland-related projects within the different sections of DNR.

Public Involvement

Before the law was passed, there was a blue ribbon, multi-interest panel to develop the proposed Act. DNR did education and outreach. Now they do workshops

and training. The organization has not been involved in litigation, but enforcement conflicts have occurred. They try to negotiate with people who have been cited.

Discussion

It was important to lay some groundwork to build support for the enactment of this program. The initial blue ribbon Task Force involved all major parties to recommend the language for the proposed law. At the time there was public support to do something more to protect wetlands, and general frustration with how much of a backlog was involved with the U. S. Army Corps of Engineers 404 permits.

The program has been fully operational for less than a year, so it is too soon to generalize too much. The program goes to considerable lengths to keep other agencies informed, making and circulating numerous copies of all their work.

The program tries to handle some issues that have fallen between the cracks of other programs. One area in their regulations that is very explicit is mitigation. They try to tie in federal and state water quality programs, but it is too early to tell if this is going to be a successful or innovative attempt.

Evaluation criteria are incorporated in the protection standards. These include the following requirements. In the future these protection standards could be used to evaluate the permitted activities in program.

1. consider alternative sites
2. avoid and minimize impacts on site
3. attempt to accommodate constraints on site (*i.e.*, roads)
4. weigh and balance the public need.

Most of the New England states, Florida, New York and New Jersey have similar programs. Michigan and Oregon have received delegation to create similar programs. The program contact recommends that three months after enactment is too short a time for preparation of draft regulations. The short time produced annoying mistakes that could have been avoided, and that have to be rewritten and reapproved by the General Assembly.

3.2.3 MARYLAND FOREST CONSERVATION PROGRAM

Department of Natural Resources
Maryland Forest Parks and Wildlife Service
Tawes State Office Building
Annapolis, MD 21401
Jeff Horan, Program Director 301/974-3776
Bud Reaves, Watershed Forester

Mandate

The Act was passed by the 1991 Maryland General Assembly to limit the destruction of forest resources by residential and commercial development. It requires local governments to set up programs to minimize loss of forest and mandates the replanting of a percentage of trees cleared for development. The State is required to provide for accomplishing the following things:

inventory the forest presently in the State,
retain forest on sites that are being developed, or modified,
promote reforestation and afforestation,
increase the total amount of forest in the state by 30%,
require jurisdictions to develop forest conservation plans by December 1992,
develop model ordinances, regulations and a training manual by August 1991, and
provide training to staffs in local jurisdictions.

Organization

The program will be implemented by local jurisdictions, with guidance from the State. Public projects are required to comply with the program.

Staff and Budget

No appropriation was provided for new staff, 5 full time equivalent positions were reassigned from existing programs in the State Forest Service.

The Maryland Forest Service received grants from the federal Forest Service for the mapping and inventory work (approximately $100,000).

Authority

The State will assume responsibility for review and enforcement of the Act in local jurisdictions that choose not to develop a local program. It is not yet clear whether or not the state staff will review and comment, or have other oversight functions regarding permits. None of the organizations have had time to be involved in litigation yet.

Public Involvement

The Governor's Office created and worked with a multi-interest Task Force to develop consensus about what should be included in the proposed Act. After passage, initial presentations were targeted at professional staff in local jurisdictions, and followed with training sessions in the fall. Brochures and informal talks are used, training manuals and model administrative tools are provided at the training sessions.

Discussion

This program is a logical extension of Maryland's work that was begun with the Critical Area program in 1984, and continued with the Nontidal Wetlands program in 1989. This Act continues the protection of water quality and habitat for living resources through the regulation of activities in upland areas, and the goals of increasing forest area with its associated water quality and habitat benefits.

Successful passage of the Act was built on the experience and processes developed in the Critical Area program and the Nontidal Wetlands program of developing support through a blue ribbon interagency, multi-interest work group. This Act also repeats the process of having a very short amount of time for the State to issue the initial set of regulations.

There was no new money for this program to pass through to the local jurisdictions for their use in developing the program. Although the State is required to develop numerous tools to assist the locals with the program, with no ongoing money to support the program the local jurisdictions may not be able to give it priority, either for development or implementation and enforcement.

The baseline mapping that is required in the initial year is required to be repeated in five years, and the amounts of forest compared. These comparisons will provide a measure of the program's effectiveness.

To maximize the ecological value of new trees required under the Act, priority areas for planting are mandated. These areas include stream buffers, steep slopes, significant habitat areas and corridors linking large tracts of forest. Sites that have little of no forest before development are required to have a minimum number of trees planted.

The local jurisdictions may set up Reforestation Funds to accept payments from developers who cannot replant on site or to find sites for reforestation off site. If the local government does not set up a fund, payments will go to a state fund for reforestation.

3.3 DELAWARE RIVER BASIN COMMISSION

25 State Police Drive
West Trenton, New Jersey 08628
Christopher M. Roberts, Public Information Officer 609 / 883 - 9500

Mandate

The Delaware River Basin Commission (DRBC) was created in 1961 through a compact among the U.S. Government, Pennsylvania, Delaware, New Jersey, and New York to regionally manage and regulate the 12,745 square miles of the Delaware River Basin. The Commission had evolved from an earlier advisory commission, the Interstate Commission on the Delaware River Basin, which was formed in the 1930's.

The DRBC's mandate is to develop and implement a comprehensive multi-purpose plan to conserve, utilize, manage and control the water and related resources of the Delaware River Basin and to adopt and promote uniform policies for water resources in the basin.

The Commission addresses topics related to water quality and quantity in the River Basin. The conduct of the Commission is governed by its compact and attendant rules and regulations. The compact directs the Commission to adopt (1) a comprehensive plan that includes public and private projects and facilities affecting the control of the Basin's water resources, and (2) an annual Water Resources Program that presents the water resource needs in the Basin during the ensuing six years or other appropriate period, based on the plan. The Comprehensive Plan is dynamic and is revised almost monthly. To ensure compliance with the plan, the Commission has regulatory authority to review water resource projects.

Organization

The Commission is comprised of five commissioners: the governors from each of the four States and a federal appointee (who is traditionally the Secretary of Interior). The governors appoint an alternate to represent them and a federal alternate is appointed by the President of the United States. There are no guidelines for appointment. The Commission is assisted by advisory committees that address such issues as water conservation and water quality. The Commission meets once a month and operates using majority votes, except on budget issues and matters affecting the 1954 U.S. Supreme Court decree apportioning the waters of the Delaware, where there must be unanimity.

The Commission actively works with five state agencies, five federal agencies, and two municipalities. They are the Delaware Department of Natural Resources and Environmental Control, the New Jersey Department of Environmental Protection, the New York Department of Environmental Conservation, the Pennsylvania Department of Environmental Resources, the Pennsylvania Fish Commission, the U.S. Geological Survey, the Environmental Protection Agency, the National Park Service, the Army Corps of Engineers, the Fish and Wildlife Service, the New York City Department of Environmental Protection, and the Philadelphia Water Department.

The Commission also gets input from three "watchdog" organizations: the Water Resources Association of the Delaware River Basin, the Watershed Association of the Delaware River, and the League of Women Voters' Inter-League Council of the Delaware River Basin.

Staff and Budget

The Commission is supported by a staff of approximately 40 people and an annual budget of approximately 2.2 million dollars. The majority of the Commission's funding is provided by the signatory parties. However, the compact grants the power to generate revenue by charging fees for the use of facilities it owns or operates or for Commission services or products. Such fees have taken the form of water use charges and project review fees. The Commission also obtains revenues from grants, interest income, fines and assessments. It is interesting to note that the Commission possesses certain exemptions from taxation (see Compact for details).

Authority

Like other river basin commissions, the authority of the Commission is derived primarily from the interstate compact. The Commission reviews actions that are likely to affect water resources of the watershed. The more local activities are reviewed by the individual states. A selected list of activities reviewed by the Commission is found in Table 2. These actions are evaluated for consistency with the comprehensive plan. The purposes of this review are to determine whether the proposed project will have a substantial effect on the water resources of the basin and, whether having such an effect, the project would substantially impair or conflict with the comprehensive plan. (Recently, given reduced financial resources, the Commission has suspended its responsibility to conduct formal Environmental Impact Statements and relies on the Federal Government to take the lead responsibility.)

The Commission has the power to establish standards of planning, design, and operation of major projects and facilities in the basin that affect water resources. This authority extends to such activities as ground and surface water withdrawals and facilities such as water and waste water treatment plants, stream and lake recreational facilities, water distribution systems, flood protection works, watershed management programs, and ground water recharging operations. To date, the Commission has developed regulations for flood plain use in the non-tidal areas of the Basin. The regulations are designed as minimum compliance standards for local governments in their promulgation of flood plain ordinances. The Commission utilizes these regulations in its review of certain water-related projects. The Commission also has adopted water quality regulations basin-wide, approved a far-reaching water conservation program with regulations governing source and service metering, leak detection, and instituted standards for low consumption plumbing fixtures and fittings.

In general, the states are the enforcers of the Commission's authority; although, the Commission does have the authority under the compact to impose legal sanctions, including fines. On issues such as water quality standards and water conservation initiatives, the Commission sponsors workshops.

Public Involvement

The Commission involves the public in its decision-making process through public meetings, hearings and comment periods. To supplement this, the Commission sponsors workshops and seminars on Commission proposals and Basin issues of public interest.

Discussion

Unlike most other commissions, the DRBC addresses both water quantity and quality issues on a regulatory basis. The Commission also has authority over ground water as well as surface water.

Since the commissioners are high-level appointees with demanding time constraints, they depend heavily on the technical staff to research and recommend options to issues.

The original focus of the Commission was water diversion; flood control and drought measures. Successes have included the adoption of two drought management plans and water conservation regulations that established, among other things, water conservation performance standards for plumbing fixtures and fittings. The Commission is currently expanding its role in addressing water quality issues. This ability to expand into areas where needed is a strength. In addition to being a regulatory body, the Commission has a broader mandate to conduct research and disseminate information; therefore, it can utilize more than one method in accomplishing an objective.

Politics does not play a heavy role since the political representation (Republicans vs. Democrats) is generally mixed. It is unlikely that one party dominates.

Since the Commission's inception, water quality of the Basin has definitely improved. The regulations dealing with water conservation have created functional drought management plans. Before the Commission was created, there was a great deal of squabbling between the states with resultant legal suits. Considering this, communication and coordination between the participants has definitely improved. In terms of relating water quality and fisheries management, excellent coordination and cooperation exists between the Commission and the Delaware River Basin Fish and Wildlife Management Cooperative. However, very little coordination was noted with the Atlantic Marine Fisheries Commission, the federal commission that is charged with the management of marine and anadromous species beyond State waters. Instead of working with the Commission, the Atlantic Marine Fisheries Commission works with the individual states.

To date, the Commission has failed to deal with agricultural issues related to water quality. It is difficult to monitor the Commission's effectiveness. Part of this results from the fact that the Commission relies upon the states to enforce its decisions.

Table 2 Selected Examples of Projects That May Be Reviewed by the Commission
(Administrative Manual, Delaware River Basin Commission,1987)

Water impoundments

DRBC Review Not Required: New impoundments, or enlargements or removal of existing impoundments that has a storage capacity of less than 100 million gallons

Groundwater, stream or impoundment withdrawals

DRBC Review Not Required: Withdrawals for any purpose when the daily gross withdrawal during any calendar month less than 100,000 gallons

Water diversions into or out of the Basin

DRBC Review Not Required: Construction of new municipal sewage treatment or other facilities or alterations to existing facilities when the design capacity is less than 500,000 gallons per day (gpd)

Deepening or widening of stream beds, channels, anchorages, harbors, or construction of new or enlarged channels. dredging of stream beds or lakes and disposal of dredged material when it affects ground or surface water quality, and fish and wildlife habitat.

DRBC Review Not Required: Deepening, widening and dredging of existing stream beds or relocating any channel, on streams within Basin except Delaware River and its tributaries and tidal portions of tributaries and streams draining into more than one state and periodic maintenance dredging

Pollutant discharges

Landfills and solid waste facilities with discharges of over 50,000 million gallons per day

DRBC Review Not Required: Landfills when there is no state-level review or permit system is in effect, potentially broad regional consequences, or existing standards or criteria are inadequate for Basin protection

Direct industrial discharges into surface or ground water

DRBC Review Not Required: Facilities with design capacity of less than 50,000 gpd except where wastewater contains toxic concentrations of pollutants

Land cover changes on major ground water infiltration areas

DRBC Review Not Required: Land less than 3 square miles

Projects that encroach on 100-year flood plain of the River and its tributaries

DRBC Review Not Required: Floating docks, anchorages, buoys, navigational aids, temporary construction, bridges, highways unless pass in or across existing or proposed recreational areas shown in plan

Hydroelectric power projects

Draining, filling or otherwise altering marshes or wetlands

Marshes or wetlands less than 25 acres unless the activity is not reviewed at the state or federal level and a permit system is in effect or the final action of a state or federal permitting agency may not adequately reflect the Commission's policy towards wetlands.

Regional wastewater treatment plans

3.4 GREAT BARRIER REEF MARINE PARK AUTHORITY

P. O. Box 1379
Townsville, Queensland 4810 Australia
Dr. Peter Kusey, Executive Officer (077) 81 8811

Mandate

The Great Barrier Marine Park Authority was established in 1975 to manage the Great Barrier Reef Marine Park. This is an aquatic sanctuary that protects the fish and corals of Australia's Great Barrier Reef, the world's most outstanding coral reef ecosystem. The Authority's goal is to provide in perpetuity for the protection, wise use, understanding and enjoyment of the Great Barrier Reef through the care and development of the Park.

Organization

The Authority has six sections: planning and management, research and monitoring, environmental impact management, administration, and aquarium. The Authority has an office in Townsville and a small office in Canberra.

The Authority is comprised of 3 members, one full-time and two part-time members, one of which is nominated by the Queensland Government. At the time of enactment, the Act created the Great Barrier Reef Consultative Committee, an independent advisory body for both the Minister and the Authority. The Consultative Committee consists of 12 or more members appointed by the Minister, representing a wide cross-section of interests, including fishing, tourism, science, conservation and the Aboriginal and local government communities. All interests must be represented on the Consultative Committee.

In addition, there is a Great Barrier Reef Ministerial Council, established in 1979 to coordinate policy on the reef between the Commonwealth and Queensland Governments at the Ministerial level. The Council is comprised of four Ministers, two from each state government. The Ministerial Council is supported by the Canberra office.

Staff and Budget

The Authority has a staff of approximately 102 people between the two offices. Costs for the Canberra office are shared by the two Governments. The Parliament appropriated $1 million for the aquarium and $9,266,000 for the Authority's other programs. Costs of day-to-day operations are shared with the Queensland government. The Authority also receives monies from interest, permit assessment fees, contributions for baseline and monitoring studies, and sales of educational materials.

Authority

As mentioned above, the Authority was established under the Great Barrier Reef Act of 1975. The Authority serves a principal advisor to the Commonwealth Government regarding Park matters. Functions of the Authority are: to make recommendations to the Minister regarding care of the Park, including areas to be declared as part of the Park and regulations; to carry out research, by itself or

cooperatively with other institutions; to prepare zoning plans; to provide and arrange for educational, advisory, and information services related to the Park; and to receive and dispense moneys related to the Park.

The Authority manages the Park through a system of zoning and permits. The types of zones are general use, general use (no trawling), national park, scientific research, preservation, recreation, and no structure. Human impacts are controlled by requiring skill licenses, resource allocation licences, imposing use restrictions on the time, area, or equipment or establishing threshold limits. To supplement these efforts, the Authority is currently evaluating use of a geographic information system for the Park.

In addition to administering the zoning program, the Authority conducts research, provides educational, advisory and informational services related to the Park, and operates an aquarium.

Public Involvement

The Authority provides library services, allowing inquirers to borrow books, maps and audiovisual materials, and publishes "Reeflections" magazine. Among the more unusual items are the Great Barrier Reef Zoning Game for use in schools and tourist-operator training programs, the national award winning video magazine "Reef Report" and video "Deckhand" to inform the fishing industry about planning strategies of the Authority. The Authority also sponsors public educational seminars and training courses, with one seminar series developed specifically for commercial and recreational fishermen.

Discussion

Levels of phosphorus and nitrogen in the waters of the Park are allegedly causing damage to some coral communities close to the coast. The mostly likely sources are runoff from farmland on the mainland. To address this pollution aspect, the Authority is working with other government agencies to encourage farmers to adopt management practices that reduce nutrient and sediment runoff.

Rezoning of the Park has proven to be a more difficult task than the initial zoning. Reports from the Authority are extremely candid. For example, the 1990 Annual Report states the "Authority's freedom of action in modifying existing zones is inhibited by the expectations of the public that activities which they have carried out in particular areas over the past years will continue. Skills of the various interest groups which make submissions to the Authority regarding zoning plans have increased noticeably. These groups now have developed a degree of sophistication which enables them to apply significant pressure on the zoning team, making resolution of contentious points more difficult."

3.5 LAKE TAHOE BASIN MANAGEMENT UNIT

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Mandate

The Management Unit was established in 1973 by the U.S. Forest Service (USFS) from three different national forests which comprise the Lake Tahoe watershed. The management objective is for wildlife habitat, recreation and fire control, rather than timber production. The USFS manages 75 percent of the land in the Lake Tahoe basin (approximately 150,000 acres), but 95 percent of the development occurs outside of the land they manage. The USFS supplies extensive technical and scientific support for other organizations and participates in intensive interagency coordination.

The Tahoe Basin has a huge range of recreational opportunities and receives 20 to 25 million visitors each year. There is constant pressure to supply the visitor's demands for services, while protecting the environmental resources.

Since 1981 the Forest Service has been required to buy property from individuals who do not wish to comply with the strict land use restrictions on the use of their property. The purchases have ranged from 1/4 acre lots to large parcels. Since 1984 the Forest Service has bought $58 million worth of land.

Staff and Budget

There are 90 permanent, and 50 seasonal employees. The Management Unit's budget is about $4 million/year, not including land purchases. The source of funds is the Federal Government.

The regional planning office estimates that about $0.5 billion is required to meet their current needs for infrastructure and roads. The planning for the Basin is all keyed to capital investment.

Authority

The Tahoe Regional Plan provides various agencies with extensive authority to regulate and manage land use. All levels of government participate in interagency committees that coordinate planning, management and review of watershed related activities. All of the USFS operations are required to comply with the basin management plan, even though the plan was principally written to control urban/suburban development.

Public Involvement

There are education efforts going on at all times by the Forest Service and other managers. However, the strict restrictions on the use of personal property keep people riled up. The Forest Service has been involved in litigation.

Discussion

The maintenance of Lake Tahoe's water clarity is a tangible evidence of their programs' effectiveness. The watershed size is approximately 300,000 acres, including Lake Tahoe, which comprises approximately 100,000 acres. No septic tanks are allowed in the basin. All sewage is pumped out of the watershed. This is satisfactory, as long as the system operates properly, which it does not, always. When the sewage export system fails, there are serious problems because so much sewage is centralized.

The U.S. Forest Service's work has two unusual features, first the non-timber production mandate and second, the ability to regulate construction and related activities in the littoral zone. The USFS has five principal areas of management responsibility.

1. Watershed management and enforcement, this includes large and complex erosion control and erosion restoration programs to restore areas previously damaged by clear-cutting.
2. Grants to urban areas to help them design and build environmentally sound projects
3. Monitoring, this is extensive in the basin. Work is planned and done by an interagency committee.
4. Wildlife and fish management. This includes terrestrial and aquatic habitat improvement projects. It includes the littoral zone as well as terrestrial areas (docks, piers, etc.) of streams as well as the near-shore areas of the lake. They have developed a system to evaluate physical habitat components (like an index of biological integrity, but specifically for their ecosystems).
5. Threatened and endangered species.

The restrictions on redevelopment have worked reasonably well. This work is mainly handled through the Regional Planning Agency, a unique bi-state commission established by Congress. More information is available the Tahoe Regional Planning Agency, Dave Zeigler, Executive Director, telephone 702/588-4547.

3.6 STATE OF MINNESOTA

The State of Minnesota has developed three types of special purpose districts for water resource management needs: watershed districts, lake improvement districts and joint powers organizations. This section describes the three types of districts. The following section describes the Mississippi Headwaters Board, an example of a joint powers organization. The unique feature of these three special purpose districts is that local organizations or groups of individuals can create them. However, these districts have not been uniformly established throughout the State; and this creates difficulties in achieving comprehensive water management in the uncovered areas.

The difficulty in achieving a comprehensive framework gained public attention when local governments in southeastern Minnesota faced a case of groundwater contamination from a landfill, that was only one of the many potential groundwater contamination sources. This case led to greater cooperation among the affected counties and the State. It also resulted in the State's recognizing that water resource problems were occurring statewide and that the joint-county approach was needed in other areas. The special purpose districts have successfully addressed numerous resource problems at the local level and provide an interesting management strategy to address water resource issues.

Building on the cooperative efforts started in southeastern Minnesota, the State passed the Comprehensive Local Water Planning Act in 1985 to establish a comprehensive water management framework. The Law applied in areas of Minnesota outside of the St. Paul/Minneapolis metropolitan area, which has its own legislation. The Law called for voluntary county plans that address groundwater, surface water, and related issues, such as pollutant sources, soil erosion, and special geologic conditions. The process was flexible, but required public participation in the plan development. This legislation created new momentum for the counties to work together for water planning purposes. Fifty-two counties formed six planning groups. In 1987, the Legislative Commission provided funding to assist in this planning effort. To guide the counties, the State developed rules for plan content, a handbook for guidance, and offered technical and financial assistance during the planning effort. Nevertheless, the goals, priorities, and implementation plans were developed by the counties, not the State. At the present time, seventy-eight of the eighty non-metropolitan counties have adopted comprehensive local water plans.

Mandate

1. Watershed Districts

Watershed Districts are created by the Minnesota Board of Water and Soil Resources based on approval of petitions from either (1) half of the counties in the proposed district, (2) county/counties that have at least 50 percent of the area within the proposed district, (3) the majority of cities in the proposed district, or (4) at least 50 resident freeholders of the proposed district, except those within the corporate limits of the city on whose behalf the authorized official has signed the petition. The State reviews the petition, then holds a public hearing to discuss the need for a district.

Minnesota first passed the authority to create watershed districts in 1955. Watershed districts were established as special purpose units of local governments with boundaries based on hydrological units. The purposes for establishing a watershed district included flood control, water supply, water quality, drainage issues, groundwater

protection. Minnesota currently has 41 watershed districts that vary in size from 41-6,000 square miles. Watershed districts currently encompass one-third of the state. Some are at least 25 years old.

2. Lake Improvement Districts

The authority to create Lake Improvement Districts was passed in 1973. Lake Improvement Districts may be created by a county board, joint county authority, or joint county board by a petition to the county board with signatures from at least 26 percent of the property owners of the proposed district; or by permission of the Commissioner of Natural Resources, if a petition has been disapproved by the county board of one or more counties.

3. Joint Powers Organizations

Joint Powers Organizations, also called Watershed Management Organizations are two or more government units that have agreed to jointly or cooperatively exercise their authority over any power common to both units. To implement this mandate, the communities establish a joint board. A description of the Mississippi Headwaters Board, a joint powers organization, is given in section 3.7.

Organization

Watershed Districts are governed by a board of managers chosen by the commissioners of the affected counties. Lake Improvement Districts are managed by a board of directors appointed by a county board or joint county authority. The Joint Powers Organizations are implemented through a joint board comprised of members from each of the governing bodies that created the Joint Powers Organization.

Staff and Budget

Most of these organizations do not have a salaried staff, and use volunteers. Budgets are derived from taxes and fees, and range between less than $10,000 to $200,000 per year. The larger budgets are generally found in urban areas. Most operate on a shoestring budget, because they are not willing to use their full fund-raising authority. Many districts rely on public education and outreach efforts as a way of operating. Some use fiscal incentives, such as those for animal feedlots in Big Stone Lake.

Authority

The most unique quality of the Minnesota Districts is that all units are created at local level. They are created for a variety of purposes. The reason most of the original watershed districts were established was flood control. More recently, districts have been formed to manage, restore, or protect water quality.

Watershed Districts are empowered to develop long-range plans and maps of the floodplain, greenbelt and open space areas; to regulate activities affecting water resources, to control land use and development within the floodplain, greenbelt and open space areas; to issue permits for drainage, sediment and erosion; to acquire property rights, and to construct and finance water containment/supply structures and other improvement projects. The Districts revise their watershed district plans every ten years

in rural areas and every five years in urban areas. Some regulate private wetland drainage. One district recently added farmers as members of the district board.

Lake Improvement Districts have the authority to conduct the following activities: build and operate water control structures and water/sewer systems; acquire property to improve navigation; conduct research to assess the state of the lake; develop plans to eliminate water pollution; and maintain facilities to ensure public access.

Funding

Watershed Districts are funded through levying *ad valorem* taxes on property, bonding for specific capital improvement projects, or special assessments against specified properties within the district that have benefited from a given capital improvement or drainage project.

Lake Improvement Districts have the authority to fund projects or services by assessing costs of projects upon the benefited property, imposing service charges on users, levying an ad valorem property tax, or using any combination of these vehicles.

Joint Powers Organizations may be funded by public funds from any government body represented within the organization or by the issuance of bonds on behalf of the represented governments. This mechanism provides a vehicle for coordinating districts that do not encompass entire watersheds.

Discussion

The districts are given a strong, broad authority - but they do not use their full potential. Many are reluctant to use their ability to raise funds by taxing their constituents. One of the most common arguments against this fund-raising vehicle comes from the objections of the constituents who argue that there is substantial uncertainty regarding the cause-effect relationship between the creation and solution of water quality problems.

Unless there is increased technical input, the agreements creating these special districts will continue to have limited ability to enforce the plans that they develop.

3.7 MISSISSIPPI HEADWATERS BOARD

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Mandate

The Mississippi Headwaters Board (MHB) was created in 1980 under a joint powers agreement signed by eight counties in the headwaters region of the Mississippi River. The Board was established when the State sought an alternative to the federal Wild and Scenic Rivers designation being proposed by the U. S. Department of the Interior. The proposed federal designation was seen in a negative light by local people because they did not want federal control of the area. The eight counties formed a joint powers agreement as allowed by Minnesota law, and the resulting group was entitled the Mississippi Headwaters Board. In the agreement the counties set themselves the tasks of preserving and protecting the shorelands of the River and seven Headwaters lakes in those counties. A corridor of over 400 miles of River is included in this management strategy.

In 1981 the MHB adopted a management plan and model zoning ordinance for the 466 river miles of the Mississippi in the eight counties. All eight counties subsequently adopted the model ordinance. Land use and recreation management plans provide additional tools to achieve the goals. Achieving consistent administration and enforcement across the eight counties has been an ongoing goal of the MHB. Their three foci are shoreline regulation, stewardship, and water quality.

The Board's authority encompasses a corridor of 1000 feet in wild areas and 500 feet in populated areas. In addition, one of the MHB's principal tasks has been to conduct an inventory of outstanding resources of the river corridor, including cultural sites, protected waters, scientific and natural areas, threatened and endangered species, and recreational sites. The inventory is complete and is being compiled into a data base.

Organization

The Mississippi Headwaters Board is composed of eight representatives, one appointed from each of the eight member counties. It meets once a month and is advised by two committees, the Technical Advisory Committee and a Citizen Advisory Committee. The Technical Advisory Committee is comprised of zoning officers and land commissioners from the eight member counties and representatives of the Chippewa National Forest, county Soil and Water Conservation Districts, townships, and the Minnesota Department of Natural Resources. The Citizen Advisory Committee has twenty-four members: two river front property owners from each of the eight counties and eight members at large, representing conservation groups, the recreation industry, sportsmen's clubs, cultural interests, agriculture, wood products, utilities, and tourism. The Mississippi Headwaters Board operates using majority rules, but they encourage using consensus.

Staff and Budget

The Mississippi Headwaters Board has a staff of five people. The positions include a director, secretary, consultant and lobbyist, attorney and river watch coordinator. The MHB has revenues totalling approximately $800,000. The State of

Minnesota provides a grant of $200,000, and the counties provide the rest, primarily in the form of in-kind services. The budget is split between regulation, public education, and monitoring.

Authority

The Mississippi Headwaters Board is enacted by Minnesota Statutes (103F.361-.377). The Board has the authority to certify local zoning decisions made by the eight member counties in the river corridor. It achieves its mandate through the adoption of shoreline ordinance and land use and recreation management plans. The regulatory powers are based on the Mississippi Headwaters Conservation Ordinance and Mississippi Headwaters Management Plan. The regulation addresses shoreline development (building and land use), not water quality. The Board reviews actions that are either variances from the adopted plans or conditional uses. Recently, the Board has become interested in water quality, primarily due to oil spills and from an analysis of the findings of their monitoring work.

Public Involvement

Providing information and education to river property owners, river users, local, State and federal government officials and business with an interest in the river has been a significant portion of the MHB's operations. These activities provide important information to property owners about the impact of land use on water quality, through the publication of a User's Guide to Shoreland Development and a video program on lakes protection. The purpose of these public involvement activities is to facilitate the exchange of information between governmental agencies and private citizens, such as the impact of the 1988 drought, implementation of Local Water Planning, and development of applications of Geographic Information Systems at the county level.

The Mississippi Headwaters Board relies on non-traditional methods to accomplish their mandate consistently over the eight counties. For example, to implement the shoreline protection ordinance, it developed a training manual on the administration of local land use regulations and held a training workshop for the people who would be responsible for implementation. The workshop was attended by more than 100 members of local boards of adjustment, planning commissions and other local decision-makers.

The Mississippi Headwaters Board uses other outreach tools, such as a newsletter, public educational materials about zoning, property guides, and canoe trips. The MHB aims to inform the public about activities that affect their lives and the headwaters.

The Mississippi Headwaters Board received a major grant in 1990 from the Charles K. Blandin Foundation to develop a Mississippi Headwaters River Watch, a citizen's river monitoring and protection group. This program will complement the MHB's regulatory authority by developing and carrying out a water quality monitoring plan, in conjunction with state agencies.

Discussion

The Mississippi Headwaters Board often acts as a facilitator between local programs and the State.

The MHB's zoning ordinance is a national model for shoreline development. Among other accomplishments of the MHB is their success in achieving consistency in administration of zoning among the eight member counties. At times, the MHB has successfully used its authority to deny county decision of member counties. Following the adoption of uniform codes for river corridor protection across the eight counties the counties are issuing more denials at the local level.

An interesting feature of this program has been the Board's decision to formally evaluate its progress after the first ten years of operation. During the past two years, a review and assessment of the Board's effectiveness has been conducted. A task force composed of Board and its advisory committees members researched changes in state law, the impact of demographic changes in the region and the effectiveness of current zoning administration. The result was a comprehensive package of changes for the ordinance, management plan and corridor under the Board's jurisdiction. The goal of these changes is to provide more efficient and consistent administration of regulations and to meet the MHB's objectives to preserve and protect the shorelands. The reevaluation was supported by technical assistance from the National Park Service, a branch of the U.S. Department of Interior which compared the MHB's program of river protection to ten similar programs nationally.

One weakness of the program is the refusal of state agencies to incorporate the Board's authority to certify local zoning decisions in their planning processes. To date, efforts to remedy this inconsistency have been unsuccessful. Another suggested way of improving the authority of the MHB would be to expand the Board's role under the Clean Water Act to address water quality as well as cultural resource issues.

3.8 PINELANDS COMMISSION

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Mandate

The Pinelands region was recognized by Congress as an area of national significance because of its unique resources. The area comprises 22% of the State of New Jersey. The unique resources include a "pygmy pine forest," a 17 trillion gallon unpolluted aquifer, numerous threatened and endangered plant and wildlife species, the heart of the State's agricultural industry, unspoiled recreational areas and a rich cultural heritage dating from prehistoric times. Development pressures from Atlantic City and from metropolitan areas in the northern part of the State were creating enormous pressures to change these systems into more urban uses.

In 1978 Congress passed the National Parks and Recreation Act which included provisions to establish the Pinelands National Reserve and create a Comprehensive Management Plan for its future development. The State then established the Pinelands Commission to prepare the plan and institute development controls. The plan to protect the Pinelands became effective in 1981. The plan relies on cooperative efforts of federal, state and county governments and 52 municipalities located within the million acre region.

The Pinelands Commission uses a variety of regulatory, educational, informative and legal tools to protect the environment, control development and educate people about the management plan and the significance of the region.

Organization

The Commission functions as a state agency. There are 15 Commissioners appointed to staggered terms. Seven are appointed by the Governor and seven are appointed by the counties within the region. The other Commissioner is appointed by the Secretary of the Interior. The Governor has veto authority over the actions of the Commission, but this has never been used.

Staff and Budget

There are currently 45 staff, approximately two-thirds professionals, including planners, environmental specialists, scientists and two lawyers on assignment from the Attorney General's office. The annual operating budget is slightly over $2 million, with approximately 80 percent of this being used for salaries. The Commission's operating funds come from the State. It has no taxing authority, and does not have the ability to charge fees, although this is expected to change.

The federal Act that established the National Reserve contained provisions for $26 million to be spent for land acquisition, with a State match of 25 percent. This has been used to acquire approximately 65,000 acres. An additional $14 million has been authorized, but the funds have not yet been appropriated. This money will require a 50 percent state match.

Authority

The Commission operates under both federal and State acts. The Commission has immense authority over the lands it has acquired and over private property and the decisions of jurisdictions within its area. The Commission occasionally gets involved in litigation, usually as a defendant in challenges to its regulations.

Public Involvement

A small percentage of the Commission's personnel resources are used to promote environmental education. The staff time committed to these activities is supplemented by grants from private sources. One example of the use of supplemental funds has been for public education materials. Curriculum packages for grades 1 - 4 and grades 4 - 8 have been developed. These have been distributed throughout the New Jersey school system. Other projects have included videos and slides shows and a Speakers Bureau.

Commission staff does not lobby, but provides information to the Legislature when needed. It also works to coordinate programs with other public agencies.

Discussion

The Pinelands were the first area to be designated as a National Reserve by a federal Act. The concept of designating this first National Reserve intended to direct, regulate and mitigate the effects of an increasing population on a regional ecosystem basis. This is in contrast with the more traditional approach of affording absolute protection for a designated park area, with no controls outside of the park boundaries. (Ralph E. Good and Norma F. Good. The Pinelands National Reserve: An Ecosystem Approach to Management. *Bioscience*, March, 1984. pp 169-173).

Subsequent to the national Act, State legislation established the Pinelands Commission, which developed land use regulations in its Comprehensive Management Plan. This regional plan for the Pinelands uses an ecosystem approach to provide for long-term integrity of the system, while still accommodating increased human use. The regulations provide for a continuum of protection, ranging from maintenance of pristine conditions to high density development in designated areas.

The Comprehensive Management Plan has defined and located seven categories of land use: preservation; forest; agriculture; rural; growth; town and village. Almost all development is restricted to the regulated growth areas. It is the Commission's express purpose to control growth. When development reaches the maximum allowed in the designated growth areas, they plan to allow no more. The Commission does not expect to change boundaries to allow further growth, as the boundaries were established within guidelines that were intended to protect the natural resources.

All local governments are required to have their land use and zoning plans in compliance with the Comprehensive Management Plan. Every amendment and new local ordinance has to be signed off on by the Commission. Once a local jurisdiction's plans have been certified by the Commission, development may proceed within that framework. Other State agencies are subject to this authority.

Staff at the Commission reviews from 1600 to 1900 applications annually for permits to conduct development activities. Two staff members, the Applicant Liaisons, are responsible for answering all public inquiries about permit requirements.

The Comprehensive Management Plan has been successful at holding defined land from being developed. For approximately one-third of the lands in the region, pressure for development has been virtually eliminated because the regulations and ancillary public information programs have worked. The protected areas are increasing in size because of acquisitions and transferred development rights. Ninety-six percent of the development approvals issued since 1979 have been in the designated development zones.

A recent meeting of land use experts who gathered to review the first 10 years of the Pinelands Commission's accomplishments found the Commission's work very successful. The Comprehensive Management Plan was given credit for having a long time horizon, and providing a framework for any necessary new development. The experts noted that early fears that the plan would destroy economic growth were unfounded. One expert noted that a major strength of the plan is that local officials retain significant power to regulate land use within their municipalities. (*The Pinelander*, the Newsletter of the Pinelands Commission. Vol XI, No. 2. June 1991).

3.9 PUGET SOUND WATER QUALITY AUTHORITY

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Mandate

The Puget Sound Water Quality Authority (PSWQA) was created in 1983 by the State legislature as a voluntary commission to identify threats to the ecology of Puget Sound and investigate the need for coordination among agencies to protect Puget Sound. In eighteen months, a 21-member advisory group drafted the first report that addressed their initial mandate. The report recommended development of a long-range, coordinated plan to protect and improve the water quality of the Sound. At that time, the Authority had no dedicated staff or funding.

The release of the report brought broad public attention to cleaning up the Sound. Public concern and attention were bolstered by Booth Gardner, a gubernatorial candidate who adopted the Sound in his campaign, and then became Governor.

In 1985 the State legislature passed the Puget Sound Water Quality Act, that formally established the Authority (RCW 90.70). The Act creating the Authority contains language that recognizes the large number of governmental entities that affect water quality in the Sound, and recognizes that these organizations have diverse interests and limited jurisdictions which could not adequately address the cumulative, wide-ranging impacts which contribute to the degradation of Puget Sound. The Authority was given a strong five-year mandate: to conduct studies and research related to the water quality of the Sound and to obtain and broadly disseminate this information. The Authority was required to prepare and adopt a comprehensive water quality management plan, and to review and revise this plan every two years. The first plan, the 1987 Puget Sound Water Quality Management Plan was adopted in December 1986.

In 1988 Puget Sound was formally designated as an estuary of national significance and included in the National Estuary Program. The Puget Sound Water Quality Authority, with the EPA Region 10 and the Washington Department of Ecology co-manage the Puget sound Estuary Program. The designation of Puget Sound which brought it into the National Estuary Program recognized the 1987 Puget Sound Water Quality management Plan as a partial Comprehensive Conservation and Management Plan. The 1989 and 1991 updates to that plan will also be accepted as increments to the Comprehensive Conservation and Management Plan.

Organization

The Authority is made up of seven members, one from each of the six Congressional districts and one at-large representative. The members are appointed by the governor and confirmed by the Senate. The Director of the Department of Ecology (DOE) and the Commissioner of Public Lands also serve on the Authority as *ex-officio*, nonvoting members. The implementing legislation also directed the Authority to appoint advisory committees, comprised of representatives of all interested parties, to assist them in development of the plan.

The former director of the Authority, Katherine Fletcher, left the Authority to establish a public nonprofit corporation called the Puget Sound Foundation in 1990. The

purpose of the Foundation is to receive and administer monies for research and educational activities, promote information exchange, and host the annual Puget Sound Summit to assess progress made on implementing the plan.

Staff and Budget

The Authority has a staff of forty, twenty-eight of its own employees and the remainder on loan from other state agencies. The budget for the Authority was provided by the Centennial Clean Water Fund, financed by a cigarette tax. If the funding fell short of its appropriation of $45 million, the State would contribute the remaining amount. Originally over 50 percent of the funding went to upgrade publicly owned treatment works to secondary treatment. At the same time the Authority was created, the State directed $1 million of the Fund to be allocated for the creation of a Public Involvement and Education (PIE) fund to support local outreach initiatives and technical assistance efforts.

Authority

The program was not originally driven by science. Instead, the Authority was directed by its legislation to address selected issues that had been identified in the scoping process. Later they found issues not being addressed that were pertinent to address in the final plan. Recognizing their "unfinished agenda", the Authority held hearings and added the topics of pesticides, fish and wildlife habitat, spill response and prevention, and atmospheric deposition.

After considering different approaches, the Authority chose local control as the vehicle for implementing their plan. Following through on their strong mandate pertaining to public involvement, the Puget Sound Water Quality Authority integrated this philosophy into their strategies and plan. The Authority was given the power to adopt rules, ordinances, and regulations to activities on a watershed basis. In addition, the Authority encourages cities and counties to adopt measures to protect the Sound. Using this power, the Puget Sound Water Quality Authority developed regulations addressing nonpoint source pollution and wetlands. The wetlands rule that proposes wetland standards is currently being challenged.

In the 1990 legislative session, the future role of the Authority was questioned, specifically by two major firms, Weyerhauser and Boeing. The Governor first proposed that the Authority become part of Department of Ecology since the Puget Sound Water Quality Authority is a regulatory agency. Environmentalists and locals reacted stating the Puget Sound Water Quality Authority's role is a watchdog. The decision was made to move the Authority from Seattle to Olympia to be closer the other state agencies and the legislature. The legislature also realized that the local governments needed more money to implement the nonpoint source rule.

Discussion

The successes of the Authority are great. Many of the original recommendations have been implemented. They have created a nonpoint source program through their rule. They have developed a process with funding for locals to implement the nonpoint source program in 25 watersheds. The point source program has been strengthened through training and coordination with the Department of Ecology. A long-range public education strategy was developed and implemented. Environmental education is now part of the school curriculum in kindergarten through grade 12. The Authority is leading

the country in researching and regulating contaminated sediments. The State legislature just provided funding for the establishment of a long-term ambient monitoring program for the Sound.

The Authority attributes much of its success to strong executive support, giving it high public visibility. The Authority was committed to an action-oriented agenda that focused on consensus. The first nine technical papers gave the Authority and its staff technical credibility.

One of the Authority's strongest points is that it has had dependable state funding source for Puget Sound Water Quality Authority administration and public outreach/education. Since the Authority chose to implement their plan through local control, local governments are one of the strongest advocates of the Authority. However, the Authority did not address growth management, a focal issue in the State that led to the passage of the Growth Management Act in 1990. This shift brought less public attention to the Authority at a time when it's reauthorization was under debate. Not addressing growth management and land use directly caused the purposefulness of the Authority to be widely questioned. Another related weakness is the apparent lack of public support for the Puget Sound Foundation.

Among its weaknesses was its relationship with industry. The Authority made it a point to invite representatives of industry to participate and to keep them informed; however, industry did not choose to become an active player. This came to haunt the Authority when it addressed stormwater and improper waste disposal. More challenges from industry came when the Authority began to issue regulations proposing wetland standards.

Recommendations

Address growth management directly - for it may become a high public priority.
Adopt the plan as a rule.
Make sure the authority is clear.
Realize that the plan will be challenged.
Consider the importance of location.

3.10 SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

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Mandate

In the early 1960's over three square miles of San Francisco Bay was being filled in each year to provide land for development. In 1965 the San Francisco Bay Conservation and Development Commission (BCDC) was created by the State legislature to regulate the in-filling of San Francisco Bay. It was also charged with providing public access to the Bay through the process of reviewing plans for development. The Commission's zone of jurisdiction includes all of San Francisco, San Pablo and Suisun Bays and extends 100 feet landward from the shoreline. This latter area is referred to as the shoreline strip.

Organization

The Bay Conservation and Development Commission operates as an independent state agency, within the California Resources Agency. It is located in the Civic Center in downtown San Francisco, and in the same area as the consolidated San Francisco city-county government.

Oversight for the work is provided by a 27 member Commission, each of whom has an alternate. The Commissioners are appointed by various political leaders: five are appointed by the Governor, these include the chair and vice chair, and one representative from each County board of supervisors. Four more Commissioners are appointed by the local Council of Government and are City Council members. The rest of the Commissioners are State and federal agency representatives. (The federal representatives do not vote on permit decisions.) One Commissioner comes from the State Senate and one from the Assembly. The Commissioners do not have a term of office, but serve at the pleasure of their appointing body.

Staff and Budget

There are 25 full time staff members. With the exception of the Executive Director, who serves at the pleasure of the Commission, the staff are State civil service employees. Their backgrounds are diverse, and include strong analytical and writing skills.

The Commission is in the process of revising its fee system in order to recoup more of its permitting, planning and enforcement costs. The annual operating budget is $2.1 million. The source of this money is largely State General Fund, approximately 80%, with the rest coming from a mix of sources that includes the federal Coastal Zone Management Act.

Authority

The Commission has permitting and enforcement authority. Staff reviews the development plans submitted for approval and makes recommendations to the

Commission. Permits fall into two major groups, based on size and degree of impact on the Bay. There are approximately 150 administrative applications per year that result in a formal decision. The projects in this category tend to be smaller in size and to have less direct impacts upon the Bay. Permits for approximately 30 to 35 major projects are processed each year. These major projects receive staff and Commission review and are required to have a public notice and a public hearing.

Federal, State, county and local programs are affected by the Commission's permit review process. An additional avenue of influence on these other government programs are the Commissioners' ongoing relationships with staff and policy makers in them. The Commission has been involved in litigation, and has been successful in all cases to date.

Public Involvement

Bay Conservation and Development Commission was having public meetings twice a month, but has recently reduced this to once a month as a cost-cutting measure. Because the staff is small and the workload large, very little staff time is spent in traditional public information or outreach activities. The media is very interested in the Commission's business and reports on it regularly. There is an outreach newspaper, created and produced by Save San Francisco Bay, a private nonprofit advocacy organization with 25,000 members. This newsletter reports on the Commission's business.

The Commission has a government coordination program. The purpose of this work is to remain in close communication with other governmental bodies for two major purposes. The first reason is to let other units of government know about the Commission's goals and requirements. The second purpose is to try to keep abreast of the plans of other public agencies, so that the Commission is able to be involved from the outset with activities that will affect the shoreline strip. One group with whom this coordination is particularly fruitful is the California Coastal Conservancy, the agency that administers the large bond fund for coastal projects. By collaborating with other units of government when seeking these monies, public projects of greater impact can be carried out.

Discussion

Having a large number of Commissioners and alternates reduces the likelihood that any one special interest will be able to influence the decision making.

The Bay Conservation and Development Commission regards itself as the nation's first Coastal Zone Management program. Currently, the major focus of their work is developing ways to address nonpoint source problems.

During the Loma earthquake, all structures that were built to the Commission's specifications received no structural damages. This lent the Commission technical credibility. This success has been used to press the need to expand the Commission's jurisdiction to other "Old Bay" areas.

The limited mission and area of jurisdiction have produced both successes and limitations. The trend of in-filling the Bay has been reversed, and for the past 10 years the Bay has actually been getting larger. The Commission tends to be conservative.

Relations between the Commission and staff are good and a source of strength. The Commission has never approved a permit that the staff has recommended that they deny.

Because the area of jurisdiction is limited, the Commission cannot affect land use decisions in all of the areas that affect it.

3.11 TAMPA BAY PROGRAMS

Agency on Bay Management

Tampa Bay Regional Planning Council
9455 Koger Blvd.
St. Petersburg, Florida 33702
Peter Clark, Principal Environmental Planner 813 / 577-5151

Tampa Bay Surface Water Improvement and Management (SWIM) Program

Southwest Florida Water Management District
7601 Highway 301N
Tampa, Florida 33637
Michael Perry, Director 813 / 985-7481

Tampa Bay National Estuary Program

111 7th Ave. S.
St. Petersburg, Florida 33701 813 / 893-2765
Richard Eckenrod, Director

Mandate

Tampa Bay is a highly urbanized bay located on the west coast of Florida. It is the largest open water estuary in the State with an area of 398 square miles and a watershed of 2,200 square miles. The watershed contains eight counties and thirty-four municipalities, which led to the uncoordinated implementation of various monitoring, permitting, and regulatory programs. Tampa Bay is a unique model of watershed management in that its management has developed over time in response to different needs. In light of this fact, a brief history of the Bay's management is provided below.

Recognizing the inherent complexity of managing environmental quality for Tampa Bay, the Tampa Bay Regional Planning Council (TBRPC) established a Tampa Bay Management Study Committee in 1982 to identify critical bay management problems and evaluate potential solutions. The Committee identified 40 issues areas, but no consensus was reached on approaches.

In 1984 the Florida Legislature created the Tampa Bay Management Study Commission to recommend a bay management plan and work program. In its final report, this Commission recommended the establishment of a coordinating and advisory committee as an interim solution to management inconsistencies regarding the Bay. In response, the Agency on Bay Management (ABM), an advisory committee to the TBRPC, was formed in 1985.

In 1987 the Florida Legislature passed the Surface Water Improvement and Management (SWIM) Act, creating a program that focuses on restoration and protection of selected surface water bodies. The Act named Tampa Bay as one of the areas for this effort. The Southwest Florida Water Management District (SWFWMD) directs this effort. Both organizations, the ABM and SWFWMD worked together to prepare a nomination package for Tampa Bay that gained acceptance into the National Estuary Program in 1990.

In the case of Tampa Bay, it is most informative to examine the combination of the three individual programs, instead of the individual programs without this context. As is the case in other states, there are numerous other public and private organizations and individuals whose work contributes to the betterment of the Bay. Each program plays an important role in managing Tampa Bay. The Agency on Bay Management serves as a forum for current and sensitive management issues, and as a communication link between Tampa Bay interests and the state legislature. The Surface Water Improvement and Management program funds restoration ("in-the-ground"), research, and public education/outreach projects. It provides both short and mid-term focus for improving the Bay's quality. The Tampa Bay National Estuary Program (Tampa Bay NEP) serves as a Federal-State-local partnership to develop a long-term management plan for the Bay.

Organization

The Agency on Bay Management is a 45-member advisory committee whose members are appointed without alternates each year by the Chair of the Tampa Bay Regional Planning Council. Guidelines for membership direct the Chair to appoint members representing the Florida legislature, the Tampa, Manatee, and St. Petersburg Port Authorities, four state agencies, the Water Management District, U.S. Army Corps of Engineers, the National Marine Fisheries Service, the counties, the cities, and environmental, commercial, scientific, academic, recreational, and industrial and at-large interests in the region. Approximately 50 percent of the representatives attend regularly and are active.

The Surface Water Improvement and Management program is a department within the Southwest Florida Water Management District.

The Tampa Bay National Estuary Program has four committees: a nine-member Policy Committee made up of elected officials from six local governments and executives from EPA, Florida and regional environmental management agencies; a fifteen-member Management Committee made of high-level staff managers of governmental bodies represented on the Policy Committee, plus other federal, State, and regional resource management agencies; a Technical Advisory Committee of unlimited membership made up of scientists, staff from numerous agencies at the federal, State and local levels, and representatives from industry, commerce, consulting, and environmental interest groups; and a twenty-four member Citizens Advisory Committee appointed by the Policy Committee and made up of representatives from diverse segments of the community. Although the members of the Policy Committee and Management Committee are appointed, the bylaws of both committees prescribe which governmental bodies shall be represented.

Staff and Budget

The Agency on Bay Management Development Commission is co-located with the Regional Planning Council in St. Petersburg. It has a staff of two, although they can draw on other regional planning staff when needed. Funding is very limited and fluctuates. It depends primarily on the Tampa Bay Regional Planning Council and on research grants from the State and federal government.

The Surface Water Improvement and Management program is funded by state money and the Water Management District. Staff is provided by the Water Management

District. Given recent state budget problems, the SWIM trust fund has been used for other items and requires total reappropriation every year, so funding is not guaranteed.

The Tampa Bay NEP is staffed by five people in St. Petersburg. Like the A/P Study, funding is provided by EPA with a non-federal match provided by the local governments and the region's water management district for five years. The Tampa Bay Regional Planning Council serves as the local administering agency for the Program.

Authority

The Agency on Bay Management Development Commission has no legislative mandate. It was created based on recommendations of the Tampa Bay Study Commission. ABM's recommendations are taken by staff and representatives to the affected party. Recommendations are taken seriously since the agency operates using consensus and has broad representation. The Agency on Bay Management lacks authority to implement the recommendations; however, its parent agency, the Tampa Bay Regional Planning Council, has the authority to implement recommendations pertaining to large-scale developments. Another way the Agency on Bay Management participates in the management of Tampa Bay is through the TBRPC's review of local government comprehensive plans to ensure consistency between State, region and local plans. The Agency also is the designated advisory committee to the Water Management District on Surface Water Improvement and Management-related matters.

The Surface Water Improvement and Management program is legislatively mandated for five years. The Water Management District is a regulatory agency that historically addressed flooding programs. This responsibility has grown over the years to address a full range of water resource problems, including well construction, consumptive use, ground, surface and stormwater management, and aquatic plant management. With the SWIM program, the District began to become involved in estuarine and bay management. The District has taxing authority and can generate revenue.

Like other National Estuary Programs, the Tampa Bay NEP is guided by Section 320 of the Clean Water Act.

Public Involvement

All of Tampa Bay's programs have used non-traditional methods of public involvement. All meetings are open because of the Florida Sunshine Law. To build consensus, the Agency on Bay Management often relies on alternative dispute resolution techniques, such as the nominal group technique. Each year, the Agency on Bay Management sponsors Tampa Bay Day, a seafood feast with elected officials in Tallahassee, and a Tampa Bay Festival, a local "Earth Day" festival focused on the Bay. They also sponsor field trips and slide shows. They produce the annual State of the Bay Report, summarizing community efforts to study, restore and protect the Bay.

Volunteers are used in a variety of ways. For example, populations of birds are monitored by volunteers, as is water quality in some locations. Volunteers have responded to requests for assistance by the agencies to participate in the replanting of submerged aquatic vegetation.

Discussion

Among the successes of the Agency on Bay Management is the creation of the Surface Water Improvement and Management and NEP programs. During its monthly meetings, members of the ABM are able to address "hot" issues in an open forum, and participants can freely make suggestions since they are only recommendations.

The Tampa Bay Management Study Commission, the ABM's predecessor, prepared guidelines for membership. The categories of membership represent a broad cross section of users of the Bay, such as all levels of government, the port authority, the electrical power industry, recreation and commercial interests. Diversity of participation has been a strong suit. Representatives are chosen by the Chair of the Tampa Bay Regional Planning Council. The Agency on Bay Management noted some difficulty getting industry and agencies to participate unless the meeting's topic addresses their direct interests.

When reviewing the accomplishments of the Tampa Bay management efforts, it is valuable to consider what factors caused problems for the Bay before creation of the NEP. In the Governor's nomination package, these factors were included: the need for cohesiveness and greater simplicity, lack of full-time staff, and limited involvement of the private sector. Although the Tampa Bay NEP is attempting to correct these weaknesses in the NEP, it is too early to evaluate its success. The Tampa Bay community has had a long history of bay management exercises. The most prominent being the Tampa Bay Study Commission that suggested the formation of a Bay Management Authority; however, it was not politically palatable at the time.

The Tampa Bay region contains a diverse political environment where local elected officials play an active and critical role in Bay protection efforts. In addition to the elected officials there are diverse professional, scientific and advocacy groups and individuals who are deeply involved with Tampa Bay. Many of the same players are involved in all three efforts. Although the Tampa Bay NEP has broadened participation, it has not used a systematic approach to ensure broad representation on the committees; therefore, some key user groups are not represented. Many people thought that the Tampa Bay NEP was a program they could use to supplement their ongoing retrofitting efforts under Surface Water Improvement and Management program. Instead of working with the Surface Water Improvement and Management plan, some prefer to start over, causing some political tensions. The Comprehensive Conservation and Management Plan will attempt to address and resolve these issues.

3.12 UPPER MISSISSIPPI ENVIRONMENTAL MANAGEMENT PROGRAM

Environmental Management Technical Center
U. S. Fish and Wildlife Service
575 Lester Drive
Onalaska, Wisconsin 54650
Robert Delaney, Director 608 / 783-7550

Mandate

The Environmental Management Program (EMP) for the Upper Mississippi River is a program primarily aimed at habitat restoration projects and long term environmental studies of the Upper Mississippi River. Authorized under the Upper Mississippi River Management Act of 1986, the Program arose out of many earlier efforts to address the environmental degradation of the Upper Mississippi River system. Over the years, there were a number of significant studies of the river system, including the Great River Environmental Action Team (GREAT) studies in the Comprehensive Master Plan developed by the Upper Mississippi River Basin Commission and submitted to Congress in 1982.

In 1986, Congress created the Upper Mississippi River Management Act, authorizing a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement, implementation of a long-term resource monitoring program, and implementation of a computerized inventory and analysis system. These activities, collectively called the Environmental Management Program, are a cooperative effort among the U. S. Army Corps of Engineers, the U. S. Fish and Wildlife Service and the five states in the region. The Act also identified the Upper Mississippi River Basin Association (UMRBA) as caretaker of the master plan. The UMBRA had been previously established in 1981 by the States in the region to replace the Upper Mississippi River Basin Commission.

The study area of the Environmental Management Program includes only those parts of the river reaches having commercial navigation channels on the Upper Mississippi River: the main stem north of Cairo, Illinois; the Minnesota River, Minnesota; Black River, Wisconsin; Saint Croix River, Minnesota and Wisconsin; Illinois River and Waterway, Illinois; and Kaskaskia River, Illinois.

Organization

As required in the Act, the Upper Mississippi River Basin Association, the coordinating body for the Upper Mississippi Environmental Management Program, is comprised of Governor's representatives from the states of Illinois, Iowa, Minnesota, Wisconsin, and Missouri. It "was formed for the purposes of cooperative effort and united assistance in the comprehensive planning for the use, protection, growth, and development of the Upper Mississippi River system." Also, five federal representatives (Department of Interior, EPA, Department of Transportation, Department of Agriculture and the Corps of Engineers) participate in the Association but only in an advisory capacity. In its EMP role, the UMRBA recommends funding allocation, provides Congressional testimony, and evaluates program progress. In addition to coordinating implementation of the Upper Mississippi River Environmental Management Program, the Upper Mississippi River Basin Association coordinates the lobbying for the program's funding, successfully securing a 15 year authorization o for $289 million.

The Upper Mississippi River Basin Association is supported by several committees, the most important of which are the agency and state Environmental Management Program Coordinating Committee and the Analysis Team. The Coordinating Committee addresses issues associated with the habitat projects and their relationship to the monitoring efforts, while the Analysis Team convenes three to four times each year to evaluate the monitoring program's scope of work.

The Upper Mississippi River Basin Association also works closely with another long-standing group, the Upper Mississippi River Conservation Committee, a committee of all the affected state agencies' biologists. The group was originally organized in the 1940's to save the Mississippi River. More recently, the committee supported efforts to create the Environmental Management Program.

Staff and Budget

The Environmental Management Program is a large program that is authorized to be funded by the federal government for $289 million over 15 years. When the program was passed by Congress, it was linked to the U. S. Army Corps' lock and dam budget, by Committee report language which suggested that the EMP was to move forward concurrently with the construction of a second lock at Lock and Dam 26. All funding for the program is appropriated to the Corps as part of its budget; however, a part of the program's funding is passed through to the Fish and Wildlife Service. Approximately 60 percent of the EMP budget is directed to habitat restoration. The monitoring portion of the Program will be coordinated out of a Fish and Wildlife Service field office with a staff of 20 to 40 people. Environmental data collection work is conducted from six state-operated field officesstaffed with 6 to 8 people. The affiliated oversight and coordination body, the Upper Mississippi River Basin Association is staffed and funded by the states.

Authority

The EMP was authorized as part of an omnibus federal bill, the Water Resource Development Act of 1986.

Public Involvement

To date, only limited public outreach for the Environmental Management Program has been carried out, some by the states and other efforts that are associated with acquiring public comments on specific habitat restoration projects. Part of the reason this his type of work has been limited is because there is no specific federal legislative direction to EMP to do such work.

Discussion

The most outstanding strengths of the Upper Mississippi Environmental Management Program are the program's technical standards. The program's draft operating plan is reviewed by international panel of experts. Unlike most large environmental studies, the program has a standardized method of data collection. Hundreds of studies have been completed using standard methodologies and protocols.

The way the Upper Mississippi Environmental Management Program is organized into three elements keeps the decision-making process objective and the tasks and responsibilities clear. An extremely well-coordinated network of states exists -- as

demonstrated by the UMBRA's lobbying success to receive significant Congressional funding.

The major weakness of the EMP is that there is no coordination with counties or local governments. EMP only addresses the river corridor, not the associated watersheds. Additionally, there are too many levels of organization to manage efficiently. Another weakness is the public's perception of the program. Because the program was created by federal legislation, it is viewed with skepticism by some local entities. On the other hand, part of the impetus for creating the program was derived from litigation between the U. S. Army Corps of Engineers and the environmental community about dams. From this perspective, the program has been quite successful in preventing further litigation and furthering sound management by carefully collecting information upon which to base the management and restoration decisions.

4. FINDINGS

This section discusses general and specific findings drawn from the survey.

4.1 Phases of Management Program Development

During the interviews with people in different environmental management programs, similar phases of program development were found. Multi-jurisdictional programs generally proceed through these phases while working to create a management plan for the natural resource of concern. These phases reflect the application of the scientific method of investigation to develop strategies to address both administrative and technical problems within a management context. These phases are:

Recognition of the Need for an Alternative Strategy: Users and managers of the natural resource area, either in isolation or in concert, determine that the existing management framework is inadequate for protecting the resource in question. Reasons for inadequacy may include one or more of the following factors: the use of inappropriate boundaries to manage the resource area, ineffective program coordination, the lack of holistic management, and management/regulatory gaps. Sometimes the recognition results from sudden events such as floods, hurricanes or oil spills. This recognition is usually bolstered by public and/or political support for a change. Consensus regarding the need to change the existing management approach is reached, and leaders to effect the change emerge.

Formation of a Multijurisdictional Body: Key players are identified to develop the plan and a group with overlapping needs and goals is formed. Often, the players are organized into various committees to compile expertise, to efficiently channel energies, and to define appropriate roles. Most cases use a hierarchical structure with an oversight committee supported by a citizens advisory committee, a technical advisory committee, and less often, an environmental managers committee.

Problem Definition and Characterization: Problems affecting environmental quality are defined, evaluated, and prioritized. Concurrent with problem definition discussions are efforts to assess the present characteristics of the natural resource.

Data Analysis: Existing data sets are examined to identify data gaps. Methods and approaches for filling data gaps are proposed and developed.

Data Collection: Data collection plans are initiated to coordinate current data collection efforts, fill data gaps, and assess progress of on-going efforts.

Plan Formulation: As information becomes available, committees develop alternative actions to address each of the priority problems as well as mechanisms for plan implementation.

Plan Implementation: A mechanism for plan implementation that includes a vehicle for reassessment, periodic public involvement, and scientific input is established.

This basic approach is used by the National Estuary Program, and has also been used by many other programs surveyed during this project, including the Bureau of Land Management's Stewardship Program and Coordinated Resource Management Program, Lake Pend Orville and Clark Fork River, Columbia River Estuary Project, Lake

Champlain, the Great Lakes, the Chesapeake Bay program, Lake Onondaga, Sturgeon Lake, and the Gulf of Maine. The schedule and sequence of these phases are highly variable. In some cases, such as the Columbia River Estuary Project and Lake Onondaga, the schedules and sequences were dictated by legislative deadlines. In others, such as Tijuana Slough, the Pinelands Commission, and the Great Barrier Reef Authority, committees continually reassess their actions and revise their management plan based on evolving knowledge and management pressures.

Very few programs identified in the survey had reached the stage of plan implementation. Despite this lack of "maturity," most of the programs chosen for further analysis were those sites where active hands-on management decisions were being made. Although most of these programs do not consider themselves to have accomplished all of their goals, several of the people we interviewed reported that evaluations of their program's existing accomplishments had been done. For example both the Pinelands Commission and the Mississippi Headwaters Board have recently passed milestones. Both programs took the occasion of these milestones to reflect upon their achievements and realign their sights for the future. Some of the younger programs, such as Maryland's Nontidal Wetlands Program and the Forest Conservation Program have quantitative evaluation criteria described in their enabling language. These two programs also have proscribed schedules for program review. This may signal an emerging trend. In times of tight budgets, it may be easier to build support to enact a new program if its effectiveness can be demonstrated in the future by objective criteria, *i.e.*, amount of wetlands or forest cover restored.

Many of today's programs grew from earlier programs, such as the Great Lakes Program, the Clean Lakes Program, the Chesapeake Bay Program, and the interstate coordination provisions of the Clean Water Act. Many of these are founded on natural resource, rather than political, boundaries. Watersheds are increasingly being used as the boundaries for management strategies to protect and manage resources such as ground water, drinking water, lakes, coral reefs, fisheries, and wetlands. One of the most comprehensive applications of the watershed management framework is found in Florida, where five large regional agencies, called Water Management Districts provide comprehensive water resource management, regulation and coordination with other jurisdictions. The Water Management Districts' boundaries are determined by the watersheds of their major surface water bodies, such as the Suwanee, St Johns and Kissimmee Rivers. The Chesapeake Bay's watershed boundary is the framework for its interstate management program. Many of the programs we surveyed use watershed boundaries as an organizing strategy.

4.2 Mandate

Mandates are the ultimate authority for a program and are of paramount importance to program effectiveness. Some programs are narrowly focused, such as the San Francisco Bay Conservation and Development Commission, which only considers actions within 1,000 feet of the shoreline. Others, such as the Delaware River Basin Commission, encompass all types of water quality and quantity issues. Still others, such as the Lake Tahoe Basin Management program and the Critical Area program in Maryland, have been given the authority to address both land use and water quality controls. One of the broadest mandates is that of the Cape Cod Commission, which addresses ground water, surface water, coastal issues, and land use.

Most mandates are defined when the organization is created. However some, such as the Virginia Council on the Environment's involvement with the Chesapeake Bay Program, and the Morro Bay Task force have developed a role without waiting for a formal mandate to be created.

Roles

The roles held by these programs and the structure of their decision making bodies varies considerably. To give the reader an idea of this variety, a partial list of roles that the organizations play within their communities is given below, with some examples of corresponding programs. Please note that this list is for discussion purposes only, not all the programs in the survey are shown below and many organizations in the survey perform several roles.

Roles	Programs
Facilitators	Big Stone Lake Restoration Project, Florida Growth Management Conflict Resolution Consortium, and Alliance for the Chesapeake Bay
Coordinators	Virginia Council on the Environment
Regulators	Delaware River Basin Commission and Mississippi Headwaters Board
Monitors	Interstate Commission on the Potomac River Basin, Mississippi Headwaters Board, and Sturgeon Lake in Oregon
Lobbyists	Upper Mississippi River Basin Association, 1,000 Friends of Florida, and the Chesapeake Bay Foundation
Technical trainers and support	Mississippi Headwaters Board, Minnesota Tri-county -Clear Water District, and Lake Tahoe Basin Management Unit
Planner-Regulators	New Jersey Pinelands Commission and Northwest Power Planning Council
Forum for current and controversial issues	Tampa Bay Agency for Bay Management and Alliance for the Chesapeake Bay, and the Morro Bay Task Force
Educators	Florida Surface Water Improvement Program and the Chesapeake Bay Foundation

4.3 Organization

The seventy-five programs originally investigated, including the nineteen programs described in Section 3, contained governmental, quasi-governmental and nongovernmental organizations.

Participants

Many programs contained guidelines that require broad and compulsory participation of, or representation by, the multiple affected user groups on their different oversight and advisory committees. This varied somewhat by locale, for example: programs in the Pacific Northwest and West generally included Native Americans; the Cape Cod Commission included minorities; Columbia River Estuary Program added industry, environmental, commercial and recreational fishermen, and port representatives. At the Tijuana Estuarine Research Reserve, participants were required to have a natural science background. At Morro Bay, the Task Force participants included whomever

chose to participate: that is, volunteers, whose interests and participation varied, depending on the current topic.

Institutional Framework

While the descriptions in Section 3 reflect the variety of ways that the programs communicate between themselves and organize the technical aspects of their work, one common denominator among many of the programs is that they are organized to allow the programs to be administered at the local level. In these cases, the state usually provides a model or guidance document for the locals to adapt to their unique conditions. This was how the Critical Area Program strategy was implemented in Maryland. In the case of this program, the State also provided money to help the local jurisdictions accomplish the tasks. In New Jersey, the Pinelands Commission's work reflects a similar strategy of state guidance, with local implementation, although in this case, the guidance came from a regional commission. This is also the case with the shore protection ordinances provided to the eight member counties by the Mississippi Headwaters Board. The Pinelands Commission also provided fiscal assistance, especially for the acquisition of lands that were to be protected from development.

Some programs, such as Virginia Council of the Environment and the Morro Bay Task Force, work within existing institutional frameworks. Others, as Florida's Tampa Bay Agency on Bay Management and the Lake Washington Water Improvement Task Force and Oregon's Devils Lake Water Improvement District, created institutional frameworks especially for their purpose. Still others work in clusters of individual programs to create and conduct effective management strategies. The individual programs were often started to address specific problems and then evolved to serve broader needs and to take advantage of funding and other opportunities. Such program clusters include: Maryland's Critical Area Program, Nontidal Wetlands Program, and Forest Conservation Program, supported by the Alliance for the Chesapeake Bay and the Chesapeake Bay Foundation (and other programs and NGOs); Minnesota's Watershed Districts, Lake Improvement Districts, and Joint Powers Organizations; and Tampa Bay's National Estuary Program, Surface Water Improvement and Management Program, and Agency for Bay Management.

Most of the programs we investigated created a new framework to coordinate and provide oversight to existing organizations. All had some type of governing body or oversight board that consisted of members who were generally appointed by a Governor or by a political body. Large boards with twenty or more members are common. The members of the oversight boards are expected to reflect and fairly balance the interests of the range of stakeholders who will be affected by the decisions of the board. Most programs also have subcommittees comprised of mid-level managers and technical experts from the same organizations, which reported to the oversight board. Many have Technical Advisory Committees, State Environmental Manager Committees, and Citizen Advisory Committees. These committees meet more frequently than the oversight committee and are responsible for the working relationships that manage the resource.

Board decisions are reached through a variety of methods. Most boards strive to achieve consensus, at least on overall policies. Votes are commonly taken in cases of regulatory and enforcement decisions, when timeliness in decision making is essential. Representatives of federal agencies, when appointed to oversight boards, often serve as "ex-officio" or non-voting members.

4.4 Funding

Communications with managers of the programs described in Section 3 revealed that several of them have been rethinking their funding strategies in recent months. The Delaware River Basin Commission, the Pinelands Commission and the San Francisco Bay Development and Conservation Commission all indicated that they are considering new ways to generate revenues. The general trend seems to be to revise their fee structures to include more of the organization's costs for reviewing applications in the processing fees.

Most programs rely on funding from the affected governments. A few, such as Minnesota's Lake Improvement Districts and Watershed Districts, have taxing authority and are self-sufficient. Many creative partnerships between government, industry, and public interest groups have been worked out. One interesting example is the North American Waterfowl Plan, where government, private sector, and public interest groups are actively working together to acquire and/or manage waterfowl habitat in several states. Another example is the Columbia River Estuary Project, which is jointly funded by the states, local port authorities, and the pulp and paper industry. The Florida Trust for Corkscrew Regional Ecosystem Watershed is a partnership where two public interest groups act as land acquisition agents and the Water Management District becomes the landowner. Some, such as the Santa Monica Restoration Trust, the Puget Sound Foundation and the Buzzards Bay Coalition, created non-profit organizations to provide an avenue for private donations, lobbying, and acquisitions that was not available under existing government programs. More recently, these non-profit organizations have been established by legislation, as in the cases of the Puget Sound Foundation (by the Washington State legislature) and the Lake Onondaga Conference (by Congress).

Staff

The ability to have a staff was directly related to funding. Programs with larger staffs, such as the Puget Sound Water Quality Authority, Northwest Power Planning Council, Delaware River Basin Commission, and the Chesapeake Bay Foundation have the capability of raising their own funds through taxes, membership or surcharges. However, many successful programs, such as Tijuana Slough Estuarine Research Reserve, the Morro Bay Task Force, or Yakima Valley's Conference on Governments, implement their programs using staff from participating governmental organizations. In the smaller programs, staff positions usually included a director, public information officer, secretary, and possibly a scientist or lawyer. We found a greater variety of positions as the size of the staff increased.

Scarce staff resources are supplemented in several of the programs by volunteers. In addition to the direct benefit of helping get the work done, volunteers usually develop strong commitments to the programs they assist, and become even more dedicated to supporting them. Managing the work of volunteers efficiently is a great challenge for organizations, especially those with limited resources, who, ironically, often need this additional assistance the most.

4.5 Public Involvement

New, nontraditional public involvement activities were identified in many of the programs surveyed. The use of Citizens' Advisory Committees or other formal representation has become the norm, rather than the exception. More and more, programs are reaching out to citizens, informing them about opportunities for public involvement in

the resource conservation and management process. Many programs, such as the Morro Bay Task Force, Minnesota Clear Water District, Tijuana Slough, Great Barrier Reef Authority, and others use newsletters, conferences, slide shows, festivals and awareness days to promote greater public involvement.

Some programs have developed technical training workshops for specific interest groups. For example, Minnesota has developed material for ranchers about manure management, the Great Barrier Reef Authority has developed videos for fishermen, and Puget Sound Water Quality Authority, under the State's Public Involvement and Education Fund, supported farmer's wives to develop videos about best management practices for other farmers. Minnesota Tri-county Commission instructed a group of farmers in best management practices and funded their initial efforts, hoping that their successes and savings will induce other farmers to adopt these methods.

The Chesapeake Bay Foundation, all three Tampa Bay programs, San Francisco Estuary Project and many others use educational curricula, field trips, and other hands-on techniques to teach and inform students and the interested public about their programs, the values of natural resources to society and the importance of stewardship. A few programs, such as those in the New Jersey Pinelands, the Mississippi Headwaters Board, and the Santa Monica Restoration Project, have obtained funding from charitable foundations for the public involvement activities, such as citizen monitoring activities, the development of educational material and public workshops.

5. CONCLUSIONS AND RECOMMENDATIONS

The following discussion and recommendations grew out of the collective wisdom of numerous people in the organizations we contacted. We tried to relate the recommendations to the immediate challenges and tasks facing the A/P Management Conference in the development of their management plan. Attention has been given here to presenting alternatives for the Comprehensive Conservation and Management Plan (CCMP) implementation's administrative structure and related management topics. The recommendations are organized by the following categories: mandate, organization, and public involvement. The topics are presented and followed by specific recommendations in bold type.

In the most basic terms, there are two major features of the CCMP. The determination of what should be done to protect and restore the estuary and the determination of who should do what work to accomplish the protection and restoration. The issue that underlies these decisions about what to do and who should do it is - who decides these fundamental questions? National Estuary Programs are organized to include many of the estuary's stakeholders. It is important to build upon and expand this inclusiveness for the most effective development and implementation of the CCMP.

Ecosystem management requires long-term vision. As the A/P Management Conference considers the CCMP's composition, direction, and implementation, a great deal of thought will be given to future working relationships and institutional arrangements among current members and agencies in the A/P Management Conference. New relationships and arrangements must build on and strengthen the existing management framework. Candid analysis of the Management Conference framework, including its present weaknesses and strengths, is required. The Management Conference might find it useful to take a "bottom-up" approach, and examine each component of the CCMP implementation separately, before analyzing the structure as a whole. This bottom-up approach has been initiated by the work of Nichols, *et al.* in *Evaluation of State Environmental Management and Protection Programs in the Albemarle-Pamlico Region* (A/P Project 90-02). Comparing and contrasting that 1990 analysis of North Carolina's water-related programs and other existing environmentally-related programs with the programs described in this report may be a good place to begin a bottom-up analysis. Special efforts should be taken to define the problem in terms of the uncertainties that the future holds, because the present political and economic climates will inevitably change.

The following recommendations reflect our study and concern for the human components of the Albemarle-Pamlico estuary ecosystem. Additional recommendations are found following the discussions in Section 3 of the Alliance for the Chesapeake Bay, the Critical Area Program and the Puget Sound Water Quality Authority.

5.1 Mandate

Role of the CCMP Implementation Group/Organization/Agency

Early in the CCMP development process, two major decisions must be made by the Management Conference. One decision is the level of responsibility that they want to assume or to vest in their successor to implement the CCMP, whether it is to be a new or existing organization. There is a wide range of ways to provide oversight and coordination. The options vary in formality from creating an Albemarle-Pamlico

Environmental Cabinet within North Carolina state agencies that could consolidate all natural resource and regulatory agencies, to delegating the responsibilities for CCMP implementation to a selected state agency. The second major decision for the Management Conference must be to decide the role of their successor - should it function as an advisory group? a public forum? or regulatory player? all of these?

The A/P Management Conference should decide who will be responsible for CCMP implementation and define that "successor's" mandate and function.

Linking or Networking Existing Programs

Many of the management strategies which were investigated linked all water management programs and issues together. For example, the Cape Cod Commission's mandate encompasses surface water, coastal waters, and ground water. The Delaware River Basin Commission addresses issues of both water quality and water quantity. Use of the hydrological boundaries for the estuary management program jurisdiction would be a natural complement to a holistic, watershed approach.

To achieve its goals, the CCMP could recommend expansion of the mandates of other state programs, such as the drinking water program that have similar goals and objectives. Like the CCMP, the state drinking water program encourages the adoption of land-use planning measures to reduce the natural resources' susceptibility to pollution by controlling the type and location of human activities in the watershed. Responsibilities for setting general goals and objectives lie with the State while the power to implement control measures lies with the counties and local governments.

The A/P Management Conference should recommend that their successor's mandate be broad so that all issues regarding water quality and quantity can be addressed when necessary.

Watershed Boundaries for the Management Framework

Hydrologic boundaries are natural units of organization. Among resource managers, property owners, and citizens, there is a growing recognition of the need to approach protection and management of natural resources on a natural watershed basis, rather than on a programmatic basis. To be most effective, watershed management must be undertaken by multiple jurisdictions, since hydrologic boundaries rarely coincide with jurisdictional ones. The State of North Carolina has recently begun to adopt the watershed approach in their National Pollutant Discharge Elimination System program This approach is commendable and should be supported by all government plans and actions that manage natural resources.

The A/P Management Conference should support the State's use of the watershed approach to permitting and should adopt this concept throughout the implementation recommendations contained in the CCMP.

Property Owner's Actions

Since management of private lands is the responsibility of the landowner, the CCMP implementation strategies must be sensitive to landowners' rights and the limited ability of agencies to dictate specific management practices. Some programs identified in this study, such as the Delaware River Basin Commission, have developed criteria to determine what type of activity they will review, *i.e.*, those property owner activities that may affect the watershed. An ideal management strategy offers a broad array of mechanisms to bring about changes in attitudes and to maintain proper types of watershed development, for both individuals and organizations.

The A/P Management Conference's mandate should reflect a respect of individual property rights. At the same time, the Management Conference should comment on individual activities that could harm the watershed and its resources.

Separating Short-term Crises from Long-term Conflicts

Many programs have created a forum to deal with "hot topics," crises, and other short-term issues. These forums allow people to raise their concerns and to contact others who share these concerns and who may wish to collaborate in developing solutions. Some groups limit their focus to addressing only short-term issues. The Morro Bay Task Force, for example, sets their agenda according to requests. In Tampa, the Agency on Bay Management addresses relatively short-term issues, such as red tides, while the Tampa Bay National Estuary Program, focuses on issues related to the long-term management of the Bay.

The A/P Management Conference should create a forum for groups and individuals to handle short-term topics so that such issues do not distract from the long-term management efforts of the Albemarle-Pamlico Estuarine complex.

Growth Management

Conflicts caused by economic development in environmentally fragile areas need to be anticipated. Growth management is a difficult issue, but managing growth and protecting the environment are not mutually exclusive goals. Growth is inevitable; both in the numbers of people living in the Albemarle-Pamlico region and in the amount of impact that human development causes to the environment.

Environmental protection work has suffered where growth management has not been directly addressed, as in the case of Puget Sound where the program deliberately chose to avoid growth issues. Their program lost both credibility and public support when growth management became the foremost political issue. Although there are issues a Management Conference can ignore, growth management is not one of them.

Some examples of programs that have handled growth successfully with a range of different techniques include the Pinelands Commission where limitations regarding land-use densities are directly incorporated in the local plans and regulations and Lake Tahoe Basin Management Unit where there are detailed land-use restrictions and basin

residents are reimbursed for their land if they chose not to comply. In Florida where growth is a priority issue, the State requires all counties to develop growth management plans. The Maryland Critical Area Program presents an interesting example of a state creating a landward buffer to protect tidal waters from uncontrolled growth and development.

Growth management implementation is ultimately the responsibility of local communities. Recognizing this, the management capacities of local governments should developed so that the implementation of the regional growth management plans can be handled at the local level.

The A/P Management Conference should address growth management in the CCMP. The Management Conference should work with existing growth management and planning groups and ensure that planning is based on a regional ecosystem framework and incorporates a long-term planning horizon. This work should recognize local governments as the ultimate implementors of growth management policies.

State, Local and County Governments

In the past decade, federal assistance to the states and local jurisdictions has diminished substantially. This trend is expected to continue. Therefore, the burden of protecting and restoring the environment will increasingly be the responsibility of state and local managers. The temptation is great for states to pass program responsibilities to local communities, often without providing fiscal or personnel support. While this may be appropriate, particularly for implementation, many activities, such as data collection and model ordinance development are better handled at the state level.

The key to success is to create an institutional arrangement that contains a unified comprehensive planning framework for land and water resources which addresses growth management, yet does not overburden counties and local communities. The local governments are a significant source of strength for implementing the CCMP.

The A/P Management Conference should examine government agencies' current mandates, responsibilities and capacities, find effective ways to promote collaboration, and reduce redundancy or overlap in environmental management programs.

5.2 Organization

Framework

A serious point for consideration regarding CCMP implementation is the linkage of the A/P Management Conference's plan with existing state programs. All of the multijurisdictional problems analyzed in this study were created because linkages between programs were weak, ineffective, nonexistent, or founded on disparate bases precluding effective coordination and management. A myriad of structures have been

created, ranging from formal to informal, flat to hierarchial, and loosely defined to very specific.

The A/P Management Conference should discuss the advantages and disadvantages of its successor's framework of operation and organization.

Funding

One of the greatest challenges to the A/P Study is finding sufficient resources to fund and staff the CCMP implementation. This is particularly difficult given the current economic climate. Locating funding and other support for environmental restoration and protection programs is becoming more difficult due to cuts in both federal and state budgets. Programs relying on outside funding may face financial cutbacks.

It is important for the A/P Management Conference to consider ways to give the CCMP implementation organization the authority to raise funds through taxation, permit fees, water usage fees, environmental impact fees, etc. One of the most interesting models of this authority was found in the Minnesota watershed districts, where local communities have the authority to levy an *ad valorem* tax on waterfront properties. From an economic and public policy standpoint, this form of taxation is efficient, in that it primarily affects the direct users of the watershed.

The A/P Management Conference should provide its successor and local governments with the authority to raise funds to implement estuary and watershed protection, restoration, and management efforts through a variety of means. The A/P Management Conference should also work with the nongovernmental organizations to help them obtain the necessary resources and funding to fulfill the responsibilities they have in CCMP implementation.

Alternative Ways of Handling Funds

Some of the programs investigated in the survey have created institutions (trusts, foundations, etc.) to receive and disperse money or services. These institutions allow the receipt of private money and services donated to support a program's goals and objectives. These institutions also serve as a flexible way to fulfill program needs that the current framework does not allow.

The A/P Management Conference should establish a non-profit institution to serve as a flexible mechanism to fulfill future program needs that extend beyond the current fiscal framework.

Composition of the Decision-making Body: Authority of Appointed Members

For interagency decision making bodies to function efficiently, it is necessary for the members who represent various interests and agencies be able to speak with authority

on policy and to be able make programmatic commitments. This allows each member to take an active and equal role in the decisions made at the meetings. Members who are not vested with such authority are likely to be more passive about voicing their concerns. Having to postpone decision making while these members seek official approval for actions or recommendations slows the decision making process. In some programs studied, before the decision making board of senior officials meets, there is a meeting of their key staff members who review the agenda for the upcoming meeting, collect and compile information that the senior officials will need to proceed with their group's discussions and decisions.

It is important to ensure that all user groups are fairly represented so that recommendations include and reflect a full spectrum of concerns. When all groups are represented, the agreements are more likely to be implemented effectively.

The A/P Management Conference should develop guidelines for membership on CCMP implementation committees and decision-making bodies to ensure that members who represent various interests and agencies are able to speak with authority on policy issues and are able to make programmatic commitments. Guidelines should be developed that include criteria to ensure the representation of all affected user groups in a balanced and uniform manner.

Composition of the Decision-making Body: Responsibilities of Membership

It is important that all interests (stakeholders) be represented on the various active committees so that the CCMP recommendations receive broad support from the public and those responsible for implementation. Just having a name on the membership list is not sufficient to provide representation; there must be ongoing, sincere participation. Essential to the successful functioning of multi-interest environmental management is a serious commitment of human resources and a continuous communication with each member of the group's home organization. This continuous feedback provides information and strengthens the links between the parties within the participating organizations.

There should be explicit descriptions of the responsibilities of members of all boards, advisory groups and subcommittees, including such items as the authority of substitute members, attendance at meetings, and expectations of the group for individual members to communicate information among themselves and from their home organizations.

Tools for Managing Conflicts Productively

Many programs are establishing an organization or person to help groups work together effectively. They are using techniques of dispute resolution which have been developed to help diverse groups negotiate agreements which all parties can accept. Examples of this approach include the Florida Growth Management Conflict Resolution Consortium, which provides neutrals to assist parties who are in conflict, the Lake Okeechobee Surface Water Improvement and Management program, which hired a

person trained in alternative dispute resolution techniques as director, and the Maryland Targeted Watershed Project, which also employed a facilitator to coordinate a project involving five state agencies and their counterparts at the county level and several non-governmental organizations.

Other programs regularly use alternative dispute resolution techniques in their planning process. For example, the New Jersey Planning Office has a cross-acceptance program with local and county governments which built consensus on the contents of the state plan through extensive meetings with affected parties. The Tampa Bay Agency on Bay Management utilized similar techniques to reach consensus to formulate recommendations regarding the future management direction for the Bay

Some programs, such as Yakima Valley Conference of Governments, are reconsidering the need to reach consensus on all issues. Other programs, such as the Delaware River Basin Association, the Alliance for the Chesapeake Bay and the San Francisco Bay Conservation and Development Commission, use consensus building techniques, but do not require that consensus be reached on all topics.

The A/P Management Conference should recognize the potential contribution of dispute resolution techniques to CCMP development and implementation, and should provide training in teamwork and dispute resolution techniques to all interested persons.

5.3 Public Involvement

The Role of Nongovernmental Organizations

As federal funding for environmental programs declined in the past decade, the burden of environmental management and enforcement shifted to state and local agencies. In states where there is public support for environmental protection, nongovernmental organizations (NGOs) have come forward to provide public education about the values of healthy ecosystems and to rally public and political support for environmental programs. Prominent examples of NGOs actively involved in environmental protection are 1,000 Friends of Florida, the Chesapeake Bay Foundation, and Great Lakes United.

As discussed earlier, NGOs can fulfill many different roles, including citizen watchdog, lobbyist, educator, technical trainer, research sponsor, and facilitator. The A/P region is fortunate to already have many concerned individuals and groups, and the A/P study has made substantial efforts to involve them in the development of its work to date.

The A/P Management Conference should encourage nongovernmental organizations to play a major role in CCMP implementation and ensure they have the necessary resources and funding to fulfill these responsibilities.

Citizen Oversight of Management Actions

Public frustration about the need for water quality improvement, the lack of compliance with environmental regulations, and the ineffectiveness of enforcement actions is strong and growing, as evidenced by increasing discussions of citizen "empowerment". Enforcement authorities, especially in the current economic climate, are having difficulties in correcting violations. Present systems, which are generally based on punitive actions, are not working to everyone's satisfaction.

A forum is needed where violators and representatives of the public (together with other interested stakeholders) can meet to discuss their problems and interests. To improve cooperation, discussion might focus on possible incentives, both financial and non-financial, rather than on (or in addition to) punitive actions. To be workable, solutions must be practical ones that all sides can live with. At the same time, they must be enforceable and contain schedules for compliance.

The A/P Management Conference should actively involve the public and invite their participation in creating innovative solutions to difficult problems. For example, when developing and implementing corrective measures for environmental problems, consideration should be given to providing incentives for compliance with management programs, as well as to providing punitive measures of enforcement.

Materials to Explain Programs and Encourage Public Support

Public support for a program becomes vitally important when decisions about funding, direction, and staffing are being made. In many areas, such as the Great Lakes and the Mississippi Headwaters, programs are dedicating a part of their efforts toward educating the local citizens about the opportunities for public involvement. For example, the Great Lakes Sea Grant Program is developing materials to explain the remedial action plans in Great Lakes Areas of Concern and to identify opportunities for public participation. The Mississippi Headwaters Board developed informative materials about the zoning process. These materials could serve as an excellent base for developing similar materials for the A/P Study.

To increase and sustain public participation during CCMP implementation, the A/P Management Conference should support efforts and develop materials to inform local communities and other affected parties about the decision making process for the estuary, as it pertains to land use and water quality and the opportunity for public involvement.

Evaluation

No plan is ever written well enough to apply to all circumstances. The state of knowledge is constantly improving with respect to natural resource management, pollution sources, as well as pollution reduction strategies. Evaluation of the plan must be continuous. There needs to periodic review of the plan by all parties, the scientific community, the industrial community, and the community at large, as well as by public

sector program managers. The CCMP needs a provision for, and a mechanism to accommodate changes in underlying circumstances and the level of our knowledge.

The A/P Management Conference should incorporate methods to review plan implementation in the CCMP. This should include mechanisms for reassessing the technical foundations of the Plan, progress related to the Plan's goals, the need to add, modify or delete goals, and the efficiency of implementation. Parties representing all interests should be involved in this process.

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APPENDIX 1

Overview of Survey Findings

Data Organization in the Summary Table, Appendix 1.

A summary of the findings from the initial investigation of seventy-five programs is presented in the following table in Appendix 1. The programs are presented in groups, arranged by the jurisdictional scope of the program in the following order: National Estuary Programs, interstate programs, state, international, and foreign. It may help the reader to note that the name of the group of programs on the page, *i.e.*, state, foreign, is shown in the upper right part of the page outside of the box enclosing the table.

The table presents information about each program according to the following topics:

Organization: Basic information, such as composition of the lead agency and affiliated organizations, date of establishment, and description of jurisdiction.

Representation of Decision-Making Body: Identifies members who comprise the decision-making body (federal, state, county, local, public interest groups, and trade and/or industry representatives).

Mandate: Describes the program's official and/or unofficial mandate along with the program's focus.

Public Involvement: Classifies the program's public involvement as either "traditional" or "nontraditional." Traditional public involvement is considered by the authors to mean public hearings, public comment periods, and open meetings -- those public involvement processes commonly used in federal and state environmental programs. Programs classified as nontraditional are those which extend their efforts beyond the traditional means to inform the public of their program, decision-making process, and objectives.

Review: Summarizes the program's method of review for activities potentially affecting their program. This section uses permits as the gauge, because it is assumed that programs are normally active in reviewing other program's plans, environmental impact statements, and regulations as part of the public comment process. Only the programs that issue or review permits, or have an enforcement authority are noted.

Unique Characteristics: Presents program details that are viewed as applicable or interesting facts and features.

List of Abbreviations Used in the Summary Table

ag - agriculture
env - environmental
Gov - Governor
mgmt - management
org - organization
rep - representatives
WQ - water quality
appt - appointed
est - established
leg - legislature
NGO - nongovernmental organization
R - River
w/ - with

OVERVIEW OF SURVEY FINDINGS - NATIONAL ESTUARY PROGRAMS

NATIONAL ESTUARY PROGRAM	UNIQUE CHARACTERISTICS
Buzzards Bay Project: set up NEP as part of Coastal Zone Management Program	State operates under Home Rule laws Work w/ boards of local municipalities who have the power to take action. - available tools: press, work w/ citizens groups, push EPA and DEP. Not lawsuits. Enforcement thru existing agencies. No desire to see new regulatory authority Expect EPA to continue subsistence funding - little, if any, funds comes from ST and LO. Doesn't expect to be authorized to generate any funds on their own. Expect mgmt body to be similar to present. 2 users, citizens and municipal officials, have broken off and formed own organization called the Coalition for Buzzards Bay and Buzzards Bay Action Committee - free to criticize program from outside. will stay on committee as voting members. Does comment on permits. Thought NC also has well-articulated public trust doctrine(mgmt obligation to manage comprehensively the waters of an area for benefit of all) - should help w/ enforcement
Narragansett Bay Project:	Public participation different than other NEPs because MC contained all user groups from the start. Held roundtables in different parts of bay to create dialogs among users. Plan to continue meetings to explain more what has been done than to seek new input into process. Considering (1) continuance of Mgmt Conference for oversight, (2) turn over role to ST (3) Look to regional group that incl. some MA groups since MA is in watershed. (4) Turn over to existing agency. Suggests stating clear goals upfront such as: to clean the bay to some standard, hold the line on degradation, meet EPA regs.
Santa Monica Restoration Project: 9 full-time staff	Large mgmt committee that includes environmental interests. Has non-profit foundation - received settlements from pollution incidents. Provides $, equipment to project. Early in process provided leadership for negotiation of complex NPDES permit for urban runoff and storm water for LA CO

OVERVIEW OF SURVEY FINDINGS - INTERSTATE PROGRAMS

ORGANIZATION	DECISION-MAKING BODY REPRESENTS						MANDATE	PUB INV	REVIEW	UNIQUE CHARACTERISTICS
	FD	ST	CO	LO	PI	TI				
Delaware River Basin Commission: 1 rep from each of the 4 States & 2 reps appointed by President. Est. in '61 by interstate compact Underlying committees(committ): water conservation and water quality 3 outside watchdog org: Water Resource Assoc. of DRB, Watershed Assoc. of DR, and League of Women Voters. 13000 sq. mi. basin.	o	o		o			To manage water resources of Delaware River Addresses water quality and quantity issues	N	RE	Regulatory authority - establishes water quality standards, water conservation, review actions according to comprehensive plan. Has criteria as to what activities they review - ones that affect the watershed States - enforcers of DRBC authority Politics - little affect on decisions High reliance on staff expertise
Interstate Commission on the Potomac River Basin: 18 members -4 ST:MD,PA,WV & VA; DC and 3 FD. Est in 1940	o	o		o			To manage interstate and basin coordination of water resources of Potomac River Addresses water quality and quantity issues	N		Provides basin-wide WQ monitoring and conduct water-related studies. formed local and State Co-op to jointly manage water supply problems. Doesn't have planning or enforcement authorities of other compacts. Restoring the Anacostia (an urban, low-income area) thru urban retrofits - lots $ & engineering
Susquehanna River Basin Commission: Est. in 1971 by FD interstate compact. 5 Reps: 3 ST (MD, PA & NY) and 2 FD Advisory committ.: CO & local members	o	o	o	o			To manage water resources of Susquehanna River Addresses water quantity not quality issues-leaves to ST	T	RE	Does not work under Supreme court decree like DE that requires good faith negotiations. DE has clearer and broader authority. Like DE has criteria for what falls under their review. Regulations on consumptive use and ground water withdrawal, Does water quality monitoring, can set water quality stds. No control over land use except floodplain w/ signatory permission

FD - federal ST - state CO - county LO - local PI - public interest group TI - trade/industry
T - traditional, open meetings and public comment periods N - nontraditional, citizen committees, educational activities, etc.
R - reviews permits I - issues permits E - enforcement
Symbols: • - one organization o - more than one organization involved

OVERVIEW OF SURVEY FINDINGS - INTERSTATE PROGRAMS

Lake Champlain: Just established. includes 2 EPA Regions, has Mgmt Committee made up of FD, 2 ST - NY & VT, interested cities, Has 2 groups: Technical Review Commitee and CAC part of Clean Lakes	o	o		o	o		To develop a mgmt plan for Lake in 2 years	N		Does not have separate CAC - they serve on Mgmt. Conference. EPA provides 2 staffers, one per region. Politicians role: public ceremonies, not active in terms of authority. Nonprofit org. handles operations - advantages include better focus for activities, as an outsider provides one org. for 2-ST program
Lake Pend Oreille and Clark Fork River Steering Committee: est. under Clean Water Act Amendments (SECT. 525) in '87. incl. 2 EPA Regions, 3 ST(ID,WA,MT). Works closely w/ USGS Also Technical Advisory Committee and Public Advisory Committee- includes tribes and conservationists	ò	o		°			To develop and recommend a water quality mgmt plan (Due FFY 90) Focus: milfoil control, water quality			Using areal photography to identify macrophyte beds, point and nonpoint sources. Using satellite imagery and high-altitude photography to assess land use for GIS
Big Stone Lake Restoration Project: on border of 2 ST: SD and MN, 5 CO, 1 watershed district & 2 EPA Regions Watershed - 730,000 acres	o	o	o		°	°	To restore Big Stone Lake Focuses: wetland restoration, animal waste, sediment, and phosphorus			Clean Lakes Project Originally ran studies thru ST then decided it was more appropriate for locals to implement project. EPA acted as facilitator for ST when differences arose and visa versa; soon differences became strengths Provides fiscal incentives for animal waste facilities
Upper Mississippi River Basin Assoc.: 5 ST and 3 FD reps. Est. in '86 Underneath: 1.Agency & ST Environmental Management Program Coordination Committee: Upper- level ST managers 2.Analysis Team	o	o					To oversee the Upper MI River Environmental Management Program($260M over 15 yrs) 1.To address local issues and funding allocation 2.To evaluate the scope of work			Eliminated river basin commission. FD has only a advisory role Acts as a quasi-lobby commission for funding. Attached budget to lock and dam budget. prohibits decreases w/o affecting this program. 3 elements keeps the politics out of decisionmaking Works closely w/the Upper MI River Coordination Committee made of all agency biologists est in 1940s -this organization was major impetus behind creating this program. Draft operating plan reviewed by international panel of experts Have standardized data collection! 60% Budget - Habitat restoration No coordination w/ CO or local govt

OVERVIEW OF SURVEY FINDINGS - INTERSTATE PROGRAMS

Mississippi Headwaters Board: 8-CO joint powers board est. in 1981; has technical group and citizen committee corridor -1000' in wild areas - 500' in populated areas	°	o		o			To preserve & protect the scenic & scientific values of the river corridor.	N	R	Regulates shoreline development (building and land use) - "zoning" model. Provides technical training Developed watershed mgmt. plan often acts as facilitator between LO and ST FD and ST involvement thru advisory role in technical group tends to be model for other areas
NW Power Planning Council: Est. in 1980 by interstate compact. 4 ST: WA,OR,ID,MT. Impetus: salmon crash. Council selected by ST Gov. 2/ST. 2 Committees: Fish & Wildlife and Power Other committees were established for fish basin plans	o	o					To protect, mitigate and enhance for the development and operation of hydroelectric systems on upper Columbia River. (power generation)	T		Acts as planning body, more than advisory - recent political events has led the Gov. to ask Council to act as facilitators regarding salmon issues and implement agreement. Developed basin plans for fisheries, now developing subbasin plans. All costs of council and stock enhancement measures are paid by ratepayers ($60M/yr = 1-2% of bill)
Columbia River Estuary Program: 2 ST: WA & OR, has Steering Committee(2 from local govt, pulp & paper, Native American tribes, ports, environmental organizations, citizens at large; 1 from commercial fish and recreational fish, 1 EPA.) Underneath: Scientific Resource Panel	°	o	o	o	o	o	To develop a plan. Focus: water quality, not living resources	N		Created as alternative to NEP - seen as too much FD - Funding from ST and pulp and paper industry. Has authority to make changes only/in ST agencies. Trying to identify if are there problems, what are they, and how to address them. Funding institutional framework analysis of ST programs - ST stds and permitting Concerned about future public image (credibility) due to private funding
Atlantic States Marine Fisheries Commission: est. in'80. 3 reps. from each of 15 Atlantic ST - 1 legislator, 1 senior marine fish rep, 1 Gov. appt. meets 1-2 X/yr. Works thru committees. Governed by Executive Committee made of 1 rep/ST . Other committees include Advisory and Law Enforcement (others usually organized by species or process)	o	o					To manage the fishery resources between 0-3 miles To foster communication between Commission and FD councils. To provide Congressional liaison for Committee and Councils	T		ST do not have to follow recommendations except for striped bass. Does offer ST the opportunity to give regulatory authority to commission - only been used by 1 ST for 1 fish. Some ST make implementation of recommendation easier by allowing direct adoption by ST agency, rather than seeking approval thru legislation.

OVERVIEW OF SURVEY FINDINGS - INTERSTATE PROGRAMS

Pacific States Marine Fisheries Commission: 15 Commissioners, 3 from 5 ST, plus 7 (commercial and recreational) industry reps. Est. in'47		o					To manage anadromous species. To promote a regional approach	N		Provides nonregulatory forum for industry to work on conflicts. Known as an unbiased representative for all fish issues, liaison for fishing industry Nonvoting member of FD Pacific and North Pacific Marine Fisheries Mgmt Councils - results in the Council often acts as chair for touchy issues. Deals w/ fisheries FD Councils haven't addressed No rulemaking or reg authority. Funding: dues, FD grants (80%), & private- nonprofit Does not address individual ST fishery issues unless precedent setting. Working w/ fishermen to create group of fisherman involved in saving habitat
BLM Stewardship Program Cedarville, CA:1.3M rangeland, 700K forest 24 member board: user groups, conservationist and wildlife & 7 FD & ST agency types Use balanced technical review teams to manage workload Other sites: Challis, ID - focus:mining & grazing and Dillon, MO - focus: grazing.	o	o			o	o	Congressionally mandated program like NEP. Cedarville' s mandate: to cooperatively manage BLM's rangeland and forest w/in Forest Service's Modoch National Forest Focus:grazing & recreation		R	Phases: 1. identify geographic areas, issues, & players 2. Develop mgmt plan thru consensus. 3. Implement & monitor Developed separate resource mgmt plans. Operates on consensus -high reliance on staff success in modifying grazing BMPs on private land formed private-public partnerships- offset grazing fees if improved BLM land
Coordinated Resource Management Program originated in SCS, now BLM is active							To cooperative manage an area			Unofficial BLM projects - like stewardship program - working on identifying specific projects of interest. NO CENTRAL LIST OF PROJECTS

OVERVIEW OF SURVEY FINDINGS - STATES

ORGANIZATION	DECISION-MAKING BODY REPRESENTS						MANDATE	PUB INV	REVIEW	UNIQUE CHARACTERISTICS
	FD	ST	CO	LO	PI	TI				
CA State Water Quality Control Board: parent agency est. Statewide policies Regional Water Control Boards		o	o				To address water resource problems on a watershed basis thru Regional WQ Boards	T	R E	Politics affect Regional boards - anyone can petition ST to review decision, ST also can use funding. Regions have best local knowledge to implement. Beginning wasteload allocation. Hard to coordinate diff. ST efforts
CA San Francisco Bay Conservation and Development Commission: est in '65 27 Commissioners plus alternates. reps from CO board and city council appts. rest ST and FD	o	o	o	o			To regulate the filling of Bay and new development to provide public access	N	R	Planning authority- limited focus - shoreline back 1000' Large no. of commissioners (54) prevents political persuasion in recommendations FDs don't vote, use majority vote Developed 1st regs for sea level rise Haven't been able to affect land use decisions. Trying to expand jurisdiction thru demonstration of technical expertise
CA Morro Bay Task Force: est. in 1987 originally all govt types (ST) added public after one yr. Now composition is whoever shows up. Quarterly meetings. Located on So. Central Coast.	o	o	o	o			NOTHING OFFICIAL To address Bay issues where there are conflicting issues	N		Meeting topics selected by questions Not a decisionmaking body, never had to address hard issues. Very successful in obtaining funding. Identifies problems and tries to resolve them. EX. saw poor coordination of research. Est. bay foundation to respond and coordinate research needs. Problem w/ changing agricultural use, created demonstration project. Seeking ST nomination to NEP, funded by locals not ST
FL 1,000 Friends of FL: 9 Board of Directors					o		To promote implementation of the 1985 Growth Mgmt Act			Provides citizens professional representation and support for implementing growth mgmt act. Reviews land use plans Lobbies, provides technical assistance to citizens. Focuses on growth mgmt and citizen empowerment.

OVERVIEW OF SURVEY FINDINGS - STATES

FL Growth Mgmt Consortium: Publicly funded service program. Originally 15 member advisory board. 5 FT staff Decision-making lies w/ Executive Director.							To assist public and private parties ST-wide to jointly resolve their growth-related disputes. Serves as a catalyst and 3rd part neutral,	N		Uses alternative dispute resolution techniques. In past 2 yrs, provided tech. assistance to parties in over 100 controversies, brought mediation services to 25 cases on ST and LO level, est. pilot mediation project w/ ST reg. agency and Tampa Bay Regional Planning Council. Provided training in negotiation and mediation skills.
FL Tampa Bay Regional Planning Council - Agency on Bay Mgmt: est. in 85, 45 members appt. by Chair.			o	o	o	°	Parent agency made of 35 elected officials) Provides technical forum for issues, addresses short-term mgmt issues	N		Reviews local govt. comprehensive plans Makes recommendations only -carries them to affected agency has limited authority to force recommendations on large-scale projects. Developed initial strategy for Bay Uses alternative dispute resolution techniques
- Surface Water Improvement Program (thru So. Fl. Water Mgmt District) ABM task force serves as advisory committee to district		o	o				Provides "in-the-ground" projects, restoration, funds short-term research	N		
- Tampa Bay National Estuary Program	°	°	o	o	o	o	Provides long-term mgmt of TB	N		Many of the same members as Agency on Bay Management
FL Corkscrew Regional Ecosystem Watershed Trust Involves S.Fl. Water Mgmt District, 2 CO, Nature Conservancy, Nat'l Audubon, Trust for Public Lands est. in 1989 Has technical advisory group made of env. managers			o	o		o	To acquire & manage 49,000+ acres of the Corkscrew Marsh/Bird Rookery Swamp/ Flint Pen Strand	N		NGOs acting as agents for acquisition. Has steady funding for acquisition and mgmt thru real estate documentary stamp tax in which 10% can be used for mgmt. All lands acquired by CO must be signed over to district to lessen local development pressures. Since locals have no $, districts hire them where appropriate to carry out intensive land mgmt. activities. District agreed not to add further restrictions in upland areas as long as current operations on uplands don't change. District is permitting agency.

OVERVIEW OF SURVEY FINDINGS - STATES

FL Surface Water Improvement and Management Program							To identify priority water bodies w/in each district To prepare management plans for various water bodies			Restoration and education mechanism Areas: Lake Okeechobee, Indian River Lagoon, Everglades, Biscayne Bay, Tampa Bay, Lake Apopka, St. Johns River. Funded by creating a SWIM Trust Fund administered by DER - fund for SWIM implementation
FL Marine Fisheries Commission: 8 political appointees. Both Fishery Management Councils are represented. Coordination w/other St agencies thru participation in St interagency council.	°	o					To regulate all saltwater and estuarine commercial & recreational fishing.	N	R	Est.because of public lack of confidence in existing organizations & aid in recreational-commercial conflicts Regulations go directly to Governor & cabinet. Holds workshops and hearings on proposed regs in affected localities. Enforcement thru Marine Patrol License issuing and fishing data collection by DNR
FL Lake Washington Water Quality Improvement Task Force: 8 members - 2 CO, 2 ST agencies, 1 water mgmt district, 1 CO water authority, 1 city, & a homeowners association Created under consent order to develop report w/in 2 years.		o	o	°	°		To evaluate sources of pollution. To identify existing and potential uses of Lake To review land use planning and implementation To develop educational materials on pollution abatement, stormwater, & restoration strategies To identify funding sources for mitigation.			Effectiveness of task force hampered by: *limited study area - not whole watershed. *limited statutory authority. - each agency addressed their area not others. *different program priorities - only Brevard CO had a high priority to complete the study due to consent order. Others had other incomplete studies in area, so they were unwilling to make recommendations w/o their findings. *poor attendance Recommended solutions: *give each agency the authority to address cumulative or multi-disciplinary effects so they think more broadly. *instead of agency-est.ablished priorities, have centralized authority, ex. office of mgmt and budget w/in governor office, or legislatively est.ablished budget review process.

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R - reviews permits I - issues permits E - enforcement
Symbols: - one organization o - more than one organization involved

OVERVIEW OF SURVEY FINDINGS - STATES

ORGANIZATION	DECISION-MAKING BODY REPRESENTS						MANDATE	PUB INV	REVIEW	UNIQUE CHARACTERISTICS
	FD	ST	CO	LO	PI	TI				
ME Wells Estuarine Research Reserve Advisory Board: NOAA, Fish & Wildlife Service, town selectman, State park rep, Gov. rep, local non-profit trustee.	o	o		o	o		To cooperatively manage the estuarine research reserve	N		Funding is thru non-profit trust thru ST. ST didn't want to lead, Town agreed to be lead if it had no costs. Private funds exceed fed. Manager found in working w/ board, must make board handle conflicts, not him.
MA Cape Cod Commission: Est. in '90 Includes 15 town reps, 1 CO; 1 Native Am.; **2 minorities**			o	o			To address regional land use and coastal issues from a hydrological perspective.		R	Has broad authority over land and ST waters can address marine research, water quality and ground water quality!! ALL 3 WATER TYPES Grew out from grass-roots efforts Land use planning agency w/ permit authority over all development of regional impact (30 unit or more) on Cape Cod.
MD Alliance for the Chesapeake Bay: An organization of organizations and individuals					o		To provide a neutral forum to improve Bay mgmt	N		Private organization jointly funded by EPA, ST and members that works in close partnership w/ public agencies and citizens on watershed-wide mgmt and policy issues.
MD Chesapeake Bay Foundation: 24-year-old watershed-wide org. w/ offices in 3 ST and a large multi-interest Board of Trustees Over 80,000 members							Promote and contribute to the orderly mgmt of the Bay w/ emphasis on maintaining a level of water quality that will support diverse aquatic species.	N	R	Combines education, mgmt and legal tools to work on all aspects of Bay protection and restoration.

OVERVIEW OF SURVEY FINDINGS - STATES

MD Critical Areas Commission: Act passed in '84. 25-members(11 LO, 5 Sec. from ST agencies). 20 staff in DNR. Area: 1000' landward of tidal waters, tidal wetlands, and tributary streams. 10% of ST land - 640k acres		o	o	o	o	o	To protect water quality and habitat by regulating activities in critical area.	T	R I E	One of the 1st comprehensive efforts to create a buffered shoreline zone. Has been successful and spawned additional programs that extend protection landward. -- Full assessment of program's strengths and weaknesses found in Commission's report. Developed criteria for LO to create LO Critical Area Plan. 3 land mgmt categories: Intensely Developed Areas, Limited Developed Areas, and Resource Conservation Areas.
MD Forest Conservation Program: DNR- 9 staff		°	°	°			Promote reforestation in open land. Increase amount of forest in the ST by 30%.		R I	ST provides technical assistance to COs to develop plans & implement programs by '92 - NO $ The most recent of MD's environmental programs. Extends water quality & habitat enhancement measures. Mapping used to establish baseline and measure at 5-year intervals.
MD Nontidal Wetlands: Act passed in '89		°	o	o			To arrest loss of wetlands. Delineate wetlands. Permit activities in nontidal wetland areas. Conducts training and education.	N	R I E	With the exception of 2 COs, the ST manages this project directly, rather than thru delegation to COs or LOs Regs very explicit about delineation.
MD Leadership Survey of the MD Environmental Community: Academic ST-wide steering community					o		To profile and characterize the management capabilities of the ST environmental community			Examining mgmt capacity of the different environmental groups, i.e., their capacities for identifying, developing, and tracking issues, membership strategies, and fundraising work.
MD Targeted Watershed Project: Demonstration project selected 4 watersheds 2 committees (1 monitoring, 1 restoration) per watershed. Governor's staff involved in oversight.	°	o	o	o	o	o	To improve water quality and habitat conditions by coordinating management actions	N	R	Responds to many Chesapeake Bay initiatives re: cleanup and restoration Initiated entirely using existing programs Uses 3rd party to coordinate Operates on consensus. Uses citizens monitoring and existing team members' enforcement abilities

OVERVIEW OF SURVEY FINDINGS - STATES

MN - 3 Types of Special Purpose Districts: (1)Watershed Districts: board members chosen by CO commissioners 41 districts vary in terms of size (41-6K square miles) covers 1/3 of ST Some 25 yrs. old. Interesting ex. Upper Minnesota- Nonpoint source pollution (NPS) Red River- Urban Pelican River - Agriculture Bois-Be-Sioux - Agriculture Clear Water - Agriculture			o	o	?	?	Act as local govt to coordinate all decision making (1) Related to specific water resources and uses in watershed. Purposes: flood control, water supply, water quality, drainage issues, groundwater protection.		R	All were created from local level up for a variety of purposes, originally most were for flood control, later for water quality. Concept superceded by more recent planning effort Empowered to develop long range plans, regulate activities affecting water resources, acquire property rights, and construct and finance improvement projects. Has strong, broad authority - but doesn't use full potential. Has bonding and taxing authority - ad valorem property tax Revises watershed district plans in rural areas every 10 yrs, urban every 5 years. Districts established based on petitioning from (1) municipalities. (2)co board or (3) landowner. State reviews then holds public hearing re: need. Regulates private wetland drainage Established coalition of urban districts Recently added farmers to districts Issues permits
(2) Lake Improvement Districts (3) Joint Powers Organizations ("Watershed Mgmt Organizations"): 2 or more government units which cooperatively exercise authority over any power common to both units. Establish joint board							Empowered to build and operate water control structures, acquire property to improve navigation, conduct research, develop plans, To protect, preserve, and use natural surface and groundwater storage and retention systems			Able to assess project costs on benefited property, impose service charges on users, levy ad valorem tax on property, or combination. receive FD and ST financial assistance. Funding:local levies, ad valorem tax, or bonds Unless there is technical input, the agreements creating these special districts are unlikely to have teeth. Lacks mechanism for coordinating districts that do not encompass entire watershed.

OVERVIEW OF SURVEY FINDINGS - STATES

MN Tri-County Coordination Project - Clear Water Restoration Project: Has Steering Committee - 3 SCS & watershed districts representatives. Technical Committee Grassroots (farmers) Committee: made up of **traditional** farmers	o		o			°	To reduce sediment and phosphorus loadings to the Clear Water chain of 11 lakes focus: lakeowners vs. agriculture Steering committee can make recommendations to districts.	N		Meets 1 week prior to district - reports at districts meeting doesn't have broad auth. but district listens since coop. effort. District has final auth. Excellent education program!! Used survey conducted by farm wives to identify misconceptions of farmers Used farmers committee as pilots for demo. projects Added 7 incentive grants to supplement or address gaps in other agricultural programs Placed district in background to avoid lake vs. farmer conflict and ignored "water quality" issues - instead focused on economic savings to farmer.
NV Lake Tahoe Management Unit, US Forest Service: 90 full-time and 50 part-time staff. Est in '73 from parts of 3 separate national forests to correspond to watershed boundaries	°						To manage the forest lands in the Lake Tahoe watershed	T	R I E	Provides technical assistance to other resource agencies in basin Manages Forest Service lands for wildlife habitat values and fire control, rather than timber production. Purchases land from those unwilling to comply w/ Basin plan
NJ Pineland Commission: Established in '78. by FD and ST legislation. Gave commission the authority to control all land use in '81. Area 22% of NJ.							To control growth in area. Will allow no more development when maximum is reached		R	Defines 5 categories of land use: Preservation, Forest, Agriculture, Rural, and Regulated Growth. Required all local govt to revise land use and zoning plans to meet comprehensive plan, Commission will certify plan when satisfied. Commission must approve any development even if in compliance w/ plan. Funding: acquisition $ from FD, operations from ST. NO tax authority Enforcement thru certification. To date met all growth limits
NJ Cross acceptance Program in the State Office of Planning: staff for ST Planning Commission							To create a ST plan for growth mgmt. Use cross-acceptance as mechanism for integrating w/ local and CO levels GOAL:reduce inconsistencies in planning and implementation.			Process involves taking plan to CO and LO for comparison. Comments and public hearings. ST plan is a policy document. Will not supercede local planning. Has no enforcement authority, but it can use its funding capacities to create incentives,or Gov. could take executive action. Process took 2 years. Locals now understand process so expect next round to be smoother.

OVERVIEW OF SURVEY FINDINGS - STATES

NY Lake Onondaga Conference: 6 members.incl. EPA, Attorney General, Gov., CO, LO (Syracuse), part of Clean Lakes Program.	°	o	°	°			To develop a management plan in 2 years			Set up as nonprofit org. w/ Exec. Dir. and technical staff. No regulatory authority
OR Sturgeon Lake Mgmt Council: Dept of Env. Quality, Dept of Fish & Wildlife, W. Multomah Soil & Water Conservation District, Nonvoting members - Coalition for Sturgeon Lake & SCS. Clean Lakes project	°	o	°		°		To restore and monitor Sturgeon Lake Focus: siltation	N		Coalition raised funds & ran meetings & publicity Council - To ensure all fundraising met FD requirements, oversee grantwriting, After restoring waterflow, now doing ongoing monitoring. council continues to meet every two weeks to review progress & discuss issues.
OR Devils Lake Water Improvement District: Established in '85.							To restore, monitor and manage the lake Focus: Forested lake w/ large residential and ag use. Eutrophication	N		Formed District for lake restoration with power to levy taxes to provide funding for restoration, public information, monitoring of fish and macrophytes until '92. Assisted by citizens monitoring of waterfowl population Completed watershed mgmt plan in 1987 contained corrective actions.
SC ACE Basin Task Force: Made of FWS, Nature Conservancy, Private landowners, & SC Dept.of Wildlife & Marine Resources 3 committees: land acquisition, technical & communications	°	°			°	°	To protect 350,000 acres.of SC watershed of 3 rivers. To keep as much land in private hands as possible	N		Developed watershed protection plan. Budgets and staff separate but cooperative
VA Council on the Environment: 30 staff, 4 coastal. coordinates Chesapeake Bay program for VA, APES liaison. Interagency workgroup (6-8 reps) coordinates budget		o					NONE in terms of the Bay program- Provides policy analysis on environmental issues. Manages Coastal Zone Mgmt Program	N	?	No hierarchy, flat organization - everything achieved thru gentlemen's agreements. Reports to Secretary of VA DNR. Provides small technical assistance to local govt. Moved from initiating set of activities to monitoring agencies and their activities Coordinates ST agencies budget for Chesapeake Bay

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OVERVIEW OF SURVEY FINDINGS - STATES

WA Yakima Valley Conference, on Governments.:Sponsor of Yakima River Basin Water Quality Plan 1 Oversight Committee: ST & US Cong, Mayors, CO Commissioners, Tribal Councils, Environmental & Indian Groups. 4 Policy & Planning Committees, Technical Advisory Committee One of the pilot studies of the Nat'l Water Quality Assessment Program	o	o	o	o	o	o	To manage multi-jurisdictional issues 6 focuses, includes water quality and growth management Concern: agriculture To settle disputes, oversight Corresponds to geographic areas	N		Doesn't have plan. In data collection and reporting phase. Up to locals to implement recommendations. Limited implementation of earlier plans for dairy waste operators and irrigation Thinking of creating implementation committee of local reps. Serious debate on use of consensus
WA Puget Sound Water Quality Authority(PSWQA): 11 members - 1 from each Congressional District. ST Dept.of Ecology & Public Lands - ex-offico nonvoting reps. Advisory committees - should include all affected parties Established in '83		o	o		o	o	To develop a plan to protect Puget Sound. To conduct studies and research related to the water quality of the Sound. To obtain & broadly disseminate information.	N		Has dependable ST funding source for PSWQA and public outreach/ed Public involvement integral part of strategies & plan. Provided PIE (public inv & ed) fund to support local outreach initiatives Established public nonprofit corp, the PS Foundation to receive and administer monies for research & educational activities and promote information exchange, & host annual PS Summit to assess progress in plan. Power to adopt rules, ordinances, & regulations to activities on a less than ST-wide basis, CO, cities etc, are encouraged to adopt measures to protect Sound. Developed NPS rule & (controversial)wetlands rule
WA Fisheries watershed planning: in ST waters (0-3 miles) Focus: fish production.							Original concept was to develop plan by species and drainage area. Bring together land use/habitat mgmt w/ fish stock mgmt. Modified process to respond to conflicts.			Originally started to develop plans in Puget Sound and other coastal CO. Process halted due to conflicts. Switched focus to address conflicts Present work in two areas - stock enhancement plans and drainage plans for very specific areas. Now working on strategic mgmt plans. Related topic: WA developed permit review system for any action that might affect fish habitat includes water quality. Have regs.
WA Nasqualie River Council: Includes private, public, ag, Indian, & timber land interests. Also reps for Mt. Rainier.							Develop watershed mgmt plan.			Implementation requires going back to ST legislature.

OVERVIEW OF SURVEY FINDINGS - STATES

WI Lake Districts: Began in '73. about 200 currently in ST. Mixed success, some include entire watershed. Established as legal units of govt. thru local instigation.							To provide a vehicle for lake restoration efforts.			Most located in townships or CO., not municipalities. Has taxing authority thru property tax. Has authority to manage lake and surroundings to some degree. No enforcement, except boat speed limits. Want authority to police waste water, zoning.
WI Coastal Mgmt Council: Established in 1978, 15 representatives appointed by Governor, one from each ST agency, rest from different areas.		o			o	o	To assist in developing waterfront plans for Lakes Superior & Michigan			Provided local communities w/ funding for local projects. NOAA recently denied use of funds for construction, to instead use it for enforcement of state regs. Locals has lost interest, and council functioning has come to a halt.

OVERVIEW OF SURVEY FINDINGS - INTERNATIONAL

ORGANIZATION	DECISION-MAKING BODY REPRESENTS						MANDATE	PUBINV	REVIEW	UNIQUE CHARACTERISTICS
	FD	ST	CO	LO	PI	TI				
International Joint Commission (IJC)- Great Lakes (GL): 6 member commission, 3 US and 3 Canadians. appointed by President est. about 1910 to assist in implementation of Boundary Waters Treaty FED & ST involvement thru underlying boards	*	o					To study Great Lake boundary issues To provide oversight and surveillance on recommendations	T		21 Boards under IJC - 3 of which address the Great Lakes (GL) 1.) GL Council of Research - manages on-going research 2.) GL Science Advisory Board - high power science advisors advises IJC about needed research and carries out investigations on request 3.) GL Water Quality Board - Senior ST env. reps and EPA Regional Administrators. All are assisted by committees and task forces. Acts an oversight body re: US and Canadian progress under GL Water Quality Agreement Reviews Remedial Action Plans
Gulf of Maine Council: est. in '89. Each governor and premier of a Canadian province has two ministerial level appointments		o	o				To develop a mgmt plan for Gulf - modeled after the NEP			

OVERVIEW OF SURVEY FINDINGS - INTERNATIONAL

North American Waterfowl Plan Committee: International - US Canada & Mexico Est. national offices in each country and US Implementation Board which oversees the establishment of public, private, & corporate joint ventures. All voluntary.	o	o			o	o	To guide the participation of private and public organizations in the mgmt of waterfowl.	N		Excellent example of public-private partnerships - $66M from states & NGOs, 14.7M from FWS. Est. 14 Joint ventures in high priority areas w/ over 300 projects working to achieve plan goals Priority projects in area include NC - Camp Lejune DOD facility, Pamlico/Albemarle Peninsula Marshes, Pee Dee R. Roanoke R. & Wetlands, VA - Rappahannock R. Marshes, Back Bay Marshes & Uplands, Chickahominy R. Marshes, James R. Marshes, No. Landing R., Pamunkey R. marshes, Quantico DOD NGOs, VA Eastern shore. Used a variety of mechanisms to increase waterfowl habitat, including create NGOs, protect w/ conservation easements, provide economic incentives for farming practices that benefit waterfowl, from planting dense cover for nesting birds to reflooding rice fields for overwintering birds. Ex. Lake Thompson Watershed Mgmt Project, SD, ACE Basin, SC.

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OVERVIEW OF SURVEY FINDINGS - FOREIGN

Sri Lanka Coast Conservation(CCD) Dept.: incl. 1,585 km shoreline, 75 govt units. Coastal zone is 300 m landwards of mean high water line, 2 km seaward of mean low water line, and 2km landward from the entrance point of rivers, streams, lagoons, or any other water body connected to sea							To develop and implement a coastal zone mgmt plan, directly regulate development, conduct coastal research w/ other agencies	N T	R	Sets forth criteria for all development in coastal zone Prohibits a limited number of activities in zone Defines a geographically specific setback zone for new development and preparation of environmental impact statements Focus: erosion mgmt, coastal habitat protection, protection of historic, cultural, and scenic/recreational sites. Had interagency consultation over plan elements of concern, public education program about plan, and formal public review Now considering decentralizing permit system to local govt., expanding zone, strengthening enforcement authorities, allowing CCD to acquire land
Thailand Action Plan for Patong, Karon, and Kata Watersheds, Phuket Province: Governor created local action committee representing varied interests in area. Collected more input thru workshops							To maintain environmental quality in the province			Focus: coral reef protection, land use mgmt, water quality maintenance, and decisionmaking process Contained recommended policies, measures and actions detailing who does what when, examples of flood and erosion/siltation standards Suggests training then empowerment of sanitary districts.

OVERVIEW OF SURVEY FINDINGS - FOREIGN

ORGANIZATION	DECISION-MAKING BODY REPRESENTS						MANDATE	PUB INV	REVIEW	UNIQUE CHARACTERISTICS
	FD	ST	CO	LO	PI	TI				
Australia -Great Barrier Reef Marine Park Authority: 3 members - 1 full time, 2 part time (1 from Queensland) also GBR Consultative Committee consisting of 12+ members appt. by Minister	o	o					To manage the Great Barrier Reef Marine Park thru zoning and a permit system	No	IE	Prepares zoning plans approved by Parliment, controls human impacts thru skill licenses, resource allocation licences, restrictions re: time, area, equipment or threshold limits. Types of zones: general use, general use (no trawling), national park, scientific research, preservation, recreation, and no structure Conducts research, provides educational, advisory and informational services related to the Park Committee must represent all interests
Ecuador - Coastal Resources Mgmt Program Study: NOAA and AID study. President decreed implementation of these recommendations. Currently on pilot areas - mgmt strategies will be done by 9/91	o	o	o	o	o	o	To assist in the design and implementation of an integrated coastal resources mgmt program	N	I	(1)High level govt. support - to assure political will to solve conflicts, promote interagency cooperation. Selected most appropriate from existing agencies. (2) Special Mgmt Zones: formally designated by President designed to improve conflicts in specific areas. Create integrated plan for zone. Purpose of zones and their manner of operation are clearly defined. Executive committee made up of agency reps who are involved in conflict and reps should have authority to commit their agencies. Creating a one-stop permit system (3) (Citizen) Advisory Committee in each zone with reps from all interests, local and regional agencies- formulates opinions and suggestions. (4) Ranger Corps in each Port District comprised of existing environ. personnel from each regional agency to improve coastal enforcement.

APPENDIX 2

List of Contacts

LIST OF CONTACTS

INTERSTATE ORGANIZATIONS

Atlantic States Marine Fisheries Commission, Paul Perra 202 / 387 - 5330
Columbia River Estuary Project, Cordelia Shea 503 / 229 - 5664
Delaware River Basin Commission, Christopher Roberts 609 / 883 - 9500
Gulf of Maine Program, John Contina, Maine Planning Office 207 / 289 - 3261
Interstate Commission of the Potomac River Basin, Lee Zeni 202 / 984 - 1908
International Joint Commission (Great Lakes), Jim Chandler 202 / 673 - 6222
Mississippi Headwaters Board, Molly MacGregor 218 / 547 - 3300
Northwest Power Planning Council, John Marsh 503 / 222 - 5161
Pacific States Marine Fisheries Commission, Guy Thornberg 503 / 294 - 7025
Susquehanna River Basin Commission, Rich Cairo 717 / 238 - 0422

FEDERAL ORGANIZATIONS

Environmental Protection Agency

Nonpoint Source Branch, Frank Lapense 202 / 382 - 7105
Office of Watershed Protection, Steve Dressing 202 / 382 - 7110
Clean Lakes Program, Terry Hollingsworth 202 / 382 - 7105
Office of Marine and Estuarine Protection, Mark Curran and
Carin Bisland 202 / 475 - 7102, AMS Contractor, Tom Curran 703 / 841 - 5457

Regional EPA Offices

Region III, Charles Sapp 215 / 438 - 2787

Regional Clean Lake Coordinators

Region I, Warren Howard 617 / 565 - 3515, Lee Steppacher 617 / 565 - 4874
Region II, Terry Faber 212 / 264 - 8708, Christopher Deere 212 / 264 - 5353
Region V, Don Roberts 312 / 886 - 1765
Region X, Judith Leckrome 206 / 553 - 2116

National Estuary Program

Buzzards Bay, Joe Kosta 508 / 748 - 3600, Ted Pratt 508 / 748 - 0330
Gulf of Maine, State Planning Office, John Cantina 207 / 289 - 3261
Narragansett Bay, Katrina Kipp, Coordinator 617 / 565 - 3523,
Judith Korch 401 / 277 - 3165
Santa Monica Bay, Rainier Hoenicke and Karen Caesar 213 / 266 - 7515

National Oceanic and Atmospheric Administration

National Marine Fisheries Service Nikki Bane 301 / 427 - 2253,
Stanley Chanesman, Joe Kleim 301 / 427 - 2341
Recreational Fisheries, Dean Parsons 301 / 427 - 2347
National Ocean Services, Constituent Affairs, Suzanne Bolton 202 / 673 - 3958

Bureau of Mines

Division of Environmental Technology, Ben Haynes 202 / 634 - 4361

Bureau of Land Management

Energy and Mineral Resources, Jennifer Fox 202 / 208 - 4147
Planning and Environmental Coordination, Mary O'Brien 202 / 653 - 8824
Division of Soil, Water and Air, Don Waite 202 / 653 - 9210
Stewardship Program, Gene Kinch 202 / 653 - 9195
Division of Land and Renewable Resources, Mike Penzhold 202 / 208 - 5101

Regional Offices
Coordinated Resource Management Program, Jack Seely 702 / 785 - 6483
Susanville, California, Field Office, Tony Danna 916 / 257 - 5381
San Fransisco Field Office, Dick Johnson, Jim Morrison 916 / 978 - 4720

U. S. Forest Service

Lake Tahoe Basin Management Unit Albert Todd 916 / 573 - 2600

U. S. Geological Survey

Office of Surface Water Quality, Bill Bonning 703 / 648 - 5305
National Water Quality Assessment, Pat Lehay 703 / 648 - 5012

Field Offices
Yakima River Study, Portland Oregon Office, Stu MacKinzies 501 / 531 - 2016
Delmarva Study, Catonsville, Maryland Office, Bob Shellock 301 / 828 - 1535

U. S. Department of Agriculture

Watershed Projects Division, Soil Conservation Service, Cecil Curran 202 / 382 - 9484
Basin and Area Planning, SCS, Ed Reikert 202 / 382 - 8766
Monocacy River Water Quality Demonstration Project, Maryland,
Tom Miller 301 / 775 - 7434
Agricultural Research Service, Michael Combs 301 / 474 - 3756

NONGOVERNMENTAL ORGANIZATIONS

Professional Organizations

Association of State and Interstate Water Pollution Control Administrators
202 / 624 - 7782
North American Lake Management Society, Lorraine Duncan 904 / 462 - 2554
Coastal Society, David Slade 202 / 628 - 9636
Interstate Council on Water Policy, Filiminia Mangone 202 / 466 - 7287
National Association of Regional Councils, Paul Kreman 202 / 457 - 0710
National Association of Sea Grant and Land Grant Colleges, Steve Olsen 202 / 778 - 0823

Universities

Biliana Cicin-Sain, University of Delaware 302 / 451 - 8086
Marc Hershman, University of Washington 206 / 543 - 7004
Stephen Olsen, University of Rhode Island 401 / 789 - 4670
Ron Robadeau, University of Rhode Island 401 / 792 - 6224
Bob Bowen, Jack Archer, University of Massachusetts, Boston 617 / 287 - 7443

STATES

California

Coastal Commission, Tami Groves 415 / 904 - 5200
Morro Bay Task Force, Steve Ebry 805 / 549 - 5723
San Francisco Bay Conservation and Development Commission,
William Travis 415 / 557 - 3686
State Water Resources Control Board, Bay and Estuaries Unit,
Craig Wilson 916 / 322 - 4506
Tijuana Slough Reserve, Marc Whetzel 619 / 575 - 1290

Florida

Dept. of Environmental Regulation, Bur. of Surface Water Mgmt. Roxanne Dow
Growth Management Conflict Resolution Consortium, Robert Jones 904 / 644 - 2560
Marine Fisheries Commission, Georgia Kranmore 904 / 487 - 0554
Trust for the Corkscrew Regional Ecosystem Watershed,
South Florida Water Mgmt. District, William Helfferich 407 / 686 - 8800
1,000 Friends of Florida, James Murley 904 / 222 - 6277

Maryland

Alliance for the Chesapeake, Fran Flanigan 301 / 377 - 6270
Chesapeake Bay Foundation, Mike Hirshfield 301 / 261 - 2350
Critical Area Commission, Sarah Taylor, Thomas Ventre 301 / 974 - 2418
Dept. of Natural Resources, Forest Conservation Program, Bud Reeves 301 / 974 - 3776
Dept. of Natural Resources, Nontidal Wetlands Program,
Denise Clearwater 301 / 974-3841
Dept. of Natural Resources, Watershed and Growth Management Division,
Mike Bowman 301 / 974 - 3151

Massachusetts

Cape Cod Commission, Armando Carbonell 508 / 362 - 3828
Coastal Zone Management Office, Diane Gould 617 / 727 - 9530
Massachusetts Water Resources Authority, Mike Conner 617 / 242 - 6000

Minnesota

Upper Minnesota Watershed District, Peter Waller 612 / 839 - 3411
Pollution Control Agency, Mark Tomasek 612 / 296 - 7756
Board of Soil and Water Resources, Mel Sinn 612 / 297 - 2622
Tri-County Coordination Project, Clear Water, Mary Kell 612 / 251 - 0206

New Jersey

State Planning Office, Cross Acceptance Process, Terry Schick 609 / 292 - 3407
Pinelands Commission, Terrance Moore 609 / 894 - 9342

North Carolina

Todd Miller, Coastal Federation 919 / 393 - 8185

Oklahoma

Mt. Wichita National Wildlife Refuge, Steve Smith 405 / 429 - 3221

Rhode Island

Coastal Resources Mgmt. Council, Tim Dillingham 401 / 277 - 2476

*South Carolina*a
ACE Basin Project, Ducks Unlimited, Ann Simpson 919 / 967 - 0054

Texas
Balconey Habitat conservation Plan, Tom Smith 505 / 766 - 1829

Wisconsin
Coastal Mgmt. Council, Bill Lehman 608 / 266 - 8234
Lake Districts, Richard Wedepohl 608 / 267 - 7513

Virginia
Council on the Environment, Ann Brooks 804 / 786 - 4500
Hampton Roads Planning Commission, Art Collins 804 / 420 - 8300

Washington
Department of Fisheries, Fisheries Watershed Plan Coord. Tom Couney 206 / 753 - 4995
Department of Fisheries, Fisheries Habitat Mgmt. Dwayne Phinney 206 / 753 - 3621
Puget Sound Water Quality Authority, Sheila Kelly 206 / 493 - 9300
Washington State University, Cooperative Extension, Katherine Baril 206 / 385 - 9158
Yakima Valley Conference of Governments, Elaine Taylor 509 / 575 - 4372
King County Nonpoint Source Watershed Action Plan Authority,
Steve Wells, Kathy Creahan 206 / 753 - 4316, 296 - 8632
Thurston County Nonpoint Source Watershed Action Plan Authority,
Steve Morrison 206 / 786 - 5480

SELECTED SUGGESTIONS FOR FURTHER INFORMATION

Ohio EPA, Gail Hesse 614 / 644 - 2146
Subsidies for low cost loans for no-till or low-till equipment, informal communications with farmers.

Michigan Dept. of Natural Resources, Howard Mandrell 517 / 373 - 8000
Marble-Coldwater Chain of Lakes Association which sponsors soil tests and organizes a nonphosphorus purchase program.

National Oceanic and Atmospheric Administration,
Dan Basta or Bess Gillelan 202 / 673 - 5190
Use of geographic information systems and cooperative programs.

Dot Leonard or Eric Slaughter 202 / 443 - 8553
Efforts to make consistent shellfish regualtions among states.

Mike Zabado, Use of satellite data for fisheries, trial use using data call-back to close fisheries.

U. S. Dept. of Agriculture, Soil Conservation Service Watershed Projects Division
Cecil Curran 202 / 382 - 9484
The Division is funded under PL 83 - 556, Watershed Protection and Flood Prevention Act. SCS provides technical assistance in planning and design. Principal focus of funded projects is flood control and prevention, others include recreation, fish and wildlife, water quality. Cost share amount depends on the number and type of project purposes.

SCS River Basin Program. There is an office of this program in every state, the North Carolina office is in Raleigh. They assist with technical issues and the planning of solutions to problems raised by the state or by local groups.

National Management Leadership Project, Kevin Kaswoski, 1,000 Friends of Oregon, 503 / 223 - 4396
The Project tracks growth, coastal and reauthorization issues nationwide, and serves as a network of private growth management groups.

Tahoe Regional Plnning Agency, David Zeigler 702 / 588 - 4547
This federally-created agency has implemented growth control measures, to protect the aesthetics and natural resources on all land uses down to the quarter-acre lot in the region.