Technical Report No. 11B

Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin

Lake Champlain Basin Program

Prepared by
Yellow Wood Associates, Inc.

for
Lake Champlain Management Conference

January 1995

PUBLICATION SERIES

THIS PROGRAM IS SPONSORED BY U.S.E.P.A. AND THE STATES OF NEW YORK AND VERMONT.

REPORT ON INSTITUTIONAL ARRANGEMENTS FOR WATERSHED MANAGEMENT OF THE LAKE CHAMPLAIN BASIN

JANUARY 1995

Prepared by: Yellow Wood Associates, Inc.
in cooperation with:
Conservation Law Foundation
Cornell University Local Government Program
Cornell University Water Resources Institute

For: Lake Champlain Management Conference

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Acknowledgements

The Yellow Wood Associates team wishes to express our appreciation to the members of the project advisory committee who reviewed our work in progress and provided us with detailed comments at several steps along the way. This group included: John Banta, Lisa Borre, Greg Campbell, David Coen, Monty Fisher, Sandy LaBarron, Kim Locke, Rose Paul and Lee Steppacher. We would especially like to thank Jim Connolly, our contract officer, for his attention to detail, contributions of new material, and guidance in addressing this complex and challenging topic. While the text has benefitted from review by members of the advisory committee and others, the accuracy of information, analysis, and opinions presented here are the sole responsibility of Yellow Wood Associates and do not necessarily reflect the views of the Management Conference or any other organization.

This work has brought us in contact with a large number of people in state agencies, nonprofit organizations and citizens groups who have contributed their insights into the webs and lacunae of institutional arrangements affecting the use and protection of resources in the Lake Champlain basin. Although they are too many to name individually, we are grateful, indeed, for their participation.

Thanks is due also to all the members of the team who have worked long and hard to come up with the recommendations contained herein. People who have worked on this project include: Lew Milford, Mark Sinclair, and Kim Davis and interns Marie McCarthy, Julie Taylor, and Ann Livingston from the Conservation Law Foundation; David Allee, Leonard Dworsky, David Kay, Bob Moore and Lyle Raymond from Cornell University; Shanna Ratner, Catherine Trask and Louis Borie from Yellow Wood Associates, Inc.

Sincerely,

Shanna Ratner
Principal
Yellow Wood Associates, Inc.
January, 1995

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This technical report is the eleventh in a series of reports prepared under the Lake Champlain Basin Program. Those in print are listed below.

Lake Champlain Basin Program Technical Reports

1. *A Research and Monitoring Agenda for Lake Champlain.* Proceedings of a Workshop, December 17-19, 1991, Burlington, VT. Lake Champlain Research Consortium. May, 1992.

2. *Design and Initial Implementation of a Comprehensive Agricultural Monitoring and Evaluation Network for the Lake Champlain Basin.* NY-VT Strategic Core Group. February, 1993.

3. (A) *GIS Management Plan for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc., and Associates in Rural Development. March, 1993.

   (B) *Handbook of GIS Standards and Procedures for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc. March, 1993.

   (C) *GIS Data Inventory for the Lake Champlain Basin Program.* Vermont Center for Geographic Information, Inc. March, 1993.

4. (A) *Lake Champlain Economic Database Project. Executive Summary.* Holmes & Associates. March 1993.

   (B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin.* Holmes & Associates. March 1993

   (B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin. Appendices.* Holmes & Associates. March 1993

   (C) *Potential Applications of Economic Instruments for Environmental Protection in the Lake Champlain Basin.* Anthony Artuso. March 1993.

   (D) *Conceptual Framework for Evaluation of Pollution Control Strategies and Water Quality Standards for Lake Champlain.* Anthony Artuso. March 1993.

5. *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1.* Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.

   Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1. Executive Summary. Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.

6. *(A) Lake Champlain Nonpoint Source Pollution Assessment.* Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.

   (B) Lake Champlain Nonpoint Source Pollution Assessment. Appendices A-J. Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.

7. *Internal Phosphorus Loading Studies of St. Albans Bay. Executive Summary.* VT Dept of Environmental Conservation. March 1994.

   (A) *Dynamic Mass Balance Model of Internal Phosphorus Loading in St. Albans Bay, Lake Champlain.* Eric Smeltzer, Neil Kamman, Karen Hyde and John C. Drake. March 1994.

   (B) *History of Phosphorus Loading to St. Albans Bay, 1850 - 1990.* Karen Hyde, Neil Kamman and Eric Smeltzer. March 1994.

   (C) *Assessment of Sediment Phosphorus Distribution and Long-Term Recycling in St. Albans Bay, Lake Champlain.* Scott Martin, Youngstown State University. March 1994.

8. *Lake Champlain Wetlands Acquisition Study.* Jon Binhammer, VT Nature Conservancy. June 1994.

9. *A Study of the Feasibility of Restoring Lake Sturgeon to Lake Champlain.* Deborah A. Moreau and Donna L. Parrish, VT Cooperative Fish & Wildlife Research Unit, University of Vermont. June 1994.

10. *Population Biology and Management of Lake Champlain Walleye.* Kathleen L. Newbrough, Donna L. Parrish, and Matthew G. Mitro, Fish & Wildlife Research Unit, University of Vermont. June 1994.

11. (A) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Executive Summary.* Yellow Wood Associates, Inc. January 1995.

    (B) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin.* Yellow Wood Associates, Inc. January 1995.

    (C) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Appendices.* Yellow Wood Associates, Inc. January 1995.

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February 1995

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A. INTRODUCTION

1. Purpose

This report offers ideas and recommendations to the Lake Champlain Management Conference (LCMC) regarding the institutional arrangements best suited to successful, sustained implementation of the recently released Draft Lake Champlain Pollution Prevention, Restoration and Control Plan.[1] The Lake Champlain Management Conference is a 31 member board established by the Lake Champlain Special Designation Act of Congress in November 1990 to create a comprehensive plan for protecting the future of Lake Champlain and its surrounding watershed. LCMC provides guidance to the Lake Champlain Basin Program (LCBP), established to coordinate the activities being carried out under the Special Designation Act. The Special Designation Act authorized a five year life for the LCMC after which alternative institutional arrangements will be needed for Plan implementation and ongoing protection of the Lake and its watershed.

The purpose of this study is to recommend possible alternatives, modifications and/or enhancements to existing institutional and funding arrangements which will enhance the potential for effective long-term basinwide management of Lake Champlain according to the goals and objectives established in the Lake Champlain Pollution Prevention, Restoration and Control Plan.

The term "institutional arrangements" as used in this report refers to the formal and informal relationships among institutions responsible for resource management, broadly defined, in the Lake Champlain basin. Institutional arrangements form the basis for understandings of how responsibility for the various functions required by watershed management will be shared.

The intent of the recommendations contained in this report is to build upon existing institutional arrangements rather than create new institutions, except in those few instances where institutions required for comprehensive planning and management are lacking. Recommended institutional arrangements are designed to foster existing partnerships and create opportunities for new partnerships among various groups of stakeholders. The goal of recommended changes is to increase effective stakeholder representation, reduce fragmentation and duplication of effort, and create the feedback loops essential for practical watershed management.

2. Approach

The approach to this study of institutional arrangements has been to combine an

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[1] Also referred to in this document as the "Plan".

understanding of existing watershed management and related efforts both within and outside the Lake Champlain Basin Program with an understanding of the history and current status of model watershed management programs from across the country. Rather than attempt to fit the institutional needs of Lake Champlain into a framework developed elsewhere, we have used the study of models to highlight alternative institutional approaches to the areas of need identified for Lake Champlain.

The analytic framework governing our recommendations is based on the following questions. Do proposals support the Plan as drafted? Do proposals build on and support prior accomplishments? Are proposals politically viable? Will communication among groups of stakeholders be improved as a result of the recommendations? Are recommendations likely to lead to continuation of basinwide management efforts over the long-term?

3. Methods

Background information for this study has been generated in the following ways:

- Information on institutional involvement in each of ten action plan areas through a lengthy two-step survey of key informants using telephone and mail instruments and review of written material submitted by informants. 101 contacts overall.

- Institutional preferences of Lake Champlain Basin Program participants through a mail survey with 71% response rate.

- Information on Canadian involvement through a lengthy two-step survey of key informants using a bilingual interviewer. 21 contacts overall.

- Information on economic stakeholder preferences and perceptions through a lengthy two-step survey of key informants using telephone and mail instruments and review of written material submitted by informants. 25 contacts overall.

- Information on model watershed management programs through a combination of literature review and key informant interviews. Material on over 50 separate programs was reviewed. A bibliography on these model programs appears in the Appendix to this report.

- Information on the legal and regulatory framework governing Lake Champlain through legal research and collegial review.

- Information on financing options through literature review and consultation with model watershed management programs.

- Information on the Lake Champlain Basin Program and all of its components through interviews with staff and project advisory committee members, key informant interviews, literature reviews, and meeting attendance.

4. Overview of the Document

This report is divided into seven chapters. Chapter One describes examines models of watershed management and their applicability to Lake Champlain and derives from these models principles and elements of successful institutional arrangements. Chapter Two describes the history of institutional arrangements for Lake Champlain and lessons learned. Chapter Three contains an analysis of existing institutional arrangements for the Lake as a whole as well as by action plan area. Chapter Four contains recommendations for institutional arrangements. Chapter Five describes potential financing mechanisms for watershed management institutional arrangements. Chapter Six discusses local capacity building for plan implementation. Chapter Seven briefly outlines next steps for the Management Conference to consider in making recommended adjustments to existing institutional arrangements.

As research progressed it became clear that some questions remain premature. One of the important questions that must be answered over time but cannot be entirely answered here relates to which financing mechanisms are appropriate to support ongoing lake management efforts. We have provided preliminary suggestions regarding appropriate mechanisms at the state level. We have provided principles for financing lake management, a generic description of financing mechanisms, and examples of how certain mechanisms have been used by other watershed management programs. We have also provided recommendations regarding budgeting for lake management. Given the manner in which accounts of spending on lake management and related activities are currently kept, it is beyond the scope of this assignment to specify where additional funds should be sought or how existing funds might best be reallocated. These important questions should be answered as part of the implementation process.[2]

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[2]Conservation Law Foundation, a collaborator on this report, has prepared a separate report that addresses some of these issues from a different perspective. It is attached. CLF's approach to the institutional arrangements, among other things, calls for a more aggressive enforcement role when necessary. The CLF report is provided in the spirit of an open and informative discussion of the important issues facing the Management Conference.

I. A WATERSHED APPROACH

A. MODELS OF WATERSHED MANAGEMENT

1. Introduction

This section provides an overview of some of the organizational options available to the Lake Champlain basin and considers their applicability. Other examples are also provided in other parts of this report to illustrate particular features of watershed management. Some entity is needed to call attention to the physical unity of a large basin and potential gains from its management as a hydrologic unit. There is a rich experience with organizational forms that have been tried and from which important lessons can be learned.

First, we review some of the broad themes in river basin organizing. Then several commonly recognized alternative models will be summarized. While the particulars of each model vary in many dimensions, one key distinguishing characteristic is the degree of concentration of the authority and capacity to manage and govern watershed resources. The history of the Hudson shows a model developed by one of the Champlain partners, New York State, which adds management capacity to the near shore region by partnering with the counties. This followed well after the demise of a more centralized model. Lake Champlain was once the focus for the negotiation of a compact commission; thus, a review of that model is included, again using the experience of New York, but with the Susquehanna and the Delaware. The Great Lakes have had a variety of arrangements dealing with Canada, again a relevant set of experiences, which feature a complex of organizations. It is this complementarity of non-governmental, federal level, state/provincial level, local level organizations that defines the real governance capacity of a watershed. Finally the Chesapeake Bay is included because it represents the oldest and one of the most articulated of modern era basin planning arrangements. These were stimulated by the US Environmental Protection Agency, a series of experiments in which the Lake Champlain Management Conference is a part.

2. Background

Institutional capacity can be thought of as solving at least two problems. First, is management capacity; how are the technical and managerial resources organized to design and carryout solutions to perceived problems, to seize opportunities at the watershed system level? Second, is governance capacity; how do the various independent organizations and constituencies come together to decide that there are problems to be solved, opportunities to be seized at the system level and by whom,

with what technology and conditions in the distribution of benefits and burdens? Obviously, the problems of management and governance are solved jointly since these types of capacity are never neatly separated.

Watersheds are organized in many, many variations. Institutions such as those used to manage a watershed evolve to respond to opportunities perceived between what is happening and images of what could be. Understanding of past problems changes and thus the understanding of possibilities changes. Experiments in management arrangements are observed and adapted providing another experiment to be considered. Fads and fashions in particular policy networks move many experiments in similar directions. Since the setting and context for each experiment varies so much, reasonable observers can differ on how applicable one experience may be for use in another setting. Vigorous, informed debate should improve results. As the next section will show, Lake Champlain enjoys a rich history and a solid base of experience from which to evolve further institutional capacity. What has been tried in other settings provides insights for this evolution.

3. Themes

The national experience with watershed management shows several themes. The extent of centralization or decentralization of power has been a major concern over the years. There is a fairly clear movement away from attempts to establish basin entities that could and would in fact carry out every function; hydro-power, navigation, flood control, water supply, habitat management, water quality protection, recreation access, tourism promotion, etc. We have moved toward arrangements that by their independence and command of information can hold the many inevitably independent actors accountable to public opinion for the impacts of their actions on others -- impacts that are delivered through the water system being managed. For example, the Tennessee Valley Authority model was proposed elsewhere but never adopted in the United States again. The interagency coordinating committee model evolved into the federally dominated, state co-chaired basin planning commission under Title 2 of the Water Resources Planning Act of 1965. Significantly this planning act was passed one year after its companion Water Resources Research Act because the state water agencies objected to the more limited role for them in the draft bills. A transitional step was the evolution of the multi-agency comprehensive basin planning process with a lead agency role played by either the Corps of Engineers or the Bureau of Reclamation. An example was the New York, New England Interagency Committee report that considered water development needs and opportunities basin by basin led by the Corps of Engineers. This planning effort helped some projects along to fruition and consolidated opposition to others.

In a manner more consistent with a "bottom-up" evolution, the compact commission evolved about the same time reaching a peak with the Susquehanna in

the late 60's and early 1970's. None have been successfully negotiated for a river basin since then. On paper they have authority to do more than a Title 2 commission could do before the Title 2 commissions were abolished as too intrusive in 1980. In fact, compact commissions have been quite constrained by the need for State concurrence. It can be argued that even TVA found serving as a staff resource to governors and legislatures to be important to survival and program evolution, but this did not overcome all of the distrust of such a blatantly federal entity.

Note that between 1948 and 1972 the federal role in water quality management was evolving to catch up with the federal role in water development investment. With seminal exceptions on the Ohio and the Potomac, comprehensive planning institutions followed the national posture of not giving as much attention to water quality as water development. It is most significant that our evolution of water quality management capacity is providing a rebirth of interest in watershed management. The beginnings of most existing watershed organizations, evolving from water development functions, limits the transferability to situations such as Lake Champlain where water development has a limited role in current as well as past concerns and perceptions of opportunity. All of these older arrangements are evolving significant water quality protection functions so they offer some insights but transferability is limited.

Over the past decade US EPA through expanded authority from the Congress has reaffirmed basin planning activity for water quality. As an outgrowth of the 1948 Water Pollution Control Act, planning for waste water management was a major part of federal strategy to impact local systems and state management. Most local watersheds in the country were planned for waste water treatment facilities from a public health point of view. The Congress failed to utilize this planning in subsequent funding of waste treatment investment and reduced the activity. A vigorous role for EPA in the basin planning activities of the 60's and 70's did not materialize.

However, interest in coastal and estuarine waters, particularly key areas like the Chesapeake Bay and Long Island Sound, produced a thrust for institutional evolution that seems to have had little intellectual debt to the efforts that preceded it in time. The Chesapeake Bay Program Office provided leadership to bring together the state water quality agencies with US EPA in a model reminiscent of the enforcement conference approach of the pre 1972, PL 92-500 era. Governors were invited to meet with the US EPA Administrator in a show case atmosphere to call attention to the directives they were to give to their respective agency heads who were charged with working through the details of a more intensive water quality management plan. The evolution of source identification and control measures were to be speeded up.

In the Long Island Sound Study when this model was followed, modeling oxygen in basin waters became a focus, justified in the minds of the agency leadership by the great expense of sewage treatment plant investment at stake to achieve dissolved oxygen targets. After some time this focus produced calls for a broader planning approach. Other objectives such as habitat improvement and non-point source management followed and encouraged the participation of other agencies in task forces and standing committees. Legislatures of the states were encouraged to get involved and did, facilitating some responsive state legislation and funding, but often just indicating the limits of political acceptance. Other areas like the Delaware Bay saw this as a way to do water quality planning and to impact the institutional evolutionary process.

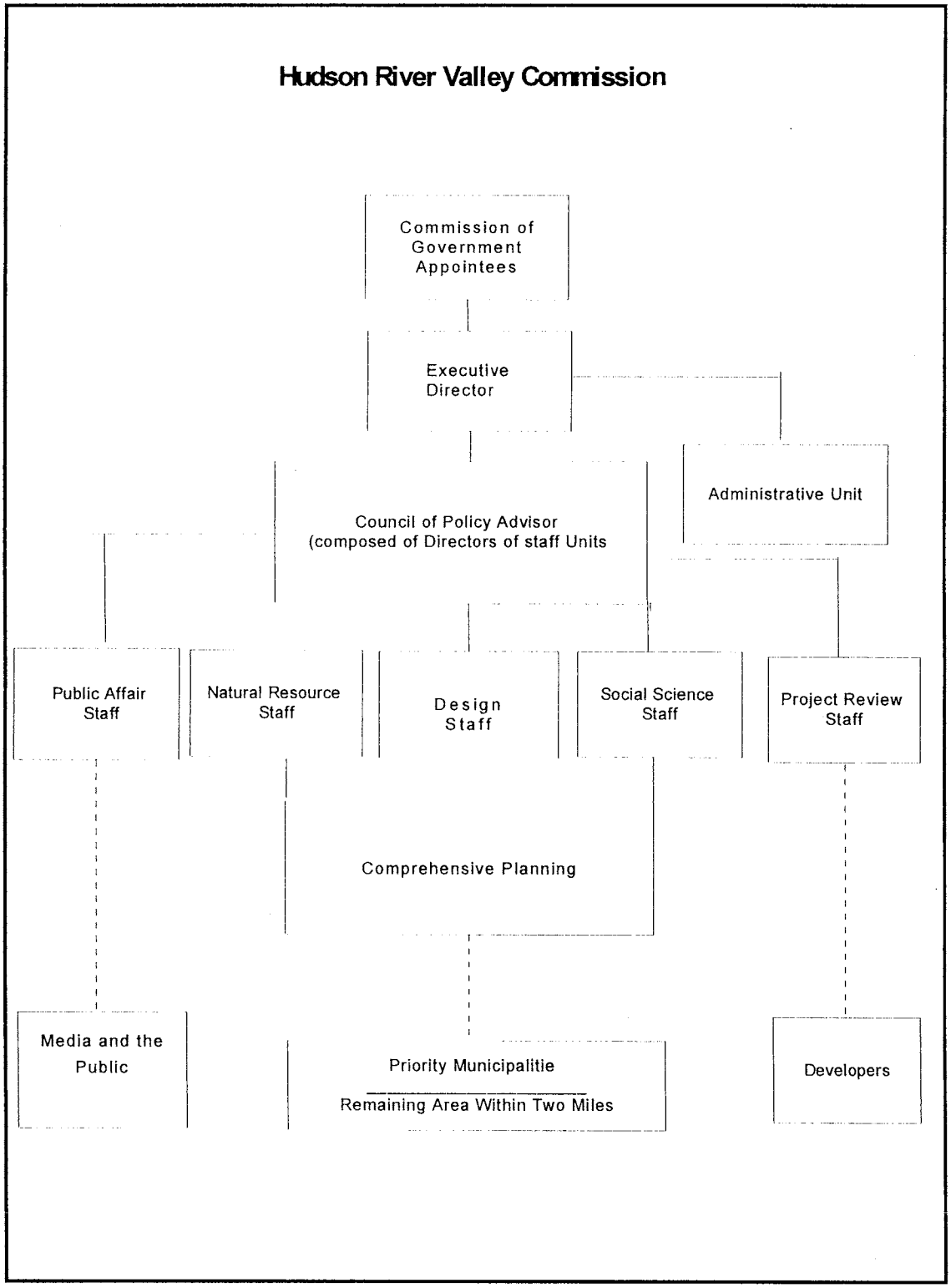
Lake Champlain's Basin Program is another example of this increased attention to a larger scale of management for environmental protection as distinct from resource development. Like the others, it has an organizational structure of separate citizen and technical advisory committees, with the research community organized as still another group. Other structural components include a staff office, and a governor/premier level organizational entity. Lake Champlain's current effort follows more closely the Chesapeake Bay and Long Island Sound models than any others in the history of experimenting with basin organization.

William Goldfarb (1993) builds on prior work in evaluating watershed entities by introducing the principles of alternative dispute resolution. Conflicting stakeholders find it increasingly easy to block policies they do not feel they "own." Such "grid lock" is made easier when important stakeholders can convincingly argue that they did not have their day in court, i.e., were not fairly represented in the planning and policy process. A key to building such ownership and evidence of due process is attention to the interests of the stakeholders and the use of decision rules that represent a good faith effort to discover solutions where everyone wins. Goldfarb suggests, and the study team concurs, that this means the following principles in choosing institutional features; 1) de-emphasis of command and control in favor of negotiation and consent, 2) participatory planning, 3) growing capacity based on existing institutions when they can be made to fit, 4) identifying priorities and problem solutions that follow based on the internal logic of a particular watershed, rather than imposing solutions developed elsewhere. Each of the following models has one or more features that when adapted to Lake Champlain's setting would help achieve Goldfarb's criteria.

B. HUDSON RIVER VALLEY COMMISSION AND GREENWAY

The Hudson River's experience with organizational arrangements includes New York's late 1960's answer when an interstate compact commission was proposed.

The Hudson River Valley Commission was to have jurisdiction only for land use changes that could be seen from the river for up to two miles from the main stem, something less than the full watershed. While the rule for jurisdiction suggests a concern for the visual aspects of the environment, more was involved. The proper distinction between the function of this commission and its most recent successors and other basin entities is that the goals were to strengthen the local land use planning and control function. Water investments such as supply and waste treatment, storm water management, hydro-power and the like were seen as opportunities to integrate and coordinate that local function, not as components of a water management system that was the jurisdiction of the management entity, per se.


Hudson River Valley Commission
Commission of Government Appointees
Executive Director
Administrative Unit
Council of Policy Advisor (composed of Directors of staff Units
Public Affair Staff
Natural Resource Staff
Design Staff
Social Science Staff
Project Review Staff
Comprehensive Planning
Media and the Public
Priority Municipalitie
Remaining Area Within Two Miles
Developers

From the Hudson River Valley Commission perspective, dams and channel works, efficiency of achieving dissolved oxygen targets, financing such investments, fish stocks in the estuary would be ancillary instead of central. Density of development, open space and its access, indeed visual esthetics, as well as the efficiency of the form of the urban landscape were expected to count for more attention. Given this orientation the arrangements for integrating local governments and the development process into the planning were more explicitly articulated and the role of federal agencies much more indirect, particularly US EPA. Urging the consideration of similar steps to strengthen local capacity could result in a new wave of interest in negotiating mechanisms for the implementation of concepts developed in the action plan development process for Lake Champlain.

The Hudson flows from the wilderness peak of Mt. Marcy to the tip of Manhattan and drains minor parts of the states of Connecticut, Massachusetts, Vermont and New Jersey. The recent evolution from the Hudson River Valley Commission concept represents the evolution from centralized regulatory authority to an approach that puts emphasis on complementing if not building local management capacity. The late 1980's concept of a Hudson River Valley Greenway Communities Council puts more emphasis on governance capacity particularly by stimulating the creation of sub-regional multi-community planning districts.

Similar development threats prompted the early and the recent proposals for stronger Hudson regional management. In each case, proposed shoreline developments were considered inappropriate and provoked a sense of crisis. The role of the earlier Commission was to provide developers with technical assistance as early in the planning process as possible and negotiate a result compatible with a protection plan particularly in ten communities declared strategic. This pilot community concept was also included in the current version. In the early version, sanctions included the potential for only a modest delay by the review process, but very effective publicity of the expected impact of the project and intensive lobbying with other agencies that did hold more significant regulatory power.

The more recent Greenway concept represents a broader approach, adding wider participation, more targeting on promoting compatible development, broader political representation and a wider array of different incentives, but not much more regulatory authority. These differences in a nearby New York basin are indicative of what might be supported in the next evolution for Lake Champlain.

The 1991 Greenway Act "provides a voluntary partnership between local governments and the state to encourage economic development while preserving the beauty and natural wealth of the area." This Act was adopted after the

development and widespread review of a study of the problems faced by the municipalities of the Hudson corridor and their needs. Public participation was vigorous and involved the organized groups of the major stakeholders as well as individual citizens. Some heard"...always the refrain of Home Rule." The business community stressed the need for diversity to have a healthy economy and partnership approaches between public and private funding for development. Such approaches are built into the program implementation.

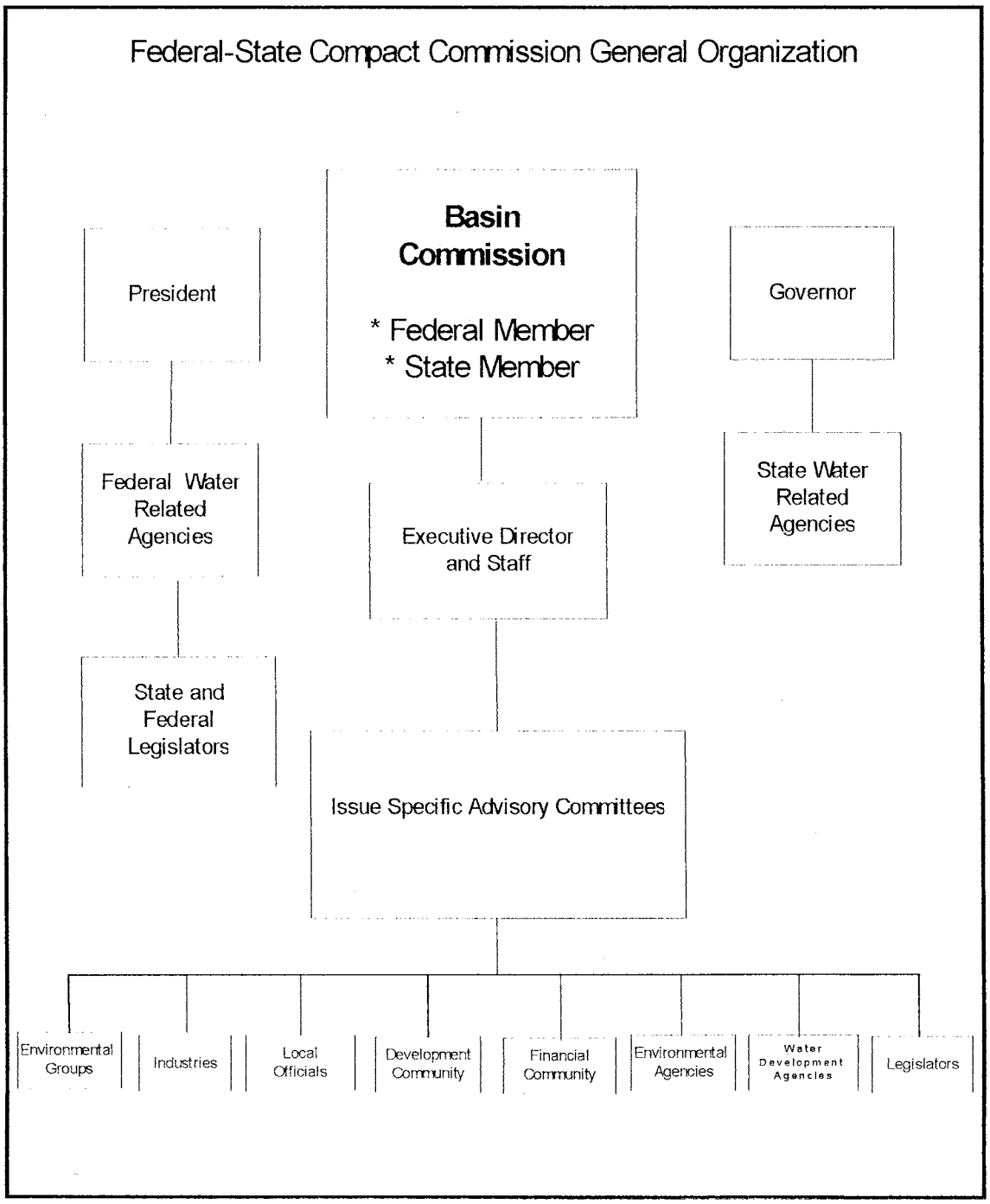
The Greenway Council is a permanent body with 25 voting members and is a part of the Executive Department of the Governor's Office. This is a much larger and more diverse group than its predecessor, all of whose members were appointed by the Governor. Here eight are appointed between the governor and the leaders of the legislature, 10 are appointed by the chief officer of the ten counties included, and the remainder represent state agencies. The council reviews capital budgets of state agencies, grants funds for projects and planning studies to local governments and not-for-profits, provides dispute resolution services, guides and supports planning including multi-jurisdiction districts and a voluntary compact. A variety of incentives including streamlining of environmental impact processes and a premium on state grants are offered to sign and stay in the planning compact. Failure to follow the plan adopted results in a loss of incentives for all the jurisdictions in a planning district. The Council has no power of eminent domain. It also appoints 8 members to the Greenway Heritage Conservancy for the Hudson River Valley.

The Conservancy's primary mission as a public benefit corporation is to award grants and technical assistance to communities for the development of the Hudson River Greenway Trail. Its 17 voting members and 9 nonvoting members are appointed in much the same way as the Council except for the 8 members appointed by the Council that replaces the role of the counties in that body. Also, note that two non-voting members are the Chairs of the two relevant state legislative environmental conservation committees (NYS Assembly and NYS Senate). It does not regulate or condemn property but it can own land and easements. That means the land stays on the tax rolls although how the valuation will be handled for tax purposes can be uncertain. The Conservancy can make payments in lieu of taxes where undue hardship is determined. It is to promote the Greenway as a single tourism destination site. A special hotel room tax supports the work of the Council and the Conservancy.

A Hudson Valley Agricultural Advisory Council complements these arrangements by providing for the promotion of an "Ag Trail" and measures to increase the viability of farming including property tax burdens.

C. COMPACT COMMISSIONS

Compact Commissions have been agreed to by New York in two prior instances, the Delaware and the Susquehanna for the federal-state variety and the Great Lakes Commission for the interstate variety. Much has changed since the late '60s and early '70's when the last of these was negotiated. Perhaps what is most relevant for Lake Champlain consideration is not the form of the agreements but the processes that have been facilitated by these compact commissions, processes that are possible to bring about under a wide variety of organizational forms.


Federal-State Compact Commission General Organization
Basin Commission
* Federal Member
* State Member
President
Governor
Federal Water Related Agencies
Executive Director and Staff
State Water Related Agencies
State and Federal Legislators
Issue Specific Advisory Committees
Environmental Groups
Industries
Local Officials
Development Community
Financial Community
Environmental Agencies
Water Development Agencies
Legislators

The Delaware River Basin Commission (DRBC) and the Susquehanna River Basin Commission (SRBC) have regulatory, planning and management authority over their rivers. Commission actions are binding on the member states. The compacts all have much more authority on paper than is actually utilized in the actions taken. They can regulate almost anything that has to do with the quality and quantity of water available, particularly any changes that build upon state or federal programs. Agreement is needed for action. The history of involvement, perception of crisis, geopolitical features, action areas activated and a host of factors seem to lead to more authority on paper than actually legitimized for use. Apparently willingness to create this authority/action gap was greater in the past than currently. Activities agreed to may tell more about the potential limits of current agreement for authorities to be granted.

For the purposes of consideration as a model for The Champlain Basin either of the federal-state compact commissions would serve. In the Susquehanna the President and the Governors each appoint an alternate, usually a senior staff member of their principal environmental agency who attends the meetings. DRBC actually has the principals as members and has been able to stage events where the Governors attended -- they have had the NYC/Philadelphia water supply allocation and a controversial reservoir, Tock's Island to attract them. Each may appoint an advisor. The Corps of Engineers has provided this advisory role to the Federal Member. This Commission hires a director and technical staff.

Project review for compatibility with their respective basin plans is for both a major activity. Projects and service area changes for sewer, water supply, hydropower, industrial withdrawals and discharges are considered in terms of their impact on others and the goals, standards and projects already entered into the plan. Likewise, studies to support modifications of the plan occupy attention. A recent interagency plan led by the US Army Corps of Engineers was adopted as an initial plan by the Delaware RBC. It was modified by several large and many small studies. A basin planning exercise under the "Level B" program of the US Water Resources Council is a case in point; so is the "Good Faith" negotiations to revise the US Supreme Court allocation of flow between New York and Philadelphia, or the application of prices for new withdrawals, or the adoption of a low flow rule limiting withdrawals. Each approved project or permit becomes a part of the plan to be taken into account by the next proposal.

Note that each of the river basin commissions is funded by sharing of the agreed upon budget by the members, plus fees collected for some withdrawals. Annual contact with the subject matter committees and appropriation committees of the several state and federal legislatures is a must for survival. These contacts are facilitated by the lead state or federal agency. In each case, there are one or more citizen groups that sporadically pay attention to the budgetary fortunes of the commissions, but not consistently nor to much effect. Direct contacts by

commission staff with individual members of the legislative delegations probably carry more weight.

The technical ombudsman or mediator role played by the Commissions frequently involves bringing together local governments, state and Federal agencies. This can be triggered by a permit application, a systematic plan review or a Commission initiative to study an emerging problem area like the growth of irrigation, or a long standing issue like water supply allocation between NYC and Philadelphia.

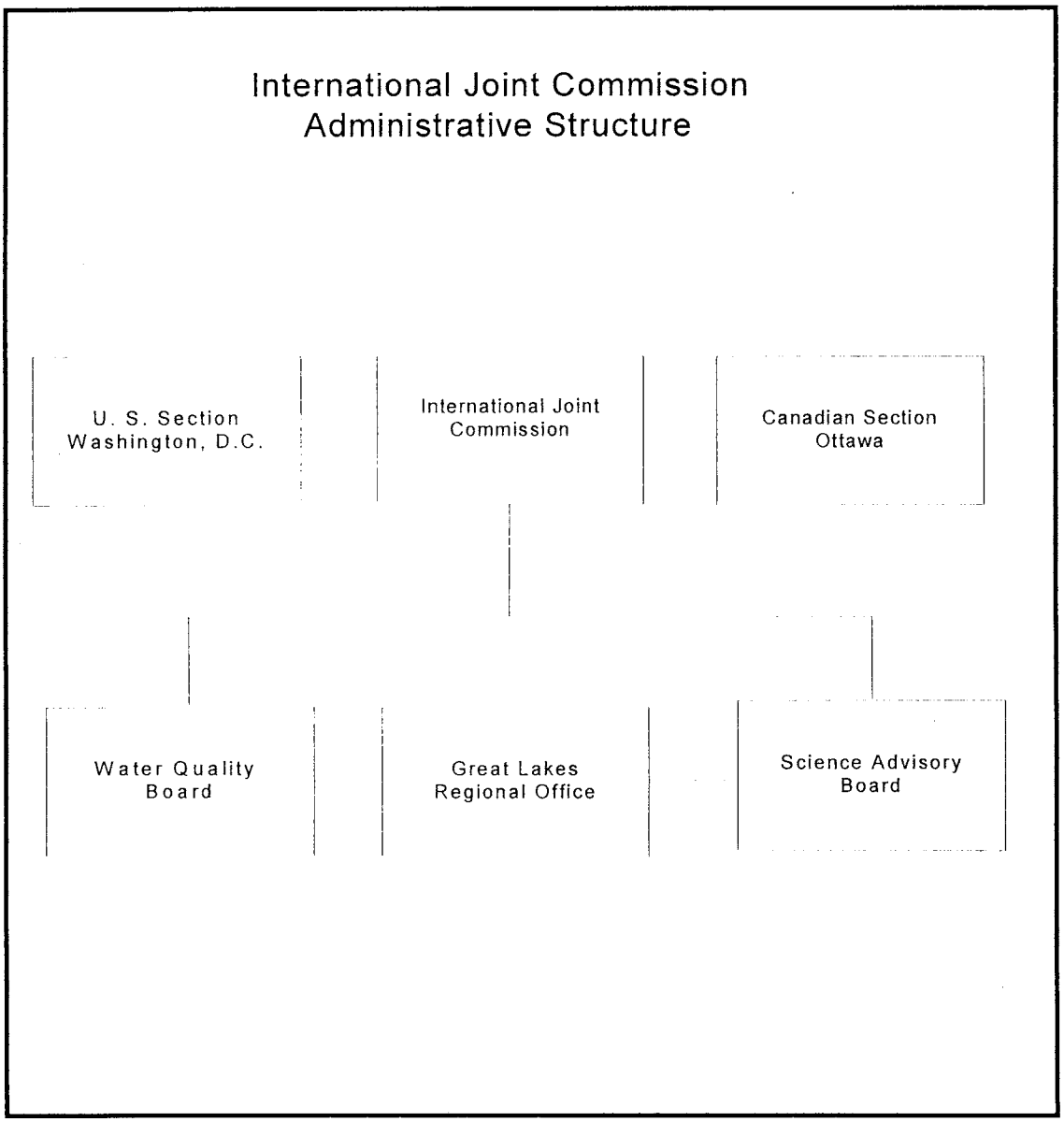
Multi-stakeholder advisory committees have been very valuable particularly for DRBC policy ventures. DRBC has developed a set of procedures that start with stakeholder representatives nominated by any available organizations of the stakeholders. Recognition of the representational role is important. The group then elects its own chair after an appropriate orientation. The next step is gaining agreement on the factual basis for an agreed upon issue that is the charge. The result has been virtual negotiated rule making.

The Commissions provide a way to tailor regulations to the needs of the particular basin allowing for more variation from the rest of the states involved than might be achieved otherwise. An example is the use by DRBC of Special Protection Waters designation and regulations that implements a non-degradation policy that applies to the entire river. The most recent component is a non-point regulatory program. Among other features it requires a permit for an addition to a sewage treatment plant to include a plan to be approved and implemented for control of the non-point sources in the area to be served by the increased capacity. A compact commission provides a convenient vehicle to bargain a result that is unique to the basin and which each state can accept. Then the Commission offers an alternative for who might implement the agreed upon regulations, and this can be delegated by the Commission to any other player. Of course much such authority is already in place. The bargaining across state and agency lines can be facilitated by other arrangements. More often than not, other authorities already exist or are worth seeking simply to broaden the commitment to the solution negotiated.

Business and local government interests, citizen environmental interests are represented best in the affairs of the commissions by inclusion on advisory committees recruited to address particular policy issues with the help of the state and federal members and advisors. Attendance at regular meetings, hearings and special events tends to be uneven as a representational tool. Hearings, of course, tend to engender confrontational responses; advisory committees are more likely to lead to a bargained result.

D. THE INTERNATIONAL JOINT COMMISSION AND THE GREAT LAKES

In response to physical and political complexity the Great Lakes has a most complex organizational system. Since Lake Champlain is a part of that regional complex it is a system worth reviewing here. The International Joint Commission serves the two governments in a broad management role. The GL Fisheries Commission, in a more narrow role. Binational institutional activity focuses on coordination, research, planning, monitoring, surveillance, and advisory functions, termed the "soft" functions. These support the "hard" roles retained by the national governments of standard setting, regulation, enforcement and public investments.



The IJC is quasi-judicial in that it processes applications for obstructions and diversions. References of questions to be studied are used to settle differences along the border. Recommendations are not binding. Surveillance and coordination are carried out also on request and to follow up on the permits granted. The most far reaching assignment has been the monitoring of the 1972 Water Quality Agreement and its subsequent modifications. The IJC Water Quality Board brings together a budget for management activities which others carry out such as assessment of areas of concern, development of priority lists of chemicals to be

removed, surveillance plans. The IJC biennial reports on water quality have called for the elimination in the use of specific toxics and the implementation of an ecosystem management approach.

While formally limited the involvement of state, provincial and local interests in binational affairs is significant. Nonetheless creative diplomacy is seen by students of the scene to occur outside of these formal arrangements. To facilitate these evolutionary changes a host of other organizations have grown up.

Intergovernmental organizations include the Great Lakes Commission, a compact commission without federal membership, and the Council of Great Lakes Governors. Both interact with and have stimulated joint actions with the provinces such as the precedent setting agreement for a coordinated water quantity management program. Information sharing, joint position development and advocacy of those positions are the basic activities implemented through task forces that draw upon the resources of their respective members. The Commission's committees tend to carry broad assignments such as tourism, international trade, agriculture, federal funds, and industrial technology. The Council task forces have more targeted assignments and terminate with the assignment such as administering a specific grant or negotiating the diversion compact or the toxic substances control agreement. When Indiana puts in its $3 million share, the Great Lakes Protection Fund, organized by the Council, will be fully funded. Part of its income is invested directly in research and demonstration projects throughout the Basin and part is used for the same purposes through the signatories.

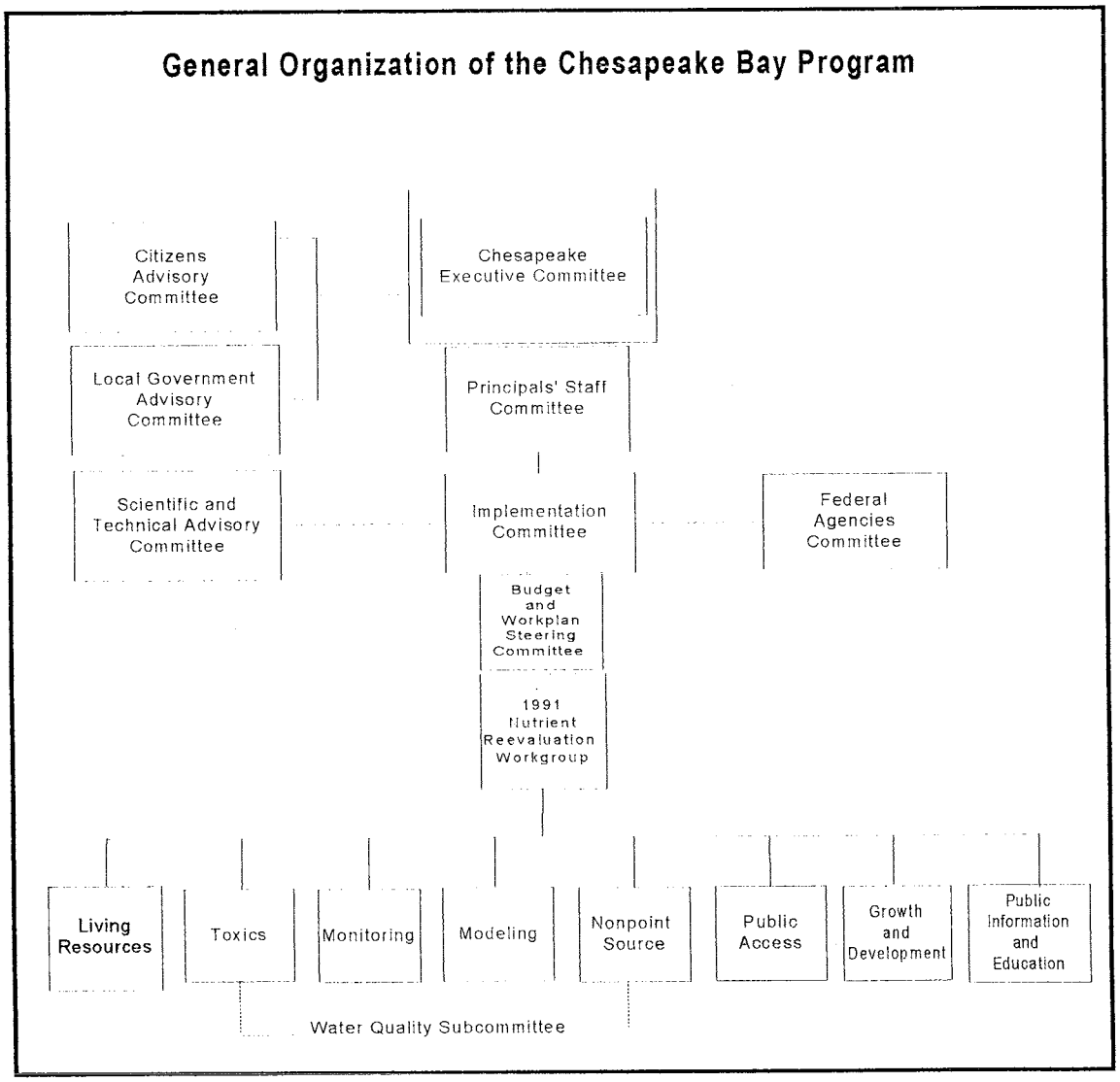
Michael Donahue, a leading student of Great Lakes institutions points to three reasons for greatly increased activity by non-governmental organizations, many created to develop a particular point of view. First, the environmental movement has matured to well informed and politically astute advocacy. Second, the appreciation of the Great Lakes as an economic asset has also been reflected in more sophisticated organizing. Third, federal and state roles have changed, shifting the balance of potential redress of concerns and opportunities toward the local end of the political federations. Clearly this is also the case for Lake Champlain and the question that should come to mind is where are the gaps that need to be filled next by the concerned leadership of the basin.

For general issue identification and policy development three organizations serve as examples. The Center for the Great Lakes provides forum and consensus support facilitation. It starts with the posture that environmental protection and economic development policies have to evolve jointly. Great Lakes Tomorrow has emphasized a course in principles for interested citizens. Great Lakes United serves as an umbrella organization for 150 citizen and labor groups. All have a role in citizen education and legislative affairs.

More specialized organizations include the International Great Lakes Coalition with over two dozen chapters that recruit shoreline owners whose focus is on lake level control. The Great Lakes/St. Lawrence Maritime Forum is concerned obviously about transportation and is the outgrowth of interest by the Commission representing the states in the US and the two provinces of Quebec and Ontario. The Forum has played a seminal role in the organization of the Great Lakes Mayor's Conference. The Great Lakes Commission now provides support services for the Mayor's Conference.

E. THE CHESAPEAKE BAY

While there are other EPA inspired regional organizing efforts closer to Lake Champlain and that involve one of its states (Long Island Sound or Delaware Bay) the Chesapeake is older and has evolved further. The mechanisms developed avoid adding a new regulatory entity while increasing the support capacity for those that already exist to use that existing authority more effectively.



Like Lake Champlain, water quality protection and restoration are the principal focus with habitat qualities a major concern. Non-point pollution has been targeted with an aggressive and well funded interstate voluntary program directed toward individual land users. After some years of this approach results have not reached goals for habitat renewal. A redirection is underway toward small watershed accountability with implementation teams and other organizing at a tributary by tributary level.

This has been accomplished with an organizational structure that closely resembles that used for Lake Champlain to carry out the research and negotiation that has generated the series of draft action plans now being considered. They have added some organizational features that should be considered as we move into the implementation phase and consider what further planning is needed.

In 1983, the EPA in partnership with the states and the District of Columbia negotiated the first Chesapeake Bay Agreement. This agreement established the Management Committee and the goal of implemented coordinated plans to restore water quality under the various federal Clean Water Acts. Amendments in 1987 and 1993 have added specific action areas. Overall direction is provided by an Executive Council of the Governors of Maryland, Virginia and Pennsylvania, the Mayor of Washington, the Administrator of the EPA and the Chairman of the Chesapeake Bay Commission -- a unique tri-state body of state legislators that coordinates state legislation relevant to the bay program.

The Management Committee is the operational/policy implementation arm of the Council. It is composed of the lead agency or staff representatives of the members of the Council including the Commission. It is advised by a series of committees for science, local governments, federal agencies, air quality, tributary strategies/public participation and general citizen representation. There is also a steering committee for budget and workplan. Each of these committee chairs also sits on the Management Committee. The Chair is the EPA representative.

In addition there are program coordinating subcommittees that report to the Management Committee. These include non-point sources, toxics, monitoring, modeling, living resources, public access, growth and development and communications.

The Chesapeake Bay Liaison Office was created by EPA to serve as the executive secretary for the Bay. It has been called the glue that holds the various parts of the program together. It makes grants to the states for plan implementation and has had as much at $10 million a year for that purpose. It coordinates the budgeting for all the jurisdictions and oversees the monitoring program. It has a publishing program and participates in the education of legislators on the problems of the Bay. The Conservation Law Foundation concludes that as a result the Chesapeake Bay

Program has been able to operate without a compact. Signatory parties contributed in excess of $100 million in 1993. In addition funding was received from state tax check off programs, auto license plates and other sources.

The Chesapeake Bay Alliance is an independent membership based organization dedicated to improved communication within the watershed states. It seeks to link private and public and facilitate the forum activity. The Board of the Alliance seeks wide stakeholder representation in its own composition and the Alliance membership. It has offices in each state It provides information materials, reviews policy proposals and provides expert testimony but does not lobby. However, it does count as a success the education of decision makers. Some are skeptical of its claimed neutrality since it originally received all of its funding from EPA and is now obtaining two-thirds of its funding from there.

The Chesapeake Bay Foundation has over 87,000 members from all fifty states. It also maintains offices in all three states. Serving as a watchdog and monitor for violations in the Bay this organization has been an active litigant. It produces its own educational materials and takes pride in differing with the federal position it ascribes to the Alliance. With early success on point sources the shift in Program focus to nonpoint sources and growth management has made coup harder to count. The Foundation assures that the States carry out their agreed upon programs.

The massive nature of the non point problem, particularly nutrient control, has slowed down the rate of progress by these institutional arrangements. Only 71,000 acres out of 3 million are involved in one of several innovative and regular programs. Funding limitations, voluntary nature of the programs and red tape are blamed. Also, control measures selected for emphasis have been criticized.

These are not static arrangements. A further experiment in institutional arrangements for the tributaries of the Chesapeake were determined to be needed. Computer modeling of the fate and transport of nutrients and pesticides suggested that the more northerly tributaries especially the Potomac needed more vigorous attention. Also atmospheric deposition of nitrogen, a limiting factor in salt water but not usually in fresh water, was targeted at a surprising 25%. To accommodate this shift in priorities a more place based system was agreed upon which organizes the relevant agencies with a tributary coordination team, and delivery teams right down to the local sub-basin watershed level. In Virginia alone this is seen as involving 491 local watersheds as management units, a fundamental philosophical change from emphasis on the voluntary response of the individual landowner.

A uniform monitoring program is expected for each watershed with a regular score card to be provided to each watershed to show how they are contributing to the restoration of the Bay. There will still be a measure of anonymity for the individual land user. Small watersheds that are identified as producing large

amounts of nutrients and/or other pollutants will be targeted encouraging closer examination of needed practices and their adoption.

After a few years of educational and organizational effort the basis could exist for approaches such as the "Bad Actor" model legislation developed by the National Association of Conservation Districts. That model has a water quality management entity triggering a compliance check process. The technicians of the county Soil and Water Conservation District then perform a third party compliance certification indicating what practices would be required to reach discharge goals and to what extent they are in place. Any enforcement is then the prerogative of the water quality agency that triggers the check. It is very doubtful that the basis of support and understanding exists for any such institutional evolution in either the Chesapeake Bay or the Lake Champlain regions today however strongly some students of non point pollution feel such measures maybe justified.

F. PRINCIPLES AND ELEMENTS OF SUCCESSFUL WATERSHED MANAGEMENT

1. Principles

Recommendations to create/maintain institutional arrangements to protect Lake Champlain should be guided by certain fundamental principles. These principles, combined with the functional requirements of effective watershed management, should determine the kind of arrangements that would best serve the environmental needs of the Lake and the needs of the community which depends on the Lake.

There are at least four guiding principles that should be considered based on lessons learned from existing models of watershed management.

- First, any institutional arrangements dealing with complex watershed issues that involve multiple jurisdictions must have the ability to capture the political will to act decisively and creatively in the face of enormous technical, political and financial obstacles.

- Second, institutional arrangements must include a mechanism to involve and commit political leadership and the public at all levels to support stated goals and objectives.

- Third, there must be transparent and understandable mechanisms, such as monitoring programs and annual progress reports, to hold political leaders publicly accountable for their commitments.

- Fourth, public accountability must be judged against understandable and realistic criteria that can be used to measure success, failure, or the need for new directions.

There are at least four additional principles that should guide financing of watershed management efforts.

- Accountability is key. The public should know where the money spent on Action Plan implementation is coming from, where it is going and what it is buying them. Insofar as possible, money collected within the basin through fees and fines should be spent to improve the basin environment.

- Second, some portion of the funding available to finance implementation and further planning should be flexible and not tied to political cycles. This can be achieved, in part, through creation of an endowment.

- Third, funding sources should be diverse to achieve maximum potential for continuity of effort. Insofar as possible, stakeholder groups should seek financing independent of government.

- Finally, funds should be adequate to carry out specific tasks - undercapitalized efforts should be discouraged. Accountability, the key, suggests the planning process must reasonably identify what resources are required for adequate capitalization.

The most significant fact about efforts to address environmental issues in the Lake Champlain basin is the discrepancy between the nature of the issue -- protection for a resource that respects no political boundaries -- and the nature of existing environmental protection efforts which depend on existing political boundaries, whether local, state or federal. How to resolve the gap between the resource and the instruments of protection held by various governmental and private sector entities is the biggest challenge for creating an effective institutional structure for Lake Champlain.

In order to capture and maintain the political will to act on the Plan that has been developed, institutional capacity to consider environmental and economic consequences together will need to be developed. The most politically acceptable solutions will be those which serve environmental and economic objectives simultaneously.

2. Elements

1. Complete stakeholder representation is key to negotiating workable solutions to plan implementation. Organized groups of stakeholders contribute effectively to

both policy-development, planning and implementation in watersheds. Conflict can be expected, particularly in the implementation phase, and must be effectively managed, not avoided, in order to achieve lasting results. Effective conflict management (as opposed to conflict avoidance) can be achieved through training for participants and/or the use of a professional facilitator as needed. Conflict management works best when its principles are applied before positions harden. Therefore it is critical that active participation of all stakeholder groups be achieved early in the policy cycle.

2. Most watersheds are managed not by a single institution but by a multiplicity of institutions whose activities are coordinated through a variety of institutional arrangements, both formal and informal. There has been an evolution in the United States away from top-down approaches and toward bottom-up capacity building approaches to watershed management. This is in keeping with the general approach of the LCMC. The emphasis here is on institutional arrangements through which management functions are distributed between multiple organizations versus consolidation of functions in a single institutional entity. This requires increased capacity to manage diverse partnerships. Management capacity will hinge, in large part, on the capacity to develop and widely share reliable information describing problems and trends effecting the resource.

3. Effective and enduring institutional arrangements for watershed management combine stability and flexibility. Institutional arrangements can effectively utilize temporary as well as standing committees to respond to emerging concerns. Use of temporary committees, as well as effective feedback mechanisms for policy-makers from various stakeholder groups, builds in the flexibility needed to respond to emerging concerns and is critical to sustaining long term institutional viability.

II. HISTORY OF INSTITUTIONAL ARRANGEMENTS FOR LAKE CHAMPLAIN

A. INTRODUCTION

Historical institutional arrangements for Lake Champlain have been reviewed with the following questions in mind:

1. What precipitated the institution's creation in the first place? What were the central issues the institution was designed to address?
2. How were the federal, state, and local governments represented?
3. What did the institution accomplish of lasting value?
4. How was the institution financed?
5. If the institution no longer exists, why did the institution fail?

This report focuses on the highlights of past and current efforts as noted above and is not intended to be a comprehensive historical analysis.

Water quality problems in Lake Champlain were recognized as far back as 1905 by Marshall Ora Leighton of the United States Geological Survey. Complaints of that time centered around discharges from pulp mills located on tributary streams in New York State and sewage discharges from population centers, particularly Burlington, Vermont. A bitter struggle ensued which eventually involved the governments of both Vermont and New York but did not, as far as we know, result in any institutional creation.

B. INTERNATIONAL JOINT COMMISSION (IJC)

The Boundary Waters Treaty of 1909 between the United States and Great Britain created the International Joint Commission to "...prevent disputes regarding the use of boundary waters and to settle all questions which are now pending... and to make provision for the adjustment and settlement of all such questions as may hereafter arise..." IJC membership is composed of six commissioners; three appointed by the President of the United States and three appointed by the Prime Minister of Canada.

The IJC has two basic responsibilities: 1) "to approve or disapprove of all proposals for use, obstruction, or diversion of boundary waters which would affect the natural level or flow of the boundary waters on either side...(2) to investigate and make

recommendations on specific problems referred to it by either or both governments."[3] When responding to requests for investigation, termed "references", the IJC appoints an international technical board, publishes a report on their findings and holds public hearings. Following the hearings, a report is prepared to the two governments. Neither Government is bound by the reports or recommendations of the IJC.[4]

Historical research has uncovered three references and one application made to the IJC regarding Lake Champlain. The first reference was in 1936 when the IJC was asked to "investigate the advisability of improving the existing waterway from Montreal through Lake Champlain to the Hudson River." Economic costs were found to exceed economic benefits and the IJC recommended the issue be revisited after completion of the St. Lawrence Seaway. The issue was revisited in 1962 during INCOCHAMP's active period (see below). In a 1967 report, the IJC once again found the economic costs of construction to exceed the economic benefits. In addition, however, the IJC at that time recognized the importance of the natural beauty, water quality, and recreational potential of the Champlain-Richelieu area and recommended the two Governments "pursue policies designed to preserve and enhance the natural beauty, the water quality and the recreational potential of the Champlain-Richelieu area, having in mind the physical, economic and other interrelationships of the region that affect the realization of benefits to their mutual advantage."[5]

An application to the IJC was made in 1937 by the Government of Canada for permission to build a dam at Fryer Island to control severe flooding. The dam was built in 1939 but the works were never completed due to the advent of World War II among other factors. In 1973 the IJC received another reference from both Governments to revisit the question of flood control.

In its 1981 final report the IJC concluded that, while a gated structure was technically feasible, if it were managed in accordance with proposed environmental criteria damaging floods would still occur.[6] The environmental criteria developed by the IJC were designed to protect wetlands and biological diversity. Managing for biological diversity and managing for added development of floodplains were found to be not totally compatible. The IJC recommended that the two Governments determine the

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[3] A Proposal for Improving the Management of the Great Lakes of the United States and Canada, Canada - United States University Seminar 1971-1972, January, 1973, p.27.

[4] Ibid.

[5] IJC, Improvement of the International Champlain Waterway for Commercial Navigation, April, 1967, p.28-29.

[6] IJC, Regulation of the Richelieu River and Lake Champlain, January, 1981, p.23.

desirability of control works rather than for the Commission to make that recommendation.

Over the course of its seven year investigation of lake level effects, the work of the IJC contributed a great deal of new science to improve our understanding of the lake environment, including, among others, extensive studies of pike fisheries.

The two Governments have chosen to let lake levels continue to fluctuate naturally. At the same time the IJC recommended improved flood forecasting and flood plain regulation, both of which have been implemented by the two Governments in conjunction with provincial, state and local governments. The IJC has not been further involved in Lake Champlain since 1981 but remains a viable institution to which federal governments have recourse.

The IJC is available to perform the following functions:

* fact finding upon request by one or both Governments
* report preparation and publication
* conduct of public hearings
* development of non-binding recommendations to Governments
* oversight of jointly authorized actions

The IJC is not directly responsive to state or local governments.

C. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION (NEIWPCC)

The New England Interstate Water Pollution Control Commission (NEIWPCC) was created in 1947 with both Vermont and New York as members. NEIWPCC was formed for the purpose of developing consistent water quality standards and pollution controls for the New England states. Its emphasis has been on interstate rivers. NEIWPCC provides a forum for the exchange of information among states, particularly from the water pollution control perspective. It also provides a key point of contact between the New England States and the EPA Region 1 office. While EPA is the major federal actor in NEIWPCC, other federal agencies, including NOAA, USFWS, and USGS, participate in NEIWPCC staff task force activities. Local governments are not directly represented.

NEIWPCC is funded largely through EPA with minimal annual contributions by each of the New England states, including New York. NEIWPCC plays an important role as the financial manager of EPA funds for the Lake Champlain Basin Program. Its own policy formulation efforts are focused New England-wide and have only indirect implications for Lake Champlain. NEIWPCC has developed policies on behalf of the New England states in the areas of: on-site septic disposal, acid rain, underground storage

tanks, water quality and toxics, combined sewer overflows and sludge management among other areas. In 1969, NEIWPCC established the New England Interstate Environmental Training Center (NEIETC) to provide the region with wastewater-related training and educational opportunities. NEIETC serves as the distribution center for NEIWPCC's growing collection of outreach materials available through the New England Environmental Information Catalog.

D. INTERSTATE COMMISSION ON THE LAKE CHAMPLAIN BASIN (INCOCHAMP)

INCOCHAMP began in 1949 as a joint agreement between New York and Vermont to "integrate their efforts and to insure that the basin would be developed in an environmentally sound way and in a spirit of cooperation."[7] The agreement was informal. INCOCHAMP operated without staff or appropriations until it became embodied in the statutes of New York (1956) and Vermont (1960). The impetus for its formal establishment was the celebration in 1959 of the 350th anniversary of the discovery of Lake Champlain.

INCOCHAMP was established as an interstate commission with legislation analogous to INCODEL, the precursor to the Delaware River Basin Compact. There was no formal federal involvement in its establishment.[8] INCOCHAMP was a broad-based effort at collaboration with committees on such diverse topics as waterways, marinas and boating, fish and wildlife, forestry, industrial development, historic sites, mineral resources, resorts, recreation, tourist travel, pollution and water resources.[9]

After the anniversary celebration, INCOCHAMP focused on designing a compact commission that would have stronger management and coordination mandates than INCOCHAMP itself. The Champlain Basin Compact (CHAMPCO), was introduced in 1965 and in 1966 it was passed by the New York State legislature without a hitch. Initially voted down in Vermont, due, in part, to the state's unfamiliarity with the compact concept, it eventually became part of Vermont's laws in 1967.

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[7] Carlozzi, Carl A. and Linda Prosnitz, "Report on the Institutional Potentials for Implementing the Lake Champlain Level B Study Recommendations", Appendix E, January, 1979.

[8] Ibid.

[9] Report of the New York-Vermont Interstate Commission on the Lake Champlain Basin, 1966.

Valid interstate compacts require that each state's legislation be similarly worded. Vermont's version increased the degree of participation of the state legislators and thus made the initial compact invalid. Revised language was submitted to the New York legislature in 1968. Once passed it was vetoed by Governor Rockefeller on the grounds that serious constitutional questions were raised by appointment of state legislators to interstate agencies. (This proved not to be valid since New York State was party to other compact agreements with similar provisions, notably the Great Lakes Compact). Analysts suggest the real motive for Rockefeller's veto was to retain greater statewide control over planning boards and local governments through a strong state Office of Planning Coordination (OPC), some of whose functions would have devolved onto CHAMPCO for the lake region.

An OPC revised version of CHAMPCO which limited its geographic scope and deleted its comprehensive planning responsibilities was sponsored in 1969 but never reported out of committee due to local opposition. CHAMPCO never came into existence.[10] No institution similar to either the Delaware River Basin Compact or the Great Lakes Compact (which CHAMPCO more closely resembled) has ever been created for Lake Champlain.

The demise of INCOCHAMP followed the defeat of CHAMPCO. It's demise is credited to four factors: 1) loss of prime purpose after the anniversary celebrations; 2) loss of Grant Johnson, a key leader of the organization, in 1960; 3) support for a New York-Montreal commercial waterway not supported by the public at large (see IJC above); 4) creation at that time of Act 250 in Vermont and the Adirondack Park Agency in New York. The Lake Champlain Committee, a non-profit organization dedicated to basin issues which is still active today initially formed in opposition to the commercial waterway proposal.[11] The states, through Act 250 and the New York State Adirondack Park Agency, took over many of the land use control functions originally proposed for CHAMPCO, though not in coordination with one another. INCOCHAMP was repealed in Vermont effective 6/21/90 but has never been repealed in New York. The creation of the Citizens Advisory Committee by the Vermont legislature led to repeal of the defunct INCOCHAMP legislation.

E. LAKE CHAMPLAIN COMMITTEE

The Lake Champlain Committee (LCC) is a non-profit organization, licensed to lobby, that includes members from Vermont, New York and Quebec. The Lake Champlain Committee was founded in 1963 in response to the proposal to turn Lake Champlain

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[10] Carlozzi, Carl A., op. cit.

[11] Lake Champlain Planning Guide for Water and Related Land Resources, June, 1976, p. 99.

into a commercial waterway. The Lake Champlain Committee lobbied for the Special Designation Act in 1990 that created the Lake Champlain Management Conference as well the MOU that created the Steering Committee in 1988.

The Lake Champlain Committee continues to be an active force in the basin today. It maintains a watchdog interest in a large number of issues affecting the basin including toxics and phosphorus. LCC has authored several bilingual tourism brochures, a municipal guide to water quality protection and an action kit to address urban nonpoint source pollution. LCC has sponsored lake-related conferences and has developed its own action plans. LCC maintains a library of historic and current publications related to the Lake. LCC has had a strong public education function which has been eclipsed, to some extent, by the public education activities of the Lake Champlain Basin Program with its much larger budget. The Lake Champlain Basin Program has also provided funding to several LCC initiatives.

The role LCC will have in the future will depend, in part, on the role assumed by the Lake Champlain Basin Program or its successor.

F. NEW ENGLAND RIVER BASIN COMMISSION (NERBC)

"In 1965, the Federal Water Resources Planning Act established the opportunity for states to consent to the establishment of joint federal-state river basin commissions which would have official state representation appointed by the states to balance federal agency representation."[12] The Commissions had a small staff to provide planning and coordinating functions and relied on other federal agencies for substantive work. The New England River Basin Commission (NERBC) was one of many such commissions established in the 1970's. The Commission's efforts were entirely federally financed.

The NERBC conducted studies of many lake issues during the 1970's culminating in development of a five year management plan in 1979. At the conclusion of the study researchers found, "little evidence from our discussions with public and private leaders that there was a determination to keep a bi-state lakewide context for planning, decision-making and management action alive after Level B is completed."[13] This, combined with the change in political leadership at the federal level which resulted in the demise of the Federal Water Resources Council and the unfunding of the New

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[12] American Planning Association, "The Practice of State and Regional Planning", January, 1986, p.143.

[13] Carlozzi, Carl A. and Linda Prosnitz, Report on the Institutional Potentials for Implementing the Lake Champlain Level B Study Recommendations, January, 1979, p.28.

England River Basin Commission, resulted in lack of follow through in both implementation of Level B recommendations and continued bi-state lakewide planning efforts. Until its demise, the NERBC had been prepared to provide staff for a continuing lake management effort. Another factor in the failure to follow through with NERBC plan implementation was the lack of legislative ties to the effort in both States.

The Level B Study of Institutional Arrangements found that a large part of the Study's output could be adequately addressed by existing institutions if their policies and priorities were adjusted to be in keeping with those of Level B. Their primary concern was with creating an institution with ongoing planning, decision-making and management capabilities and that would "retain the lake and its environs as a single unit"[14]. To accomplish this, the Level B authors of the institutional arrangements study recommended creating a Plan Implementation Committee made up of federal and state government representatives to plan, make policy and coordinate implementation among different levels of government and to oversee cooperative agreements between state agencies in specific action areas. These cooperative agreements were to be modeled after the Lake Champlain Fish and Wildlife Management Cooperative. The international aspect of the Lake was to be addressed through an MOA between the NERBC and the IJC to conduct joint research in areas of mutual concern. Finally, INCOCHAMP was to be repealed in both states and the states were to work together to achieve the inclusion of Lake Champlain in the National Coastal Zone Management Program. In addition, the authors intended the Plan Implementation Committee be informed by some type of loosely defined public input.

After considering these recommendations, the NERBC and the States concluded that, "existing State, local and Federal agencies have the technical capabilities to carry out needed management actions; policy and program direction of the agencies will require stronger emphasis on the Lake Champlain basin to meet problem priorities; implementation of needed management programs can be accomplished without creating a new formal lakewide or bi-state institution; and there is a critical need for a continuing basin and lake management program."[15]

The Final Report on the Lake Champlain Basin Study recommended creation of an Implementation Steering Committee with representatives from NERBC and the Governors of Vermont and New York. The Steering Committee was to be based on a five year Memorandum of Understanding. In addition, the States were asked to consider "establishing a Lake Champlain planning and management coordinator to deal

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[14] Carlozzi, op.cit., p.29.

[15] New England River Basins Commission, with the States of Vermont and New York, Shaping the Future of Lake Champlain: The Final Report of the Lake Champlain Basin Study, September 1979, p.76-77.

with State resource management programs affecting the Lake."[16] The IJC was to participate in studies of international problems and problem solutions. Unresolved institutional issues identified in the Final Report included how to achieve structured water quality communication between New York, Vermont and the Federal Government; assessing the feasibility of Federal designation of Lake Champlain under the Federal Coastal Zone Management legislation; and further assessing the capability and effectiveness of existing State environmental management programs to address critical lake shoreline problems.

G. LAKE CHAMPLAIN FISH AND WILDLIFE MANAGEMENT COOPERATIVE

The States of Vermont and New York together with the U.S. Fish and Wildlife Service, established a formal "Lake Champlain Fish and Wildlife Management Cooperative" through written agreement in 1973 which is still in effect today. It coordinates the activities of NY Department of Environmental Conservation, the Vermont Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service through the regional office of the Bureau of Sport Fisheries and Wildlife. Federal authority to enter into this agreement comes from Statute 16 U.S.C. 757a, 50 C.F.R. 401.1 et seq. which authorizes the Secretary of the Interior to enter into cooperative agreements with a state or states and with "other non-Federal interests" to conserve and enhance anadromous fish.

Under the "Lake Champlain Fish and Wildlife Management Cooperative" a Strategic Plan for Development of Salmonid Fisheries (1977), a Lake Champlain Waterfowl Season Zoning Study (1985) and a draft Environmental Impact Statement on the use of lampricides to control sea lamprey (1987) have been completed among other studies.

The Cooperative Agreement establishes a Fish and Wildlife Policy Committee for Lake Champlain which consists of the directors of the respective state departments and the regional director of the federal agency. There is also a Fish and Wildlife Technical Committee that develops management programs and provides technical assistance. Cooperative activities encompass planning and implementation functions and include nuisance and non-native flora and fauna.

Plans and activities of the Cooperative are detailed in the Framework and Workplans prepared by state agencies under the 1988 Memorandum of Understanding which created the tri-party Steering Committee. Although Quebec is not a signatory to the Cooperative Agreement, the Agreement provides for coordination and communication between the signatories and Quebec.

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[16]Ibid., p.77

H. MEMORANDUM OF UNDERSTANDING ON ENVIRONMENTAL COOPERATION ON THE MANAGEMENT OF LAKE CHAMPLAIN

The Governors of Vermont and New York and the Prime Minister of Quebec signed a Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain in 1988 which was renewed for four more years in 1992. This represented the first formal state initiated bi-state planning effort since INCOCHAMP. This MOU created the Lake Champlain Steering Committee. The Steering Committee, which meets twice a year, was designed as a mechanism for information exchange and to facilitate planning cooperation for environmental protection of the Lake. Members of the Steering Committee include heads of DEC, APA, and OPRHP from New York, the Quebec Ministere de l'Environment and the Vermont ANR Secretary, DEC Commissioner and Commissioner of the Department of Fish and Wildlife. The MOU is a state and provincial initiative with no federal involvement.

The MOU commits the states to "prepare a lake management work plan of cooperative programs which will include existing formal program agreements, coordinated data gathering, research and other appropriate functions" and to publish an annual report on cooperative programs. A Framework for the Vermont-New York Work Plan was published in 1988 and status reports were issued in 1990 and 1991. The Framework established problems and needs and identified short and long term objectives in the areas of water quality, water quantity, air quality, fish and wildlife management, natural resources management, solid and hazardous waste, and cultural heritage resource management.

The Steering Committee has been able to effect regulatory consistency between the states and Quebec in holding tank laws for boaters. It has signed a tri-party agreement establishing consistent, in-lake phosphorus criteria for 12 Lake segments and is working toward agreements on long term implementation of phosphorus reduction. It has signed a mutual spill response and notification procedure between New York and Quebec and developed a permit application exchange procedure between jurisdictions. In addition, it has held spill response drills that involved federal, state, provincial and local agencies to test procedures involving hazardous waste spills with inter-jurisdictional implications. It is currently considering the international implications of rebuilding a bridge across the Misissiquoi River. It appears to be successfully serving the purposes for which it was designed. It is the only tri-party, government-based institution currently focused on Lake Champlain. While local governments have no official representation on the Steering Committee, meetings are open to the public and local government officials can and do attend.

The Steering Committee formed Citizens' Advisory Committees in Vermont, New York and Quebec in 1988. In 1990, the Vermont CAC's role was expanded by the State Legislature to whom it reports in addition to the Secretary of the State Agency

of Natural Resources and the Lake Champlain Management Conference (see below). All three CACs consist of appointed representatives. The NYCAC has fourteen members appointed by the DEC Commissioner. The VTCAC has four legislator members appointed by the Legislature and ten members appointed by the Governor. The Quebec CAC has nine members appointed by the Quebec Ministere de l'Environment. Local government representatives are included among the appointees.

Each CAC makes recommendations on the condition and management of Lake Champlain to its state or provincial agency as well as to the Steering Committee. The CACs also act as a public liaison to the Lake Champlain Management Conference. The state CACs meet monthly and meet together four times a year. Their joint activities include awarding Partnership Program grants in support of local solutions to conservation (in conjunction with the National Park Service); producing a video-tape for use in public meetings, designating funds for the development of a childrens' newsletter on the Lake and conducting public involvement meetings in conjunction with the Education and Outreach Committee of the Lake Champlain Basin Program. The chairs of each CAC sit on the Steering Committee and the Management Conference. Activities of the CACs and the Steering Committee are funded by the respective states and provinces. The state CACs have input into the use of federal funds allocated by the Lake Champlain Basin Program.

I. CHAMPLAIN-ADIRONDACK BIOSPHERE RESERVE

In April 1989, the Coordinating Council for the Man in the Biosphere program of the United Nations Education, Scientific, and Cultural Organization (UNESCO) designated the Champlain-Adirondack Biosphere Reserve. The purpose of the designation is to conserve biodiversity and ecosystems, to consider environmental concerns when development is contemplated, and to establish a method for international research and data monitoring.

The Biosphere designation does not involve the alteration or regulation of land use in the Reserve. Instead, the designation involves gathering of existing research, cataloguing the plants and wildlife, planning a continuing research program, monitoring climate changes and sharing this information internationally, and training and educating people about the Reserve. The New York boundary of the Reserve is the "Adirondack Massif" which differs from both the Adirondack Park boundary and from a watershed boundary. The Vermont boundary is the Lake Champlain drainage basin. The Reserve is 10 million acres in size, and is the 4th largest Biosphere in the world.

UNESCO/Coordinating Council for the Man in the Biosphere Program, regional roles, organizational structure and program priorities are determined locally. The involved state agencies have been unable to agree on a management structure for the Biosphere Reserve. Despite its non-regulatory nature, early efforts to explore institutional

approaches to managing the Biosphere Reserve were derailed, in part, by protests from private property rights groups in the Lake Champlain basin. At present there is no formal Biosphere management structure.[17]Such a structure would not materially alter the way resources are managed by existing institutions but would provide a communication and institutional link to other Biosphere Reserves around the world and to the United Nations Man in the Biosphere program.

J. LAKE CHAMPLAIN MANAGEMENT CONFERENCE (LCMC) AND LAKE CHAMPLAIN BASIN PROGRAM

The Lake Management Conference came about through the Lake Champlain Special Designation Act of Congress in 1990. The Special Designation Act route was chosen because federal legislators who supported the Lake Champlain effort were unsuccessful in 1989 in having the Lake designated as the sixth Great Lake. The Great Lakes states instead supported the Special Designation Act approach. Had Lake Champlain been designated a Great Lake, other opportunities for federal funding through, for example, the Coastal Zone Management Act, would have been possible. The Special Designation Act provides funding for a five year period for the purpose of preparing a Pollution Prevention, Restoration and Control Plan for Lake Champlain.

The Management Conference is composed of 31 members including:

- The Governors of New York and Vermont.
- Representatives of five federal agencies: EPA, National Park Service, U.S. Fish and Wildlife, U.S. Department of Agriculture, and U.S. Army Corps of Engineers.
- The Vermont and New York CAC chairpersons.
- Four representatives of the Vermont legislature.
- Four representatives of the New York legislature.
- Six people chosen by the Governors to represent local governments with jurisdiction in the basin.
- Eight representatives of industry, nongovernmental agencies, educators and the general public, to be chosen by the CACs.

The LCMC is responsible for developing a pollution prevention, control, and restoration plan. The LCMC makes recommendations to the EPA on how funds allocated to Lake Champlain should be spent. The LCMC serves, in effect, as the Board of Directors of the Lake Champlain Basin Program. The Lake Champlain Basin Program (LCBP) was established to coordinate the activities being carried out under the auspices of the Special Designation Act. The LCBP is the umbrella for numerous cooperating

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[17] James M. Northrup (Ad Hoc Associates), Sarah Muyskens (Independent consultant), "Champlain-Adirondack Biosphere Reserve-Organizational Choices and Challenges: A Report to the Interim Steering Committee", March 1991.

agencies, organizations, and individuals who are contributing their time and ideas towards the development of the Pollution Prevention, Control, and Restoration Plan. Programs funded by other federal agencies through the Special Designation Act are coordinated and reviewed by the LCMC. Activities of the LCMC and LCBP are federally funded. The states are responsible for a 25% match.

The LCMC oversees the distribution of $2-3 million dollars per year, most of which is spent on scientific research on the Lake and lake-related issues designed to inform the plan. Some of this money is spent on public education and outreach, environmental monitoring, demonstration projects, and to cover the administrative costs of the LCBP. Work is performed by a combination of state agencies, contractors, and local educational institutions.

LCBP committees created by the LCMC include the Technical Advisory Committee, which advises the LCMC on technical and research needs; the Plan Formulation Team, appointed by the LCMC to draft the plan and submit annual funding recommendations; and the Education and Outreach Advisory Committee formed to promote a better understanding of the lake among residents and visitors. The Technical Advisory Committee has nine subcommittees including: data management, economics, eutrophication, fish, wildlife and wetlands, land use and lake use, non-point source pollution, public health, physical processes and modeling, and toxic substances. Subcommittee members are primarily non-LCMC members with technical expertise.

K. LAKE CHAMPLAIN RESEARCH CONSORTIUM

In addition to the committees formed by the LCMC, the LCMC also works with The Lake Champlain Research Consortium. The Lake Champlain Research Consortium was formed independently prior to the formation of the LCMC by seven academic institutions in the Lake Champlain Basin. The consortium appears to be heavily weighted toward natural scientists with limited emphasis, if any, on the social sciences.

The Special Designation Act requires the LCMC to work with the Research Consortium in establishing a multi-disciplinary environmental research program for Lake Champlain. Research Consortium activities have been supported by funds from the LCBP in addition to the (minimal) contributions of its members. The Research Consortium has co-sponsored conferences on lake issues and held annual meetings for students to exchange information on lake research. The Consortium interacts most closely with the National Oceanic and Atmospheric Administration (NOAA) in advising on the use of research funds allocated through the Special Designations Act.

One member of the Consortium, SUNY Plattsburgh, recently received a one million dollar appropriation from New York State to establish a Lake Champlain Research

Institute. The money will be spent, in part, on expanding the fleet of research vessels available to work on the Lake, on upgrading laboratory space and buying new equipment.

L. EMERGING INSTITUTIONS

The Lake Champlain Basin Science Center is in the formative stage. The Center is conceived as a combination research facility/museum and public outreach institution to be housed on the Burlington waterfront. If the project proceeds as planned, the University of Vermont will move its Lake Research Program into the new facility. Groups supporting the Center include many of the basin's museums, the City of Burlington, the University of Vermont, and the Lake Champlain Basin Program.

M. SUMMARY OF LESSONS FROM THE HISTORY OF INSTITUTIONAL ARRANGEMENTS FOR LAKE CHAMPLAIN

1. The New England River Basin Commission initiative of the 1970's failed when federal funds were withdrawn. Lesson: It is a mistake to be completely reliant upon federal initiatives and funding for coordinating the management of the Lake Champlain watershed. Conclusion: While taking advantage of federal programs and funding wherever possible, institutional arrangements for the Lake Champlain watershed should be driven by state and provincial initiative. Diversified funding, including ongoing financial commitments to coordinated management by the states and Quebec are essential to the continuity of management efforts.

2. The CHAMPCO initiative of the 1960's failed due, in part, to poor lines of communication with state legislatures. This was also a factor in the failure to follow-up on the New England River Basin Commission efforts. Lesson: It is a mistake to structure institutional arrangements for management of the Lake Champlain watershed without building in effective linkages to state (and provincial) legislatures. Conclusion: Recognizing the differences between the level of political representation on the New York side and on the Vermont side of the Basin, institutional arrangements governing watershed management must provide the means for ongoing linkages to both state legislatures.

3. The IJC has proved useful in the past in carrying out specific research on Lake Champlain and providing a forum for public discussion on an issue by issue basis. Lesson: The resources and capabilities of the IJC should not be forgotten in conceptualizing ongoing institutional arrangements for Lake Champlain. Conclusion: The IJC provides an institutional mechanism for involving the federal governments of the

United States and Canada. The IJC can play a valuable role in Lake Champlain on an as needed basis.

4. There are a number of "flashpoints" that can derail, disrupt and distort a management effort. These include Home Rule, private property rights, and perceived fairness and equity in who pays and who benefits. Lesson: The best defense on these issues is a good offense. Conclusion: Institutional arrangements should be sufficiently inclusive to work effectively **with** these deeply entrenched value systems and not **against** them. Solutions must be sought that are not only compatible with but enhance these values in recognized ways that also support watershed management goals. This will mean investing in the organizational capacity of stakeholder groups to engage in constructive collaboration. It is far easier to organize stakeholders to oppose any given initiative than to actively engage in its support.

III. EXISTING INSTITUTIONAL ARRANGEMENTS FOR LAKE CHAMPLAIN

Two approaches were used in evaluating existing institutional arrangements. First, an assessment of arrangements pertaining to each action plan area was conducted that included organizations and initiatives which have not been active participants in the Lake Champlain Basin Program. Second, an assessment of the Program itself was conducted based on key informant interviews with staff and participants, review of annual and other reports, and compilation of a comprehensive list of Program accomplishments by committee and overall.

A summary of the analyses of existing institutional arrangements in individual Action Plan areas is presented below, followed by findings regarding strengths and weaknesses of the Basin Program from an institutional perspective. Recommendations for institutional adjustments in individual Action Plan areas and for overall basin management can be found in Part Three of this report.

A. SUMMARY OF ANALYSES OF EXISTING INSTITUTIONAL ARRANGEMENTS IN INDIVIDUAL ACTION PLAN AREAS

1. Introduction

A separate analysis of existing institutional arrangements has been prepared for each of the following individual action plan areas:

Reducing Nutrients/Managing Nonpoint Source Pollution[18]
Building Capabilities for Local Watershed Planning and Protection
Managing Recreation
Protecting Human Health
Preventing and Reducing Toxic Pollution
Managing Fish and Wildlife
Protecting Wetlands
Managing Non-native, Nuisance Aquatic Plants and Animals
Protecting Cultural Heritage Resources

[18] These two areas have been combined as many of the relevant institutional arrangements overlap.

Educating and Involving the Public is a function which applies to all aspects of plan implementation. As such, its analysis is included in the final report on design of institutional arrangements for Lake Champlain.

Each analysis contains a restatement of the action plan goal, discussion of principles stated in each plan that have implications for institutional arrangements, detailed description of existing arrangements at each relevant level of government and sector, analysis of existing arrangements in relation to action plan objectives and summaries of key informant responses in each area.

a. Purpose

Analyses of existing institutional arrangements and financing have been prepared separately for each of the action plan areas in the recognition that arrangements governing each area are substantially different in a number of respects. First, the role of different levels of government (federal, state/provincial, regional, county, local), the non-profit sector, and the private sector vary by area. Second, the institutional needs of each area differ. Third, the effectiveness and coverage of existing arrangements differs by area. Finally, the history of arrangements and their relationship to the LCMC vary by area.

The purpose of these analyses is to lay the groundwork for recommendations regarding institutional arrangements that will work within and across action plan areas to protect Lake Champlain into the future. Analyses of each separate area has allowed us to identify common needs that could best be addressed by new institutions (or existing institutions assuming new functions) as well as needs that can be met by existing institutions operating as they are now or in new forms of partnership.

b. Methodology

The analyses of individual action plan areas were prepared based on a combination of primary and secondary research conducted from February through June, 1994. Primary research included telephone interviews with over 150 individual key informants working in one or more action plan areas in federal, state/provincial, county, regional, local governments, nonprofit organizations and the private sector. These interviews were supplemented by over 95 written responses to a highly detailed survey of activities by action area. Survey responses often included supplementary materials such as program descriptions, mission statements, and strategic plans. Notably, virtually none of the programs contacted could provide formal program evaluations.

Secondary research included review of the action plans, meeting minutes of the Technical Advisory Committee, the Plan Formulation Team, the Lake Champlain Management Conference and the Steering Committee. Public feedback received by the

Lake Champlain Basin Program in response to public hearings and publication of "Opportunities for Action" were also reviewed, as were the framework and workplans prepared by state agencies for the Steering Committee in 1988, 1990 and 1991.

In addition, members of the Project Advisory Committee for the Institutional Arrangements project provided detailed feedback, some of which has been incorporated into this report.

2. Summary of Findings

Findings that pertain across action areas are addressed in the first section of this report. A brief summary of key findings by action area is presented below. More detailed information on each action plan area can be found in the individual gap analyses.

a. Reducing Nutrients/Managing Nonpoint Source Pollution

The largest institutional gap in this area is the absence of networks to integrate point and nonpoint source control efforts, particularly at the sub-basin level. The majority of nonpoint source control efforts to date have focused on agriculture while point source control efforts have been applied to industrial and municipal waste treatment plants. There are few, if any, institutional linkages between these efforts. These institutional gaps will become particularly apparent when the phosphorus agreement is translated into specific sub-basin allocations. There are also significant research questions that remain unanswered in the natural sciences and in economics, making cost benefit analysis difficult at best.

Federal key informants perceive their programs and their networks as very effective on the whole. The term "networks" refers to other organizations with which the responding organization has either formal (written) or informal working relationships on Lake Champlain issues within the relevant program area. Vermont and New York state agency personnel perceive their programs as somewhat effective with New York networks very effective and Vermont networks somewhat effective. Local governments consider their programs very effective and their networks somewhat to not very effective. Both the programs and networks of nonprofits are considered somewhat to not very effective in this area.

There is a split among key informants regarding the importance of a lakewide or basinwide approach to reducing nutrients and nonpoint source pollution.

Local governments uniformly anticipate stable funding levels, nonprofits uniformly anticipate decreasing funding levels, and state governments are mixed with one department anticipating increasing levels. Federal funding is anticipated to be stable or decreasing.

b. Building Capabilities for Local Watershed Planning and Protection

The largest institutional gap in this area is the inadequate provision of hands-on technical assistance to local governments. Assistance that is available is poorly coordinated, understaffed and difficult to find. The important role of nonprofits in this area has not been adequately acknowledged or funded. A little progress has been made in building networks between Vermont and New York, but its future is uncertain without continued financial support. No progress has been made in networking with Quebec.

Both programs and networks in this area are considered somewhat to not very effective except by nonprofits, one of whom has a program perceived as very effective and two of whom consider their networks (although not their programs) to be very effective. Overall, programs and networks in building capabilities for local watershed planning and protection are considered by those who work in them among the least effective of any of the action plan areas.

A lakewide or basinwide approach to watershed planning and protection is considered extremely or very important by 13 out of 16 key informants.

Funding for existing programs in watershed planning is anticipated to be stable or decreasing by all respondents.

c. Managing Recreation

There is a relatively high degree of coordination between state agencies, state and federal agencies (National Park Service) and Canadian interest groups. However there is a lack of capacity at the local level for planning and implementation. Institutional arrangements are lacking to direct private investment toward development of appropriate recreational infrastructure.

Program and network effectiveness are highest at the federal and state levels where they range from very to somewhat. Local government, regional government and nonprofit programs range from somewhat to not very effective. Networks are also considered somewhat effective with the exception of one regional government informant who perceives their networks as very effective.

The majority of key informants consider a lakewide or basinwide approach to managing recreation extremely or very important.

Federal agencies anticipate decreasing funding for managing recreation. State agencies are mixed with Vermont agencies increasing or stable and New York agencies stable or decreasing. Local, county and regional governments anticipate largely stable

funding. Two out of three nonprofits anticipate decreasing funds and one anticipates increasing funds.

d. Protecting Human Health

Existing institutional arrangements are not meeting the technical assistance and public education requirements of human health protection. Very little progress has been made in networking and coordination between the states in areas pertaining to human health. Nothing has been done to network or coordinate with Quebec. The full range of resources available to address human health issues have yet to be effectively mobilized. This is an area in which innovative institutional arrangements are needed.

Federal programs and networks in human health are considered very effective. Programs and networks of local government and nonprofits are only somewhat effective. State programs range from not very effective to very effective. Networks in New York are perceived to be more effective than those in Vermont.

There is a split in the perceived importance of a lakewide or basinwide approach to protecting human health. Five out of nine respondents feel it is extremely or very important.

Only one nonprofit anticipates increasing funding in human health. Funding is anticipated to be stable or decreasing by all other respondents.

e. Preventing and Reducing Toxic Pollution

The greatest institutional issue in the area of toxics is the lack of a shared agenda among the active institutions and individuals and the lack of consensus over how to proceed to solve the problems that have been identified. There are gaps in the capacity to carry out research and educate the public.

The only programs in toxics that are considered very effective are the NYSDEC water engineering program and the Vermont nonpoint source pollution program for toxics. The rest either lack enough information to determine effectiveness or are considered somewhat effective. Networks on the whole are considered somewhat effective.

There is a split among key informants regarding the importance of a lakewide or basinwide approach to preventing and reducing toxic pollution. Half think it is extremely or very important and half think it is important but not critical or not important.

Future funding levels are anticipated to be stable or decreasing at every level except for ASCS in New York.

f. Managing Fish and Wildlife

The major institutional issues in managing fish and wildlife are:

1) the implications for existing institutions of the USFWS transition to an ecosystem management approach;

2) the need to strengthen wildlife management institutions through more conscious targeting of Lake Champlain by NYSDEC and greater visibility for the VT Non-game and Natural Heritage Program within both VTFWD and the Management Cooperative.

Better public education, more research and achieving regulatory consistency are also important institutional needs in managing fish and wildlife.

Federal programs are considered very effective in managing fish and wildlife but networks are only somewhat effective. From the state perspective, programs are only somewhat effective in general but networks are considered very effective in fisheries and somewhat effective in wildlife. Of the three nonprofit respondents involved in wildlife management, two consider their programs very effective and one considers theirs somewhat effective. Networks of nonprofits in this area range from very to not very effective.

A lakewide or basinwide approach is considered extremely or very important by the clear majority of key informants for both fish and wildlife management.

Future funding for fisheries management is anticipated to be stable at the federal level, generally decreasing at the state level, and stable for nonprofits. Future funding for wildlife management is anticipated to be decreasing for the Missisiquoi Wildlife Refuge and stable for the USFWS. State funding for wildlife management is anticipated to be stable or decreasing as is funding for nonprofits.

g. Protecting Wetlands

Despite the fact that some positive cooperative steps have been taken by existing agencies, protection of wetlands is still overinstitutionalized; too many agencies with overlapping jurisdictions. There is a need to reach consensus on classifications and develop more cooperative agreements to streamline jurisdiction. Education and protection efforts for wetlands ought to be institutionally linked to watershed planning.

Existing programs for protecting wetlands are generally perceived as very effective, particularly in New York. Networks range from very to somewhat effective and are most solidly considered effective by nonprofits.

A lakewide or basinwide approach to wetlands is considered extremely or very important by 9 out of 12 key informants.

Federal funds for wetland protection are anticipated to be decreasing while state and other funds are generally anticipated to be stable.

h. Managing Non-native, Nuisance Aquatic Plants and Animals

Jurisdictional issues arise between NYSDEC, VTANR and the NYSAPA in the management of non-native nuisance aquatic plants and animals that could be resolved through improved institutional arrangements including cooperative agreements. New York State has focused fewer resources on nuisance aquatics for Lake Champlain than Vermont, yet New York has more potential resources to contribute, especially through the Sea Grant Program. There is a clear need for improved communication and coordination both among state agencies and between state agencies, nonprofits and non-agency researchers, particularly in dealing with emerging issues such as zebra mussels. Provincial agencies seem to have been involved in this area through the fisheries and wildlife management cooperative on an ad hoc basis but provincial citizens groups and nonprofits have not.

Existing targeted programs (e.g. sea lamprey, water chestnut, Eurasian milfoil) are generally considered very effective by federal and state agencies. Networks are considered very to somewhat effective. Nonprofits consider their programs somewhat effective and their networks somewhat to not very effective.

The majority of key informants working in the area of managing non-native, nuisance aquatic plants and animals consider a lakewide or basinwide approach extremely important.

Federal funding is anticipated to be stable but states anticipate decreasing funding for nuisance aquatics. Nonprofits are split with one anticipating increasing funding and the other decreasing.

i. Protecting Cultural Heritage Resources

Institutional arrangements for the protection of cultural heritage resources between

state and federal agencies are newly emerging. Existing institutions have yet to make links to Quebec or figure out the best institutional channels to communicate with private citizens who own and control the majority of land-based cultural heritage resources in the Basin. There is a need to develop arrangements that will integrate protecting cultural heritage resources with watershed planning efforts including efforts at economic development, particularly through tourism.

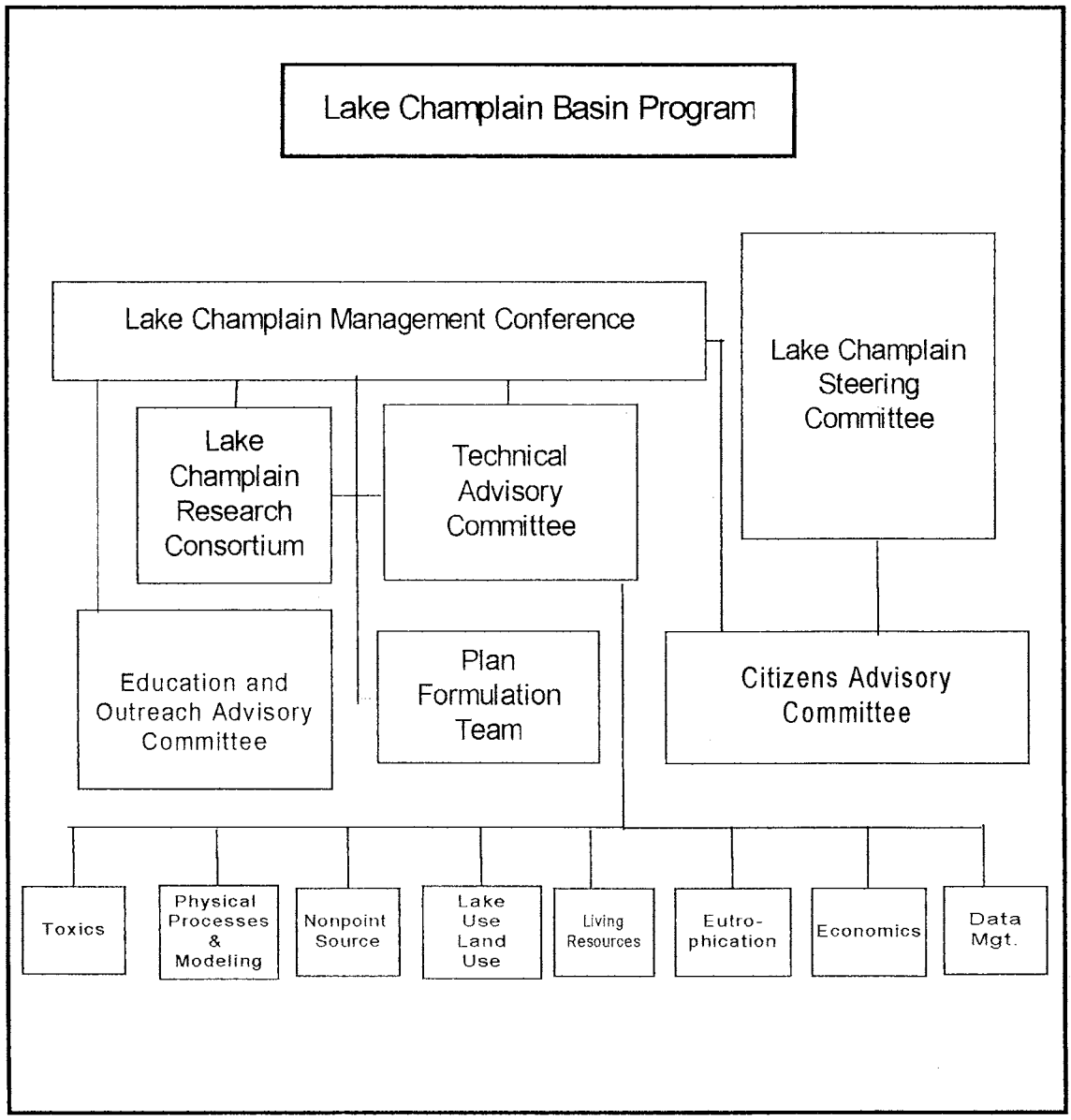
Programs in this area are considered somewhat effective with the exception of one non-profit which considers its program very effective. Networks are most effective among non-profits where two out of three consider them very effective and one somewhat effective.

The majority of key informants working to protect cultural heritage resources consider a lakewide or basinwide approach extremely or very important.

Funding levels for state programs have increased due to the cooperative agreement with NPS but the direction of future funding is uncertain. It is anticipated by local governments to be stable or decreasing and by nonprofits to be stable or increasing.

3. Strengths and Weaknesses of The Lake Champlain Basin Program as an Institutional Arrangement

The institutional structure of the Lake Champlain Basin Program is illustrated by the flow chart below.



The Lake Champlain Basin Program has made important, positive contributions to developing institutional capacity for overall lake management. Among its most significant accomplishments are:

- Creating a process that has forged productive new relationships among state and federal agency staff across state boundaries, including creative use of existing resources to achieve shared goals.

- Supporting new relationships between academic researchers working on both sides of the Lake.

- Supporting a highly successful first of its kind collaboration between Vermont, New York and Quebec educational institutions to develop educational materials and experiences for teachers and students related to Lake Champlain.

- Establishing priorities and allocating resources based on a basinwide vision.

Structural shortcomings of the Program include:

- The Program is extremely complex and difficult for outsiders to understand and access. Lines of authority are unclear.

- The Basin Program is a bi-state effort funded by the U.S. federal government. Quebec was invited to participate on the Management Conference in an ex officio capacity but has not fully participated to date. Thus Quebec is not formally included. This decision was originally made in order to facilitate passage of the Special Designation Act. As a result, none of the funding provided to the Program has been able to be allocated to public sector initiatives in Quebec. A structure which comprehensively integrates Quebec stakeholders in the public, private and nonprofit sectors would offer new opportunities for development of networks, partnerships and sharing resources.[19]

- There is no direct line of institutional connection between policy developers represented by the Steering Committee, plan developers, represented by the Plan Formulation Team and the full range of stakeholders who will ultimately be responsible for implementation.

- Structural arrangements required for true representation of local governments and businesses are lacking.

- Legislative links are significantly weaker in New York than in Vermont.

The intent of recommendations contained in this report is to build upon and support the accomplishments of the Basin Program while at the same addressing several significant structural shortcomings. In many instances, the work begun under the

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[19]The Quebec government has been involved through their membership in the Steering Committee. Primary involvement has occurred through independent Quebec government studies of the Pike River and Missisiquoi Bay; cooperation with the Recreation Planning effort of the Basin Program including provision of GIS data; Misissiquoi Bay water quality issues; and discussions between Vermont and Quebec regarding the fate of the Missisiquoi bridge.

auspices of or in relation to the Basin Program is already evolving in directions that have institutional merit. For example, the Research Consortium is now an independent nonprofit organization capable of seeking its own funding to pursue policy-related research on Lake Champlain. It is also poised to expand its membership to include more social scientists. These represent one example of evolutionary changes in the existing institutional structure that can and should be encouraged.

At the same time there is a need for structural changes that address issues such as how to achieve complete representation of stakeholders in policy development and implementation, how to integrate levels of government across the States and Canada in policy development and implementation, and how to clarify the roles and functions of various institutional actors in the complex process of basin management. Another significant structural change has to do with how to identify and track public resources used in lake management efforts.

4. Summary of Key Lessons from Analysis of Existing Arrangements for Lake Champlain

1. There is currently no organizational structure for local governments in the Lake Champlain basin. Local government participation is critical to effective watershed management. Lesson: Without such a structure, local governments will continue to be inadequately represented in the policy-making process. Conclusion: A new organizational structure representing local governments in the basin is needed. Alternative models for such an organizational structure are presented in Part Three.

2. The business community and economic development interests in their entirety lack an organization that focuses on the Lake Champlain basin although the majority of business/economic development persons interviewed recognize the critical importance of environmental quality to maintaining a strong business climate for the region. Lesson: Business interests cannot be adequately represented in the policy-making process without a structure which provides for input from all affected sectors including real estate, banking, heavy industry, retail trade, lodging, recreational services and environmental businesses. Conclusion: A coalition of existing business organizations is needed to focus on issues and opportunities for environmental protection and sustainable development in the Lake Champlain basin and to advise the policy-making process. Alternative models for such an organization are presented in Part Three.

3. Canadian and Quebec involvement in Management Conference and Basin Program efforts (in contrast to the Steering Committee) is well below its potential. The majority of Canadians interviewed for this project expressed a desire to be more fully involved in planning and implementation efforts for Lake Champlain. They also expressed some frustration at how little is known in the States about Canadian circumstances, experiences, achievements and issues. Conclusion: Institutional arrangements should

support increasing integration of Canadian stakeholders in planning and implementation efforts. This can be accomplished, in part, by building upon the Steering Committee as the main policy-making body for the Lake and by hiring bilingual staff to work with the Implementation Committee (described in Part Three).

4. Opportunities exist to build on and formalize the role of advisory bodies created over the past several years, particularly the Agricultural Advisory Council and the Mad River Project Intra-Basin Advisory Committee. These represent evolutionary changes in existing institutional arrangements.

5. Both States and the federal government of the United States are spending considerable sums of money on programs and projects related to the goals of the draft Action Plan. In fact, the amounts of money spent in this way far overshadow the amounts provided by the federal government to the Management Conference. For example, a rough estimate of the amount spent annually by VTANR within the basin is $18 million while a similar rough estimate for NYSDEC is $8-10 million. Accounting systems are not designed to track expenditures by watershed boundaries. Until it is possible to identify existing state and federal expenditures on plan-related activities within the basin, it will be impossible to take a comprehensive look at how these resources may best be allocated in light of the plan. Conclusion: The ecosystem approach to resource management applied to the Plan must also be applied to identification and allocation of financial resources at the state and federal levels. The first step in moving toward ecosystem budgeting will be an inventory of spending within the basin by all relevant state and federal programs. The inventory should include not only direct programs of the state and federal governments, but also grants made by same to independent groups in the Basin. Preparing the inventory will generate new insights into spending patterns as well as provide a basis for evaluating the value of an ecosystem budgeting approach.

6. Virtually none of the many public and private programs contacted as part of this study were able to provide formal evaluations of their work in any of the Action Plan areas. Conclusion: Institutional arrangements for the Lake could contribute greatly to the effectiveness of many existing programs by providing criteria upon which to base program evaluations in each of the Action Plan areas. Existing programs could be encouraged (if private) and/or mandated (if public) to employ these criteria in regularly scheduled program evaluations. Program evaluations could be a powerful tool in identifying new partnership needs and opportunities and in increasing the public accountability of existing institutions.

IV. RECOMMENDATIONS FOR INSTITUTIONAL ARRANGEMENTS FOR LAKE CHAMPLAIN

A. INTRODUCTION TO WATERSHED MANAGEMENT FUNCTIONS

Efforts at watershed management across the United States have taken a myriad of institutional forms, however the functions served by management institutions are relatively easy to categorize. While not all functions are served in every watershed management scheme, those functions listed below suggest the range of what is possible based on current experience around the nation.

The three watershed management functions most needed here, as reported by 99 respondents to a survey sent to all participants in the Lake Champlain Basin Program, are public education and outreach; coordination of existing efforts; and monitoring of environmental conditions. Surveys of professional key informants involved in the individual action plan areas also identified a need for improved communication among stakeholders. In addition, the need for achieving regulatory consistency surfaced in every Action Plan area along with the need for more scientific research to provide a basis for appropriate policy development. The Management Conference's emphasis on local capacity building for plan implementation will require more and better developed technical assistance capacity than currently exists. Two functions which appear to be underdeveloped in the basin and for which demand is likely to increase as the plan moves toward implementation are environmental conflict resolution and economic and environmental impact analysis. Based on these findings, the functions highlighted below are those most in need of further development for Lake Champlain. Recommendations for institutional arrangements are directed toward fulfilling highlighted functions.

- Functions related to coordination include: **Coordination of existing efforts; Improved communication among various groups of stakeholders; providing legislative linkages**

- Functions related to public education include: **Public education and outreach; Forum for current and controversial issues; Funding for demonstration projects**

- Functions related to regulation include: **Policy Development;** Regulating; Negotiated rule-making; **Permit oversight and compliance;** Enforcement; Land use planning and controls; **Achieving regulatory consistency**

- Functions related to scientific research include: **Research; Data management; Monitoring of environmental conditions; Economic and environmental impact analysis**

- Functions related to technical assistance include: **Community outreach and capacity building; Technical support to localities on environmental protection; Technical support to businesses on environmental protection; Environmental conflict resolution**

- One additional function served by at least one independent group in the majority of watershed management efforts is **advocacy/lobbying.**

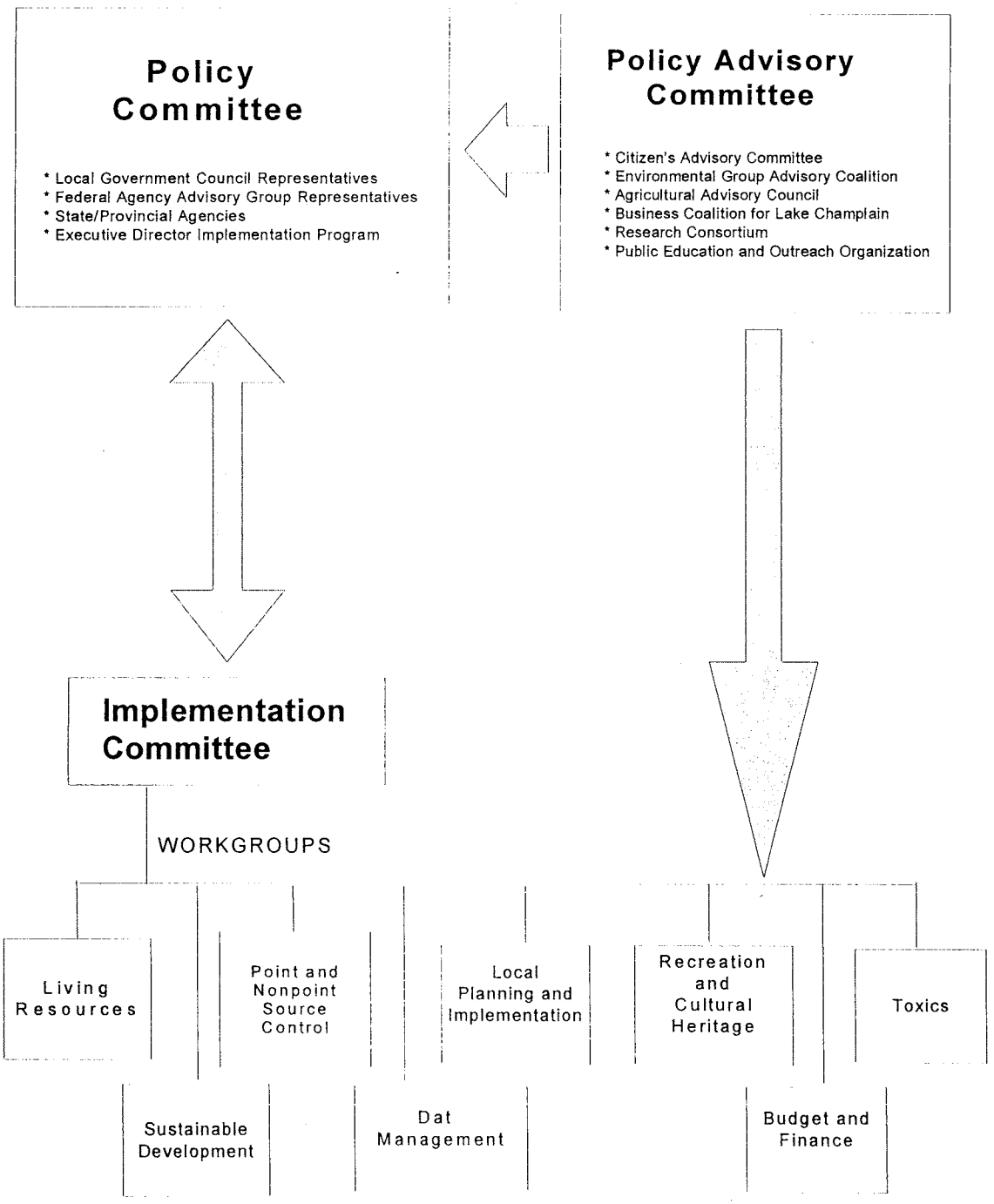
Neither the Draft Plan nor the recommendations for institutional arrangements contained in this report call for new regulatory powers. Recommendations do, however, address the need for input from a full array of organized stakeholders into the policy-making process of existing regulatory agencies at the federal, state, provincial, and local level. The political will at this time is overwhelmingly against creation of a new institution with new regulatory powers. Many Vermonters as well as New Yorkers will resist an institution perceived as imposing new regulatory constraints or a new layer of bureaucracy.

Recommendations for institutional arrangements for the Lake Champlain Basin contained in this report take into consideration all the lessons, shortcomings and aspirations identified above. They are not definitive but are intended to provide the basis for discussion. Answering the question of "what works" will continue to be, in some degree, a matter of trial and error. The best way to capture the benefits of trial and error is through designing institutional arrangements that contain adequate feedback loops between policy development and implementation. Participating organizations ideally should be structured to encourage continuous learning. The learning process requires, among other things, designated time for reflection. (Production of an annual report provides one such opportunity for reflection.) To this end, our recommendations include some discussion of processes which, in our opinion, will facilitate successful plan implementation. What we present here represents a combination of best practices as identified through our research and best judgement as to what, in keeping with the Plan, will best serve the interests of the Basin and its people. These recommendations represent the simplest institutional design considered capable of performing necessary watershed management functions.

B. RECOMMENDED INSTITUTIONAL ARRANGEMENTS

The structure of proposed institutional arrangements is illustrated in the flow chart below. A description of the organizational structure and functions of each institution follows.

Recommended Institutional Arrangements for Watershed Management of the Lake Champlain Basin



1. The Policy Committee

The Policy Committee is a governmental body whose members have responsibility for implementing laws related to basin management. Members of the Policy Committee have the authority to change the way existing regulations are administered and to recommend changes in legislative language to their respective legislatures. The Policy Committee provides a vehicle for discussion and coordination of public policy at federal, state, provincial, and local government levels. Decisions regarding public policy are appropriately the province of government officials whose job it is to protect the public good. However, the institutional model presented here recognizes the critical importance of fostering dialogue and building consensus regarding public policy within and between stakeholder groups in the basin, and of building that consensus into the public policy-making process. That is the role of the Policy Advisory Committee and the stakeholder groups that comprise it (described below).

Policy Committee members will include commissioners, ministers or secretaries of State and Provincial Agencies, representatives of the Local Government Advisory Council (described below), representatives of the Federal Agency Advisory Council (described below) and the Executive Director of the Implementation Program in an ex officio capacity (described below).

In the context of the Plan, the Policy Committee will be responsible for developing public policies related to issues of basin-wide significance through consultation with the Policy Advisory Committee. The Policy Committee will address issues that require regulatory changes or changes in enforcement practices, and will approve Plan implementation priorities as recommended by the Implementation Committee (described below). In approving Plan implementation priorities, the Policy Committee will be responsible for considering the long-term implications of proposed activities and the effect these will have on future policy and implementation decisions. The Policy Committee is charged with re-evaluating the Plan at least once every two to three years in consultation with the Policy Advisory Committee and the Implementation Committee.

The Policy Committee will have final oversight over budgeting for Plan implementation and will approve spending decisions over $25,000 made by the Implementation Committee. It is understood that the Plan itself will continue to evolve over time. While the initial Plan will provide guidance to the Implementation Committee and the Policy Committee in selecting priorities for implementation, the Policy Committee will provide a public policy forum i n which to address a wider range of issues than those identified in the Plan at any given time. The Policy Committee will have authority to petition the state governors and provincial premier to work through appropriate national channels to request involvement of the International Joint Commission if and when it is determined by the Policy Committee that such involvement would be beneficial.

Each member of the Policy Committee, except the Executive Director of the Implementation Committee, will have a vote in its decision-making process. The composition of the Policy Committee will be:

New York State Department of Environmental Conservation,
New York State Adirondack Park Agency,
New York State Office of Parks, Recreation and Historic Preservation,
Vermont Agency of Natural Resources,
Vermont Department of Environmental Conservation,
Vermont Department of Fish and Wildlife,
Quebec Ministry of the Environment and Wildlife.[20]
Local Government Council member from Vermont
Local Government Council member from New York
Local Government Council member from Quebec
Federal Advisory Committee representative from EPA
Federal Advisory Committee representative from USDA
Federal Advisory Committee representative[21]
Executive Director of the Implementation Program, ex officio

The Policy Committee will be co-chaired by the New York Department of Environmental Conservation, Vermont Agency of Natural Resources and Quebec Ministry of the Environment and Wildlife.

a. Steering Committee as Basis for Policy Committee

The Policy Committee represents a modification of the existing Steering Committee. The Steering Committee was created in 1988 and renewed in 1992 through a Memorandum of Understanding between New York, Vermont and Quebec. Its purpose is "to establish a forum for cooperative management of Lake Champlain and its watershed to enhance and preserve the character of the Lake and its environs;...to enhance and establish, where necessary, a process for the regular exchange of information and for more systematic cooperation in research and data gathering...; to provide a mechanism for the participation (of all signatories) in regulatory proceedings addressing significant actions affecting the Lake."[22] (For more information on the Steering Committee, see Chapter II, Section H).

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[20]Quebec involvement could be strengthened by inviting formal participation by two additional provincial agencies or departments.

[21]To be selected by members of the Federal Advisory Committee.

[22] Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain, August 18, 1992, p.3-4. Words in parentheses are added.

The Steering Committee functions fundamentally as a policy-development and policy coordinating body. It has proved capable of functioning effectively in this regard, having a number of achievements, including establishment of joint phosphorus standards, to its credit. In addition, the Steering Committee is the one existing governmental institution that formally represents both States and Quebec. History suggests a strong and active involvement by the states and Quebec will be crucial to continuity of lake protection efforts. Our recommendation, therefore, is to utilize the Steering Committee as a building block toward an the overall policy-making body for lake management. The primary functions of the Policy Committee will be **policy-development, achieving regulatory consistency** and **coordinating existing efforts** (through the Implementation Committee). **Permit issuing, oversight, and compliance** , adoption of standards, and **negotiated rule-making** will remain a function of existing state agencies, facilitated, as needed, through the Policy Committee.

There are several aspects of current Steering Committee process and composition that need to be addressed in the transition from the planning to implementation phase. First, the States and Quebec currently allocate no funds other than in-kind services to the Steering Committee. Funding will be needed to continue to actively coordinate lake management and plan implementation. EPA has allocated 2 million dollars to the planning effort for Lake Champlain in each of the past four years. It is premature to estimate an implementation budget since priorities for implementation have not been finalized. However, administrative costs for the Basin Program have been running at 11.5 to 13.8 percent of 2 million over the past four years.[23] It is recommended that the States and Quebec devise a formula to allocate baseline costs between them and commit to a multi-year appropriation of funds to the Policy Committee[24]. Allocation of resources by the states and Quebec will insure the effort does not fail due to fluctuating availability of federal dollars over time. All federal and other monies received above and beyond state/provincial allocations can be used to further the goals of plan implementation. The alternative is continued absolute dependence on the federal government for funding of lake management efforts.

Second, the Steering Committee as currently composed lacks organized representation from key stakeholders in the basin including local governments, the business community, non-profit organizations actively involved in watershed management, agricultural interests, the U.S. federal government and the full range of the research community active in the basin. It is recommended that the Policy

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[23]Figures are from The Lake Champlain Basin Program 1991-1992 and 1993 Annual Reports.

[24]Such a formula might include an equal split up to some amount with the remainder of responsibility allocated based on the percentage of the basin population in each state and Quebec.

Committee be expanded to include local and federal government representatives. It is ultimately the responsibility of government to protect a publicly owned resource. The best policy decisions are those that are informed by the affected parties or stakeholder groups. Therefore, it is further recommended that a formal Policy Advisory Committee be formed to work with the Policy Committee. Policy Advisory Committee membership should be extended to representatives of the stakeholder groups described below.

Third, state agency representation on the Steering Committee is limited to New York State Department of Environmental Conservation, New York State Adirondack Park Agency, Office of Parks, Recreation and Historic Preservation, Vermont Agency of Natural Resources, Vermont Department of Environmental Conservation and Vermont Department of Fish and Wildlife and the Quebec Ministry of the Environment and Wildlife. While these are clearly the lead environmental protection agencies in their respective jurisdictions, addressing the full range of issues covered in the Lake Champlain Pollution, Prevention, Restoration and Control Plan will require ongoing cooperation, coordination and resources from a variety of additional state agencies including, but not limited to: Agencies (or Departments) of Transportation, Agriculture, Community Development, Public Health, Economic Development, Tourism, Historic Preservation (VT). Some of these agencies have already been actively involved in the basin planning effort while others have not.

In order to promote intrastate agency coordination it is recommended that NYSDEC and VTANR informally designate a key contact person at each relevant state agency to become the Lake Champlain liaison. That person would be responsible for keeping abreast of Policy Committee actions and providing input, directly or indirectly, from their agency. It is further recommended that each state appoint an overall Lake Champlain Coordinator whose function would be, in part, to convene all state personnel working on Lake Champlain issues on at least a semi-annual basis to share information and knowledge and identify emerging issues[25]. As an alternative, the Coordinator would be responsible for obtaining comment from all relevant state agencies on policies proposed by the Policy Committee and promoting networking among state agency personnel. The Lake Champlain Coordinators would coordinate preparation of annual updates on state agency initiatives related to Plan implementation and would work with appropriate staff in each agency and the Budget and Finance Workgroup to develop an ecosystem budget for Lake Champlain and its basin. The Lake Champlain Coordinators would also work with the Implementation Committee and its staff in preparing presentations to the Policy Committee.

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[25] Research indicated that employees of VTANR and of NYSDEC working in the various Action Plan areas are often unaware of the full scope of even their agency's involvement across all areas, much less that of other agencies. By increasing awareness through regular meetings, opportunities for addressing linkages between agency efforts will be more likely to emerge.

b. Local Government Council

As mentioned previously, there is at present no representative body of local governments in the basin. In other watershed programs local governments have been most effective when provided with a structured role in the management process. Local government participation is key to effective implementation at the sub-basin level. We recommend the Management Conference direct Basin Program staff to work with local government leaders and local government groups in 1995 toward establishing a Local Government Council for Lake Champlain.

In establishing a Local Government Council for Lake Champlain, attention must be paid to the differences in local government structure between Vermont and New York. In Vermont, most local government functions are performed at the town level. Only sheriffs and side judges serve at the county level. In New York, county governments provide a wide range of functions and receive considerable state funds. However, as in Vermont, local land use planning and zoning remain the province of local governments in New York (except in the Adirondack Park where there is separate authority for state zoning administered by the New York State Adirondack Park Agency and local zoning administered by Towns and Villages.) Therefore, it will be important to include both town and county representatives from New York while Vermont will be largely represented by town officials. Efforts should be made to ensure representation of towns across the rural/urban, lakeshore/away from lakeshore and income spectrums.

The Management Conference can create incentives for the formation of a Lake Champlain Local Government Council by offering interim staff support for its formation, by offering three seats, (one from Vermont, one from New York and one from Quebec), on the Policy Committee to local government representatives under the condition that such a representative body is created, by offering to serve as an intermediary between local government concerns over federal and state mandates and the agencies whose mandates are of concern, and, finally, by offering funding to a Local Government Council for use in providing technical assistance to local governments in areas such as risk-based priority setting, pollution prevention, EPA compliance, and assistance in the permitting process for local governments and employers among others.

Existing organizations that ought to be included in discussions about a Lake Champlain Local Government Council include but are not limited to the Vermont League of Cities and Towns, the Adirondack Association of Towns and Villages, New York's county legislators, the New York State Association of Counties, the New York Intercounty Legislative Council, and the New York State Association of Towns. Other starting points include those local governments that are already participating in cooperative interjurisdictional arrangements to protect water quality such as the Mad River Planning District, described in greater detail below.

1. Models of Local Government Involvement in Watershed Management

Local governments are the units of government closest to the problems created by both mismanagement of resources and their overregulation. Local governments have the ability to control many land use decisions. Yet local governments often lack the local political support, technical and financial resources to plan and implement changes in resource management policies. Furthermore, many resource issues managed at the local level have implications for surrounding communities. Increasing the capacity of local governments to work together and to plan and respond effectively to resource management issues is a key ingredient in sustainable resource management.

There is currently no institution that represents the interests of local governments in the watershed management of the Lake Champlain basin. Local government representatives on the Management Conference are truly representative only of their immediate town or county constituency, not of all local governments in the basin. There is no institutional structure that brings local governments together to identify shared concerns and then allows these concerns to be brought into the policy development and plan implementation process for the basin. Nor is there a body to identify needs and coordinate technical assistance delivery to local governments.

In considering how such an institution might be developed and what it might look like, the Management Conference should be aware of the variety of roles local governments can play in watershed management. Three models illustrative of that variety are presented below.

a. Clinton River Watershed Council[26]

History

The Clinton River Watershed Council was established in 1971 at the urging of local governments and with the approval of the Michigan Water Resources Commission. The objective was to provide a single, unified voice at the local level for communities concerned with state and federal agency plans for a single regional wastewater treatment plant in Detroit and additional river channelization for flood control. This resulted in abandonment of the single plant proposal for upgrades to seven local

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[26] All information on the Clinton River Watershed Council is taken from "Taking the Next Step: A Recommended Institution for the Grand Traverse Bay Watershed Initiative" Final Report by Michael J. Donahue, Ph.D., September 1993. Clinton River Watershed Council is one of four case studies presented in this publication.

treatment facilities. The upgrades have had noticeable positive impacts on water quality. Over the years, the Council has been active in identifying innovative approaches to stormwater management, groundwater protection, municipal wellhead protection and community education. Future directions include development of river trailways and greenways.

Services

The Council's day to day services include: sharing management experiences and solutions among local governments, assisting local officials in gaining the understanding and support of local residents, providing information referral services, identifying consultants and funding sources, tracking legislation and identifying opportunities for local influence, and providing a forum for new issues or crises.

Structure

The Council has been a membership based organization with voting delegates appointed by the member jurisdiction. One delegate is appointed for every 20,000 in population. The entire membership meets quarterly. A seven member Executive Committee is elected annually. The Council is evolving away from a voluntary association of local governments to a forum for all stakeholder groups in the region, including government, businesses and citizens organizations.

Funding

The Council is funded by voluntary membership of the counties, cities, townships and villages in the watershed. Annual membership fees are based on population and range from $100 to $10,000. Membership dues comprised one-third of the $150,000 annual budget in FY 1993. In addition to membership dues, the Council has been supported by federal, state and private grants over the years. The Council's budget supports a full-time staff person and a half-time secretary. At a maximum, 50% of eligible communities have been members.

Strengths and Weaknesses

The strengths of the Council have been identified as its:

- watershed scope;
- focus as a vehicle for local governments to exert influence on policies and programs of higher levels of government and for higher levels of government to form partnerships with local government;
- continuous and reliable service delivery to its members
- forum and information clearinghouse

- planning services that provide a watershed based framework for issues and deployment of resources

The weaknesses of the Council have been identified as:

- limitations of voluntary membership and the free rider problem
- funding inadequacies leading to staff recruiting and retention problems
- statutory limitations which place the burden on the Council's educational/persuasive abilities
- lack of support within the larger institutional ecosystem. The Council does not enjoy a clear-cut and widely accepted role vis-a-vis existing water management agencies in the state.

Lessons

Lessons learned from the Council that are relevant to Lake Champlain include:

- Importance of having local decision-makers (e.g. selectmen, mayors, town supervisors, county commissioners) directly represented on the organization. This helps create a forum they will come to depend on.

- Importance of emphasizing the benefits municipalities will receive by belonging. Principle among these benefits will be the ability to speak in a strong, unified and influential voice at the state and federal levels.

- Realize the need for strong, competent leadership.

- Position the institution as the first point of contact for its members. Provide and publicize information clearinghouse and referral services. Serve as an information broker.

- Carefully design products and services to create strong incentives for municipalities to support the institution. Incentives for Lake Champlain municipalities might include but not be limited to: access to the policy development process, financial support for technical assistance, and preferential treatment from state and federal governments for grants and loans related to plan implementation.

b. Great Lakes Council of Mayors

The Great Lakes Council of Mayors was stimulated by the Great Lakes St. Lawrence Maritime Forum. The Forum represents state and provincial cities with port facilities on the Great Lakes and on the St. Lawrence. They have a major economic stake in

watershed management. However, cities with ports are only a part of the group of city stakeholders in the watershed and ports are only one of the concerns of cities participating in the Forum. Recognizing this, a larger group of mayors was recruited to form the Council of Mayors. A recruiting drive is on-going at this time, supported by staff of the Great Lakes Commission. So far more Canadian cities than U.S. cities have responded.

In developing a local government council for Lake Champlain, tourism development might replace commercial shipping as a focal point for organizing. This could build on the work of the Technical Advisory Committee's Recreation Subcommittee with local governments in New York and Vermont and should be extended to Quebec municipalities. Several Canadians contacted as part of this research expressed a strong interest in working with Vermont and New York to develop Lake Champlain as a first class ecotourism destination. This approach could also give local governments a voice in ongoing discussions between the Industrial Commissioners of Southern Quebec, the Regional Planning and Development Representatives of Northern Vermont, the Vermont Commissioner of Economic Development and the Vermont Commissioner of Travel and Tourism regarding the potential for joint Vermont/Quebec marketing and development initiatives. This is not to imply that tourism development is the only area in which local governments can benefit from greater involvement with each other and with the plan implementation process, rather it is to suggest a possible avenue that could elicit widespread interest and form an initial basis for cooperative action.

c. Mad River Planning District

The Mad River Planning District is an example of multi-community collaboration for planning purposes in the Champlain basin. Voters of the towns of Fayston, Waitsfield and Warren created the District in 1985. The District took the place of previous less formal cooperative arrangements by the towns. The District grew out of an exhaustive fact-finding effort in 1980-82 known as the Valley Growth Study which provided a context within with subsequent revisions to each town's plan and zoning ordinances were adopted and a capital budget for each town developed.

Structure

The Mad River Planning District operates under an intermunicipal agreement through a steering committee composed of one planning commissioner, one selectman and one representative of the business community from each jurisdiction, appointed annually. The purposes of the District are broadly defined to include the physical, social, economic, fiscal, environmental, cultural and aesthetic well-being of the towns and their inhabitants. The steering committee hires a planner to advise the jurisdictions and help in negotiations with land developers, ski areas and agencies of the state and federal government.

Activities

The Steering Committee of the District assists towns in planning, zoning and capital budgeting, sponsors research and procures technical assistance in areas such as traffic control, water quality and open land conservation. In one of its most noteworthy early achievements, the Steering Committee was able to reach an agreement through a Memorandum of Understanding with Sugarbush Valley, Inc., a ski resort, to phase expansion in accordance with the towns' capacity to absorb growth and to reach decisions on expansion through a cooperative process with the towns. The agreement also obligates the ski resort to share in the cost of analyzing any potential problems that might result from its expansion. In addition, the ski resort agreed to match annual town contributions to the District. This is an example of a process which brought opponents from different stakeholder groups into a collaborative, sustained relationship.

The District has collaborated with the Vermont Division for Historic Preservation and the Vermont Land Trust in preparing a Rural Resource Protection Plan which, in turn, lead to a Rural Resource Partnership program to promote land protection in the Valley.

Most recently, the District has collaborated with a citizens group, Friends of the Mad River, to develop a Mad River Conservation Plan. Two additional towns, Moretown and Duxbury, have joined the initiative. The project will allow local officials, businesses, schools and citizens from the five towns to work together to identify the uses and values of the Mad River as well as threats to its water quality. The Friends began a citizen monitoring program in 1993 with assistance from the River Watch Network and Mountain Wastewater Treatment, Inc. Thirty-seven sites on the river are monitored and interpretation materials are widely distributed.

The Mad River Planning District presents an excellent example of the value of intermunicipal cooperation at the sub-basin level. Benefits of the collaboration have included increased capacity to negotiate successfully with major employers and the federal government leading to new opportunities to control and direct growth and development to meet the needs of local citizens and the environment.

d. Common Threads and Conclusions

All three models represent local government responses to threats and/or opportunities. Two, Clinton and Mad River, were locally initiated, the third, Great Lakes, is being initiated in part by a third party. While local initiation is desirable, it can be facilitated by a third party through support for intermunicipal networking.

Studies of intermunicipal institution building for watershed management have identified four levels of watershed management arrayed from least to most formal: networking, cooperation, coordination and collaboration. Networking refers to sharing

information of mutual interest and can be facilitated in any number of ways including through meetings, newsletter, via computer, etc. Personal networking, however, is needed to build the levels of trust required to go on to the next stage. Cooperation refers to agreements to share a relatively simple organization purpose. Coordination implies significant member commitment of resources, identification of specific common goals, and some loss of autonomy in agreeing on strategies to pursue those goals jointly. Collaboration implies formal agreements, such as the Mad River Planning District's Memorandum of Understanding, which commit the parties to shared resource and decision-making over the long term. Sustained collaboration requires continually reaching out to and educating newly elected town, village, city and county officials.

A number of alternatives are available to the Management Conference in supporting development of a local government council or representative body for basin governments. None appear to be mutually exclusive. One is to turn to the organizations that already exist and represent local governments such as the Vermont League of Cities and Towns, the Adirondack Association of Towns and Villages, the New York State Association of Counties, among others. A second is to make direct contact with leaders in each municipality by attending town board and town supervisor meetings and their equivalent in Quebec municipalities to determine their interest in participating in a local government council for Lake Champlain and the types of incentives of greatest interest to them. A third would be to encourage existing sub-basin watershed protection organizations to deliberately and consistently include municipalities in their membership base and have one of those members represent all participating municipalities. A fourth option would be to suggest that the Local Planning and Implementation Workgroup develop a program for evaluating towns and giving them ratings based on the degree to which they are in compliance with environmentally-related regulations. This would create a strong incentive for local governments to be involved with the Workgroup in developing the criteria to be used. The rating system itself would provide a reward and incentive for local governments who might then compete for high ratings. Pursuing these avenues with the expectation of providing a truly representative voice for local governments in basin management will require the commitment of staff and resources by the Management Conference in the year remaining to it.

c. Federal Agency Advisory Committee

1. The Problem

While US EPA is the primary federal agency in the management of water quality it is obviously not the only one that has relevant responsibilities in the management of Lake Champlain. This is true even if a very narrow definition is chosen for the scope of the

management problem. The draft action plans prepared range well beyond any such narrow definition and the trend is for basin management to become more holistic in its approach, not less inclusive. The environmental movement has raised expectations about the consideration of the total ecosystem and this has been reflected in water quality planning and policy evolution. The trend in water development agencies has also been to be more and more comprehensive and to mitigate and restore natural functions. In order to take full advantage of their considerable capacity how should these federal agencies be included in basin governance?

To complicate the issue federal agencies and programs are quite independent, each responding to different client groups, under the purview of different Congressional Committees, having evolved different relationships with state and local governments and often can be quite independent of the discipline that might be imposed by the president and executive agencies such as the Office of Management and Budget. How to bring them together to focus on the problems of a place like the Champlain Basin, help develop priorities and respond to them in a coordinated, even integrated way when necessary? The nation has tried many devices with little guidance to glean from that history. This is to be reminded again of the importance of a locally based arena where technical and evaluation information is widely shared and priorities negotiated and transmitted through a combination of the agency hierarchy to the executive side and through the local Congressional delegations to the key congressional committees. Many structures can be devised to get this job done. Building upon existing arrangements is the most efficacious approach.

2. Some history

TVA started the experimenting with presidentially appointed commissioners who have found themselves much like any other federal agency, working closely with state officials and local interests to gain support of their Congressional delegations. At about the same time inter-agency coordinating committees were formed for many major basins and found to be an effective device to promote communication, negotiation and public education about rational planning ideas of the day. The 1965 Water Resources Planning Act formalized this with basin planning commissions made up of federal agency representatives with a Presidential appointee as full time chair. This authority for planning commissions did not happen until representatives of state water development agencies forced the inclusion of a state cochairman and funding to build up state capacity to participate. At the same time compact commissions were being offered as a way to build the state role and perhaps contain the growing federal role, particularly in water quality. The quiet demise of the basin planning commissions at the beginning of the Reagan Administration after the Carter Administration had tried to use them as a device to strengthen environmental management suggests that the device had not developed a very strong support system. Water quality planning had not received as much support as some had expected. It thus can be argued that the

most relevant experimentation for federal representation today is the more recent experiences of the EPA oriented basin and estuary water quality planning activities.

3. The Current Experience.

In preparation for this report, a number of watershed and sub-basin organizations were contacted to see if they had involved federal agencies in their deliberations in innovative ways. Respondents were asked if, for example, construction sites were being increasingly recognized as a significant source of silt and nutrient pollution. If so, had this prompted the watershed organization to expand the scope of relevant federal agency involvement to include, for example, the U.S. Department of Transportation or the U.S. Soil Conservation Service?

Respondents indicated that federal agencies tend to be represented on task oriented groups set up to monitor and plan for particular issue areas and projects. For example, when committees are set up to review wetlands or nonpoint source pollution, relevant federal agencies are called on to participate. However, formal membership in the overall policy group was already unwieldy, so federal agency representation on these groups was often limited. Chesapeake Bay is a case in point. The central working structure there consists of a wide-ranging group of standing committees that expand their membership as they address particular issues. The committees report to an Executive Council on which U.S.E.P.A. is the only federal representative. The relevant state and federal agencies are represented in an advisory group to the Executive Council and on an Implementation Committee. It is the Implementation Committee that relates to the standing committees and other work groups and advisory committees. A U.S.E.P.A. liaison office staffs the effort and has a signficant pool of special grant funds available. It is credited with making the whole process work.

These are not static arrangements. New arrangements for the tributaries of the Chesapeake were determined to be needed when the effort to manage nutrients was deemed inadequate and after a 1987 agreement was reached. Research results suggested that the northerly tributaries, especially the Potomac, needed more vigorous attention and that atmospheric deposition of nitrogen was a significant issue. To accommodate the shift in priorities entailed by the research findings, a more place-based system of implementation was needed. This system coordinates the relevant agencies with a tributary coordination team and delivery teams right down to the sub-basin level. In Virginia alone this is seen as involving 491 local watersheds as management units, a fundamental philosophical change. Each watershed is expected to participate in a uniform monitoring programs with a regular score card to show how each is contributing to restoration of the Bay.

In the different context of the Great Lakes Basin, a series of coordinative arrangements are managed by several over-arching structures including the IJC, the Compact Commission, and the organization of state Governors. Within this overall

structure, there are a number of opportunities for formal and informal inclusion of federal agencies. For example, federal agencies can and do participate in the Water Quality Treaty with the IJC's Water Quality Board, the Fisheries Commission, and the lake level boards, among others.

Another category of innovation mentioned by respondents was increased partnering between individual federal agencies. For example, the U.S. Army Corps of Engineers has used a pioneering partnership with the U.S. Fish and Wildlife Service which developed as a result of basin organizing activities on the Upper Mississippi River. This then served as a model for the Long Island Sound watershed. The partnerships have resulted in increased efficiencies in data collection to analyze cost effectiveness of agency interventions. These innovative partnerships allow a closer fit between federal agency cultures that have historically been more antagonistic than cooperative. This is the kind of role that basin management can and should play.

4. Roles for Basin Managers.

Part of what holds the federal players together in a watershed context, and makes them more accountable to each other, is the widespread access to the growing pool of information about the system that they are all impacting and trying to manage. The basic hydrologic relationships are widely available for almost any basin or sub-basin. Consultants and agency staff quickly master the analytical models that drive regulatory and investment decisions. A recent suggestion for reform is to provide a clearing-house for data and modeling of the Great Lakes systems. A basin staff group can and should assure that all parties have access to what ever is pertinent to understanding the role of this plan or that project on the goals and objectives of the basin, or at least to find the basis for arguing the issues if not agreeing upon them. Debates about facts and values always get mixed together. Removing the monopoly of federal agencies in scientific information greatly increases their accountability.

Facilitating this kind of effective involvement by the federal agencies is the internal reform processes that are occurring in each agency. Basin and sub-basin oriented organizations can support these processes. One growing reform concept is to find a place, perhaps a commanding place for ecosystem concepts in the planning protocols of the individual agencies. New technical staff have been trained in these more modern, if not fully understood concepts. These ideas are gaining wider and wider acceptance and that acceptance increases the potential for a more positive role for basin management capacity. At the same time public expectations of these concepts have grown. Several examples stand out. US EPA is currently exploring management principles that follow from a commitment to a place driven rather than a source driven approach to environmental protection. The watershed is gaining adherents inside US EPA and other federal resource agencies as the most logical unit to use in defining place. The implication of a place driven management system is that priorities for

enforcement and capacity building would be driven by the needs and effectiveness of local options rather than the national enthusiasms for what class of source to reform next, often with a one size fits all approach. If these internal agency trends have the kind of impact that a commitment to ecosystem principles in the US Forest Service may be having, this will greatly increase the ability of watershed organizing and planning to have an impact on the management of environmental affairs.

5. The "Edgewater Consensus"

Special attention should be given to how the so called "Edgewater Consensus" impacts the internal structure and approach of US EPA before final arrangements for its role in the new Lake Champlain governance are made. This general statement of principles for the reorientation of EPA programs to a focus on ecosystem protection is the marching orders to a high level task group to identify how to do it, barriers to success and solutions including the need for new authority from the Congress. Regional offices have submitted a list of 18 demonstration projects that includes Long Island Sound and eleven other watershed programs but not Lake Champlain. Further nominations are expected. Preliminary results for EPA Administrator consideration and guidance is expected in December '94 or January '95. Impacts should clarify by Fall. If US EPA administration makes a significant commitment to watershed organizing with a "bottom-up" character, the potential for near term funding of Lake Champlain's version of the liaison office role in the Chesapeake Bay watershed organization might be good. The prospect of a well funded federal program might be leveraged to increase state participation.

On March 5 senior EPA leaders from Washington and the regions met at the Smithsonian Environmental Research Center near Edgewater, Maryland. The "Edgewater Consensus" concluded that ecosystem protection is place-based environmental management. It is driven by the strategic or high priority environmental problems that occur in particular ecosystems. It relies upon stakeholders in those places to define the problems, prioritize and help implement their solutions. Merging ecosystem health and economic stability become, then, a major feature of the new approach. Place-based environmental management is seen as allowing the agency to be more responsive and thus closer to the public they serve. This calls for capacity to work in a non-regulatory mode that effectively reaches the local level without compromising its traditional regulatory role. Preliminary guidance for the demonstration projects follows a planning process not unlike that has been followed to date for Lake Champlain with perhaps one crucial difference. In addition to investing in public education and outreach as done in the Champlain effort, it is suggested that a broad based constituency be built that stresses economic viability as an equal partner to ecologic viability. A socioeconomic assessment is urged that includes a forecasting analysis of future conditions as a basis for stakeholder discussion of their sustainable future.

d. Recommendations for Federal Agency Representation

Under existing institutional arrangements, federal agencies are represented on the Management Conference but not on the Steering Committee. We recommend federal agency participation on the Policy Committee through creation of a Federal Agency Advisory Committee. The purpose of a Federal Advisory Committee is to facilitate policy and program coordination between federal and state agencies and among the federal agencies themselves. The primary federal agencies involved to date in the LCBP have been the Environmental Protection Agency, US Army Corps of Engineers, US Fish and Wildlife Service, US Department of Agriculture (Agricultural Stabilization and Conservation Service and Soil Conservation Service), and the National Park Service. For the implementation phase of the process, we recommend including representatives of the Economic Development Administration and the Farmers' Home Administration to the Federal Agency Advisory Committee. In New York, where Housing and Urban Development (HUD) funds do not flow through a state agency, a representative from HUD should also be included.

The Federal Agency Advisory Committee should work with the Budget and Finance Workgroup to identify the full range of federal resources currently in use and available to support implementation of the Action Plan.

The appropriate role and level of activity of the Canadian federal agencies should be determined wholly by Quebec agency participants in the Policy Committee.

2. The Policy Advisory Committee

The Policy Advisory Committee will provide a forum in which to work toward developing consensus among various groups of stakeholders regarding public policy in the basin. The existence of the Policy Advisory Committee will allow the opinions of its members, representing their respective constituencies, to be systematically included in public policy debates. The success of the Policy Advisory Committee will ultimately depend on the extent to which stakeholder groups included in it are effective in forging consensus among their respective constituents. For example, if businesses from different areas in the basin and different sectors cannot identify common ground within their own organization, they will not feel themselves to be effectively represented on the Policy Advisory Committee. Therefore, care must be taken to provide adequate resources for facilitation that is likely to be needed in organizing and initiating effective stakeholder groups. It is far easier for stakeholder groups to organize to oppose and block a proposal than it is to organize themselves for effective collaboration with other groups and follow-through to implementation.

It is important to recognize that several of the key stakeholder groups recommended as members of the Policy Advisory Committee do not currently exist. Without them, institutional capacity to implement the Plan on a sustained basis will be seriously

undermined. Time and money will be required to bring these groups into existence. Public funds and resources are appropriately allocated to assisting in development of organizations that will enhance the capacity for ongoing effective Plan implementation and basin management. Assisting in developing these organizations should be one of the Management Conference's top priorities in its final year.

Policy Advisory Committee members will attend Policy Committee meetings and have the right to review materials presented to the Policy Committee and make recommendations on policy development. Members of the Policy Advisory Committee will not vote on Policy Committee decisions. The Policy Advisory Committee will consist of representatives from the stakeholder groups described below. These stakeholder groups are designed to provide ongoing feedback to policy-makers regarding the effectiveness and efficacy of policy decisions. It is anticipated that members of the various stakeholder groups will serve on the Policy Advisory Committee, on Workgroups, and on the Implementation Committee. Their involvement at both the policy-making and plan implementation levels will provide opportunities for feedback in the implementation process.

a. Citizens Advisory Committees

The Vermont, New York and Quebec Citizens Advisory Committees (CACs) should each be represented on the Policy Advisory Committee. The primary functions of the CACs should be: contributing to **public education and outreach efforts, providing citizens forums for current and controversial issues**, and **providing legislative linkages to the planning and implementation process.**

1. Legislative Linkages

a. The Problem.

Legislators need to understand the implications of place based priority setting to the programs that they have authorized and the appropriations they make. The normal constituent relationships with legislators provide a base for this understanding that can be usefully reinforced. Indeed if a watershed is deemed to need management capacity independent of but inclusive of the state and federal agencies that capacity can not be considered complete, perhaps not even begun until it has developed regular communication links to the state and federal delegations that serve their region. The communication process through the agencies and the executive side can be usefully supplemented with various direct arrangements.

Watershed organizations usually make sure that state and federal legislators receive their newsletters, annual reports and many other public education and outreach materials. Controversial topics generate contacts and most find that prior knowledge

and educational work pay big dividends when the fur flies. Several arrangements have been tried to formalize and increase the attention and response of the legislature as an organization, particularly at the state level.

To one degree or another formalizing the legislature/watershed relationship is made difficult by the relative circumstances of the part of the watershed to the rest of the state. For example, most of the Lake Champlain drainage in New York is also within the Blue Line of the Adirondack Park. No legislator can be elected to that region without sharing some of the concern that many residents have over the role of the New York State Adirondack Park Agency. Obviously, many view the statewide concern for wilderness values in the region with hostility. This combines with the fact that in the New York legislature the basin region has a very small representation while the Vermont portion of the basin involves the majority of its legislature. Vermont's Act 250 version of state involvement in land use controls, unlike New York's APA, was passed by the legislative majority that lives in the watershed. It is not obvious from the experiences of other jurisdictions just how to deal with this imbalance.

b. Some recent experience

The Columbia River Gorge Commission is an example of a two state arrangement where the similarity may be helpful. The city of Portland is on the Oregon side with no comparable population concentration on the Washington side. Oregon is the smaller of the two states. Both legislatures adopted complicated legislation to regulate land uses along the rural shorelines of the main stem of the river. Federal legislators then steered a bill through passage that committed the US Forest Service to provide substantial staff support and to adopt compatible management plans in its considerable holdings in the region. The objectives are to preserve the visual and resource values of the gorge as a basis for its rural economy. A Commission representing the two states manages the process of preparing a plan with much of the implementation left to the local governments that already have land use control powers. What might be called traditional constituent representation may continue to be the principle involvement of the legislators.

For all its apparent similarity in terms of population distribution note that the issue was quickly defined in such a way as to make the stakes of the two sides of the river more similar than different. First, note that most of the jurisdiction was kept to the gorge, excluding most of the population of either state. Second, the controls were formulated only for the rural areas, urban areas were excluded and have a procedure available to expand their boundaries. Third, the federal agency involved had a long history of economic development orientation and working with the local leadership of the rural areas involved.

The example of Virginia, Maryland and Pennsylvania in forming their joint legislative Chesapeake Bay Commission stands as a more intriguing example. Its success has likely influenced the arrangements sought in other US EPA related watershed ventures such as Long Island and San Francisco Bay. Additional support from both state and federal treasuries has resulted. These Chesapeake legislatures recognized a common interest before the current arrangements for an Executive Council, advisory committee of agency heads and Implementation Committee with its standing committees and work groups was put in place in 1985. They communicated informally for several years and then formalized the Commission in 1980. The Chairman of the Commission sits as a member of the Executive Council. While it would be quite beyond the fact to say that these three states have adopted the same legislation in support of the Bay they certainly are credited with working out major differences in a fairly timely fashion. Note that New York with its drainage in the Susquehanna was not included. It is partly the fact that Pennsylvania has such a large part of itself in the Susquehanna and commands so much of that river to explain its inclusion and not New York's. Pennsylvania has had a significant commitment to such interstate arrangements as had New York, but that was then. If efforts are made to bring the New York legislature into the Commission this should help prepare the way for more effective representation by New York's legislature in the affairs of Lake Champlain. Such statewide interest was generated for the Adirondack Park Commission and this is closely related to that issue at least in the view of many in the environmental movement.

On Long Island a Congressional caucus worked from the start to get federal legislation and appropriations. The senators in particular worked hard for a Long Island Improvement Act and related funding. A bistate committee of state legislators, eight from each state meet quarterly and have gotten some coordinated bills through each legislature. They have been helpful in indicating what would not fly as well as working for what they think will succeed.

Another alternative is to encourage each state and the Province to devise its own system for legislative involvement without structural relationships to the others. New York has the most difficult problem thus we only provide some examples from its experience. New York has three models that serve as precedents. First, Long Island has enjoyed the attention of a legislative commission focused on just its water resources. It has been a factor in interagency coordination and initiatives to protect groundwater resources in particular. Local stakeholders have another route to voice their concerns on such activities as the Long Island Estuary Study that is comparable to the Lake Champlain program. They have provided a focus and conduit for activists and local officials. Note that for most of their history they have been primarily a Senate oriented body which has been controlled by the Republicans and who also have held majorities on Long Island. This may have actually increased their effectiveness given this aspect of New York politics.

Second, local legislators and others could seek the attention of the Legislative Commission for Rural Resources. They have provided a successful forum for revising land use management statutes, and called attention to the need for groundwater protection. Both the Senate and the Assembly provide active staff and members for its deliberations. In its early years the Senate provided most of the support for the Commission, but in recent years Assemblymen with leadership potential have been appointed. It could provide a useful forum to bring together the local and statewide concerns for the protection of the environmental resources of this region. The Senate has shown more sympathy for the local discomfort with the NYSAPA, while the Assembly has had more sympathy for the statewide concerns to protect the region. These two points of view will need to be placated if there is to be any significant response to unique Lake Champlain priorities by the New York legislature.

Third, The New York State Great Lakes Advisory Council provides advice to both the Governor and the Legislature. As is the case with many of the commissions and boards set up in New York to deal with such issues it attempts to balance the interests of the stakeholders including the agencies. The governor is to appoint members that represent particular interest, three from environmental groups, two from business, and one each from the research community, labor, counties and cities. The Senate and Assembly then each have two appointments. The Council takes involvement and advocacy for the Great Lakes before the legislature as a serious part of their charge. Staffing is provided by NYSDEC.

They helped stimulate the development and are promoting the results of a 25 year plan for the Great Lakes. The plan is much like the set of draft Lake Champlain Action Plans and fills the same need. What might a similar group do for the New York portion of the Champlain region? In the Great Lakes case they selected toxics as a high priority topic on which to help focus the policy process. They accepted the concept of the Lakes as a single ecosystem as a basis for the Great Lakes Water Quality Guidelines and the goal of the virtual elimination of the discharge of persistent toxics as a step towards a level economic playing field to the advantage of New York. They argued for and got the flexibility of a two tiered approach to standard setting. Their role provided a forum for stakeholders and some ability to negotiate results that were more place responsive. A similar role might well be taken for a workable set of Champlain issues.

1. Recommendations for Legislative Linkages

The Vermont CAC was created by the Vermont legislature and has four Vermont legislators as members.[27] The Vermont CAC submits a Lake Champlain Action Plan to the Vermont legislature each year. The CAC Action Plan includes joint

[27] There are also four Vermont legislators on the Management Conference and two New York appointees designated by the New York State Senate.

recommendations developed in collaboration with the NY CAC. The legislative link in Vermont is relatively strong and enhanced by the fact that many Vermont legislators represent communities in the Vermont portion of the basin.

A stronger link to the New York legislature is needed. The New York CAC has no formal link to the New York legislature. Positions on the Management Conference created for New York legislators have gone unfilled. In order to strengthen the legislative link on the New York side in particular, we recommend that the NY CAC ask the NYSDEC commissioner to appoint representatives of the three state politicians from the region to the CAC. In addition, the NY CAC should submit an annual report similar to the VT CAC report to the NY legislature. The NY CAC may be able to reach a wider legislative audience by tieing its presentation on Lake Champlain in with an appropriate forum on the Adirondacks in which many more legislators take an interest.

Further, we recommend an annual joint legislative public hearing on Lake Champlain in conjunction with release of the annual report card. To facilitate NY legislative involvement, the first such conference might be held in Albany.

Ideally, the Quebec CAC should be included in the formulation of joint recommendations and should perform the same legislative linking functions in Quebec as the VT and NY CACs do in the States. The feasibility of this approach and its desirability from the perspective of Quebec stakeholders has not been determined.

c. Forum for Controversial Issues

The CACs have effectively served as a forum for a broad spectrum of opinion. They are viewed as non-bureaucratic, easily accessible points of entry into the debate. It is important that their role in this regard be recognized and supported in the implementation effort. Staff support and funding for the CACs should be part of the commitment of state agencies to the ongoing process of lake management.

d. Public Education and Outreach

The CACs have played a significant role in public education and outreach in the plan formulation process. Their continuing role in this process should be in partnership with the Public Education and Outreach organization described below. The board of the Public Education and Outreach organization should look to the CAC chairs for advice in setting the public education agenda.

The two State CACs should be encouraged to include the Quebec CAC in their joint meetings and development of joint policy statements. The voice of the CACs can be furthered strengthened over time by collaborative efforts.

b. Environmental Group Advisory Coalition

The Environmental Group Advisory Coalition is envisioned as an expansion of the Mad River Project Intra-Basin Advisory Committee formed in 1993 to advise the Mad River Management Demonstration Project funded by the Lake Champlain Basin Program. The Intra-Basin Advisory Committee brought together representatives of watershed associations throughout the basin with representatives from state agencies and university extension services that provide technical assistance to watershed groups. Members of the Lake Use/Land Use Subcommittee of the Technical Assistance Committee were also involved.

The sub-basin watershed associations represented in the Intra-Basin Advisory Committee are the groups doing hands-on work in resource management. Their experiences are vital to policy developers in understanding what works and what doesn't.

We recommend that membership in the Environmental Group Advisory Coalition be extended to all watershed groups within the basin, including Quebec, where several citizens groups are currently active. We recommend that the Coalition be inclusive of existing environmental groups in the basin, some of whom have an agenda broader than watershed management, but that the focus of the group remain on bringing hands-on experience in watershed management to the policy advisory process. It is anticipated that members of this Coalition will be active in the Workgroup on Sustainable Development (as well as in other Workgroups), helping to identify opportunities for business growth consistent with environmental protection. We recommend the Coalition have a seat on the Policy Advisory Committee.

c. Agricultural Advisory Council

The Agricultural Advisory Council was created in 1993 by the Management Conference with the endorsement of state agricultural and environmental agencies . Formation of the Advisory Council was recommended by the NY-VT Strategic Core Group who prepared the "Design and Initial Implementation of a Comprehensive Agricultural Monitoring and Evaluation Network for the Lake Champlain Basin" from 1991 to 1993. The mission of the Agricultural Advisory Council is, "to facilitate communication, cooperation, and coordination for implementing the Comprehensive Agricultural Monitoring and Evaluation Network (CAMEN) Plan, and for continuing a collaborative approach to manage agricultural nonpoint source pollution."

Given the economic and environmental importance of agriculture in the basin, we recommend the Agricultural Advisory Council be represented on the Policy Advisory Committee. We recommend that membership in the Agricultural Advisory Committee

be extended to the Quebec Ministry of Agriculture, Quebec farmers and Quebec farmer organizations active in the basin.

d. Business Coalition for Lake Champlain

As previously mentioned, there is no representative group of businesses organized to focus on the Lake Champlain basin environment and economy. We recommend the Management Conference, through the Basin Program, work with established business groups across all relevant sectors in 1995 to encourage the formation of such a coalition. Relevant sectors include but are not limited to: banking, construction, real estate, utilities, manufacturing, retail, services, lodging, recreation, and businesses within the basin that specialize in environmental protection.

1. Models of Business Involvement in Watershed Management

In considering how such an institution might be developed and what it might look like, the Management Conference should be aware of the variety of roles businesses and business coalitions can play in watershed management. Three models illustrative of that variety are presented below.

a. Northeast Business Environmental Network

The Northeast Business Environmental Network (NBEN) is a participant in the Merrimack River Watershed Initiative. NBEN has a mailing list of 100 businesses of which 20-30 are active members. Membership is primarily among manufacturing businesses in plastics, wood, textiles, telecommunications, and other areas. Forty percent are large companies, sixty percent are medium to small. NBEN is explicitly a non-partisan group. Members are asked to sign a statement saying they accept environmental regulations as a part of doing business and recognize the interconnectedness of environmental and economic health.

The purpose of the Network is to bring businesses together with governmental technical assistance agencies that have access to regulatory officials in order to help each other understand how best to deal with environmental regulations and improve environmental performance. The Merrimac chapter of NBEN has already sponsored two full day seminars to deal with critical air and water regulations.

The formation of NBEN was supported by a grant from EPA. Staff support has been provided through the Massachusetts Office of Technical Assistance. NBEN incorporated as a nonprofit organization in August 1994 and, as a result, will be losing its state staff support. However, the organization has committed to raising its own funds to support a staff position. It has applied for and received a grant from EPA to work with government on opening a dialogue on regulatory improvement and removing barriers to compliance. NBEN has also applied for an EPA grant to build partnerships between

large and small companies. It plans to publish a quarterly newsletter featuring updates on environmental regulations and articles about member companies' successes with pollution prevention strategies. NBEN is also working with the Information Management/GIS Subcommittee of the Merrimack River Initiative on the development of an electronic network.

b. Erie County Office of Pollution Prevention

The Erie County Office of Pollution Prevention (ECOPP) represents a model of service delivery to the business community by local government supported by federal funding from EPA. The ECOPP was established in 1990 to provide assistance to industry, public institutions, and local governments in evaluating and developing methods and techniques to produce less waste, particularly hazardous materials. It is managed by the Erie County Department of Environment and Planning.

Approach

ECOPP has adopted a nonregulatory and confidential approach to client assistance. It offers services to clients free of charge. Technical assistance is provided directly through on-site visits with follow-up. Clients receive information on both pollution prevention and regulatory compliance and consider the two types of information equally valuable. This approach has allowed ECOPP to establish a strong rapport with its clients. An evaluation of the program found that most clients have implemented some recommendation of the ECOPP staff, though most centered on procedural or housekeeping improvements or recycling opportunities. The next step for ECOPP will be working with clients to achieve measurable waste reduction.

Activities

ECOPP provides industry-specific and general newsletters as vehicles for technology transfer and as a means to reach new clients. At least 50% of participants learned about the program through the newsletters. ECOPP has utilized trade show presentations and a satellite conference with a live, on-site panel of experts to market its services and meet client information needs. ECOPP conducts site visits and follow-up visits with clients. "The relationship created by the site visit provided the industry representative with a future resource for environmental questions or concerns as well as a sounding board for process changes and/or material substitutions the client may be considering. The value of the one-on-one interface created by on-site assistance cannot be overestimated."[28]

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[28] From "Proceedings of New York State 6th Annual Pollution Prevention Conference", co-sponsored by the Business Council for New York State, p.226.

Clientele

Many of the business served by ECOPP are small to mid-sized firms, at least half of whom are not required to obtain federal or state permits. Federal and state agencies focus on larger quantity waste producers and lack the resources to serve the many smaller businesses who also contribute to the overall pollution problem. The ECOPP program fills an institutional void by serving a population of businesses otherwise overlooked by state and federal agencies.

A program such as the ECOPP, if developed for the Champlain basin and applied across business sectors, would, over time, create networks of businesses who are informed about and have a recognized self-interest in contributing to policy development and plan implementation.

c. Long Island Association

The Long Island Association is represented on a Citizen's Advisory Committee for the Long Island Sound Study. The Association attracts all types of businesses to its membership and addresses their interests in many ways. It has an active committee on environmental regulation. It provides some technical assistance and offers workshops to its members. The Association is considered a formidable ally for the development of priorities and a vision for management of Long Island Sound. They support "one-stop shopping" and predictability for regulatory arrangements. They also support improved database management and networking between public agencies and improved access to geographic information systems.

2. Recommendations for Business Representation

There are a variety of alternative approaches to organizing a representative business coalition for Lake Champlain that would participate in both the Policy Advisory Committee and the Implementation Committee and Workgroups. None of these approaches appear to be mutually exclusive.

One approach would be to work through existing organizations. Existing organizations that could be instrumental in forming a business coalition on Lake Champlain include, but are not limited, to: Chambers of Commerce, the Vermont Economic Roundtable, Vermont Businesses for Social Responsibility, Vermont Retail Association, as well as key individuals from each sector identified above, some of whom have already been involved in the Management Conference and/or the Basin Program. Quebec business organizations should be included as well.

A second approach is to target individual business leaders within each of the relevant sectors, including, but not limited to: banking, construction, real estate, utilities, manufacturing, retail, services, lodging, recreation, and businesses within the basin that specialize in environmental protection. Business leaders within each sector could be brought together to identify common goals and discuss the merits of forming a coalition. This group could be asked to elect a representative to the Policy Advisory Committee.

A third approach would be to develop and fund an outreach program for businesses, similar to the ECOPP with the intent of creating a network of environmentally conscious businesses who can be brought into a representational structure over time.

Incentives the Management Conference can provide for creation of a business coalition for Lake Champlain include interim staff support for organizing, and a seat on the Policy Advisory Committee. Benefits of participation for businesses would include improved access to state and federal policy makers, improved access to data including GIS data prepared as part of the Plan process, potential participation in negotiated rule-making, opportunities to influence and even direct technical assistance outreach efforts, and possible preferences in receipt of grants and loans to pursue efforts related to plan implementation.

The business coalition would offer the Implementation Committee access to a wide range of partners for specific initiatives. The business coalition could be instrumental in identifying opportunities for viable public/private investments in infrastructure, education and other areas. The business coalition could also be a valuable source of technical assistance in project implementation at the sub-basin level.

e. Research Consortium

The Research Consortium is an independent nonprofit organization formed by seven academic institutions in the basin. Member institutions are: Castleton State College, Johnson State College, Middlebury College, St. Michael's College, SUNY Plattsburgh, Trinity College and the University of Vermont. The purpose of the Consortium is to coordinate and facilitate research and scholarship on the Lake Champlain ecosystem, to provide training and education to students on lake issues, and to assist in disseminating research results. The major function of the Research Consortium is to conduct policy-related research, including environmental and economic impact analyses. The Research Consortium provides a mechanism to get scientists interested and involved in management questions while, at the same time, getting scientific insights integrated into policy development and plan implementation.

The major role of the Research Consortium with regard to lake management is to provide scientific insight into policy development. This can occur most effectively when

members of the scientific community sit on the Policy Advisory Committee and have direct access to the policy developers. The Consortium has an important role to play in working with the Implementation Committee and Workgroups to design effective, appropriate, policy-driven, affordable and sustainable standards for monitoring in all relevant areas of the Action Plan. Monitoring itself should be a function of state agencies and citizen-based groups. The Data Management Workgroup (see below) should have responsibility for integrating the results of all monitoring efforts into an annual "State of the Basin" report.

The Research Consortium could help promote critical thinking regarding monitoring and benchmarks for ecosystem health by sponsoring a one-day session to bring researchers together with state and federal agency representatives and other interested stakeholders to address the question, "What are the most effective indicators of ecosystem health? by geography area of the Lake? by content area of concern?". This activity would provide input into and reusable contacts for Workgroups charged with developing monitoring plans.

Involvement in the Research Consortium has been largely limited to natural scientists since the focus of research has been on issues such as nutrient loading, toxics, and nuisance aquatics. Now that the Plan is moving toward implementation, socio-economic questions will be viewed as increasingly important. There is an increasing need to involve social scientists in the research loop, ideally through the Consortium. Given its membership, up till now the Consortium has mostly drawn in academic researchers. Yet the research community in the basin includes state agency staff, nonprofit groups, and private sector researchers as well. Given the relatively small size of the research pool in the basin, the Consortium should make an effort to identify and bring together as many researchers as possible regardless of their institutional affiliation. Finally, the Consortium should be encouraged to expand its contact with Canadian counterparts.

As an independent institution, the Research Consortium can apply to receive funding to support policy-related research needs and does not need to depend on state funds. The more involved members of the Research Consortium are in working with the Policy Committee, the Implementation Committee and the Workgroups, the more likely it is that research projects will be structured to support public policy goals. The Research Consortium should have a seat on the Policy Advisory Committee.

f. Public Education and Outreach Organization

1. Accomplishments

The Education and Outreach Advisory Committee was formed by the Management Conference to promote better understanding among residents and visitors about the Lake Champlain basin, the problems facing it, and the policies and programs being

designed to restore its environmental integrity. The accomplishments of the Committee and Basin Program Education and Outreach staff to date include:

- Sponsorship of series of public meetings throughout the basin in 1993 and 1994 to discuss key issues effecting Lake Champlain and to obtain feedback on "Opportunities for Action", a document which summarized main issues presented in the draft Plan.

- Delivery of over 100 talks about Lake Champlain to school and community groups since 1991.

- Publication of "Casin' the Basin", a quarterly newsletter with a circulation of approximately 6,000.

- Publication of the "Education and Outreach Field Guide" to New York and Vermont organizations with educational programs or publications relevant to Lake Champlain.

- Publication of fact sheets on "Nonpoint Source Pollution", "Zebra Mussels", and "The Lake Champlain Basin" and production of "The Lake Champlain Basin Program Slide Show" providing a comprehensive overview of the basin and the role of the Basin Program.

- Awarding of over $300,000 (1991-1993) in grants to organizations in the Lake Champlain basin for education projects. Monies have been awarded to educators, existing public education and outreach organizations such as Cooperative Extension, museums, and parks, and sub-basin citizens groups for public participation and demonstration projects.

- Sponsorship or co-sponsorship of events and conferences including Celebrate the Lake, Conference on Champlain-Hudson Valley Historic Sites, Societies and Museums, and Alternative Wastewater Treatment Conference.

Public education and outreach has been a major, well supported thrust of the Basin Program. There is clear consensus about the continuing importance of public education and outreach to the plan implementation effort.

2. Recommendations

Public education and outreach is needed in every area of Action Plan implementation. There are two major institutional issues raised in institutionalizing the Public Education and Outreach function for the basin. The first is the need to develop an organizational and financing structure that will permit continuity of effort in serving a wide range of

needs and audiences throughout the basin. To this end we recommend the creation of a public/private partnership supported by a combination of state and federal funding, foundation grants and private contributions.

We recommend the new entity adopt nonprofit status to allow it maximum flexibility in fund raising. We recommend the states and Quebec commit part of their annual appropriation to the new entity to provide a baseline budget. These funds will procure the services of the public education and outreach entity on behalf of the Implementation Committee and any other organizations selected by the Policy Committee (such as the CACs).

Although public education and outreach is a recognized need in most state and federal agencies, some grant it a higher priority and are better able to carry it out than others. Therefore, we further recommend the Policy Committee request a review of the public education and outreach needs of state agencies with respect to areas covered by the Action Plan with an eye toward subcontracting appropriate tasks to the new entity. We recommend the Federal Advisory Committee consider a similar approach. In addition, we recommend the new entity develop its own creative approaches to fundraising through such mechanisms as estate planning and partnerships with the private sector.

We recommend the public education and outreach organization cooperate with but remain institutionally separate from the proposed Lake Champlain Basin Science Center. As valuable as the Center will be in promoting education about Lake Champlain, it will be focused, as it should be, largely on maintaining its own wellbeing as a museum/research center and should not be expected to maintain a sufficiently broad focus on all regions of the lake and areas of plan implementation as will be needed in the basin.

The second is the need to strengthen the connection between public education and outreach and the policy-development process. There are five stages in the policy development process beginning with public participation. Debating the remedies of the perceived gaps between achievement and potential calls for public understanding of causes and concerns and of issue definition, including alternative approaches and their consequences. This understanding is achieved, over time, through public education and outreach. The other parts of the policy development process are identifying who can and will make a decision, how to get an issue on those agendas, how to help in the decision-making process, and understanding implementation and its evaluation. Ideally, through clarifying institutional roles and structures for overall lake management and providing easily recognizable representative stakeholder groups with ongoing access to the policy development process, the activities of the Public Education and Outreach organization can stimulate increasingly strong connections between citizens and government.

3. The Implementation Committee

a. Structure and Responsibilities

The Implementation Committee's responsibility is to oversee implementation of Plan priorities, not to determine public policy for the basin. The Implementation Committee will inform development of public policy through regular presentations to the Policy Committee by staff and Workgroup chairs. The Implementation Committee will consist of the chairpeople of each of the Workgroups described below. The Workgroups will consist of members of each of the relevant stakeholder groups, lay citizens, and state, local and federal government representatives. There will be a minimum of eight members of the Implementation Committee, more if workgroup subcommittees are formed.

The Implementation Committee will be supported by and will give direction to a professional staff including an Executive Director and at least three to four permanent staff. At least one of the professional staff should be bi-lingual. Staff will be assigned to support activities of specific Workgroups and will deliver regular presentations on workgroup activities to the Policy Committee and the Policy Advisory Committee. There should be a comptroller on staff to work with the Budget and Finance Workgroup. Staff may also be assigned to work directly with organizations represented on the Policy Committee and Policy Advisory Committee as directed by the Policy Committee. The main functions of the Implementation Committee are to recommend allocation of resources to implementation activities, coordinate implementation activities, develop an overall monitoring plan for implementation activities, including a strategy for public accountability, improve communication among stakeholders (particularly within Workgroups and in sub-basins where implementation efforts are focused), and facilitate delivery of technical assistance for local capacity building in watershed management.

The Implementation Committee would have primary responsibility for working with the Workgroups in crafting implementation procedures at the basin and sub-basin levels. Recommendations for institutional arrangements conducive to local capacity building for plan implementation are discussed in Chapter VI of this report..

Staff of the Implementation Committee will be supplemented by state and federal (agency staff working with the various Workgroups. These arrangements may be informal as some are now, or formalized as needed. The Implementation Committee will have the authority to initiate additional temporary and permanent advisory groups or workgroups as required to implement the Plan.

4. Workgroups

Workgroups will be comprised of members of the stakeholder groups identified above and lay people working on these issues. The chairperson of each Workgroup (or

Workgroup subcommittee) will serve on the Implementation Committee. Workgroups are responsible for coordinating existing efforts and designing new efforts to implement the Action Plans. Workgroups are also responsible for developing benchmarks to measure progress toward goals established in the Action Plan along with designing monitoring programs to collect the data by which progress may be measured. Actual monitoring will be carried out through a combination of government and citizen-based activities.

a. Monitoring and Building Public Support

Policy change and institutional evolution are a learning process driven by general and stakeholder understanding of the gaps between achievement and potential. Thus the public, composed of the various stakeholder groups, needs access to monitoring data and its interpretation. Part of the policy and institutional evolution process is the debate and negotiation over the data that can be accepted as evidence of the problem and its solution. This should be reflected in monitoring. The design of monitoring programs should include not only identification of what is to be monitored, how it will be monitored and what benchmarks will be used to evaluate the data collected, but also how the entire monitoring process including results will be presented to the public. This will require interaction between the Public Education and Outreach Organization, the Research Consortium, and stakeholders in each Workgroup.

In addition to the monitoring which will be carried out by state and federal agencies, often pursuant to their enforcement responsibilities, further opportunities exist to engage the public directly in the monitoring process. Two important methods already in use in the basin which should receive continued support are citizen volunteer monitoring and impacting the school curriculum. The Vermont Lay Monitoring Program is a good example of an official use of citizen-gathered monitoring data. Any "State of the Lake" accountability process should not be limited to the results of "official" monitoring but should be used to integrate non-governmental monitoring efforts as well. Increased interaction between "official" and nongovernmental monitoring activities increases opportunities for mutual learning, networking, and creation of new partnerships.

b. Implementation of Action Plans and the Regulatory Framework

A document itemizing the legal and regulatory framework governing Lake Champlain has been prepared as part of this assignment. From the perspective of localities in particular, there is a high degree of regulatory complexity involved in many of the Action Plan areas. As part of the implementation process, Workgroups may wish to develop guides to existing federal and state regulations in each Action Plan area aimed at local governments, sub-basin organizations and citizens. Earlier study of the Town of Champlain strongly suggests that misperceptions and lack of knowledge regarding

existing regulatory authority are a significant obstacle to local implementation of lake related projects. Improved understanding of federal and state regulations can increase the likelihood of achieving regulatory consistency through grassroots efforts.

c. Structure of Workgroups

Most Workgroups cover more than one Action Plan area. It is anticipated that each Workgroup may choose to form subcommittees along lines similar to those currently in existence. The first five Workgroups focus on the content of the Lake Champlain Pollution Prevention, Restoration and Control Plan. Specific recommendations for institutional improvements within each Action Plan area are covered under the relevant Workgroup. The three additional Workgroups cut across all Action Plan areas.

1. Living Resources

The Workgroup on Living Resources will be responsible for coordinating and developing implementation strategies related to Action Plans for Managing Fish and Wildlife, Protecting Wetlands, and Managing Non-native Nuisance Aquatic Plants and Animals.

Specific recommendations for institutional improvements in each Action Plan area follow:

Managing Fish and Wildlife

The Lake Champlain Fish and Wildlife Management Cooperative provides a strong institutional umbrella for coordinated management of fish and wildlife and could serve as the anchor group for a Subcommittee on Fish and Wildlife. However, the Cooperative appears to be meeting the needs of wildlife management less effectively than those of fisheries management. Specific suggestions from key informants to improve wildlife management are:

- Encourage NYSDEC to more consciously target Lake Champlain with their wildlife programs

- Give greater visibility to the involvement of the Vermont Non-game and Natural Heritage Program within both VTFWD and the Lake Champlain Fish and Wildlife Management Cooperative.

Other recommendations that apply to both fish and wildlife are:

- Improve coordination with the Quebec Ministry of the Environment and Wildlife and the Quebec regional office of the Canadian Wildlife Service.

- Program financing based on license fee revenues is becoming increasingly problematic. There is a need to review financing options for fish and wildlife protection in light of 1) the ecosystem budgeting inventory of state and federal programs and 2) the shift away from sport fisheries and game management toward an ecosystem/natural community focus.

- The economic dimensions of fisheries and wildlife management should be integrated into the discussion of appropriate resource protection strategies and an effort made to quantify benefits and costs to local and regional economies.

Protecting Wetlands

There are a large number of federal and state/provincial agencies and nonprofit organizations working to protect wetlands in the Champlain basin. Over time many of them have evolved successful working relationships, both formal and informal. According to key informants, further evolution of these relationships should focus on:

- Improving information and data management through a basinwide GIS system.

- Working toward consistent wetlands definitions and creation of universally accepted standards by federal and state agencies throughout the basin. Such standards are a necessary prerequisite for basinwide mitigation banking, a technique under consideration by several wetlands protection groups.

- Increasing the capacity for networking and cooperation with federal, state and local departments of transportation to facilitate wetlands protection. State Department of Transportation liaisons should be invited to join the Workgroup.

- Improving public education and outreach efforts regarding the importance of wetlands.

- Securing more diversified funding for wetlands protection in Vermont. Efforts are currently heavily dependent on federal programs which do not always match local priorities.

- Increasing capacity to integrate wetlands protection efforts with habitat protection/restoration efforts of Fish and Wildlife Cooperative participants.

Managing Non-native Nuisance Aquatic Plants and Animals

Institutional efforts to manage non-native nuisance aquatic plants and animals are less evolved than those for either fish and wildlife or wetlands. There is a strong need to improve coordination and communication between groups involved in non-native

aquatic nuisance management. Recommendations for institutional arrangements include:

- Develop a Memorandum of Understanding between NYSDEC, VTANR, the NYSAPA and the Quebec Ministry of the Environment and Wildlife regarding sharing of responsibility for management decisions and program implementation including monitoring, public education and remediation.

- Work with the Research Consortium to identify innovative control methods in use around the world for known and emerging nuisance plants and animals and their applicability to Lake Champlain. Research should include an analysis of costs and benefits of alternative approaches.

- Encourage NYSDEC to target Lake Champlain as a recipient of federally available monies to control nuisance aquatics.

2. Point and Nonpoint Source Control

The Workgroup on Point and Nonpoint Source Control will be responsible for coordinating and developing implementation strategies related to Action Plans for Managing Nonpoint Source Pollution and Reducing Nutrients. By focusing on both point and nonpoint source controls, the Workgroup can assist in coordinating strategies for achieving overall reductions in phosphorus and other pollutants.

Specific recommendations for improving institutional arrangements for point and nonpoint source control include:

- build on existing activities, networks, and organizations at the sub-basin level to integrate point and nonpoint source reduction efforts. (See "Local Capacity Building for Plan Implementation for more detail.)

- utilize the full range of federal funding including sources related to economic development such as Economic Development Administration, Rural Development Administration and Farmers Home Administration as well as environmental protection programs.

- encourage federal agencies to broaden funding guidelines so that they include support for networking and development of partnership agreements. Federal programs must recognize the time and cost involved in establishing working relationships among a full range of stakeholders at the sub-basin level.

- explore the feasibility of creating one or more additional Economic Development

Administration districts in Vermont to facilitate access to EDA funding for infrastructure improvements.

• lobby for changes in ASCS program criteria to permit more farmers to participate in training and technical assistance programs focused on improving agricultural management practices.

• in cooperation with the Local Government Council, develop guidelines for municipalities in addressing nonpoint source pollution concerns such as stormwater runoff and site development criteria.

• promote regulatory consistency in nonpoint as well as point source standards throughout the basin.

• work with the Research Consortium to develop a shared agenda for ongoing research and to identify resources required to carry out the research.

• inventory all public and private sector technical assistance providers in the basin. Work with the Local Planning and Implementation Workgroup to sponsor a resource fair for technical assistance providers with an audience of local government, agriculture, business and citizens. Work with providers to develop responsive, non-duplicative service delivery systems that provide on-site evaluations and follow-up for point and nonpoint source problems.

• work with Public Education and Outreach organization to design educational materials applicable basinwide and a strategy for broad dissemination to include local governments, agricultural interests, businesses, and the general public.

3. Local Planning and Implementation

The Workgroup on Local Planning and Implementation will be responsible for coordinating and developing implementation strategies related to Action Plans for Cooperative Watershed Planning and Protection and Protecting Human Health.

Specific recommendations for improving institutional arrangements in these two Action Plan areas include:

a. Cooperative Watershed Planning and Protection

• Focus on local capacity building as described in "Local Capacity Building for Plan Implementation" below. Work with the Environmental Group Advisory Council and the Research Consortium to develop training opportunities for local elected and lay leaders.

• Consider New York's Coastal Zone Management Program as a potential source of funding for municipal initiatives.

• If this Workgroup is based on the existing Land Use/Lake Use Subcommittee of the Technical Advisory Council, it should be restructured to include:

- representatives of local, state and provincial departments of transportation
- regional and municipal planning and development authorities from Quebec
- urban and rural representation
- representatives of all stakeholder groups including but not limited to professional planners[29]

• Work with the Data Management Workgroup to insure the usefulness and availability of data for local governments, citizens groups and other stakeholder groups. If necessary, fund demonstrations to test the utility of data and determine most effective dissemination strategies.

• Consider development of non-zoning single purpose laws to address some watershed management issues at the local level.

• Develop capacity to make small grants to support citizen-supported experiments in resource management throughout the basin. Lobby for funds from multi-year state appropriations to the Policy Committee to be matched by independent fundraising efforts. Work with Public Education and Outreach organization to disseminate results of these experiments.

b.Protecting Human Health

• Institutional relationships are weak in the area of protecting human health. Invite local, county, state and provincial groups concerned with human health to use this Workgroup as a networking opportunity.

• One issue of great public concern is the status of septic systems and the extent to which they may be polluting the lake. This Workgroup could build new institutional arrangements based on existing organizations by designing a cost-effective and politically acceptable approach to lakewide septic system testing and repair. Such an

[29]Professional planners may wish to continue to network on a formal or informal basis, but membership in the Workgroup would benefit from a broader base since this Workgroup will be key to so many aspects of Plan implementation.

approach would include the involvement of public and private lenders in creating targeted innovative loan programs for property owners.

- Inventory all available laboratory facilities in the basin. Include services, turn around time, and price information at a minimum. Work with the Public Education and Outreach organization to widely disseminate this information.

- Coordinate fish advisories with Quebec.

- Work with the Toxics Workgroup toward basinwide coordination of fish monitoring and a coordinated risk communication strategy.

- Work with Public Education and Outreach organization to develop basinwide materials on water safety for drinking and swimming for private water users and recreationists.

4. Recreation and Cultural Heritage

The Workgroup on Recreation and Cultural Heritage will be responsible for coordinating and developing implementation strategies for Action Plans for Managing Recreation and Protecting Cultural Heritage Resources.

Specific recommendations for improving institutional arrangements in these two Action Plan areas include:

a. Recreation

- Identify or create and employ capacity in the basin to mediate environmental conflicts at the local level. Environmental conflict resolution (e.g. landowner disputes) was one of the institutional needs mentioned most frequently by key informants.

- Work with the Sustainable Development Workgroup on an economic business plan for the Lake including forecasting of future conditions as a basis for stakeholder discussion of a sustainable future. Use local applications of forecasting to focus discussion of alternative approaches to managing recreation at the local level.

- Work with the Local Planning and Implementation Workgroup on developing local capacity to implement recreation initiatives. Emphasize intramunicipal cooperation in capacity building.

- Continue to support the strong working relationships and initiatives that have been developed between state agencies in New York and Vermont and citizens groups in Vermont, New York and Quebec.

- Work with the Business Coalition to identify and develop specific opportunities for private investment and/or public/private partnerships in the creation of recreational amenities.

b. Cultural Heritage

- Continue to strengthen the network of groups and individuals, including private landowners, who have an interest in protecting cultural heritage resources. Over time this network may evolve into a more formal organization for cultural heritage protection in the basin.

- Work to expand contacts and networking into Quebec.

- Continue to improve data on cultural heritage resources. Work with Data Management Workgroup to integrate cultural heritage data with other basinwide and sub-basin data sets.

- As part of a monitoring plan, develop guidelines to determine the relative importance of various cultural heritage resources in the basin. Have these guidelines reviewed by other stakeholder organizations.

- Work to clarify and, where necessary, simplify or promote consistency in the regulations related to cultural heritage resources.

- Consider the use of multiple funding sources in combination to support cultural heritage protection activities. Specific opportunities have been identified in the "Cultural Resources Planning Needs Assessment".

5. Toxics

The Workgroup on Toxics will be responsible for coordinating and developing implementation strategies for the Action Plan on Preventing Pollution from Toxic Substances.

Specific recommendations for improving institutional arrangements in Toxics include:

- Invite participation by relevant Quebec provincial, regional and local agencies.

- Work with the Business Coalition to determine the feasibility of a pollution prevention outreach program to businesses in the basin, similar to the ECOPP effort described above.

- The process of plan implementation and developing a monitoring and benchmarks program for toxics will stimulate discussion of appropriate reduction strategies, remaining research needs, technical assistance needs and regulatory obstacles. Given the apparent lack of consensus on these topics among key informants in the field, a facilitated session to share information and address areas of conflict may be helpful.

6. Sustainable Development

a. Rationale

On March 5, senior EPA leaders from Washington and the regions met at the Smithsonian Environmental Research Center near Edgewater, Maryland. The "Edgewater Consensus" concluded that ecosystem protection is place-based environmental management. It is driven by the strategic or high priority environmental problems that occur in particular ecosystems. It relies upon stakeholders in those places to define the problems, prioritize and help implement their solutions. Merging ecosystem health and economic stability become a major feature of the new approach.

Place-based environmental management is seen as allowing EPA to be more responsive and thus closer to the public they serve. This calls for capacity to work in a non-regulatory mode that effectively reaches the local level without compromising its traditional regulatory role. This describes a process similar to that which has been employed thus far for Lake Champlain with one crucial difference. In addition to investing in public education and outreach as has been done here, the "Edgewater Consensus" suggests that a broad based constituency be built that stresses economic viability as an equal partner to ecologic viability. A socioeconomic assessment is urged that includes a forecasting analysis of future conditions as a basis for stakeholder discussion of their sustainable future. EPA's conclusions apply equally well to other federal, state and provincial agencies. For this reason, we recommend creation of a Sustainable Development Workgroup.

b. Recommendation

A Sustainable Development Workgroup is needed to facilitate integration and coordination of economic and environmental concerns across all Action Plan areas. It will be the responsibility of this Workgroup to develop a conceptual framework for sustainable development of the Lake Champlain basin including benchmarks and monitoring. It will be the further responsibility of this Workgroup to work with each of the other Workgroups and all the stakeholders' groups to identify and examine the feasibility of opportunities for public/private partnerships and private sector investment

in achieving Action Plan goals. The Sustainable Development Workgroup should, at a minimum, include members of the Business Coalition, the Environmental Group Advisory Coalition, state and federal agencies involved in community and economic development, the Local Government Council and the Research Consortium.

7. Data Management

a. Rationale

The Management Conference has invested a considerable amount of resources in data development for the Lake Champlain basin. The widespread availability of accurate and reliable data is crucial to effective strategic planning, monitoring, evaluation, public education and implementation. The commitment of the Conference to developing policy based on good science can only be maintained through a combination of good research and excellent data management.

b. Recommendation

The Data Management Workgroup will be responsible for developing a management, use and dissemination plan for existing data, including GIS data, that has been developed for Lake Champlain and its basin. The Data Management Workgroup should work closely with the Public Education and Outreach Organization to make sure that accurate data is used to inform public and private decision-making at all levels.

The Data Management Workgroup should review and comment on the monitoring plans and benchmarks developed by all other Workgroups to ensure that all available data is well and properly utilized.

8. Budget and Finance

a. Rationale

A separate workgroup on Budget and Finance is needed to support plan implementation efforts. The success of these efforts will depend, to a substantial degree, on the ability to continually leverage resources to carry them out.

b. Recommendation

This Workgroup will be responsible for developing the budget and making financing recommendations for the Implementation Committee. In the short run, the Budget and Finance Committee should investigate new sources of funding for the Implementation Committee and the stakeholder groups as requested by the Policy Committee. It will be the responsibility of the Budget and Finance Workgroup to work with the Lake Champlain Coordinator in each State and Quebec and with state and federal agencies

to develop and implement a plan for ecosystem budgeting. The Budget and Finance Workgroup will make recommendations to the Implementation Committee regarding the allocation of existing state and federal program funds and grants to independent organizations who carry out work related to the Action Plan. Any budget and financing plans prepared by the Budget and Finance Workgroup should adhere to the principles of funding watershed management described above.

The first step in achieving reliable continuation funding for lake management efforts is securing a multiyear appropriations commitment from New York, Vermont and Quebec. The second step is securing a commitment from the federal agencies, particularly EPA. The third step is to complete an inventory of all state/provincial and federal expenditures within the basin on plan-related activities. The inventory should include direct program spending, grants to non-government programs, and revenues collected through taxes, fines and fees related to lake use. How much money is currently being generated and how is it being used? The inventory should also include a comprehensive description of legally supported financing mechanisms such as special tax districts as well as intermediary organizations such as the New York Natural Heritage Trust that are available to assist in financing lake management. The inventory is a necessary and significant first step in evaluation of the feasibility and desirability of ecosystem budgeting for Lake Champlain. Existing financing activities should be evaluated according to how well they meet the four financing criteria presented above. Finally, based on the results of the preceding steps, the Budget and Finance Workgroup should prepare a comprehensive financing plan for lake management for approval by the Implementation Committee and the Policy Committee.

A description of funding mechanisms such as bonding, loans, grants, fees and public/private partnerships and how they have been used in other watershed management programs are provided in the next chapter. Information on funding sources in provided in Appendix D.

9. Advocacy Organization

It is anticipated that at least one independent advocacy organization will play an important role in measuring and evaluating the success of Plan implementation efforts. Independent advocacy organizations play this role in most watershed management programs.

V. POTENTIAL FUNDING MECHANISMS FOR WATERSHED POLLUTION, PREVENTION, CONTROL AND RESTORATION ACTIVITIES

A. INTRODUCTION

This section outlines funding mechanisms that might be used for financing pollution prevention, control, and restoration activities in the Lake Champlain Basin. The financing mechanisms noted below have been used for watershed management and environmental activities in the United States. The first part provides an overview of types of funding. The second section outlines how watershed programs in other areas of the country have used these financing mechanisms to fund their activities. The third section offers suggestions for funding Lake Champlain institutional arrangements.

Additional information on funding is also provided in Appendix D, "Grants and Loans from Federal Sources," and "Potential Sources of Private Funds," which are excerpted from Options for Financing Nitrogen Control in Long Island Sound, prepared by Apogee Research for the Long Island Sound Study, June 22, 1992. While this study was specific to the Long Island Sound in the states of New York and Connecticut, most of the funding sources described in the study are relevant to the Lake Champlain Basin. Appendix D also includes a "Watershed Protection Approach Funding Matrix" which describes categories of funding available through EPA's Office of Water under the Clean Water Act and the Safe Drinking Water Act.

B. OVERVIEW OF FUNDING MECHANISMS

1. Funds for Watershed Management

Funds for watershed management or improvements may be obtained from a variety of sources:

- Such funds may be raised by imposing **taxes**, which are specified charges based on holdings or activities, through different arrangements related to income taxes, property taxes, sales taxes, and/or various tax incentives.

- Funding can also come by imposing **fees** related to the use of or impact on either a natural resource (such as a lake) or a constructed facility (such as a sewage treatment plant).

- Funding can also come from **grants or loans** from other institutions, such

as federal agencies like EPA or revolving loan funds held by a state agency.

- **Bonds** for watershed capital investments may involve a complicated process, but the idea of a bond is straightforward: an institution receives borrowed funds based on its promises to pay the borrowed funds back over a long period of time (through either future general government revenues such as taxes or future income from fees related to the facility constructed with the bond funds).

- Examples of **public-private partnerships** in watershed financing include arrangements in which private companies may operate sewage treatment plants owned by public entities, developers may finance stormwater runoff facilities in exchange for certain development rights, or private parties may trade wetlands mitigation credits to satisfy public agency requirements for wetlands restoration.

- Finally, some states or watershed districts have used **other financing options** such as using funds from the sale of vanity license plates promoting watershed protection, or earmarking lottery funds for environmental improvement trust funds.

Various agencies obtain and use funds for watershed management: local governments, state governments, and the federal government all play a role. But an increasing number of special purposes institutions (such as water/sewer districts or watershed management organizations) have been created to coordinate, fund, and manage pollution prevention, control, or restoration activities.

Which funding mechanisms should be used to finance activities in the Lake Champlain basin? Financing arrangements vary based on which activities have been designated as priorities to receive funding for a watershed. Because funding from state and federal legislatures will always be limited and will always be subject to the political whims of appropriation committees, lobbying forces, and voter sentiments, the Lake Champlain Basin Program should identify and rank its top priorities for activities that will require either additional money beyond the existing funding or the guarantee of ongoing and permanent funding in case existing funding should diminish or vanish. For example, such priorities might be:

(1) reducing nonpoint source pollution from agricultural and logging activities as well as urban and highway stormwater runoff;

(2) upgrading existing sewage treatment plants; and

(3) developing political consensus and implementation plans for sustainable development of tourism and residential recreation.

Funding also depends on both the legal authority for and political acceptability of different financing mechanisms. For example, the most viable funding mechanisms for financing sewage treatment plant upgrades (such as specifically appropriated EPA grants and long-term local bonds issued through a state-wide bond bank) may well be unavailable or inappropriate for nonpoint source pollution prevention programs or programs to promote sustainable tourism and recreation. Setting up a trust fund from real estate land transfer taxes on sales of residential property in order to acquire sensitive wetlands along the lakeshore may be politically acceptable in some communities but not in others.

It is therefore critical that in evaluating which alternatives discussed below to pursue the Lake Champlain Management Conference consider (a) the legal and political realities involved in different alternatives, (b) the likely need for on-going and permanent funding to allow Lake Champlain Basin activities to continue even if federal grant programs expire, and (c) which specific and limited set of basin pollution prevention, control, and restoration activities should be the priorities for funding.

a. Taxes

Taxes are charges against income, property, or the sale of goods or services. If certain legislative or administrative requirements are met when a tax is established, taxes can raise money that is earmarked only for specified environmental activities.

Income Taxes are typically raised as general revenues to pay for central and/or costly activities of state and federal governments. Because of this critical role and the related political sensitivity of increases in income taxes for any "special interests," they may not be a likely source of funds in the near future for the Lake Champlain Basin Program. **Income Tax Checkoffs**, however, have been used successfully in Massachusetts and Maryland to raise dedicated funds for environmental protection programs. The Lake Champlain Basin Program should consider income tax checkoffs in New York and Vermont for funding Basin activities.

Property Taxes are most commonly an annual charge by the local government, and are based on a set rate times a property's value. This type of residential property taxes may not be a likely source of funds in the near future for Lake Champlain Basin activities because of the reliance of local governments on such taxes for general operations and because of the contentious politics of potential property tax increases; in the long term, however, the Basin Program should consider the merit of property tax surcharges for lakeshore properties to fund certain Basin activities.

In the immediate future, the Lake Champlain Basin Program should consider implementing two types of property taxes other than standard residential property taxes: real estate transfer taxes and nonpoint sources (NPS) taxes.

Real Estate Transfer Taxes are charges (to the buyer, the seller, or both) based on a percentage of property value when that property is sold; funds may be managed through a dedicated fund or land bank.

Nonpoint Sources (NPS) Taxes are charges to landowners (agricultural, commercial, or residential owners) whose properties contribute to nonpoint source pollution (NPS). The taxes are based on property size as well as land use.

The Lake Champlain Basin Program should consider a 1% real estate transfer tax on certain property transfers in the Basin as well as a small initial NPS tax for funding Basin activities.

Sales Taxes are relied on by states to fund various activities. One form of sales taxes is **tourism taxes** on such items as meals and lodging. Another type of sales taxes is **commodities taxes** such as taxes on diesel fuel for boats, fishing equipment, fertilizers, or other products whose use may have a negative impact on water resources. The funds raised by commodities taxes can be earmarked into an endowment fund or trust fund that is used for watershed improvements; an existing federal commodities tax on tugboat diesel fuel goes into a trust fund for financing inland waterways maintenance and repair. A commodities tax may also be instituted on items that may not be directly related to water issues.

Tax Incentives and Disincentives can raise funds, lessen costs, or change behaviors by instituting either tax credits or tax increases or surcharges related to certain behaviors or certain products. For example, tax credits or rebates for low-flow plumbing fixtures could decrease the costs of operating a sewage treatment system. Adding a tax surcharge to more polluting brands of products such as detergents or fertilizers can simultaneously raise funds for environmental activities and discourage polluting behavior.

b. Fees

A fee is a charge for use of or impact on a resource (such as a lake) or a facility or service (such as a sewage treatment plant or public drinking water supply). Fees link the demand for services and the cost of providing them, and assign environmental costs to parties who use, benefit from, or damage a resource or facility. Since they are targeted to a specific service or group, though, fees have a narrower revenue base than most taxes. In addition, the politics of imposing new or higher fees may be difficult. Nevertheless, fees appropriately encourage pollution prevention and control by educating communities about real costs of residential, commercial, industrial, agricultural, and other activities.

User Fees come from on-going use of a resource or facility. Examples are:

residential water and sewer charges; annual permit fees for industries to discharge chemicals into water bodies; park user fees where visitors pay for operating costs; and fishing and hunting license fees that pay for game and open space protection. Stormwater utility fees, another type of user fee, are charged to property owners based on the amount of hard surfaces on the property that would contribute to runoff or on the assessed value of the property; funds are then used for stormwater management.

Development charges, processing fees, or impact fees are less common than user fees. They are a one-time charge to developers or property owners at the beginning of a project or use. These fees collect a lump sum for plan review or for initial hook up to a service or facility. They are used to fund infrastructure improvements or operations, such as sewers or stormwater management facilities. They are most feasible and effective where there is strong pressure from private and commercial developers, such as occurred in Corpus Christi, Texas, in 1982 when the city imposed fees on developers and established water and sewer trust funds. The New York legislature has been considering several options to authorize the use of impact fees since the courts have raised doubts as to their legality without explicit authorization from the State.

Recreational Fees and Hunting, Fishing, and Boating Fees are very appropriate for the Lake Champlain Basin. The idea behind such fees is that individuals who use a natural resource should both understand and pay the costs of protecting that resource. People who want to hunt or fish in a certain area, use a certain park, or go boating in a certain area would be charged a fee for the use of a natural resource; the funds from such fees can be dedicated to the preservation or restoration of that resource.

Other examples of environmental user and impact fees are:

Utility charges - Residential, commercial, and industrial customers pay a fee for receiving a specific service, such as drinking water, wastewater treatment, or stormwater drainage. Property owners may also pay a connection fee to be initially connected to the service or utility.

Septic tank fees - Property owners with septic systems pay a fee when their system is inspected or a flat fee periodically.

Product inspection fees - Parties pay a fee for purchasing or using designated quantities (per ton or per quart) of products such as fertilizer, pesticide, or motor oil.

Facility permit fees - Parties pay a permit fee to maintain a facility or service, such as a solid waste facility, underground storage tank, or hazardous waste transport system.

Processing fees - Parties pay a fee for processing costs associated with the initial application for a permit for a facility or other activity that requires a permit.

Inspection/Certification fees - Parties pay a fee for having their plans or facilities be certified or inspected for compliance with various environmental requirements.

Disposal fees - Residential, commercial, or industrial parties pay a flat or weighted fee to dispose of their solid waste.

Emissions/Discharge based fees - Industries pay a fee based on the volume of pollutants discharged into water bodies.

c. Bonds

A bond is a loan taken out by a government agency from an investor (similar to a mortgage loan to an individual from a bank). The government is obligated to repay the borrowed money on a definite schedule and usually at a fixed rate of interest for the life of the bond (often 30 years). The government pays back this debt with taxes, fees, or other sources of governmental revenue. Bonds often provide large dollar financing for major capital projects.

Short-Term Bonds are a form of short-term debt, usually payable within one year. They may provide interim funding through notes (loans issued in anticipation of long-term funding from bonds, taxes, or grants) or through tax-exempt commercial paper (a debt backed by a letter of credit).

Long-Term Bonds are issued for periods matching the life expectancy of the project or facility financed by the bond (such as 30 years for a sewage treatment facility). With a "term" bond, the government repays the entire debt and interest on the final term date. With a "serial" bond, the government repays the principle and interest in regular installments (like a mortgage payment) over the life of the bond. Two general types of long-term bonds used to finance environmental improvements are:

- **General Obligation Bonds** - The government guarantees that it will use its taxing power to repay the bond amount.
- **Revenue Bonds** - The government relies on the collection of user fees or service charges to repay the bond amount.

d.Grants and Loans

A **grant** is a sum of money awarded to a state, local government or non-profit organization, with no obligation to repay the money. Typically grants are awarded by

the federal government to state or local governments or by states to local governments for the purpose of financing a particular activity or facility. The U.S. Environmental Protection Agency provides numerous grants under different federal environmental

statutes for pollution prevention, control, and restoration activities. Other federal agencies, such as the Department of Agriculture, also offer environmental grants. [30]

A **loan** is money that must be repaid within a set amount of time at a negotiated interest rate. State and federal loan programs typically provide loan capital at subsidized rates for projects that meet their eligibility criteria. Under **State Revolving Funds (SRF)** loans, the federal government gives Clean Water Act grants to states to establish a revolving loan fund (states must provide a matching contribution to the fund). The SRF money is then loaned by the state to local communities at low rates and favorable terms for a specific projects, such as financing wastewater treatment or controlling nonpoint source pollution. Local governments remain obligated to repay the state the SRF loan money. Commercial loans may be available for some environmental projects not eligible for governmental bond financing or subsidized loans, but these may be hard to obtain and would have higher interest rates and less favorable payback terms than government-funded loan programs.

State Loan Programs may be offered by the state even if federal grants are not available to assist localities in financing water quality improvements. A State may create a loan pool or fund through a budget appropriation or other mechanism, such as a tax on water supply or pooling enforcement fines. Rhode Island adds a fee to all residential water bills to go into a fund to support the state drinking water program. Texas created the Water Development Fund to make loans for the construction of dams, reservoirs and water supply systems. The Massachusetts Environmental Trust, established as the result of a lawsuit related to the cleanup of Boston Harbor, collects fines from polluters for a trust fund to finance environmental projects.

For a more comprehensive description of grants and loans from federal sources see Appendix D. In addition to the programs listed there, the grant programs of the Economic Development Administration and the State of New York's Environmental Protection Fund, discussed below, may represent funding opportunities.

The **Economic Development Administration** (EDA) of the U.S. Department of Commerce offers several grant programs designed to support economic development activities, primarily in economically distressed areas. Among EDA's programs, the **Local Technical Assistance Program** and the **Public Works and Development Facilities Program** may be relevant to communities in the Lake Champlain Basin. The Local Technical Assistance Program provides grants designed to assist in solving specific

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[30] A list of grants that apply to watershed programs are listed in Appendix D.

economic development problems, respond to developmental opportunities, and build and expand local organizational capacity in distressed areas. The Public Works and Development Facilities Program provides grants to help distressed communities attract new industry, encourage business expansion, diversify their economies, and generate long-term, private sector jobs. Projects funded include water and sewer facilities primarily serving industry and commerce, port improvements, and business incubator buildings.

New York's Environmental Protection Fund, established in 1993, includes funds for **Local Waterfront Revitalization Grants.** These grants are made to municipalities for the purpose of funding projects in three principal areas: Clean and Efficient Harbors, Coastal Erosion Management, and Furtherance of Regional Coastal Management. In addition, funds may be used for preparing waterfront redevelopment plans and detailed design plans for public access improvements, such as walkways, esplanades, and other public accessways. Communities on the New York side of Lake Champlain may be eligible for these grants.

e. Public-Private Partnerships

A **Public-Private Partnership** is a contract between a public agency and a private party for providing an environmental service, such a wastewater treatment system. The public and private partners share the responsibilities for financing, designing, constructing, or operating the system. The New York Environmental Facilities Corporation, for example, has been in operation for several decades to provide and facilitate such partnerships.

Examples of watershed management public-private partnerships are:

- Contract Services - A private company operates an existing facility, such as a wastewater treatment plant. The facility remains owned by the public.

- Turnkey Projects - A private company designs, constructs, and then operates ("turns the key" for) a new or upgraded facility that is owned by a public entity. The financing risks are assumed by the public owner (for example, with bond repayment debt to be repaid by user fees), while the operation and performance risks are assumed by the private partner.

- Developer Financing - A private developer pays the cost of financing the construction or expansion of a facility or system in return for the right to build houses, stores, or industrial facilities. For example, a developer may pay to construct or expand a wastewater treatment plant to accommodate additional demand on a community system as a result of the new development.

Appendix D includes a more comprehensive discussion of private funding sources

economic development problems, respond to developmental opportunities, and build and expand local organizational capacity in distressed areas. The Public Works and Development Facilities Program provides grants to help distressed communities attract new industry, encourage business expansion, diversify their economies, and generate long-term, private sector jobs. Projects funded include water and sewer facilities primarily serving industry and commerce, port improvements, and business incubator buildings.

New York's Environmental Protection Fund, established in 1993, includes funds for **Local Waterfront Revitalization Grants.** These grants are made to municipalities for the purpose of funding projects in three principal areas: Clean and Efficient Harbors, Coastal Erosion Management, and Furtherance of Regional Coastal Management. In addition, funds may be used for preparing waterfront redevelopment plans and detailed design plans for public access improvements, such as walkways, esplanades, and other public accessways. Communities on the New York side of Lake Champlain may be eligible for these grants.

e. Public-Private Partnerships

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described in "Potential Sources of Private Funds," including contributions and donations, lotteries, sponsorships, public-private partnerships, fines and penalties, development-based sources, wastewater access rights, and offset requirements.

f. License Plates, Lotteries, and Other Possible Financing

A special license plate or a portion of lottery funds may be used to fund watershed programs. Pollutant trading or alternative mitigation projects are another type of mechanism for funding watershed protection activities. A system could be developed in which industries that exceed their point source discharge emission limits could pay for or undertake nonpoint source pollution reduction efforts rather than merely paying fines for their violations.

g. Endowments/Trusts

Educational institutions, non-profit organizations, and states have developed endowments or trusts to provide stable sources of funds for programs and activities. This approach has been used for watershed protection efforts such as the Chesapeake Bay Trust. This idea could also be used in the Lake Champlain Basin to provide funding for new institutional capacity, research, and pollution prevention projects. Sources of funds for endowments and trusts include private contributions, foundations, special events, and sales of items such as vanity license plates and waterfowl prints.

2. Innovative Funding Mechanisms Utilized by Other Watershed Programs

The following is a brief summary of how other watershed programs have applied some of the funding options outlined above. This section will also include other innovative funding mechanisms employed by other watershed programs that may be applicable to Lake Champlain.

a. Taxes

1. Income Taxes

a. Maryland's Tax Check-Off Program[31]

On the Maryland Tax Return Forms there is a check-off box for donating part or all of your tax return to the Chesapeake Bay and Endangered Species Fund. In 1992, the fund yielded 1.1 million dollars.

2. Property Taxes

a. Maryland's Open Space Program

Maryland collects a real estate transfer tax. The tax is used to purchase open space. This open space program is successful because it ties in acquisition of natural lands directly with the rate of land development.[32]

b. Minnesota's Watershed Program[33]

The Minnesota Watershed program allows local communities to levy an ad valorem tax on all waterfront properties.

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[31] Financing Marine and Estuarine Programs: A Guide to Resources, EPA 503/8-88/001 (September 1988)(hereinafter Financing Programs).

[32] Tom Horton and William Eichbaum, Turning the Tide: Saving the Chesapeake Bay, Chesapeake Bay Foundation, at 284 (1991)(hereinafter Saving the Bay).

[33] Id.

c. Puget Sound Pollution Control Tax[34]

A proposal has been developed to charge Puget Sound landowners an annual nonpoint source pollution control tax based on property size and land use. Currently, this tax is only a proposal.

d. Nantucket Island Real Estate Transfer Tax

The Nantucket Land Bank was instituted to ensure public access to beaches and open spaces on the island. The Land Bank is governed by a five member commission. The commission members are elected by a popular vote and serve without compensation. The commission decides all Bank affairs and the use of Bank monies. They may purchase land, accepts gifts of land, and take interest in land by eminent domain. The Land Bank imposes a real estate transfer tax of 2% of the purchase price of any property sold in Nantucket County. Revenues from this fee are deposited into the Land Bank Fund to pay for the acquisition of public rights to the shores of the island. The Land Bank may issue bonds and may also receive appropriations from the county. From 1983-1986, the Land Bank has raised close to 11 million dollars and has acquired 761 acres of land.

3. Sales Taxes

a. Washington's Tobacco Tax[35]

In 1986, the State of Washington legislature passed the Centennial Clean Water Act. The Act established a 8% per pack tax on cigarettes, a 16.75% tax on tobacco products, and a sales tax on water pollution control equipment. Half of the revenues raised go to the control of wastewater discharged directly into marine waters. The other half goes to various water quality initiatives such as groundwater protection. All total, these taxes raise approximately 40 million a year.

Besides taxing tobacco products, other products may be taxed that are more closely linked to the estuary or watershed. The U.S. Senate has proposed a tax on plumbing equipment to help finance improvements to the public water supply. A tax on fishing equipment, boat sales or leases, or fish landed could be used to fund watershed cleanup and protection.

b. North Carolina's Occupancy Tax[36]

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[34] Katherine Fletcher, Protecting Puget Sound: an Experiment in Regional Governance, 65 Wash. L. Rev. 359, 371-372 (1990) (hereinafter Fletcher).

[35] Financing Programs at 53.

North Carolina has an economy dominated by tourism. The county uses sale taxes on lodging, meals, and entertainment to obtain funds to finance public facilities. North Carolina has a 3% occupancy tax used to fund capital projects. It is a dedicated account in the general fund and administered by the county government.

The occupancy tax applies to all motels hotels, cottages, and rental units, including time-share condominiums. The tax is based on total nightly, weekly, or monthly bill and only applies to nonresidents. Taxes are collected at the end of every month. The law authorizes strict penalties if owners are delinquent or do not pay the tax at all. In 1986, the county collected 1.6 million dollars.

The potential obstacles to this type of tax is that it may need state approval and pressure from realtors. Pressures from the restaurant lobby successfully eliminated the proposed meals tax. This tax may also be difficult to enforce. Proper enforcement requires an inventory of all hotels, motels, and rental units, as well as knowledge of the occupancy rate for each month and each establishment's rate structure.

c. North Carolina's Marine Fuel Taxes[37]

The Oregon Inlet applies a fuel tax to marine vessels. A fuel tax not only represents a recurring source of substantial revenue, but also links users of such waters to the maintenance of the water's quality. A fuel tax could apply to both recreational and commercial vessels.

A fuel tax would have to be instituted on a regional level. If only one state passed a fuel tax, the state runs the risk of losing moorage and sales to a neighboring state.

d. Fertilizer Sale Tax[38]

In Europe, some governments have tried to control nonpoint source runoff from excessive fertilizer by applying a sales tax. This has proved to be unsuccessful in curbing fertilizer use. Fertilizer is so inexpensive that even a 50% tax rate does not significantly reduce fertilizer use. Even though this tax does not curb use, it still may be effective at raising revenue to fund nonpoint source programs.

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[36] Financing Programs at 47-50.

[37] Id.

[38] Managing Nonpoint Source Pollution, EPA-506/9-90 (January 1992) (hereinafter Managing Nonpoint Pollution).

e. Puget Sound Sales Taxes[39]

A tax has been established on hazardous products to clean up toxic "hot spots". The Puget Sound Water Quality Authority has also proposed a tax on commercial marine fuels, an increase of the fish and shellfish tax, and an excise tax on leasing public lands.

b. Incentives/disincentives

1. Maryland Critical Area Program Incentives[40]

The State of Maryland controls land use around the Chesapeake Bay through the Chesapeake Bay Critical Area Act. The Act relies primarily on incentives to promote responsible growth. Incentives include transfer or purchase of development rights, stewardship programs, bonus zoning, and building rehabilitation tax credit.

2. Washington's Open Space Tax Status [41]

The PSWQA in its nonpoint source program provides tax relief for property owners whose lands have been fenced as part of plan implementation. The tax relief is in the form of an open space tax status.

3. Disincentive Fees for Nonpoint Pollution[42]

In 1991, two disincentive fees were passed by the Washington legislature. These fees can be avoided if nonpoint source controls are installed. One fee is an annual surcharge assessed on landowners with on-site septic tanks or livestock. This surcharge is waived if the septic system is inspected and found to be in good working order or when best management practices to control animal wastes and runoff from farms are installed. The other fee is an annual fee assessed for all landowners in urban areas. The surcharge is waived when local comprehensive storm controls are in place. The fees, in 1991, were set at $75 and $6 respectively.

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[39] Fletcher at 372.

[40] Incentives and their Uses in the Chesapeake Bay Critical Area: A Handbook for Local Government Officials, Chesapeake Bay Critical Area Commission (1992).

[41] Managing Nonpoint Pollution: An Action Plan Handbook for Puget Sound Watersheds, Puget Sound Water Quality Authority (June 1993).

[42] Managing Nonpoint Source Pollution

c. Fees

1. User Fees

a. Maryland Sport Fishing License Program[43]

The State of Maryland passed a Chesapeake Bay Sport Fishing License. The Maryland law states that no one is allowed to fish in the Chesapeake Bay or its tributaries without obtaining a Chesapeake Bay Sport Fishing License. The Department of Natural Resources administers this program. The obstacle with this funding source is that fishermen may simply fish elsewhere. However, other neighboring states such as Virginia have their own fishing license. Holders of a Virginia Chesapeake Bay fishing license are exempt from the Maryland licensing requirement. Besides this basic license, a special license must be obtained for charter boats.

This fee has been largely successful. In 1986, the program raised 1.1 million dollars. No shift has occurred to attain licenses or register in neighboring states without such fees. Also fisherman are generally supportive of the fee because the revenue is used directly to improve fish populations, protect and restore necessary habitat for spawning and growth, and increase access to waters.

b. Maryland's Duck Stamps

In 1974, the State of Maryland enacted a bill requiring all who hunt waterfowl in the state to purchase an annual stamp. The stamp must be signed by the hunter, affixed to his/her statewide license, and carried while hunting. Funds from the sale of the stamps are used for the propagation of waterfowl in the state. The stamp program has generated nearly 400,000 dollars a year.

c. Puget Sound User Fees[44]

A variety of user fees have been initiated by the Puget Sound Water Quality Authority and the Washington Department of Ecology. The state has raised its discharge permit fee to improve regulation of discharge permits. The Authority is also considering a fee charged to motor vehicle manufactures for new cars and trucks registered in the state.

2. Impact Fees

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[43] EPA Report on Funding for Estuary Programs.

[44] Fletcher,

a. Maryland's Oyster Taxes

The State of Maryland raises revenues for the Oyster Propagation Program by placing a tax on harvested bushels of oysters. The tax is 45 cents per bushel of oysters that remain in the state and an additional 15 cents per bushel of oysters leaving the state. In 1986, Maryland raised 600,000 dollars.

b. Colorado Nonpoint Source Program Fund[45]

The Cherry Creek Basin Water Quality Authority has the following revenue options: property tax assessments for property within the Authority's boundaries, developer impact fees, and an annual reservoir use fee. The Authority set its impact fees at $280/acre of graded land and its reservoir user fee at $3/year. The Authority generated $577,000 which was used to construct holding ponds and develop artificial wetlands around the reservoir.

d. Bonds

1. Bonds - In General[46]

Governments finance water quality improvements through bonds from private investors. Bonds are best suited to finance stormwater facilities, municipal waste resource recovery plants or other capital improvements where large amounts of capital are needed up front. Bonds are not well suited to fund ongoing, routine expenses such as water quality monitoring or public education programs.

Bonds provide much greater sums for watershed protection than other alternatives. Bonds are not independent sources of revenue and ultimately will have to be repaid through taxes or user fees.

2. Performance Bonds[47]

Performance bonds serve as financial guarantees that certain activities will be performed as a condition of a permit. The bond is refunded once the conditions of the permit are met. Several states have adopted performance bond requirements for developers to ensure that adequate erosion control and storm water control measures

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[45] Managing Nonpoint Source Pollution, EPA-506/9-90 (January 1992).

[46] Managing Nonpoint Pollution: An Action Plan Handbook for Puget sound Watersheds (June 1993).

[47] Managing Nonpoint Source Pollution, EPA-506/9-90 (January 1992).

are implemented. To be effective, performance bonds must be set at a level sufficient to ensure that funds will be available if treatment or environmental restoration is necessary and to ensure that the operator has a financial incentive to comply with the terms of the permit.

e. Loans

1. Washington State Water Pollution Control Revolving Fund Program[48]

This fund was created by state law to help local government finance water quality projects. The fund is administered by the Department of Ecology. Initially, the fund will be seeded by annual federal capitalization grants with a 20% state match. After 1994, the amount available will be determined by repayment of previous loans. In 1991, approximately 41.7 million dollars were available. Short-term loans that amortized over less than five years are no interest loans. Loans for longer than five years have a 4-5% interest rate.

Counties have also established local revolving fund programs. These local programs help to implement watershed action plans. The loans are available to property owners for on-site septic system repairs and construction, implementation of farm best management practices, and installation of boat pumpout facilities.

2. California State Revolving Fund[49]

California uses part of its State Revolving Fund for nonpoint source pollution control. The fund is administered by the State Water Board. This is a flexible program that evaluates and selects for funding a wide variety of nonpoint source pollution control projects. Eligible projects include construction of demonstration projects, retention/detention basins, wetlands for stormwater treatment, and a variety of best management practices. This fund can also be used to enable private individuals to finance new onsite septic systems, mound systems, leach field, etc.

f. Funds

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[48] Managing Nonpoint Pollution: An Action Plan Handbook for Puget Sound Watersheds, Puget Sound Water Quality Authority (June 1993).

[49] A State and Local Government Guide to Environmental Program Funding Alternatives, EPA 841-K-94-001 (January 1994).

1. Iowa Groundwater Protection Fund[50]

Iowa has a groundwater protection fund. Income for the fund is from a per ton fee on solid waste disposal, an annual fee for each retailer of household hazardous waste products, a fee for per ton of nitrogen purchased, a pesticide fee on pesticide sellers based on annual sales in Iowa, a pesticide dealers license, and an underground storage tank fee. The money raised is used to investigate alternatives to pesticide and fertilizer use. In 1988-90, 1.9 million was raised and targeted for research on environmentally benign farming practices.

2. Chesapeake Bay Financial Assistance Funding Program[51]

This funding program combines federal and state money with farmers' money to reduce pollution. This cost-share program is usually 80% government money and 20% farmers' money. Farmers join the program by signing a contract agreeing to capture and store the tons of cow manure.[52] The money is distributed through local conservation boards.

3. Maryland's Shore Erosion Program

Maryland has developed a shore-erosion control program. The program is administered by the Department of Natural Resources and provides financial and technical assistance to landowners to solve erosion problems. If the Department recommends some type of structure the landowner is eligible for a zero-interest loan. If the recommendation is for stabilizing vegetation, the landowner is eligible for a matching grant for the project cost.

g. Special Districts

Washington State Law allows for local governments to create special districts to raise revenue to fund water quality programs. The four key revenue authorities used by local government to manage nonpoint sources include: Stormwater utilities, Aquifer protection areas, Conservation district special assessments, and shellfish protection districts.[53] These districts are able to raise revenues by charging fees or increasing

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[50] Id.

[51] Saving the Bay

[52] Saving the Bay p. 238.

[53] Water Quality Protection: Financing a Comprehensive Program, Puget Sound Water Quality Authority, Sound Waves (Jan/Feb 1993).

rates for services. Special districts can be the most stable method of funding nonpoint source pollution control.

Bellevue, Washington uses an acreage based fee to fund 3.4 million worth of controls for surface runoff and stormwater drainage.[54] A stormwater utility constructed and operates a drainage system to control storm and surface runoff, urban flooding, and nonpoint source pollution. These drainage systems are financed by acreage fees. The fees are determined by the runoff coefficient based on the degree of development multiplied by the size of the lot. If a developer provides some type of runoff control system, the fee is reduced.

This program has been in operation for 11 years and is considered a great success. In 1985, the revenues were approximately 3.4 million. The problems faced by this type of program is public support and the status of roads and highways in the rate structure. In the State of Washington, the courts upheld the right of the utility to bill the state.

h. Public - Private Partnerships

One of the more promising funding options is the use of private and public partnerships to generate revenues for program purposes. The premise behind many of these programs is twofold: there is never enough public money to do the job, and the private sector should help pay for public programs that provide it with direct and substantial private economic benefit.

It is obvious that lake front property has a higher economic value because of its proximity to a valuable public resource. At Lake Champlain, private investment in second homes, marinas and other facilities essentially is secured by the health of the Lake, which is now maintained chiefly through public expenditures. All existing environmental protection programs targeted to the Lake, which are now funded by general, federal and state funds create the economic value for the private investment along the Lake.

Maintaining the value of the investment through private contributions to public programs is the heart of the private/public partnership concept. It is a matter of harnessing private economic self-interest in the service of the public interest.

There are a two examples we have cited here, one in a water program, and one that is not. There are many other examples throughout the country that could be explored in more detail.

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[54] Managing Nonpoint Pollution: An Action Plan Handbook for Puget Sound Watersheds, (June 1993).

1. Florida's Wetland Mitigation Partnership [55]

A group of Florida developers attained a permit to restore a degraded 345 acre wetland on land owned by the city. These developers formed the Florida Wetlandsbank and sell credits to other developers who have impacted degraded wetlands. The developers may buy credits only if they have approval to satisfy the state's wetland mitigation requirement through offsite mitigation. The Florida Wetlandsbank will transform this area into a public park.

2. Central Park Conservancy[56]

For all of its problems, New York City's Central Park is an enormous success story as a public/private partnership. Over the last fifteen years, Central Park has gone from wasteland to a place where there is a thriving urban ecosystem, a mix of environmental, cultural and recreational opportunities for the public. That restoration has come about in large part because of a unique funding story.

Citizens in 1979 decided to create private institutions that would raise funds to pay for Park projects for which there was inadequate public funding. The Central Parks Conservancy is the principal private fund-raising group. Coordinating gifts from individuals, as well as foundations and corporations, the Conservancy matches and at times betters the City's budget for park restoration. To date, the Conservancy has raised $100 million for Park restoration efforts.

For many, the reinvesting in public spaces is a great and successful experiment in democracy. It should be tried with vigor at Lake Champlain.

I. Trust/Endowment

1. Chesapeake Bay Trust/Maryland Environmental Trust[57]

The State of Maryland has been imaginative in its acquisition of funding to restore Chesapeake Bay. The Chesapeake Bay Trust began in 1985 to bring the financial support of the business community and private donors together with community groups and educators who need financial assistance. Maryland instituted a special vanity license plate sales program to fund its Chesapeake Bay Trust and raised over four

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[55] Id. at 5.

[56] Toby Thompson, Give Me Your Birders, Your Paddles, Your Huddled Masses... Ad Libitum through Central Park, Outside Magazine (September 1994).

[57] EPA Report on Funding for Estuary Programs.

million dollars.

j. Other

1. Nutrient/Pesticide Management Program[58]

This program is funded in the Chesapeake Bay area through farmer associations. Farmers join together and pay a fee based on the amount of acreage. The fee goes towards paying a pest expert to test their crops and recommend the amount of pesticide needed. Members also manage nutrients by completing a nutrient management worksheet. The worksheet tracks all the ways nutrients enter and leave the farms. A nutrient balance is computed for each farm and the soil is tested to determine the amount of nutrients needed.

In 1991, this program included 50 members and 8,000 acres of farmland. The farmers have all recouped their membership fees by saving on the amount of pesticides and fertilizers needed for their crops.

2. Private Institutions Grants[59]

Private institutions are also important sources of funding. These grants are best used for one-time capital costs. For example, the Fish America Foundation offers 2,000 to 10,000 in grants to government or other public bodies for projects related to the improvement of fisheries. Trout Unlimited has a similar program which is quite active in New York.

3. Georgia - Leasing Shellfish Beds

The State of Georgia manages its oysters through its Shellfish Program in which the state leases commercial harvesting areas based on a bid procedure and funds allocated from the state legislature.

Georgia has no open shellfish areas. The general public must harvest only in designated public grounds. Public harvests cannot exceed the daily legal limit of two bushels per person and the harvester can only pick the oysters with hand-held

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[58] Id. at 239-40.

[59] Managing Nonpoint Pollution: An Action Plan Handbook for Puget Sound Watershed, Puget Sound Water Quality Authority (June 1993).

implements. Commercial harvesters must obtain a lease for state-owned resources from the Department of Natural Resources. Leases are awarded on the basis of bids for a specific parcel of land. If based on pollution conditions and shellfish base, the state determines the area is suitable for leasing, the state will offer the area in a competitive bidding process. Each bidder must submit a shellfish resource management plan. The winning bid is chosen by the most advantageous combination of lease payments and the strength of the management plan. The lease lasts up to a maximum of 15 years.

This program is not designed to generate a large amount of revenue. The program is aimed at rebuilding the commercial shellfish industry and to provide for sound management of the oyster resources.

C. SUGGESTIONS FOR FUNDING LAKE CHAMPLAIN INSTITUTIONAL ARRANGEMENTS

The focus of this report is on recommendations for funding institutional arrangements, not specific program initiatives. While many creative models exist for funding of specific initiatives, some of which are highlighted above, strategies for funding in specific action plan areas must follow from development of a limited number of clear priorities which have yet to emerge from the planning process.

The question here is how to fund continuing coordination of lake management efforts. In other watersheds with issues and a structure similar to that of Lake Champlain, particularly the Chesapeake Bay, funding to support institutional arrangements has come primarily from EPA. Other federal agencies with an interest in funding long term capacity building projects include the Farmers' Home Administration and the Economic Development Administration. While the federal government is an important potential funding source for the Management Conference and its successor to pursue, the goal should be to provide a non-federal funding base that can withstand political change and provide continuity to management efforts.

There are a variety of mechanisms that could help achieve this goal. The first is creation of an endowment fund to support coordination of existing efforts. Such funds have been developed in other watersheds through a combination of private contributions, foundation grants, special events and sales of art prints, tee-shirts, etc. Estate planning and related contributions provides another important mechanism for endowment funding. Such a fund could be seeded with matching grant money from

New York, Vermont and Quebec. Endowments can combine restricted and unrestricted funds.

Another step in reducing dependence on federal dollars is to increase the financial commitment of New York, Vermont and Quebec. In the short run this could be achieved through multi-year appropriations from the general fund. However, a dedicated revenue source will provide greater long term stability.

Options the states may consider include the use of income-tax checkoffs to support Lake Champlain management efforts. This option provides a means to capture voluntary contributions from populations statewide who recognize the value and are willing to pay to support good lake management. A second option is the use of real estate transfer taxes on properties within the basin. This option ties funding for lake management to land transfer and development activities, providing some compensation, over time, for increased population pressures on the resource. A third option is the identification and pooling of enforcement fines related to recreation, land development and water quality within the basin. Currently fines are collected and used for general purposes both within and outside the basin by all levels of government within the basin. A thorough inventory of fines may reveal opportunities for restructuring collection and use to support improved lake management.

In addition, the Management Conference might consider incentive/disincentive fees as a revenue collection mechanism. Disincentive fees charge users for undesirable behavior and may be avoided by a change in practice. For example, in Washington State, landowners with on-site septic systems pay a surcharge which is waived if the system is inspected and found to be in good working order. Urban dwellers pay a fee which is waived when local comprehensive stormwater controls are in place. Disincentives have the advantage of directly influencing landowner behavior and financially rewarding best practices.

Another significant tool thus far underutilized in the Champlain Basin are public/private partnerships. When positive economic implications of potential actions in the action plan areas is defined, a potential for public/private partnerships will emerge that has been largely untapped thus far. For example, once appropriate sites for new or expanded public access are identified, private developers are likely to be willing to invest in the infrastructure required to provide such access in exchange for permission to develop compatible commercial enterprises. While this technique has been used with success along the Burlington waterfront among many places nationwide, it has yet to be applied to the basin as a whole. Public/private partnerships are usually project specific, although the private sector may be willing to support management activities perceived to be in the best interests of both the environment and the economy.

All these suggestions will require further research to determine their political feasibility and the likely volume of revenue each might generate. Methods of financing preferred by Lake Champlain Basin Program participants surveyed were: government appropriations; regular allocation of funds by federal agencies; grants from government or foundations and voluntary contributions from the private sector, interest groups and

citizens, in that order.

Finally, reviewing existing expenditures by federal and state governments on programs related to the Plan within the basin may provide additional insights into sources and mechanisms for financing institutional arrangements. Both States and the federal government of the United States are spending considerable sums of money on programs and projects related to the goals of the draft Action Plan. In fact, the amounts of money spent in this way far overshadow the amounts provided by the federal government to the Management Conference. For example, a rough estimate of the amount spent annually by VTANR within the basin is $18 million while a similar rough estimate for NYSDEC is $8-10 million. Accounting systems are not designed to track expenditures by watershed boundaries. Until it is possible to identify existing state and federal expenditures on plan-related activities within the basin, it will be impossible to take a comprehensive look at how these resources may best be allocated in light of the plan. Conclusion: The ecosystem approach to resource management applied to the Plan must also be applied to identification and allocation of financial resources at the state and federal levels. The first step in moving toward ecosystem budgeting will be an inventory of spending within the basin by all relevant state and federal programs. The inventory should include not only direct programs of the state and federal governments, but also grants made by same to independent groups in the Basin. Preparing the inventory will generate new insights into spending patterns as well as provide a basis for evaluating the value of an ecosystem budgeting approach.

It will take time and effort to inventory federal and state programs and grants on a watershed and action area expenditure basis. Until this work is completed its outcome is uncertain. It is likely that some programs will still require additional funds for ongoing support beyond those captured through reallocations. To assist in addressing that need, information on generic financing mechanisms for watershed management and examples of their use in other watershed management programs is provided here. Appendix D contains further information on public and private sector funding sources. The EPA has published a document, "Financing Marine and Estuarine Programs: A Guide to Resources" which contains additional valuable information.

a. Principles of Financing Institutional Arrangements

In considering where funds for plan implementation should come from, the following basic principles should apply.

- Accountability is key. The public should know where the money spent on Action Plan implementation is coming from, where it is going and what it is buying them. Insofar as possible, money collected within the basin through fees and fines should be spent to improve the basin environment.

- Second, some portion of the funding available to finance implementation and further planning should be flexible and not tied to political cycles. This can be achieved, in part, through creation of an endowment.

- Third, funding sources should be diverse to achieve maximum potential for continuity of effort. Insofar as possible, stakeholder groups should seek financing independent of government.

- Finally, funds should be adequate to carry out specific tasks - undercapitalized efforts should be discouraged. Accountability, the key, suggests the planning process must reasonably identify what resources are required for adequate capitalization.

One important step in assessing financing needs is identification of current levels of funding for related activities.

b. Experience of Other Watersheds with Ecosystem Budgeting

In contacting watershed organizations for this project many were asked if they had made attempts at ecosystem budgeting. Many had collected information on past expenditures for particular measures to serve as an estimation base for future costs and for comparison in a cost effectiveness sense. IJC guidance for the RAP process calls for such steps and a number of them have gotten that far in their planning and have accomplished estimates of site clean up, waste treatment, and substitution of less toxic chemicals for more toxic substances in industrial and other processes. The Long Island Sound study has had a focus on the need to upgrade municipal sewage treatment plants in response to improved modeling of the estuary of the Connecticut River. Cost implications were set in the context of existing cost levels. Recent small watershed projects planned by the US Soil Conservation Service have put heavy emphasis on land owner measures to reduce the loss of silt, nutrients and pesticides to the watershed from fields, construction sites and yards. Estimates of costs borne by the land user and public cost-sharing are a standard feature of the plans.

No examples of more comprehensive accounting were identified. Key informants contacted were in many cases the results of referrals where the person was thought to have tried ecosystem accounting or some variation of the concept. Thus, many were more knowledgeable about what might be involved than most involved in watershed management. Many indicated that they thought the effort could well be worth it and workable if the level of awareness were raised sufficiently and information made available to facilitate the reporting. By pursuing ecosystem budgeting, Lake Champlain would be a pioneer in developing a significant, much needed tool for ecosystem management.

VI. LOCAL CAPACITY BUILDING FOR PLAN IMPLEMENTATION

A. INTRODUCTION

The purpose of the Draft Plan is to identify issues of basin-wide concern. These issues, whether toxics or recreational use conflicts, are played out differently in different localities around the basin. Improving water quality and meeting related goals will require developing local capacity to reach consensus regarding the problem as it manifests itself in each area and act on it appropriately. The major function of the Implementation Committee is to build bridges between basinwide stakeholder groups, policy developers and localities or sub-basins to facilitate plan implementation.

Several models of institutions that support (some) watershed goals in sub-basins already exist within and outside the basin. These include but are not limited to: river-based organizations, lake or lakeshore associations, town conservation commissions in Vermont and county water quality coordinating committees organized by Soil and Water Conservation Districts in New York. Many of these organizations are already structured to cross some jurisdictional boundaries.

Given the axiom that "all politics is local", there is no one model of sub-basin institutional arrangements that will prove useful throughout the basin. The Implementation Committee will need to seek out the most likely institutional partners in each sub-basin and learn how to work within the framework they provide. There are, however, a few lessons from existing efforts that are worth keeping in mind.

B. LESSONS LEARNED

Some lessons learned from a review of local capacity building models of watershed management include:

1. A basinwide plan will require re-visioning at the local level to establish local ownership and build local capacity to act. The implementation process should allow for the time and resources required to carry this process out in each sub-basin where implementation is desired.

2. Just as at the basinwide level, all relevant stakeholders should be included in discussions at the sub-basin level. Local government officials, local businesses, local nonprofits, local farmers and farmer organizations, local citizens all need to be represented in the local visioning and decision-making process.

3. Use of a professional facilitator can be very effective in fostering meaningful

dialogue between individuals representing groups who have either no history of interaction or a negative history or whose values are perceived to be in conflict (e.g. government officials and property rights advocates).

4. There's a continuum from networking to collaboration in creating institutional arrangements. Networking refers to the informal sharing of information. Collaboration refers to the commitment to share responsibility and resources required to take action jointly. Networking is an important first step in building toward collaboration between existing institutions. Flexible instruments such as Memoranda of Understanding are often effective in legitimizing collaborative arrangements.

5. Institutional arrangements at the sub-basin level provide a forum for cooperative learning to build consensus for action. The role of the Implementation Committee is to provide public information, not public relations, and to support the building of consensus no matter how painful a process it may be.

6. Creative and lasting solutions come from forming new partnerships. Partnerships begin as relationships between individuals. Meetings that are well run and leave room for personal expression through, for example, celebration of birthdays, help foster relationships between individuals.

7. Lessons from the Great Lakes regarding local capacity building for plan implementation recommend, "that governments adopt long-term visionary goals for Areas of Concern and commit to a customer-driven and value-added Remedial Action Plan process of continuous improvement that shares decision-making power."[60] This is a good characterization of the appropriate role of the Policy Committee in plan implementation.

8. Many successful sub-basin watershed management efforts encompass a wider range of issues than simply water quality. Many are driven by concerns related to recreational use and access and/or responses to federal and state regulations and mandates. A recent study of sub-basin watershed organizations in New York State found them increasingly proactive in avoiding problems as opposed to crisis-driven.[61]

9. Co-sponsorship of implementation at the sub-basin level strengthens local ownership and builds capacity to maintain and service any new infrastructure. This includes, but

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[60]Hartig, John H. and Neely L. Law, Institutional Frameworks to Direct the Development and Implementation of Remedial Action Plans, 1993, p.24-25.

[61]Neville, Linda Lee, New York State Collaborative Watershed Management Survey, 1993, Cornell University Master of Professional Studies degree report.

is not limited to, local fundraising and/or local government matches for implementation.

1. Case Study: Great Lakes Remedial Action Plan Programs

Perhaps one of the most advanced efforts at local implementation of an ecosystem plan is in the Great Lakes where Great Lakes Remedial Action Plan Programs (RAPS) have identified 43 geographic areas of concern.

The Great Lakes Remedial Action Plan Programs of Canada and the United States were the result of a 1985 recommendation of the International Joint Commissions Great Lakes Water Quality Board. The Board had been put in place by a 1972 Agreement as a way to monitor the work of the two national systems in the execution of the Agreement. The Agreement was then amended to call for the RAPS to embody a comprehensive ecosystem approach. To do this it was argued that public participation and local institutional frameworks were required. These were to provide a basis for relating to multiple sources of contamination, multiple effected uses, multiple measures and multiple purposes. This comprehensiveness quickly put the effort into the realm of many local and non-local agencies and organizations.

Of the 43 geographic areas of concern, 39 currently have either a stakeholder group, basin committee, coordination council or advisory council. Each of the countries has provided support to the public education and outreach process, albeit unevenly. Each of these local institutional frameworks is implementing a locally designed ecosystem approach based on the goals established by the Water Quality Board. Each has, to some degree, moved beyond the media-specific, command and control approach of traditional programs with separate programs for water quality, fish, wildlife, land, air, etc. and their proclivity for turf war and gridlock. These institutional frameworks are seen helping social learning, opinion formation and decision-making.

These local institutional frameworks have been evaluated to identify essential characteristics that ensure an ecosystem approach to use restoration.

Characteristics identified as essential to the RAP process include:

1. A watershed perspective to overcome the barriers imposed by political boundaries in the management of the natural system involved. A watershed perspective can be used to encourage a sense of stewardship for the "problemshed" in contrast to the political jurisdiction.

2. Broad based participation to achieve implementation takes advantage of knowledge and expertise stakeholders possess about their own community, keeping them in charge and responsible for their own destiny rather than have these incentives turn against the problem solving process itself.

3. Clear responsibility and sufficient authority is now based on agreement on goals, indicators of progress, flexibility of choice of means as long as agreed upon goals and indicators are met, responsibility and accountability for roles in implementation -- all as opposed to a more traditional top down command and control model.

4. Human and fiscal resource support have to be accessed and adequate. Local leaders may need to learn the techniques of seeking redress from higher levels of agency and political representation.

5. Continuity and flexibility, that is, a long term mission driven commitment to and from the local level is needed to keep the many traditional command and control oriented agencies focused on the needs of the local problem.

6. Linkages among what should be interrelated planning initiatives can best be accomplished at the local level where community values help shape priorities for action and accountability.

Lessons learned from local efforts here and elsewhere should be captured regularly to inform the basinwide policy development process and to demonstrate what works to communities throughout the basin. Ideally, persons involved in local implementation efforts ought to be members of the relevant basinwide stakeholder groups.

VII. NEXT STEPS

What the Management Conference can do over the next year to facilitate adoption of the recommendations:

- Discuss and agree on desired institutional arrangements to succeed the Management Conference and Basin Program.

- Support creation of stakeholder groups for local governments and businesses through allocation of staff and financial resources during 1995.

- Support continuation of existing stakeholder groups, particularly the Environmental Group Advisory Coalition (integrating the Mad River Intra-Basin Advisory Committee) and the Agricultural Advisory Group, through allocation of staff and/or financial resources as needed.

- Lobby state and federal agencies to create a publicly supported nonprofit organization to undertake continuing public education and outreach functions.

- Lobby for revisions to the composition of the Steering Committee and its evolution to the Policy Committee and encourage needed revisions to the 1996 Memorandum of Understanding.

- Lobby for state and provincial multi-year appropriations to support the Policy Committee and Implementation Committee.

- Conduct a detailed inventory of federal, state and private funding for basin activities related to the Plan. Use results as a basis for evaluating the feasibility and desirability of ecosystem budgeting.