Clinton River Remedial Action Planning

A State and Watershed Community Partnership

Public Advisory Committee Notebook

September 1993

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July 8, 1994

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Adopted June 16, 1993

Clinton River RAP-PAC: Organization

Council* Members: 27

Environmental Groups	2
Citizens at large	5
Health (County Health Department, hospitals, etc)	1
Municipal and County, POTW, Planning	8
Agriculture	1
Recreation, sportsperson	2
Business, industry	4
Education	2
Labor	2

- **Term of Service: 3 years***

  To get started with staggered terms half will be randomly assigned an initial two year term. There will be no limitation on the length of time of service. Each member should designate a alternate.

- **Advisors (RAP Advisors)**

  The PAC members are public advisors to the MDNR. The RAP Team member serve as Technical Advisors to the PAC. As needed key persons from the public and private sectors will be invited to meet with the PAC in an advisory role.

- **Officers**

  A Chairperson and Vice-Chairperson.
  Term: 2 years.

- **Staff**

  There is currently a DNR contract with the Clinton River Watershed Council to provide staff assistance for the PAC and its subcommittee.

* Amended September 16, 1993

- **Meetings**

Frequency:	Quarterly with special meetings as needed
Time of Day:	5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties to include both source areas and impacted areas.

- **Format of Meetings**

Format:	5:00 - 6:30	PAC Meeting - Subcommittee Reports
	6:30 - 7:00	Public Comment/Break
	7:00 - 8:00	Program: Public attendance emphasized

- **Voting**

There should be formal votes on procedures, budgets/expenditures, issues. Presence of a majority of the Committee Membership constitutes a quorum. A business item may be approved by a majority of those present or number of aye votes sufficient to prevail were a quorum present. Roberts Rules of Order will govern.

- **Meeting Notices**

- ♦ Agenda Packets mailed to expanded PAC list* prior to each meeting
- ♦ Formal legal notice not required to be published
- ♦ Publish in community calendars of Macomb Daily and Oakland Press
- ♦ Press release
- ♦ CRWC quarterly newsletters
- ♦ List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
- ♦ Flyers for Special Meetings

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* "Expanded PAC list" includes PAC members and alternates, RAP Team Members, key persons identified for information purposes. Approximately 60 persons.

PARLIAMENTARY PROCEDURE

Based on Roberts Rules of Order
*NOT AMENDABLE

TO DO THIS	YOU SAY THIS	May You Interrupt Speaker?	Must You Be Seconded?	Is The Motion Debatable?	What Vote is Required?
* Adjourn the meeting	" I move the meeting be adjourned"	No	Yes	No	Majority
* Recess the meeting	" I move the meeting be recessed until ..."	No	Yes	No	Majority
* Complain about noise, room temperature, etc.	" point of privilege"	Yes	No	No	No Vote
* Suspend further consideration of something	" I move to table the motion"	No	Yes	No	Majority
End debate	" I move the previous question"	No	Yes	No	2/3 Vote
Postpone consideration of something	" I move this matter be postponed until ..."	No	Yes	Yes	Majority
Have something studied further	" I move this matter be referred to a committee"	No	Yes	Yes	Majority
Amend a motion	" I move that this motion be amended by"	No	Yes	Yes	Majority
Introduce business (a primary motion)	" I move that ..."	No	Yes	Yes	Majority
* Object to a procedure or to a personal affront	" Point of order"	Yes	No	No	No Vote Chair Decides
* Request information	" Point of information"	Yes	No	No	No Vote
* Ask for a vote by actual count to verify a voice vote	" I call for a division of the house"	No	No	No	No Vote
* Object to considering some undiplomatic matter	" I object to consideration of this question"	Yes	No	No	2/3 Vote
* Take up a matter previously tabled	" I move to take from the table"	No	Yes	No	Majority
* Reconsider something already disposed of	" I move to reconsider the action relative to ..."	Yes	Yes	Yes	Majority
* Consider something out of its scheduled order	" I move to suspend the rules and consider ..."	No	Yes	No	2/3 Vote
* Vote on a ruling by the chair	" I appeal the chair's decision"	Yes	Yes	Yes	Majority

Source Unknown

Clinton River Fact Sheet

Problems and Opportunities

Watershed Description

The Main Branch of the Clinton River extends for 80 miles from northwest Oakland County to the mouth of Lake St. Clair. The watershed is 760 square miles. There are 600 miles of stream including the major tributaries. Oakland County has 1165 lakes in the headwaters of the Clinton, Huron, Rouge and the Shiawassee (Saginaw) Rivers, more than any other Michigan County. Many of these lakes are "wide spots" in the Clinton River.

Glaciers left behind two distinct land forms. Glacial Lake St. Clair extended for inland so the eastern half of the watershed (Macomb County) is very flat, with clay lakeplain soils and poor drainage. The western half is glacial moraines, hilly, sand and gravel soils, well defined stream drainage.

Settlement divides the watershed into thirds. The southern part extending outward from 8 Mile Road (the City limits of Detroit) is urban; the middle third along the Main Branch is rapidly developing suburbs; the northern third is rural. Prime agricultural lands are along the Main Branch, draining north Macomb County. There is extensive industry in Pontiac and the southern watershed.

Over a million people live in the watershed in 56 municipalities and four counties.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Since the 1960's, 7 out of 21 municipal plants remain on the river while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted for control of combined sewer overflows, either separating old combined sewers (Pontiac and Mt. Clemens) or constructing retention basins to provide primary treatment - oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Yet the CSO annual loading to the Red Run and Clinton River far exceeds that of Warren Treatment Plant with its tertiary treatment.

Public construction projects on the Clinton total $380 million; these were financed

by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. When operating costs, private pollution control investments and administrative costs are included, it is estimated that $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The Clinton River water quality today is greatly improved. Where not a live fish could be found from Pontiac to the mouth in the 1960s, there is today a large and varied fishery (which does depend on stocking, not natural reproduction). Many people are fishing the river and enjoying canoeing and boating and riverfront parklands.

Problems

The lower watershed, below the confluence of the Red Run which drains urban south Oakland and Macomb Counties, is listed as one of the 43 Areas of Concerns throughout the Great Lakes. This is principally because of sediments contaminated with heavy metals, PCBs, oil and grease. Oil spills and discharges tot he river are frequent. Other problems are degraded biota, low dissolved oxygen, heavy sedimentation, excessive nutrients, pesticides, and fecal coliforms. Causative factors are largely unknown: suspected sources include point sources (7 municipal treatment plants and 22 industrial discharges), nonpoint urban runoff, agricultural runoff, combined sewer overflows and contaminated groundwater. There are 214 listed sites of contamination in the watershed, 4 on the national "Superfund" list. There are restrictions on dredging because of the contaminated sediments. The Corps has dredged the lower 8 miles of the navigation channel since the 1850's. Shoaling at the spillway head has required periodic dredging. An investigation is underway to determine if a adjustable weir to direct non-flood flows down the natural channel would help improve water quality on the lower river. A fish consumption advisory was issued for carp from the lower Clinton River in 1990.

Flooding has been a severe problem along the river in the lower watershed, and in Pontiac, with sewers backing up and basements being flooded. The Corps of Engineers constructed two major flood control projects in the 1950s - the cut-off canal and Red Run Drain. A 1968 rain revealed that the projects design capacities were exceeded as the result of increased runoff from continuing urban development. The Corps undertook flood control planning for another decade, but concluded that the cost of a federal channelization project would exceed the benefits in reduced flood damages.

In the upper watershed there are extensive wetlands playing a key role in flood

state and federal regulatory programs, and pressures of new urban develoment. Because of the intensive shoreline development and recreational use of the inland lakes, plus lakeshed drainage impacts, there is concern about water quality and private versus public interests in the use of lakes in the watershed. Septic system concerns persist on some lakes and for groundwater impacts. Because the many dams do not have minimum release rates, there are downstream concerns about instream uses. River flow plays a critical role in the water quality. At drought flows - to which pollution control measures are aimed - only 15% is groundwater and tributary flows - 64% is from 6 municipal treatment plants (water that's been pulled out of the Great Lakes through Detroit's water supply system), 21% is industrial - largely non-contact cooling water.

The Clinton is typical of an urban river - when it is raining, because of development in the watershed, there are much higher flows than for a natural watershed; when it is not raining, there are reduced base flows. High flows cause severe bank erosion. Uncontrolled erosion from construction sites remains a problem. Sedimentation is the major insult to the river.

Topography also plays a critical role. As the river flows out of Oakland County onto the flat lands, the flow slows, sediment drops out, and there is little reaeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions. The extent of nonpoint sources of pollution remains largely unknown; but estimates suggest it is the dominant influence on river water quality today. The problems resulting from stream enclosures and channelization are also now recognized.

Institutional problems are the major impediment to effective river management. There is a myriad of agencies and programs at the federal/state/local levels with some responsibilities fir water management; but their efforts are largely uncoordinated and sometimes contradictory. Effective means to deal with problems that transcend a single political jurisdiction are not available, or are little used.

New local and watershed funding sources are needed for water quality monitoring, programs to prevent as well as remedy problems, and local water management activities.

Opportunities

Remedial Action Plans are being developed for the Great Lakes Areas of Concern.

The Clinton River Plan, developed by the MDNR, was presented to the International Joint Commission in November 1988. The Clinton River Watershed Council received a grant to facilitate watershed community participation and implementation agreements. A Public Advisory Committee for the Clinton River RAP was inaugurated in 1991.

Congressman Bonior and the Clinton River Intercounty Drainage Board have pursued ways to address the shoaling and reconstruction of the weir at the spillway head through the federal government and/or drainage district.

The 1987 amendments to the federal Clean Water Act, new DNR programs (including the proposed air toxics strategy), the Clinton River Remedial Action Plan, and local programs for Industrial Pretreatment all add up to a new focus on control of toxics in the river and opportunities to answer outstanding questions on the impacts of toxics on Clinton River aquatic life.

Cleanup of contaminated sites has accelerated with voter approval of the Michigan Quality of Life Bond proposal and passage of "polluters pay" legislation.

Michigan developed a Nonpoint Sources Control Strategy in 1988; some state and federal funds are now available for source control and watershed projects. County and municipal enforcing agencies are increasing inspections and enforcement actions to control erosion from construction sites. Local inspections and ordinances can play a key role.

The Clinton River Cleanup Committee is sponsoring annual river debris removal days and some local government and private groups are undertaking river maintenance - not only removal of log jams, but stabilization of eroding banks and riverside vegetated buffers.

Local government management of floodplains provides the opportunity to go beyond minimum state and federal requirements to avoid flood damages resulting from new development upstream in the watershed and also to protect the environmental and recreation values of floodplains. There is now available a reduction in local flood insurance rates based on a good local flood management program. Local governments could undertake flood damage reduction projects identified in the Corps planning.

Local governments, supported by local citizens and developers, can play key roles in wetlands use and protection through coordination with DNR permitting, local wetlands ordinances, local planning for wetlands management and design of the local stormwater system.

Planning and coordinated action of local governments and County Health Departments should be pursued for management of septics systems in areas where construction of sewers is not cost-effective or anticipated in the near term.

Local governments, with support of citizens and developers and assistance from the Clinton River Watershed Council, Department of Natural Resources, private consultants can undertake stormwater management planning and implementation.

Often urban storm drains have improper connections of sewage pipes or floor drains which allows non-stormwater discharges and spills to enter the drains. Local government can initiate programs to investigate and eliminate illegal connections.

EPA regulations for municipal storm drains have been developed as prescribed by 1987 amendments to the Clean Water Act. It is the intent of Congress to foster stormwater management, focusing initially on larger urban areas. Municipalities are expected to both work up the local drain system with an NPDES permit stipulations on the end of the drain and work down with local nonpoint sources control. Industrial sites and construction sites disturbing more than 5 acres of land also require stormwater permits.

A number of Groundwater Education in Michigan (GEM) projects are currently being funded by the W.K. Kellogg Foundation. These offer opportunities for local government officials, citizens, teachers and students to explore local community opportunities for groundwater protection.

Management efforts by lakes associations and lakeshed planning and management by local governments can play a vital role in protecting the water quality of lakes, avoiding conflicting lake uses, and protecting lakefront property values. Past studies have suggested flow augmentation as a tool in the river management kit and identified the Clinton River as a most likely place in Michigan where this might be implemented. Rationalization of dam operation to balance instream needs versus impoundment interests has also been suggested.

Opportunities to enhance Clinton River related recreation opportunities include public support for acquisition of local parks and natural areas along the river; river corridor protection planning/implementation (using approaches developed under the Michigan Natural Rivers Program); implementation of local and county-wide trails networks; the Clinton River Fisheries Management Plan (drafted by the DNR in 1989); supporting projects of private and business groups.

Citizens may participate in the Clinton River Watershed Council and SEMCOG (Areawide Water Quality Board and Environmental Policy Advisory Council) efforts towards public education, coordination of water agencies, assistance to local government and strengthened institutional arrangements. Citizens are encouraged to communicate their interests to local officials and to participate in local government meetings and citizen committees.

Support is needed for appropriate new funding proposals to ensure continuation of basic water programs at the state, regional, watershed, and local levels. Rates paid for local services such as wastewater disposal, water supply, a local stormwater utility, can finance actions to minimize the impacts on human health, the river environment, and the level of taxes. New state permit fees are being proposed to cover administrative, monitoring, and enforcement costs of state water laws.

Education efforts about the Clinton River include activities of the Clinton River Watershed Council; County Cooperative Extension Services; Planning Departments; Nature Centers located along the river; the Oakland and Macomb County Intermediate Schools; the Clinton River Cleanup Committee; local government programs; many civic environmental and business interest groups; and last, but by no means least, the print and TV media. Add your name to the Clinton River Watershed Council mailing list to keep abreast of river news and current opportunities to learn and participate.

Areas of Concern

Overview

Since 1973, the International Joint Commission Water Quality Board has included in its annual and biennial reports, descriptions and evaluations of specific locations in the Great Lakes that have serious water pollution problems. These areas are principally near coastal urban centers and generally consist of harbors, bays and river mouths. The IJC refers to these locations as Areas of Concern and defines them as areas where degraded environmental quality has caused, or is likely to cause, impairment of beneficial uses or the area's ability to support aquatic life. Beneficial use impairment is defined as a change in the chemical, physical or biological integrity of the Great Lakes ecosystem sufficient to cause any of the following: restrictions on fish and wildlife consumption; tainting of fish and wildlife flavor; degradation of fish and wildlife populations; fish tumors or other deformities; bird or animal deformities or reproductive problems; degradation of benthos; restrictions on dredging activities; eutrophication or undesirable algae; restrictions on drinking water consumption, or taste and odor problems; beach closings; degradation of aesthetics; added costs to agriculture or industry; degradation of phytoplankton or zooplankton populations; or loss of fish and wildlife habitat. The specific Areas of Concern were designated by state or provincial jurisdictions based on a determination of whether or not Great Lakes Water Quality Agreement objectives, or jurisdictional guidelines, criteria or standards for environmental quality, were exceeded.

Presently there are 43 identified Areas of Concern in the Great Lakes basin. Ten of these areas are located exclusively within Michigan's jurisdiction and four are in Michigan boundary water areas shared with other jurisdictions (Figure I). Over the past 20 years there has been considerable improvement in the environmental quality of Michigan's Areas of Concern, particularly with respect to problems associated with conventional pollutants (such as phosphorus, suspended solids, and oil and grease) and to some extent for heavy metals. However, toxic substances remain problems in many locations. Contaminants in sediments are a concern in most Areas of Concern, but it is not definitively known if these contaminants are impairing bottom dwelling organisms or are a source to the water column and pelagic aquatic biota.

In 1985, each U.S. state and Canadian province with jurisdiction over a portion of the Great Lakes agreed to develop and implement a Remedial Action Plan (RAP) for each site within its jurisdiction that had been designated as an Area of Concern. Michigan entered into agreement with Wisconsin and Ontario to jointly develop one RAP for AOCs that lie in boundary water areas. The RAPs should describe programs and measures which, when implemented, will solve the identified water pollution problems existing in the Areas of Concern and restore all beneficial uses. According to the GLWQA of 1978, as amended in 1987, RAPs are to be developed and submitted to the International Joint Commission for review in three stages. Stage 1 contains a description of the problem in the AOC, including the causes of the problems, contaminants involved, and sources and loads of the contaminants of concern. The problem definition is based on identification of impairments to beneficial uses, and exceedances

of standards, objectives and guidelines. A Stage 2 RAP will identify the actions needed to restore beneficial uses that are identified as impaired in the Stage 1 RAP, and a strategy for tracking progress toward restoration of beneficial uses. A Stage 3 RAP will contain documentation that beneficial uses have been restored in an AOC, and that ambient water quality standards or objectives are no longer exceeded. If it is not deemed feasible to restore all beneficial uses, then the RAPs should explain why and identify the desired quality of the unattainable use(s).

Historically, water pollution control efforts have been program specific, that is, they focused on controlling either point sources or nonpoint sources. The RAP emphasis is on a systematic and comprehensive ecosystem approach to restoring beneficial uses in Areas of Concern.

The Michigan Department of Natural Resources is the state agency responsible for developing and overseeing implementation of Michigan RAPs. In February 1992, the MDNR completed the Areas of Concern Program Strategy. The strategy was developed in response to an increasing need to describe changes in the AOC Program since 1985 and to outline how Michigan RAPs are being developed to ensure consistency with the mandates of the GLWQA, as amended in 1987. The strategy describes a three-stage approach for developing RAPs, the content for each stage, how Michigan RAPs will embody a comprehensive ecosystem approach, the role of RAPs toward achieving zero discharge and virtual elimination of persistent toxic substances, and Michigan's two-tiered public participation program.

Public participation is an extremely important component of Michigan's AOC Program. Accordingly, the MDNR also completed a separate public participation and communications strategy for Michigan's AOC Program in February 1992. The strategy outlines Michigan's commitment to public participation and outlines the approach for actively seeking advice and input from the public on all aspects of Michigan's AOC Program, and for actively involving the public in the development and implementation of RAPs for each of Michigan's AOCs. Michigan has established the public participation program at two levels: (1) a statewide program to obtain advice on policy issues related to the statewide program, technical issues relevant to all 14 AOCs, and public participation strategies; and (2) local programs to actively involve the public in issues related specifically to the development and implementation of a particular RAP.

A Statewide Public Advisory Council was established in May 1991 to serve as the primary means for obtaining advice and input to the statewide program. The council reviewed drafts of both strategies and provided constructive input and comments to MDNR. The council's comments were incorporated into both final strategies.

Initial RAPs for nine of Michigan's 14 AOCs have been completed and are in various stages of implementation. Six of these were completed in 1987 for the following areas: Torch Lake; Deer Lake-Carp River/Creek; Manistique River; Muskegon Lake; White Lake and River Raisin. Three additional RAPs were finished in 1988 including Saginaw River/Bay, Clinton River and Rouge River. These nine RAPs were complete or substantially complete prior to the

1987 amendments to the GLWQA, and therefore contain elements of all three stages. To ensure that these RAPs are consistent with the requirements of the GLWQA and Michigan's program strategy, Stage 2 RAPs will be developed for these AOCs. The Stage 2 RAPs will include updates and revisions, as appropriate, for the Stage 1 elements to ensure that the problem definition is consistent with current requirements and expectations. The AOC program strategy outlines a schedule for completing Stage 1 and Stage 2 RAPs for Michigan's AOCs.

Stage 1 RAPs were completed and submitted to the IJC for the Menominee River in 1990, the Detroit River in 1991, and the St. Clair River in 1992. The St. Marys River RAP is scheduled for submittal later in 1992. The RAP for the Menominee River is being jointly developed by MDNR and the Wisconsin Department of Natural Resources (WDNR), and the RAPs for the St. Marys, St. Clair and Detroit rivers are being developed jointly by MDNR and the Ontario Ministry of the Environment (OMOE).

The major environmental problems in the Menominee River are located on the Wisconsin side of the river and the WDNR has the lead responsibility for preparing the Menominee River RAP with assistance from the MDNR. Similarly, the major problem areas in the St. Marys and St. Clair rivers are on the Canadian side. Therefore, the OMOE has the primary responsibility for developing the RAPs on these rivers. Conversely, most problem areas in the Detroit River are located on the U.S. side so the MDNR is coordinating the RAP preparation for this river, with cooperation and assistance from Canadian agencies.

The remaining Michigan RAP -- Kalamazoo River -- is currently being updated to meet the requirements of a Stage 1 RAP. The following area site descriptions describe more fully the status of RAP development or implementation in each of Michigan's 14 Areas of Concern.

Clinton River

The Clinton River is located in southeastern lower Michigan and drains 760 square miles. The river is 80 miles long and flows through several major municipalities including Pontiac, Rochester, Utica and Mt. Clemens prior to its discharge to Lake St. Clair. A weir near Mt. Clemens causes most of the river to flow down a spillway rather than through the natural channel, except during very high water. Land use in the river headwaters is agricultural, while along the main branch it is primarily residential and urban with some industrial use. The AOC includes the Clinton River main branch downstream of Red Run, and the spillway.

The Clinton River was identified as an AOC due to conventional pollutants, heavy metals, contaminated sediments, impacted biota and elevated levels of fecal coliform bacteria and total dissolved solids. Sources of pollutants were stormwater runoff, combined sewer overflows, and wastewater from municipal and industrial facilities.

The majority of problems with conventional pollutants and bacterial contamination in the Clinton River have been resolved primarily through wastewater treatment improvements made at industrial and municipal facilities. Combined sewer overflows in the Clinton River basin outside the Red Run drainage areas have been corrected except for occasional overflows at Almont and Mt. Clemens. Little improvement is expected from the Red Run watershed without large capital expenditures to separate storm and sanitary sewers. High dissolved solids concentrations have been determined to be naturally occurring due to the soil type in the watershed and are not correctable by existing technology.

Benthic macroinvertebrate and warmwater fish communities are substantially improved but remain impaired in parts of the AOC. The Clinton River RAP, completed in November 1988, identifies these as local issues with no impact on the Great Lakes.

The RAP does, however, identify PCBs in sediments as a potential source to Lake St. Clair or aquatic life. The sediments are contaminated downstream of Mt. Clemens and contain levels of heavy metals and PCBs that exceed U.S. EPA 1977 interim guidelines for open lake disposal of dredged materials.

exerpt from: Water Quality Pollution Control in Michigan 1992 Report
(Michigan 305(b) Report: Volume 12)

FIGURE 1: Forty-three Areas of Concern Identified in the Great Lakes Basin

Lake Superior

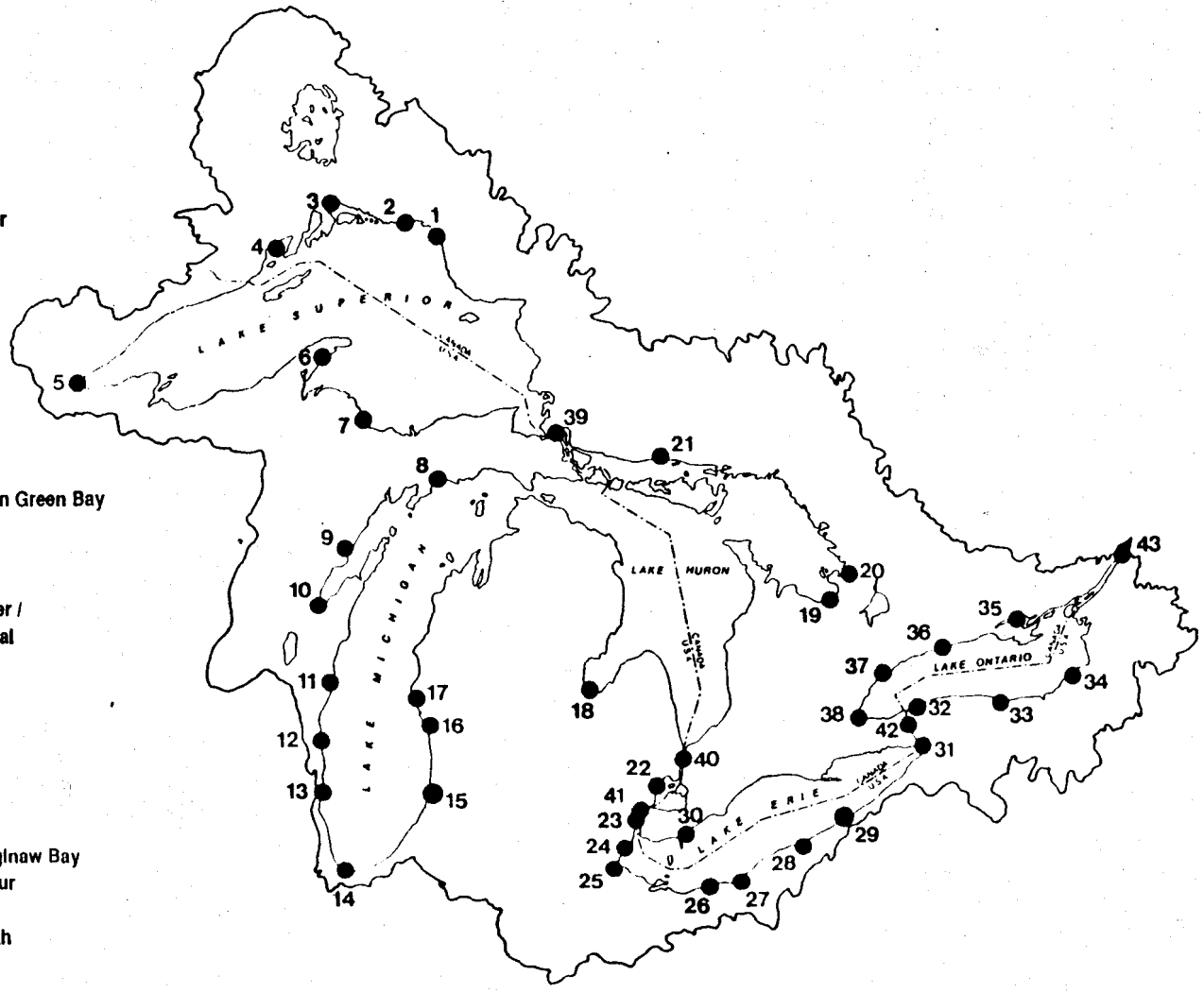
1 Peninsula Harbour
2 Jackfish Bay
3 Nipigon Bay
4 Thunder Bay
5 St. Louis Bay / River
6 Torch Lake
7 Deer Lake - Carp Creek / River

Lake Michigan

8 Manistique River
9 Menominee River
10 Fox River / Southern Green Bay
11 Sheboygan River
12 Milwaukee Estuary
13 Waukegan Harbor
14 Grand Calumet River / Indiana Harbor Canal
15 Kalamazoo River
16 Muskegon Lake
17 White Lake

Lake Huron

18 Saginaw River / Saginaw Bay
19 Collingwood Harbour
20 Severn Sound
21 Spanish River Mouth



Lake Erie

22 Clinton River
23 Rouge River
24 River Raisin
25 Maumee River
26 Black River
27 Cuyahoga River
28 Ashtabula River
29 Presque Isle Bay
30 Wheatley Harbour

Lake Ontario

31 Buffalo River
32 Eighteen Mile Creek
33 Rochester Embayment
34 Oswego River
35 Bay of Quinte
36 Port Hope
37 Metro Toronto
38 Hamilton Harbour

Connecting Channels

39 St. Marys River
40 St. Clair River
41 Detroit River
42 Niagara River
43 St. Lawrence River (Cornwall / Massena)

Ecosystem Charter for the Great Lake-St. Lawrence Basin

April 1994

DRAFT

Preamble

The Ecosystem Approach to Management: An Introduction

An "ecosystem approach" to management is being embraced by many public sector, non-governmental and citizen-based institutions in the Great Lakes-St. Lawrence Basin. This approach recognizes that the environmental and economic attributes of the Basin are fundamentally linked and interdependent, as are the goals for environmental protection and economic development. It also recognizes that resources must be managed as dynamic and complex communities and ecosystems, rather than as separate and distinct elements. Practicing the ecosystem approach means that all partners—government and private sector alike—understand the implications of their actions and strive to avoid unintended adverse consequences.

The Problem

Many of our laws, programs, policies and institutions support the concept of an ecosystem approach, yet application of the concept is difficult due to their often narrow, single media or issue specific mandates. The problem is the absence of a single, clearly articulated statement—or charter—that explicitly defines goals for an ecosystem approach to management and ties a common thread through these many activities and mandates.

Charter Format and Objectives

The Ecosystem Charter summarizes, in a concise and convenient form, commonly held principles drawn from existing laws, treaties, agreements and policies. It includes a vision statement and a series of principles in the categories of rights and responsibilities; ecological integrity and diversity; sustainable communities; institutional relations; and public information, education and participation. It includes a series of actions that all members of the Great Lakes-St. Lawrence Basin community can endorse or undertake in support of these principles.

The Charter has three primary uses. It is a tool for organizing, coordinating and periodically assessing public and private sector efforts to implement an ecosystem approach. It is a tool for information and education; offering a vision for the Great Lakes-St. Lawrence Basin Ecosystem and a means to achieve it. Finally, it is a tool for advocating the interests of the Basin Ecosystem and its inhabitants; a statement of unity acknowledging that all partners in the collective management effort—despite our differences—subscribe to a single set of fundamental principles.

The Charter is a "good faith" agreement among its signatories, which can include representatives from the array of public agencies, non-governmental organizations and private interests in the Great Lakes-St. Lawrence Basin. It is not a legally-binding-document, nor does it replace or otherwise affect implementation of existing laws, agreements and policies. Rather it showcases these initiatives, highlights their implementation and, in so doing, promotes an ecosystem approach to management in the Great Lakes-St. Lawrence Basin.

Charter Foundation

The foundation for the Ecosystem Charter is a heritage of binational cooperation to ensure the informed use,management, conservation and protection of the Great Lakes-St. Lawrence Basin Ecosystem. The Charter builds upon landmark agreements such as the U.S.-Canada Boundary Waters Treaty of 1909, which established procedures for avoiding or otherwise addressing transboundary environmental problems, and the Great Lakes Water Quality Agreement, which commits the two countries to restoring and maintaining the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem. Through these and many other initiatives, regional leadership has pioneered the ecosystem approach to resource and environmental management, conservation and protection. The Ecosystem Charter, as a statement of shared principles and commitments for an array of stakeholders, represents an important step forward in this approach. The Charter will help guide future actions to enhance and sustain the environmental health and economic viability of the world's greatest freshwater system. In so doing, it can serve as a model in North America and globally.

Charter Process

The Charter is a living document; it will be reviewed and revised periodically to ensure that it reflects current thinking on the ecosystem approach. It offers a benchmark for assessing progress and provides the guidance needed for further efforts. A broad cross-section of agencies, organizations and associations contributed to the draft of the Charter, and the document itself is "owned" by all signatories. The Great Lakes Commission, as a coordinating agency, will provide ongoing support in the distribution, use and updating of the Charter, including specific opportunities for periodic review and assessment of progress.

Charter Signatories

Any organization, agency or governmental jurisdiction that subscribes to these principles is invited to be a signatory to the Ecosystem Charter. Signatories agree to use the Charter as guidance in the development of their work plans and priorities, as a means to enhance communication and cooperation with others, and as a benchmark for assessing progress toward a shared vision for the Great Lakes-St. Lawrence Basin Ecosystem.

A VISION FOR THE GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM

OUR VISION IS A GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM...

Where all people consider and conduct themselves as part of our Ecosystem;

Where all people recognize the fundamental and inextricable link between economic well-being and the health of the Ecosystem;

In which all beneficial organisms can thrive free from preventable ecological threats to their well-being;

Where environmental degradation is a legacy of the past and a basis for present and future remedial action;

That exists as an evolving natural and cultural system which can successfully adapt to change;

In which use of natural resources is compatible with conservation of such resources;

That maintains the integrity of the Ecosystem and accommodates appropriate development;

That is a rich mosaic of waters and lands, of natural areas and places of human activity, and of different peoples who govern themselves in various ways;

That nurtures an abundance and diversity of plant and animal species in their natural communities and habitats as well as in specially protected and rehabilitated sites;

That embraces the concept of sustainable development by meeting the needs of this generation without compromising the ability of future generations to meet their needs;

Where all people and their governments act as good stewards and are committed to informed action and supportive policy decisions;

In which a shared governance process, among diverse and respected traditions, provides an accessible and equitable basis for responsible action and accountability among all people and their institutions.

Principle VII

The environmental quality of the Great Lakes-St. Lawrence Basin Ecosystem shall be improved by virtually eliminating the discharge or release of persistent bioaccumulative toxic substances into the Basin Ecosystem.

Findings:
Jurisdictions have implemented numerous pollution control and prevention programs and measures, and significant reductions in particular toxics and other pollutants have occurred. However, the complexity and pervasive nature of toxic contamination calls for continued vigorous action and innovative solutions. Thus, a broad-based commitment to the above principle is needed, consistent with the objectives of the Great Lakes Water Quality Agreement.

This principle shall be addressed by:

- Implementing pollution prevention practices to eliminate and/or reduce waste generation through changes in production processes, products and packaging and through resource reuse and recycling.
- Implementing policies, programs, and practices to eliminate the discharge or release of persistent bioaccumulative toxic substances and to prohibit the discharge in toxic amounts of toxic substances that are not for the purpose of achieving Ecosystem integrity (e.g., lamprey control.)
- Actively seeking cost-effective, benign alternatives to toxic substances and substituting them, where possible, to reduce reliance on toxic substances that threaten Ecosystem integrity.
- Supporting the development of binational objectives and measures to address air quality issues, including acid deposition, smog and airborne toxic contaminants as well as global atmospheric problems that affect the Basin, such as chlorofluorocarbons and global warming.

Principle VIII

The natural fluctuations of the levels and flows within the Great Lakes-St. Lawrence River System shall be accommodated to the extent possible, while maintaining appropriate water use and related coastal activities.

Findings:
The waters of the Great Lakes and St. Lawrence River are interconnected and form a single hydrologic system which geographically defines the Great Lakes-St. Lawrence Basin Ecosystem. This dynamic system, which supports a variety of organisms and human activities, is naturally subject to varying levels and flows. Many ecological processes rely upon and benefit from this variance. Resource uses and economic activity in coastal and near-shore areas are highly sensitive to fluctuating levels and flows; the magnitude and direction of the fluctuation impacts different uses in different ways.

This principle shall be addressed by:

- Supporting a binational process that allows all stakeholders to participate in decision-making and planning related to management of levels and flows and land use policies for coastal areas.
- Supporting continued improvement in the collection and maintenance of data regarding levels and flows, major uses and diversions of Basin water resources, and associated analysis, dissemination and public policy applications.
- Developing an effective process for state/provincial review and consideration of diversion and consumptive use proposals, and a Basin water resources management program to ensure that relevant data and information on proposed impacts is available.
- Prohibiting new diversions of Basin water resources that would have significant adverse impacts on the Basin Ecosystem.

Principle IX

Societal needs for a healthy Ecosystem and economy shall be addressed by promoting the use of renewable natural resources.

Findings:
Renewable resources such as topsoil, forests and fisheries, are threatened by poor land use practices, overharvesting, habitat degradation and the introduction of harmful non-native species, among others. Numerous measures have been taken to check, reverse, or compensate for this damage, but the availability and quality of renewable resources remain threatened. A binational commitment to the management of such resources must recognize the need for remedial actions as well as long-term planning and management on a comprehensive Basin-wide basis.

This principle shall be addressed by:

- Consulting and coordinating with affected jurisdictions when renewable resource management decisions will significantly affect their interests.
- Incorporating renewable resource needs and management objectives into broader environmental quality policies and programs.
- Developing measures to predict and assess the effects of renewable resource management practices on environmental protection efforts and economic activity.

Principle X

Biological diversity is an essential element of Ecosystem integrity, and shall be supported so that plant and animal populations may flourish in natural communities and habitats as well as in specially protected and rehabilitated sites.

Findings:
The Basin Ecosystem supports an abundance of fish, plant and wildlife species including naturalized non-native species. However, the natural biological diversity once found in the Ecosystem has been fundamentally altered, both by intentional and unintentional introductions, some beneficial and some harmful. Programs to preserve species variety and habitat, particularly that of native species, are an important part of efforts to achieve Ecosystem integrity.

This principle shall be addressed by:

- Developing strategies for the conservation of biological diversity and integrating those strategies into plans and practices concerning economic activities, environmental protection and resource management.
- Nurturing biological diversity and reducing habitat fragmentation by encouraging establishment of publicly-owned protected areas, networks of protected areas and encouraging private stewardship by landowners.
- Modifying land use practices and other human activities to prevent the loss of biodiversity and habitat.
- Preventing new introductions of nonindigenous nuisance species and controlling existing ones.

SUSTAINABLE COMMUNITIES

In a sustainable society, a fundamental and inextricable linkage exists between economic activity and the natural ecosystem. Sustainable economic activity meets the needs of the present generation without compromising the ability of future generations to meet their own needs, and respects the limits imposed by the capacity of the Ecosystem to absorb the impact of human activities. Adopting principles of sustainability at the community and Basin levels will promote long-term economic viability and continued improvements in environmental quality.

Signatories thereby adhere to the following principles:

Principle XI

Ecosystem integrity and the economic well-being of human communities are interdependent; achieving and protecting ecosystem integrity is therefore an essential part of economic activity within the Basin.

Findings:
Natural resources within the Great Lakes-St. Lawrence Basin Ecosystem supply tens of millions of people with drinking water; support a multi-billion dollar recreation/tourism industry; provide habitat for thousands of fish, wildlife and plant species; offer transportation and manufacturing opportunities; and support an extensive agricultural industry. To ensure that natural resources in the Basin Ecosystem continue to provide such benefits, economic strategies and activities must ensure that essential ecological processes are maintained, natural resources are used sustainably, biological diversity is conserved, and infrastructure investment is appropriately pursued.

This principle shall be addressed by:

- Reflecting principles of sustainability in relevant public and private sector plans and programs.
- Supporting and pursuing policies and programs that provide for the efficient and sustainable use of natural resources, and working to revise or eliminate those that do not.
- Identifying energy efficiency and conservation as a public and private sector priority and supporting the use of renewable energy sources.
- Supporting adequate and prudent infrastructure investment, particularly for water treatment and distribution systems.
- Developing common data collection measures and indicators to integrate and/or supplement traditional, independent measures of environmental, social and economic health and well-being to gauge progress in achieving a sustainable society.

Principle XII

Industry in the Great Lakes-St. Lawrence Basin is a key partner in achieving and protecting Ecosystem integrity; industry support for and implementation of environmental, conservation, and safety standards and practices is necessary.

Findings:
The Great Lakes-St. Lawrence Basin is one of the most industrialized areas of the world. Economic development created a high standard of living and quality of life for residents. As members of the Great Lakes-St. Lawrence community, industry (including the manufacturing, transportation and agricultural sectors) recognizes that its performance and contribution to the economy depends on a healthy Great Lakes-St. Lawrence Basin Ecosystem. Accordingly, industry will benefit from supporting and maintaining environmental, conservation and safety standards and practices.

This principle shall be addressed by:

- Supporting an active role by business and industry in the application of integrated environmental management to environmental policymaking.
- Encouraging the development of cost accounting and pricing mechanisms that determine the real cost of goods and services based on production and marketing costs, as well as costs of environmental management associated with their production, use and disposal.
- Encouraging the development and use of innovative conservation, environmental protection and related pollution prevention mechanisms by business and industry, including

the incorporation of economically and environmentally sustainable practices in management and operations.
- Ensuring strong communication between industrial facilities and local communities to provide information on local impacts and environmental management practices.

INSTITUTIONAL RELATIONS

Two federal governments, eight U.S. States, two Canadian provinces, numerous regional agencies, thousands of sub-state/provincial governments, many Native American authorities/First Nations and a multitude of other governmental entities have some legal authority or responsibility for matters pertaining to the Basin Ecosystem. The complexity and sophistication of the "institutional ecosystem" for Basin governance has garnered global recognition. Cooperative and collaborative relations among these jurisdictions, in partnership with business and industry, citizen organizations and all other Basin interests, are needed if Ecosystem integrity is to be achieved and maintained.

Signatories thereby adhere to the following principles:

Principle XIII

Cooperation is essential among government entities, including federal, state, provincial, Native American authorities/First Nations, regional and local governments, if the principles of this Charter are to become public policy priorities.

Findings:
Institutional arrangements in the Great Lakes-St. Lawrence Basin Ecosystem can provide innovative opportunities for addressing complex ecological problems, but they can also be rigid, fragmented, and even contradictory. The most effective means of overcoming institutional barriers and ensuring the integrity of the Ecosystem is through cooperative, coordinated and collaborative policies and programs agreed upon and implemented by Basin jurisdictions.

This principle shall be addressed by:

- Using the principles of the Charter as a basis to develop common objectives consistent with extant agreements, policies and laws, directed at achieving and maintaining the integrity of the Basin Ecosystem.
- Consulting with affected jurisdictions and other interested parties regarding the development and/or consideration of proposals with Basin-wide implications.
- Working to ensure that public and private sector activities are consistent with international, binational and regional obligations and agreements regarding the Basin Ecosystem.
- Continuing the practice and tradition of binational dispute management and resolution in the Basin Ecosystem.

Principle XIV

Great Lakes-St. Lawrence Basin Ecosystem governance and management shall emphasize partnership arrangements among government entities, the private sector, citizen organizations and other interests.

Findings:
The interdependence of the economy and the environment amplify the consequences of the individual and collective actions of all agencies, organizations, businesses and individuals within the Basin Ecosystem. Their mututal interests must be explicitly acknowledged and partnerships developed to pursue public and private sector actions that benefit the Basin Ecosystem.

This principle shall be addressed by:

- Supporting existing partnerships that integrate interests and management approaches in the Basin Ecosystem, such as Remedial Action Plans and Lakewide Management Plans.
- Implementing binational agreements and initiatives, such as the Great Lakes Water Quality Agreement and the Convention on Great Lakes Fisheries, in such a way that recognizes broader issues of shared concern, including habitat protection, fisheries management, shoreline protection, biodiversity and water quantity management.
- Developing partnerships with all Basin interests to address commonly identified problems and to harmonize institutional relationships and authorities.
- Basing Ecosystem policies and programs on scientific research.
- Evaluating current and prospective policies and programs on the basis of their consistency with, and responsiveness to, the principles of the Charter and the goals and objectives of relevant Basin laws and agreements.

PUBLIC INFORMATION, EDUCATION, AND PARTICIPATION

Public participation is the cornerstone for the development of public policies that promote a clean environment, strong economy and high quality of life in the Great Lakes-St. Lawrence Basin. Such participation ensures that the needs and concerns of interested individuals are heard, understood and incorporated into the policymaking process. In order to participate effectively in that process, residents must be informed of political, ecological, social, and economic issues in the Basin Ecosystem. This requires timely, accurate, and accessible information; a forum in which to voice concerns; and a mechanism to become involved in policymaking and implementation efforts.

Signatories thereby adhere to the following principles:

Principle XV

Timely, accurate and accessible information shall be provided to the public regarding all planned activities that may significantly affect the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Timely information enables the public to respond to current issues and opportunities in an appropriate time frame; accurate information enables the public to make informed decisions about their interests and concerns; and accessible information allows for all interested persons to obtain the desired information with relative ease. Programs that reflect these qualities help promote informed public policy, efficient and effective implementation, and strong partnerships among Basin interests.

This principle shall be addressed by:

- Gathering timely, accurate and meaningful information about the state of the Basin Ecosystem and monitoring and reporting on progress in implementing programs consistent with the principles of the Charter and other relevant laws and agreements.
- Ensuring that the public has full and equal access to available data, public policies, programs, and related information concerning current and prospective conditions of the Basin Ecosystem and the associated impact of proposed actions.
- Creating and supporting formal information links to ensure ongoing and substantive dialogue on and dissemination of data and information relating to the Basin Ecosystem.

Principle XVI

Stewardship of the Great Lakes-St. Lawrence Basin Ecosystem shall be fostered through educational efforts that promote greater understanding of the Ecosystem, the problems and opportunities facing it, and policies and programs designed to improve, protect and mange it.

Findings:
Education in ecological, economic, social and political matters relating to the Basin Ecosystem broadens the basis for enlightened public opinion and responsible conduct by all who make, implement or otherwise affect public policy. Education on such matters is a life-long process; it must be pursued by children and adults alike, and in both classroom and non-formal settings. Further, it must be multi-disciplinary and integrative, allowing all interested individuals to understand the basic elements and processes of the Basin Ecosystem; how various actions affect them; how the public policymaking process functions; and how the individual can make a difference.

This principle shall be addressed by:

- Establishing and enhancing Great Lakes-St. Lawrence education programs and curricula in both classrooms and nor traditional settings, with a special focus on at-risk groups.
- Encouraging coordination of, and partnerships among educators in the Basin to ensure that educational efforts are consistent, comprehensive and accessible.
- Establishing and/or maintaining permanent systems to disseminate and promote the use of education materials.
- Improving stewardship of the Basin Ecosystem by educating ourselves and others about the needs of a healthy Ecosystem, and opportunities to address these needs through individual and collective action.

Principle XVII

Meaningful public participation in decision making processes regarding the Great Lakes-St. Lawrence Basin Ecosystem shall be encouraged by providing enhanced opportunities for public involvement and empowerment.

Findings:
All people should have the opportunity for informed participation in the development, implementation and evaluation of public policies that affect the Basin Ecosystem. Meaningful public participation requires the public to be an active partner in the decision making process, including the identification and assessment of issues.

This principle shall be addressed by:

- Developing and maintaining decision making processes that promote and encourage active and informed public participation.
- Identifying and using resources, such as information networks and other communication technology, through which public participation can be enhanced.
- Planning outreach efforts to increase public access to, and use of those resources.
- Taking advantage of current and prospective means to further our knowledge of the Basin Ecosystem and opportunities to enhance environmental health, economic well-being and quality of life.

SPECIAL NOTE: In final form, the Charter will include an addendum presenting a glossary of terms, and a brief description of the principal treaties, agreements and other policies that the Charter can be used to promote. Also, each signatory will be able to provide a brief descriptive statement on its organization and the Charter.

The refinement and endorsement process will continue during the next several months; your input and support are valued.

Clinton River Remedial Action Plan
Habitat Work Group

Meeting Report
3 September 1993

Members Amos Bankston, Charles Barns*, Chuck Bellmore*, Erich Ditschman*, Dan Duncan*, John Filipus, Bob Fredricks, Ernie Kafcas, Colette Luff, Jack Prescott*, Butch Sapp, Bob Sweet*
Attendance denoted by *.

Also in attendance: Peggy Johnson

E. Ditschman opened the meeting with a brief overview of the RAP process and an explanation of the tentative role of the Habitat Work Group. Members had received earlier, a Habitat Work Group extended outline which attempted to catalogue relevant issues and papers concerning habitat in the Clinton River Basin. The outline was also drafted to gain participant's input on the Habitat Issue Paper to be drafted by E. Ditschman. The outline served as a catalyst for discussion at the meeting.

Each member of the work group took five minutes to provide a brief statement of their interest in the Clinton River RAP process and Clinton River Habitat.

C. Barnes is the Environmental Director for Selfridge Air Base. He has six environmental engineers each with specific specialties under his command. His office is new to the base and has only been in operation for one year. The office is in essence an environmental consulting firm for the air base. The office was established in an Air Force wide initiative to cleanup its public image and to become better corporate citizens. The Air Base has a $200 million/year positive economic impact on Macomb County. C. Barnes discussed his interest in proceeding with implementation on the RAP while balancing that with the need for study and planning for specific components.

There is opportunity for expedited cleanups on military bases as a result of the Defense Environmental Restoration Fund. The turn around time for cleanup is much quicker than those for Superfund sites. C. Barnes requested a copy of the RAP to have on file at Selfridge. Bob Sweet is fulfilling that request.

A primary concern at the base is for nonpoint source pollution. While the base does not have formalized ongoing recreation and wildlife management for its 3,500 acres, it does have specific management plans to control the deer population (trap and relocate) and avian species population in order to protect aircraft. P. Johnson asked if flight pattern information is available which could be used to identify areas where it would be inappropriate to foster wildlife and waterfowl. C. Barnes said that there are air incompatible use zones which were developed as planning tools used in locating residential developments. Harrison Township

has a copy of the zones on file.

C. Bellmore is Superintendent for the Mount Clemens Waste Water Treatment Plant. He brings the perspective of a community administrator to the RAP process. His experience in developing projects, policies, and rules for his "personal AOC" will be valuable in assessing proposed RAP projects. In particular he can provide insight into how other communities may adopt components of the Clinton River RAP. He is currently working on a wildlife habitat improvement project at the plant's stormwater detention pond. He observed that jet skis pose a significant threat to riverine habitat in the lower stretches of the river. The City of Mount Clemens has a jet ski ordinance in place.

J. Prescott has vast experience in agriculture, forestry, and biology. He is a private consultant and currently serves as a Forester to the City of Mount Clemens. He inventoried the newly created Sleepy Hollow Nature Preserve in the city. He indicated that the Mount Clemens has placed a new emphasis on people and parks.

D. Duncan is a planner for the Huron Clinton Metropolitan Authority. The HCMA has three major parks in the basin, including: Stony Creek, Wolcott Mill, and Metropolitan Beach.

Discussion on goals and direction. If a goal of this group is to restore human habitat with a particular emphasis on human health, then a logical tenet would be: "if you don't want to poison the kids then don't poison the fish." We have to ask, "Habitat for what?" The issue paper will help provide a basis to answer this question.
The issue paper should summarize the past and present and set direction for the future. Each member will spend time with the current outline to sketch technical outlines.

B. Sweet was asked about how the three topics were chosen for the work groups. The topics include: Point/Nonpoint Source, Contaminated Sediments, and Habitat. B. Sweet explained that if those three issues are tackled the AOC would basically be taken care of.

Large lot zoning is a major threat to habitat. The group will need to address the urban sprawl issue and work with local governments. In fact, it was suggested that each municipality would need to develop its own "mini-rap."

The issue of who makes up the RAP Team was also discussed. As it currently stands, the RAP Team is made up of State and Federal agency personnel and CRWC staff. It was agreed that Chair of the RAP work group would also be members of the RAP Team.

Overall the meeting resulted in a better understanding of the experience, expertise and commitment each member brings to the process.

Clinton River Remedial Action Plan (RAP)
Report of Public Advisory Committee Meeting
June 17, 1993
Oakland University - Kresge Library 6:00 - 9:00 p.m.

(1) The **agenda packet mailed** prior to the meeting included:

- Report of May 13 PAC meeting
- Types of actions implemented: Michigan AOC's
- Clinton River Drainage Basin Map
- Impairment of Beneficial Uses: Great Lakes Water Quality Agreement 1987
- Impaired Use Status on the Clinton River
- Recommended Actions from the 1988 RAP (Clinton River)
- Remedial Action Plan: Institutional Framework, Levels of Involvement, Time-Line Example
- Previous Clinton River RAP Organization 4/18/91
- Public Advisory Council Structure and Procedures (Kalamazoo example)
- Charge

Handouts provided at the meeting included:

- Draft Charge: Clinton River AOC-PAC
- Work Groups examples from other RAPs
- Current Status of Impaired Uses of the Clinton River
- Summary of Clinton River RAP (1988): Issues, Sources, Recommended Actions
- List of Potential PAC Subcommittees and Priority Issues for Work Groups
- Michigan Areas of Concern News (Spring 1993) (includes article on Contaminated Sediments)
- Members: Clinton River RAP-PAC

(2)

Persons Attending	PAC Member/Alternate
Chuck Bellmore	City of Mt. Clemens POTW
Lori Simpson	St. Clair Advisory Comm.
Gary White	Macomb County Health Dept.
Spencer Teller	Ford Motor Company
Robbin Hough	Oakland Univ, - Rochester
Ken Bonin	Macomb County Department of Public Works

Helen Willis	Michigan Society of Planning Officials
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Gerald Herriman	Citizen: Warren (former manager POTW)
Frank Butterworth	Oakland University - Rochester Hills
Amos Bankston	United Auto Workers (UAW)
Butch Sapp	Great Lakes Outdoors

RAP Team Members

Bob Sweet	MDNR/Clinton River RAP Coordinator
Greg Goudy	MDNR-SWQD (Lansing)
John Filpus	Michigan Department of Public Health
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Other

Mark Breederland	International Joint Commission
Timothy Backhurst	Macomb County Planning

(3) RAPs News

- June 18 Streamlining Workshop
- AWQB meeting to discuss collaborative efforts among southeast Michigan's 5 RAPs
- Senator Levin desires to visit Clinton AOC: fall tour with PAC suggested
- IJC perspective (Breederland)
  (Want strong public participation. IT's up to PAC to define the AOC and scope of RAP 3 - should include award land as well as water)
- Statewide Newsletter provided

(4) Report of May 13 Meeting

One correction was made - delete MDNR from John Filpus' affiliation.

It was moved by Mr. Hough to accept the report. All assented.

There was discussion as to whether the meeting reports should be comprehensive (long), distilled (medium) or action items only (short). It was noted that in the early stages longer reports would be a way for new participants to catch up with the process/decisions. As an alternative it was suggested that there be tape recordings of the meetings with duplicates made available to members or miss a meeting or newcomers. There were no objections to tape recording. Reports should be at the discretion of the secretary, with continuing PAC feedback.

(5) Review of PAC Membership

a. Members present introduced themselves.

b. Ms. Johnson reported that additional members now designated for Macomb County are Mark Steenbergh (Chairman, County Board of Commissioners), and Alternate Ben Giampetroni (Planning Department) and for Oakland County Kevin Miltner (Commissioner - Waterford) and Alternate John Garfield (Commissioner - Rochester Hills).

c. Staff mailed letters and RAP-PAC information to 16 industrial persons to recruit added PAC members from this key stakeholder group.

d. Suggestions of additional alternatives are invited.

(6) PAC Organization and Procedures

The previously adopted organization outline (4/18/91) was used as the basis for discussion and new decisions.

Mr. Herriman suggested that if the RAP is successful there will be an end-point; a goal of the PAC should be to put itself out-of-business.

Term of Service 2 years. To get started with staggered terms it was agreed Mr. Sweet would randomly assign half of the members an initial term of 1 year and the other half an initial term of two years.

Advisors The PAC members are the public advisors. The Technical Advisors are members of the RAP-Team.

Officers A chairperson and Vice-Chair person.

Staff CRWC staff will serve as staff to the PAC and PAC Subcommittees

PAC Meetings

Frequency:	Quarterly with additional meetings as needed
Time of Day:	Weekdays 5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties (want ecosystem approach and inclusion of source areas as well as impacted areas)
Format:	5:00 - 6:30 PAC Meeting - Subcommittee Reports 6:30 - 7:00 Public Comment/Break 7:00 - 8:00 Program: Public attendance emphasized

Voting As previously stated. Use Roberts Rules of Order.

Meeting Notices

- Formal legal notice not required
- Publish in community calendars of Macomb Daily and Oakland Press
- Press release
- CRWC quarterly newsletters
- List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
- Flyers for Special Meetings

It was moved by Mr. Sapp and supported by Ms. Willis to adopt the organizational structure and procedures as discussed. Approval was unanimous.

(7) Next Meeting: Thursday, September 16, 5:00 - 8:00 p.m.
Verkulin Building - Mt. Clemens

(8) Charge

The draft charge is written as an MDNR charge to the PAC. The PAC could consider a more expansive charge to itself. Mr. Goudy said the DNR does not have a problem if the PAC chooses to go beyond the basic charge to provide

advice to MDNR. For example, it is hoped the PAC will undertake public outreach activities. The PAC might hold public hearings.

It was moved by Mr. Hough and supported by Mr. Herriman to approve the draft charge. The motion carried.

It was noted we have been using two terms: "Council" and "Committee".

(9) Report on RAP-Team, Outreach Products, New Information to Update the 1988 RAP

Mr. Sweet reported that he is assembling a RAP-Team of federal/state/local agency persons knowledgeable about the Clinton River.

Funds were approved for two Clinton River outreach products which will be completed by DNR staff in August: a newsletter and display.

New information includes the finding of zebra mussels in the river and their threat to nature species and habitats.

Apogee, a consulting firm, has been funded by EPA to review funding sources and present a RAPs **financing strategy** for each of the Great Lakes states.

A report has been produced by Wayne State University (John Hartig and Neely Law) from a workshop convened in Windsor on **Institutional Arrangements** to foster RAP planning and implementation.

It is intended that **work groups** be formed to assemble information and draft sections of the updated RAP. The PAC and RAP-Team will review all the components of the RAP.

The question was raised about a single agency responsible for the river's **data base** and bibliography of information relevant to RAPs. (The Saginaw Bay Initiative was suggested as an example).

Mr. Butterworth reported that a Water Resources Management Institute was being contemplated at Oakland University and he has started to assemble a bibliography. Ms. Johnson noted that the CRWC was intended to be the repository for information ont he Clinton River. The RAP process was improving the transfer of information between MDNR files and CRWC files. CRWC is assembling a special RAP file and bibliography.

Mr. Hough reported that a committee is working at Oakland University

towards an October 1994 water related exhibit in the Meadowbrook Art Gallery. Items provided by groups like this PAC are invited.

(10) Priority Clinton River RAP Issues, Workgroups, PAC Subcommittees

Using the examples of work teams from other RAPs and the staff provided list of potential issues the group decided on the following initial efforts.

I PAC Subcommittes

1. Mission, Goals, Objectives, Principles
2. Public Outreach
   (Financing: wait for Apogee report on Michigan funding sources)

   (Institutional: Wayne State report is available for use)

II Work Groups

1. Point/Nonpoint Sources (includes CSOs)
2. Habitat
3. Contaminated Sediments

III Issues Papers (to be written by CRWC staff before 9/30/93)

1. Contaminated sediments
2. Nonpoint Sources
3. Habitat
4. Public Involvement Efforts (to date on the Clinton)

(11) Formation of Workgroups and PAC Subcommittees

Some volunteers were enlisted at this meeting. A follow-up survey will be mailed to PAC members and suggestions for additional key persons solicited.

(12) The meeting as adjourned at 9:00 p.m. with informal conversations until 10:00.

Submitted by

Peggy B. Johnson

PBJ/sj

Clinton River RAP-PAC
Goals and Objectives Committee
Report of Meeting 9/14/93

(1) The meeting was from 9:00 - 11:00 a.m. at the Clinton River Watershed Council offices. Members present were: Helen Willis, Gerry Herriman, Tim Backhurst, Frank Butterworth, Bill Smith, Peggy Johnson (staff).

(2) Materials provided:

- Example definitions of "goal", "objective", "policy", "program", "mission statement" (generic)
- Example of 16 RAP principles (Toronto)
- Two examples of Goals./Objectives (Detroit and St. Clair Rivers)
- Criteria for Evaluating Environmental Policies
  The Policy Process
  Approaches to Environmental Policy
- Glossary

(3) Agenda

A. Consideration of definitions
B. Review of principles
C. Mission Statement
D. Goals and Objectives
E. Zero Discharge Goal

It was noted that we are addressing Goals and Objectives of the RAP or "Water Use Goals." There may also be goals and objectives developed for the PAC as an organization and for the work of the PAC subcommittees. (These might be in the form of long term and short term work program plans.)

(4) A. Definitions

It was agreed that we need some working definitions so we have a common understanding of the terms we are using. We agreed to use the examples provided for a first draft. Staff and committee members will search out other examples and we will have successive improved drafts. Other terms to define and elaborate on in issues papers would include "ecosystem" and "zero discharge". It was agreed it would be useful to have illustrative examples. It

was noted that the RAP guidance is emphasizing development of quantifiable/measurable objectives.

(5) B. Principles

A long and useful discussion evolved around the review of each of the principle examples. For some the groups verbally articulated a background rational for the principle in terms of existing pollution control laws and programs, analogies to the 208 Areawide Water Quality Planning of the 1970's, examples from the Clinton River situation, issues surfaced in the Great Lakes Initiative.

In many cases there was unanimous concurrence with the principle statement as written. In many cases we questioned the use of "must" versus "should." In some cases we wanted to change the wording (Numbers 5, 8, and possibly 9). We decided to draft immediately three additional principles emphasizing the need for a partnership among the levels of government, need for cooperation among local governments in watershed-based planning and management, and roles of individuals in remediation and prevention of pollution.

We felt that the Committee's discussion of these principles suggested the need for an informational background piece on each so that all RAP participants can understand how the principle relates to the Clinton River situation and to our RAP planning efforts. We then noted that the Toronto example includes an explanation for each principle. Mr. Smith will provide Ms. Johnson the original Toronto RAP document and she will draft appropriate explanations for the Clinton River for committee consideration at the next meeting.

Mr. Herriman drafted an additional proposed principle: "Action taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits to be achieved."

After much discussion we concurred with #15 as a statement reflective of the 208 process in which for each recommended action there was identified a lead agency critical to the implementation. ("Designated Management Agency") And there was an examination of whether the agency(s) has adequate legal authorities (mandates) to take effective action.

(6) Criteria, Planning Hierarchy

The Committee agreed the "Criteria for Evaluating Environmental Policies" looked useful and appropriate. Ms. Johnson noted that she could provide criteria for judging an institutional arrangement for a watershed organization, criteria for effective planning and regulation of water resources, and an outline

clarifying the various kinds of planning and stages of planning which might also help keep us on the same "wave length" in our discussions. [Summarized from "Water Management in Michigan " (1985) Volume 3 - background investigations prior to the two-year Great Lakes and Water Resources Planning Commission (1986-87) and adoption of "Water Resources for the Future: Michigan's Action Plan (1987).

(7) C. Mission Statement

We agreed this is to be the Mission Statement for the PAC (not for the RAP). Mr. Smith provided the mission statement proposed last year which needs updating.

Mr. Herriman asked "What authorities does the PAC have? This must guide the mission." We suggested the PAC can have authorities delegated from the DNR - for example the charge which we approved at the last PAC meeting. The PAC may also consider some self-determined "authorities".

Several committee members asked for clarification of the RAP players and their roles. Ms. Johnson noted the following players: IJC, EPA, MDNR, CRWC, PAC, RAP-Team.

Mr. Herriman suggested that the ambition of the mission will need to reflect the PAC's capabilities, the level of staff time available, and volunteers commitments.

It was agreed to first list the components of a mission statement and then let staff do the work-smithing for a first draft. We just started to list components when it was 11:00 a.m. Components may be such items as:

- provide a public forum
- respond to MDNR requests for advice
- monitor CR-RAP progress
- issue periodic progress reports
- review/amend/approve work products
- sponsor public outreach activities
- oversee plan implementation
- when impaired uses have been remediated, seek delisting and termination of the RAP
- participate in writing segments of the RAP

(8) D. Goals and Objectives

It was agreed that each committee member would mark-up the two examples

provided keeping in mind the relevance of these goals to the Clinton River. Ms. Johnson will review additional sets of goals from other RAPs and provide any additional examples for consideration. At the next meeting we will "cut and paste" a set of goals and think about any additional goals we may want to suggest.

(9) Next Meeting

The objective will be to have a draft set of goals to present to the PAC at a January meeting. The PAC will schedule another meeting in October or November (to be determined at the PAC 9/16 meeting).

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
September 16, 1993
Verkuilen Building - Macomb County 5:00 - 8:00 p.m.

(1) **The agenda packet** mailed prior to the meeting included:

- Report of June 17 PAC meeting
- IJC RAP Forum Notice October 21-22
- IJC Biennial Meeting Notice October 22-23
- Roberts Rules of Order
- Clinton River PAC: Organization and Procedures (adopted 6/17/93)
- 9/11 Detroit River RAP: Day at the River

Handouts provided at the meeting included:

- Areas of Concern: Overview and Clinton River Excerpt from Water Quality Pollution Control in Michigan 1992 Report (Michigan 305(b) Report)
- Progress on Spillway Weir Modification 8/6/93 Letter from Congressman Bonior
- Agenda from 9/15/93 Detroit Workshop "Improve and Protect Your Watershed: Opportunities for Local Action in Areas of Concern (IJC, SEMCOG, SPAC, MDNR)
- List of Clinton River Facilities with NPDES Discharge Permits (9/13/93)

(2)

Persons Attending	PAC Member/Alternate
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Charles Barnes	USAF/ANG
Spencer Teller	Ford Motor Company
Daniel Duncan	H. C. M. A.
Gerald Herriman	Citizen
Shirley Barnett	L. S. C. A. C.
Frank Butterworth	Oakland University
Jack Prescott	Citizen
Helen Willis	M. S. P. O.

Persons Attending Continued	PAC Member/Alternates Continued
John Johnson	Soil Conservation Service
David Potter	Oakland County Drain Office
Robert Fredericks	Oakland County Drain Office
Brent Avery	Citizen
Bill Feddeler	Education

RAP Team Members

Ben Okwumabua	DNR/WMD
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council (at 6:30)

Advisors

Timothy Backhurst	Macomb County Planning
Terry Gibbs	Macomb County CES

Speaker

Roy Schrameck	MDNR/SWQD/SEMDO

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the 8/18 RAP Streamlining Workshop. He and Mr. Ditschman attended this fruitful day to explore means to move the RAPs, more quickly to actions instead of merely writing documents. The strategies for change developed at the workshop focused on (1) Clarification of RAP expectations, (2) Training for RAP participants, (3) Enhanced Participation, (4) Realistic Goals and Measures, (5) Scientific Support. He observed that if the recommendations are acted on there will be valuable results.

The Statewide Public Advisory Committee met July 22. The concept of the streamlining strategy was approved. There was further discussion of the DNR's RAP-plans approval process and the fit of Michigan's procedures with the IJC Stages 1, 2, 3 protocol.

The 9/15 Detroit Workshop on "Opportunities for Local Action in Areas of Concern" provided a cafeteria selection of sessions, some good, some not well-related to RAPs. (Notes from selected sessions are available in the CRWC-RAP files. A copy of the agenda is provided to show the session topics.)

News from the Clinton River includes the finding of zebra mussels in the river 8.5 miles upstream from the mouth; a June opening of a new boat launch at Shadyside Park in Mt. Clemens; continued construction of the Macomb County bikepath beginning at Metrobeach Park and connecting to a spillway path and Shadyside Park with two bridges; City of Rochester voters favored an $8 million upgrade of the local Treatment Plan instead of a $3 million sewer connection to the Detroit system.

Ms. Johnson reported on tracking of the Great Lakes Initiative, an effort of EPA and the eight Great Lakes States to concur on uniform water quality standards for the region. A Michigan position was approved at a joint meeting of the Natural Resources Commission and Water Resources Commission in August and forwarded for the pubic comment record on the EPA published guidance. CRWC has a report available for anyone interested in information on the GLI status. Special concern has been expressed regarding the impact on POTWs. Final promulgation by EPA is expected in 18-24 months after further meetings to address the public comments.

In August, CRWC was contacted by MDNR in response to a request from the Attorney General's office for a list of potential Clinton River and Lake St. Clair Flats conservation projects towards which $750,000 of fines and penalties from the G & H Superfund site settlement might be applied. This may provide a good precedent as a funding source for RAP recommended actions. For example the weir modification was listed in case the Congressional appropriation does not cover 100% and a local match is required.

Mr. Sweet has completed assembling a RAP Team of state and federal agency staff for the Clinton RAP. A letter of appointment was mailed to each of the PAC members from MDNR Director Roland Harmes.

PAC members were invited to attend the CRWC summer meeting July 27, which reviewed spills response on the river.

(4) Report of the June 17 PAC Meeting

No corrections were suggested. The report stands approved as submitted.

(5) Election of PAC Officers

Ms. Johnson chaired the meeting for this agenda item. A list of the PAC members was provided for reference. It was noted that Lori Simpson should be included as the Alternate for the Lake St. Clair Advisory Committee.

Bill Smith was nominated for Chairman and stated he would be willing to serve. Several others were asked if they were willing to be nominated, but they declined.

> It was moved by Ms. Barnett and supported by Mr. Duncan to close nominations and unanimously elect Mr. Smith Chairman. The motion was approved unanimously.

Shirley Barnett was nominated Vice-Chair, but declined because of the time demands of her job. Charles Barnes volunteered to serve assuming no legal constraints of his job.

> It was moved by Ms. Barnett and supported by Mr. Herriman to close nominations and unanimously elect Mr. Barnes Vice-Chairman. The motion was approved unanimously.

(6) Selection of Clinton PAC Representative to IJC RAP Forum

The expenses will be paid for one official PAC representative to the RAP Forum October 21-22 in conjunction with the Biennial meting of the IJC in Windsor. Any PAC member is encouraged to attend. Copies of the Forum announcement and registration form were provided. It was noted that registrants will receive in advance the reports to be presented to the IJC. The IJC meeting agenda (copy provided) indicates the various reports.

Both Mr. Smith and Mr. Butterworth indicated they planned to attend the RAP Forum. The PAC suggested they decide between the two of them who would be the designated representative. Six other PAC members filled out the registration forms to be mailed in.

(7) Public Advisory "Council" or "Committee"

In referring to the Clinton River PAC both the terms "Council" and "Committee have been used. Following discussion -

> It was moved by Ms. Barnett and supported by Mr. Barnes to choose the term "Council". Approval was unanimous.

(8) Lengthened Terms for PAC Members

MDNR Director Harmes, has requested consideration of lengthening the terms from 1 and 2 years to 2 and 3 years. He would prefer not to make new appointments as soon as one year hence.

> It was moved by Ms. Willis and supported by Mr. Herriman to change the adopted terms for PAC members to 2 and 3 years. Approval was unanimous.

(9) Date and Location of Next PAC Meeting

It was first agreed that Thursday evenings are appropriate, and that the PAC meet quarterly. It was agreed to meet on the second Thursday of the first month of each quarter. Hence, the 1994 meetings will be January 13, April 14, July 14, October 13.

(10) Composition of RAP Team, Work Groups

Mr. Sweet noted that the PAC members had been surveyed regarding their individual special interests and on which committees they would prefer to serve. Representatives of state and federal agencies have been selected for the Clinton RAP Team. PAC members are welcome to also serve on the RAP Team. A list of Team members will be provided. The initial work groups for Habitat, Contaminated Sediments, and Point/Nonpoint Sources will begin the RAP writing. Mr. Fredericks said that the relationship between the PAC and the RAP Team was not clear in the letter from Director Harmes. There is need for further clarification of the state/local partnership and the PAC/CRWC relationship. Ms. Johnson noted that on October 8 she, Mr. Ditschman, Mr. Sweet, and Dianna Klemens would be meeting to seek clarification.

(11) Reports of Habitat Subcommittee and Goals and Objectives Work Group

- Mr. Ditschman reported on the first meeting of the Habitat Work Group September 3. He prepared an extensive outline of habitat components and issues to assist beginning of assembling habitat information. Each of the participants shared his personal knowledge of habitat in the watershed. We will characterize the past, present, and future potential habitat in the watershed. We will seek dual chairmen of the Habitat Committee, one a local representative and the other a RAP Team member. Mr. Ditschman will assemble a notebook of habitat background information starting with the materials shared at this meeting.

  Ms. Johnson reported on the latest of a series of court cases from the watershed related to wetlands protection. A Waterford developer was awarded $5.2 million in a case of DNR permit denial before the Lansing Court of Claims. Several newspapers and Michigan NPR interviewed Ms. Johnson for her reaction. Certainly the DNR will appeal the case.

- Ms. Johnson reported on the first meeting of the Goals and Objectives Subcommittee September 14. The group first considered definitions of the terms "mission", "principles", "goals", "objective", "policy", "criteria", to ensure a common understanding. The Principles from the Metro Toronto RAP were reviewed and amended as appropriate to fit the Clinton River AOC. Examples of Goals and Objectives were provided from other RAPs. It was agreed to draft a Mission Statement for the PAC as a PAC-determined complement to the MDNR Charge. Goals and Objectives for the PAC should be reflected in a work plan and schedule aimed at completing the RAP update and specifying the work assignments among DNR staff, CRWC staff, the RAP Team, the Work Groups. This subcommittee will draft Goals and Objectives for the RAP. Before the next meeting further examples from the literature and other RAPs will be compiled.

(12) Program: An Overview of Point and Nonpoint Sources of the Clinton River - Roy Schrameck, Chief, Surface Water Quality Division, MDNR - Livonia District

The Livonia District office serves the five counties of Oakland, Macomb, St. Clair, Wayne, and Monroe. The District handles all aspects of pollution control except for the drafting of the NPDES (National Pollution Discharge Elimination System) permits.

The permit development process has not been altered by the Governor's Executive Orders reorganizing the DNR; but the Water Resources Commission has been eliminated. The Water Resources Commission was the body which issued the NPDES permits. These will now be issued by the Director and noticed in the new Department Calendar.

Permit effluent limits are based on a characterization of the discharge (wastes), what kind of industry or publically owned treatment works (POTW) is involved. EPA sets nationwide Technology Based limits based on categorical guidelines for specific industries such as steel mills, paper mills. The industry-wide baseline criteria allow the discharge of X pounds of waste for each Y pounds of product. The intent of this approach is to create a uniform nationwide basis so that industries will not shop around to locate in states with lower standards.

A second tier of limits is derived from water quality standards. These look at the receiving stream and its designated uses. How are uses affected by the level of dissolved oxygen, the concentrations of toxic pollutants. How does the type of discharge, its volume, the constituent pollutants affect what is happening in the river. There is a 303(d) list of the state's waterbodies which are not meeting the water quality standards.

The TDML (Total Daily Maximum Load) process is used to examine the sum of effects of all the discharges influencing a stream section. A waste load allocation is then assigned to each of the discharges. Whenever the MDNR develops an NPDES permit a waste local allocation is performed.

The Clinton River is not currently on the 303(d) list. However, when all of the permits are collectively reviewed in FY96 the Clinton may end up on the list. NPDES permits are to be reissued every 5 years; historically a set of permits from all over the state were addressed in any given year. Recently the DNR is trying to get permits reissuance scheduled on a watershed basis and 5 year cycle. However, there has been a chronic backlog with minor permits which interferes with the 5 year cycle. The new General Permit and Permit-By-Rule authorities may help (for example, to cover cooling water discharges). When a permit expires after 5 years it remains in effect until there is a state decision to rescind the permit.

During FY94 (October 93 - September 94) there will be selected water quality studies on the Clinton. These are biological surveys. During FY95 the DNR will work on developing the new permits. And during FY96 the permits will actually be reissued.

The only consequence of being on the 303(d) list is that the state must first submit the waste load allocation to EPA for prior review. This new procedure has added another layer of EPA oversight on the state-delegated administration of the NPDES permits and another 30 day delay.

Rule 57 is the toxic substances control portion of Michigan's Water Quality Standards rules. It limits the discharge of toxics at the end-of-the-pipe, ie. no mixing zone. (A mixing zone is still allowed for oxygen-depleting substances.) The Rule 57 derived limits apply to a facility discharge even when not explicitly limited in the permit. The application value limits are embedded in the permit stipulations. Whole effluent toxicity studies may be required; this is one of the more recent provisions of the NPDES program. The advantage to a discharger of not having a parameter explicitly limited in the permit is that they need not monitor for that parameter. It would be appropriate for the PAC to look at the collective set of Clinton River permits. Bob Sweet could arrange for appropriate DNR staff to walk through the permits with the PAC. You could ask about substances not delimited in the permits and learn why.

The NPDES program depends on self-monitoring reports being submitted quarterly to the MDNR. Compliance monitoring includes spot checks of a facility by DNR staff to ascertain directly that the operations are in line with the permits and monitoring reports.

The DNR attempts compliance monitoring checks of all minor permittees once per year and the mayor permittees 3 times per year. There are four major permits on the Clinton (the larger POTWs). A list was provided including all current NPDES permitted facilities in the Clinton River Basin. A question was asked as to the impact of the minor permits as compared to the mayor permits. Mr. Schrameck said he cannot answer that tonight; but the information can be obtained. He added that he personally feels that more attention should be given to the minor permits.

Mr. Herriman noted that contrary to what many citizens think, a discharger can be trusted to provide good data in their monitoring reports to the DNR. When there are split samples analyzed separately by the permit holder and the DNR the results had better be similar. It is a criminal offense to falsify a data report not merely a fine.

Mr. Fredericks inquired about the South Oakland County Sewage Disposal System (SOCSDS) combined sewer overflow (CSO) control facility - the large detention basin in Madison Heights at the head of the Red Run. He said that Oakland County had reapplied for a new permit after 5 years, but there has been no response from the DNR and the permit is long expired. The county has been submitting the regular monitoring reports with no feedback from the

DNR, which would be helpful. Mr. Shrameck replied that this is a minor permit and may be part of the backlog problem. He does not know whether the DNR will try to reissue any CSO permits now or wait until after the results of the Rouge River Wetweather Demonstration Project. This project will evaluate various designs and control levels for a number of CSO basins being constructed on the Rouge. Mr. Fredericks noted that if Oakland County does not apply for the permit reissuance they could be subject to litigation by a third party for non-compliance.

As for Nonpoint Sources, the new federally mandated requirements for an NPDES permit for every construction site disturbing more that 5 acres will depend in Michigan on the established permit-by-rule authority. The 347 program is administered by county designated Local Enforcing Agencies (LEA) or some municipalities that choose to have their own permit program. For most of Oakland and Macomb Counties the county drain commissioners are the LEA. The Michigan Nonpoint Source Program is providing grants for local watershed planning and implementation of Best Management Practices (BMPs).

Initially the federal stormwater program is requiring a NPDES permit for the storm drains in large municipalities with a population over 100,000. Two Clinton River cities are involved, Warren and Sterling Heights.

1990 amendments to the federal Coastal Zone Act make NOAA (National Oceanic and Atmospheric Administration) and EPA partners in enforcing nonpoint source controls in designated coastal zone management areas. NOAA has suggested designating the entire State of Michigan as within the coastal zone, which would mean all Michigan communities would be subject to stormwater permits on their storm drains. NOAA has said it is up to the state to justify why any portion should be excluded from the coastal zone. DNR staff are not up to doing the work for this justification so Michigan may be hit be default.

Mr. Shrameck responded to several additional questions.

Q. With the DNR reorganization resulting from the Governor's Executive Orders what will be the public hearing process on NPDES permtis?

A. The new biweekly DNR calendar will provide public notice. If any issues are brought to the DNR's attention there will be an attempt to resolve these. If significant controversy remains after the staff level meeting eg. "substantial and relevant issues" remain unresolved, a Director's public hearing will be published in the calendar. To date, we do not know what appeal there will be of the Director's decision: to the NRC and the Contested Case Hearing procedure or directly to court.

Q. A recent PIRGIM report (August 1993) "Permit to Pollute: State-by-State Analysis of Serious Violations of the Clean Water Act" has received attention in the press. Michigan is reported as second among the states with major permit facilities in significant non-compliance (57/190 or 30%). The information is taken from the EPA Quarterly Non-Compliance reports for October 1991 - July 1992 and includes the Mt. Clemens, Rochester, and Warren Wastewater Treatment Plants on the Clinton; no industrial facilities are listed on the Clinton. How do we reconcile this with the 1988 RAP which states all dischargers on the Clinton are in compliance?

A. Mr. Shrameck has not seen the PIRGIM report and cannot comment. Procedural violations do occur but he would not consider them "significant noncompliance." STORET is the national system for compiling water quality data. Incorrect data sometimes does creep in an MDNR and EPA appreciate being notified whenever someone discovers a glitch. Both EPA and MDNR are establishing computerized Permit Compliance tracking systems which should improve the information available. We'll also be able to cross-reference data from Environmental Response Division (contaminated sites), Waste Management Division (use and disposal of hazardous materials), Air Quality Division.

Q. Is it fair to say that point sources are pretty well taken care of on the Clinton River?

A. I would say "yes" with the exception of resolving the situation in Rochester.

Q. What is the status of Industrial Pretreatment among the Clinton River POTW's? We note an August newspaper article about the City of Warren pursuing litigation against a metal finisher with a history of pollution violations?

A. A discussion of the IPP status would take another whole evening. You can always call Hae-jin Yoon; she is the primary compliance person for Oakland and Macomb Counties (810) 953-1451.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
January 13, 1994
Mt. Clemens Community Center 5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of the September 16, 1993 PAC Meeting
- Reports of the IJC RAP FORUM
  Mr. Butterworth's report and article from IJC Focus
- 12/6/93 Macomb Daily article "Clinton River Not So Dirty DNR Memo Says"
  1/13/93 Macomb Daily article "Clinton is State's Dirtiest River"
- 1/11/93 Clean Water Action News Release "AuSable Cleanest, Clinton Most Polluted"
- 1/26/93 Memo to Clinton River Watershed Council from MDNR/SWQD (Richard Lundgren)

  Zebra Mussels in the Clinton River
  - see article in RAP #3
  - 12/8/93 Spinal Column article "INFESTATION First Inland Zebra Mussel Colony Established in Local Lake"
  - 12/14/93 Oakland Press article "State's Native Clams Could be in Danger From Zebra Mussels"
- Strategies to Improve Michigan's RAP Process
  12/2/93 memo of Diana Klemans regarding MDNR concurrence
- "Governments of Canada and the United States Act on Water Quality Recommendations" IJC FOCUS article on reports at Biennial Meeting October 1993
- Notice of March 8 Conference on Watershed Management - the annual conference of the Michigan Section of the American Water Resources Association

Handouts provided at the meeting included:

- Clinton River Area of Concern Progress Report, December 1993 by Robert Sweet, SWQD, MDNR

- Clinton River RAP Team (list of members)
- Guidelines for Recommending the Listing and Delisting of Great Lakes Areas of Concern
- "Clinton Carp are Health Risks, say Michigan Health Officials", Eccentric Newspaper article 12/20/93
- Southeast Michigan Initiative, Memo to AWQB 12/7/93
- Michigan Environmental Code Commission: A Summary by CRWC
- Clinton River RAP #3, MDNR December 1993
- Ambient Water Monitoring in Michigan: Concentration and Loading Trends in the Detroit River; and Great Lakes Tributaries by R. Lundgren, SWQD, MDNR, October 1993

(2) Persons Attending

	PAC Member/Alternate
Charles Barns	USAF/ANG
Heidi Vogt	USAF/ANG
Charles Bellmore	Mt. Clemens WWTP
Jack Prescott	Citizen
Gary White	Macomb County Health Dept.
Gerald Herriman	Citizen
Frank Butterworth	Oakland University
Spencer Teller	Ford Motor Company
Patrick Meagher	Clinton Township
Bob Winkler	Mt. Clemens High School
Brent Avery	Citizen
Bill Feddeler	Citizen
John Johnson	Macomb County SCS

RAP Team Members

Ben Okwumabua	DNR/WMD
Greg Barrows	MDNR, ERD (Livonia)
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council

Advisors

Timothy Backhurst	Macomb County Planning

Speaker

Richard Lundgren	MDNR/SWQD

Public

Jim Reed	Citizen
Bob Selwa	Macomb Daily Newspaper
Jeff Green	Oakland Press Newspaper
Robert Hansen	Citizen

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the October 28 meeting of the Statewide Public Advisory Committee (SPAC). His report on the Clinton River included:

- The Clinton River Watershed Council was restructured into a non-profit organization for citizens, governments and businesses.
- The spillway hike/bike path was completed with funding from the Department of Agriculture.
- The settlement on the G & H Landfill includes funds for Clinton River improvement projects.
- The Clinton River PAC elected its officers and established four standing committees. They are looking into establishing a database/bibliography data center at Oakland University.

DNR managers have accepted the RAP Streamlining proposal which will eliminate lengthy reviews, with RAP Team recommendations going directly to Tracy Mehan, Director of the Office of the Great Lakes.

There are plans to produce a Michigan RAP Calendar spanning the 14 months of December 1994 - January 1996, with one page for each Area of Concern. Needed are photographs and dates of river events during that period. It was suggested this task be referred to the Public Outreach Subcommittee.

The annual Michigan citizens conference on Great Lakes Ares of Concern will be postponed from spring to fall of 1994.

Bob Sweet noted that the RAP display with photos illustrative of the Clinton River issues. This display board will be shared with some other AOCs, so he asked for upcoming dates when it would be suitable to display this on the Clinton.

Copies of the Clinton River RAP #3 published in December were mailed to PAC members and others who have expressed interest in the Clinton RAP. Additional copies are available at CRWC offices.

A 1993 draft progress report on the Clinton AOC was provided by Mr. Sweet. He asked PAC members to review it and respond by the next day.

He reported on the G &H Superfund Site court settlement which commits $800,000 towards conservation projects on the Clinton River and St. Clair Flats. 30 days following court approval of the settlement the funds are transferred to a Environmental Response Division (ERD) restricted fund account. There are several other Michigan cases coming to conclusion with similar commitments of the fines and penalties; a MDNR committee is looking at the best means to write the method of disbursement into the court orders.

- MDNR continues to work with CRWC staff to conclude the grant agreement for them to provide staff support to the PAC. This should be soon completed; but tonight Peggy Johnson is participating as a volunteer.

- A $151,000 proposal for analysis of contaminated sediments in the Clinton River has been submitted for funding under the Southeast Michigan Initiative (SEMI) and also to the Great Lakes National Program Office of EPA (GLNPO). There may be several other funding opportunities with the Corps of Engineers (COE) this year. The COE has decided to spend funds on RAPs, $250,000 in 1994 and $3 million in 1995.

- Sign-up sheets for the Work Groups were available and PAC members urged to sign-up.

Peggy Johnson reported on activities relevant to the RAP effort:

- **Clean Water Act Reauthorization** MDNR convened on December 16 a Reauthorization Advisory Group of Michigan stakeholders to obtain input for developing a state position as a basis for working with the

Michigan Congressional delegation. Issues addressed were Nonpoint Source/Coastal Zone, Watershed Management, Permit fees/10 year permits/stormwater, wetlands, state revolving fund, water quality standards, pollution prevention, clean lakes. DNR staff will use the input to complete draft positions for Natural Resources Commission approval.

- **Great Lakes Initiative** (GLI-1) Since EPA was flooded by public comments concluded last fall we are awaiting further work to respond to the comments and meet the court imposed deadline for final promulgation (in 18-24 months?). The initiative was aimed primarily at uniform standards among all the Great Lakes states for toxics reduction by point sources. Criteria were developed for control of Bioaccumulative Chemicals of Concern (BCCs) which EPA anticipates playing out in many programs.

- **Great Lakes Toxics Reduction Effort** (GLI-2) EPA has just completed a final draft report. The proposed strategy aims at nonpoint sources and incorporates three tracks:

  - a Pathways Approach
    (air deposition, sediments, spills, urban runoff, waste sites, plus continued evaluation of agricultural sources for BCC loadings)

  - a Virtual Elimination Project
    (which will be coordinated with the IJC project and initially focus on mercury and PCBs)

  - Lake Michigan Enhanced Monitoring
    (a pilot for LAMPS)

- **Environmental Code Commission** The Governor established this Commission a year ago to consolidate Michigan's Environmental protection and natural resources management laws. While the Commission was directed to codify but not consider substantial changes this has proved difficult. For example, review of the Drain Code proved very controversial. A handout was provided summarizing the status.

- **Michigan Science Advisory Board** was established to bring the best scientific expertise to bear on Michigan issues. The first completed review and report was on mercury. The Board was recently asked to review chlorine.

- **Michigan Office of the Great Lakes** has initiated bi-monthly reports on current Great Lakes issues.

- **Southeast Michigan Initiative** (SEMI) This is an EPA-Region V initiative that has been "underway" for several years. At a joint meeting of AWQB and EPAC December 7, Mindy Koch, DNR Deputy Director for Region III provided an "introduction". Initial elements identified for inclusion are pollution prevention, public participation, compliance and enforcement, and Remedial Action Plans. To date, EPA and DNR have been selecting people for involvement; it is hoped that by mid-January more people will be drawn in. With five RAPs in Southeast Michigan it would be a logical place to emphasize progress on RAPs and opportunities for work in common among the individual RAPs.

(4) Introductions and Comments

Gary White (Macomb County Health Department) reported that the Health Department has been studying ways to monitor CSOs; they are also exploring with the Oakland County Health Department ways to monitor for bacterial contamination following rainfalls to determine whether and where advisories should be issued to avoid total body contact.

Frank Butterworth (Oakland University) noted that he is involved with PCBs toxicity research. He is interested in citizens biomonitoring and will be chairing a symposium on biomonitoring for the International Association of Great Lakes Researchers at a conference in Windsor this summer. The City of Rochester will be abandoning its wastewater treatment plant and hooking up to the Detroit system. Voters elected to maintain the local plant in the spring of 1993; but when new and higher costs for upgrading the plant were presented a second referendum vote in the summer favored abandonment.

Heidi Vogt (Selfridge ANGB) noted she is working with other base staff on environmental restoration of the 4000 acres which significantly relates to the river mouth area.

Jack Prescott stated that he was particularly interested in parks development along the river.

Chuck Bellmore (Mt. Clemens POTW) reported that he was recently appointed Director of Utilities for the city so his responsibilities have been broadened. He is currently assisting the DNR with walleye rearing in ponds at the wastewater treatment plant and assisting the COE with hydrology studies of the Mt. Clemens section of the river. He provided a copy of a recent letter from Congressman Bonior to the Mayor of Mt. Clemens reporting that

Congress approved $2 million and President Clinton signed the appropriations bill to correct the design deficiency on the spillway weir; the Office of Management and Budget (OMB) released the funds. The Corps began collecting field data in December. The Corps will then coordinate design and analysis with the affected local parties. It will not be known until the final design is completed whether any local match is required.

(5) Report of September 16, 1993 Meeting

The report was accepted as presented.

(6) IJC RAP Forum Report

Frank Butterworth provided notes on the two days of the Forum October 21-22. These were included in the agenda packet. Mr. Butterworth reviewed these notes. He felt the RAP Forum provided a good opportunity to learn from other RAP efforts that are further along than the Clinton. A major theme was sustaining the momentum; speakers noted that RAPs often had started with a promise that energized people, then hit succession of road blocks and many walked away. Highlighted lessons learned included:

- the Cuyahoga RAP was set up for shared power with the Ohio EPA this negotiated partnership is important in sustaining momentum
- must struggle to incorporate the ecosystem approach - water and land
- form NPOs to facilitate as needed
- obtain a clear money commitment - public and private
- bureaucrats must be willing to take risks, perhaps fail
- get a facilitator to help with goal setting
- convene technical forums to garner expertise

Bill Smith noted that Tim Lozen, Chair of the St. Clair River PAC, was impressed with the effectiveness of the facilitator at the RAP Streamlining Workshop.

Chuck Barns commented that several of John Jackson's remarks would slingshot the RAP process forward: a clear timetable for cleanup, designating those responsible for cleanup actions and their roles (not just government), a clean money commitment.

(7) Subcommittee and Work Group Reports

No meetings since those reported at the last PAC Meeting.

(8) Outside Meeting Attendance Fund

Mr. Sweet noted that the budget for PAC support includes $465 for travel and registrations reimbursements for attendance by PAC members. Anyone delegated for reimbursement is expected to provide a written report; the Watershed Council can provide secretarial services for typing hand-written notes. Tonight the PAC needs to decide on the procedure for selecting candidates to attend conferences. Potential conferences this year which we can now suggest include the annual Michigan Citizens Conference on Areas of Concern (Port Huron), the Watershed Management Conference slated for March 8 at MSU, the summer Windsor conference of the International Association of Great Lakes Researchers.

> It was moved by Mr. Teller and supported by Mr. Herriman that applications for conference attendance/reimbursement be submitted to Ms. Johnson. She will then present these to the four PAC officers for decision. Approval was unanimous.

It was suggested that some PAC members might be able to have their employers cover costs of conference attendance.

(9) New Business - None

(10) Public Comment - None

(11) Program The Clinton River 20 Year Trend Analysis

Rick Lundgren, MDNR Surface Water Quality Division provided copies of the report he authored "Trends in the Detroit River and Great Lakes Tributaries" October 1993.

This report utilized river mouth data from 12 Michigan rivers tributary to the Great Lakes. These were selected because of their relatively stable flows.

Although an urban river, so much of the flow in the Clinton is from discharges that the year round flows are fairly stable. During low flows the Clinton is 85% effluent. The Clinton has the lowest flow of the rivers in this study. The "mouth" data is from sites far enough upstream to be beyond the influence of Great Lakes levels. In the Clinton the mouth station is at Gratiot, above the spillway.

Michigan includes five of the midwest ecoregions, areas of significant

differences in soils, land use. In any attempt to compare rivers we must not look only at concentrations but must also take ecoregions into account. That is the major flaw I find in the Clean Water Action report.

The report focuses on six key parameters: total phosphorus, suspended solids, chloride, lead, copper, and zinc. To see the impact on the Great Lakes we must look at the loadings rather than the concentrations.

The Clinton definitely has problems with phosphorus although the concentration has dropped over the years due to phosphate detergent bans and phosphorus removal at wastewater treatment plants. Regression plots were displayed to confirm a downward trend for the Clinton. Suspended solids show a slight upward trend; chloride-no confirmed trend; lead shows a definite downward trend in concentration; copper has a significant downward trend in concentration and loading; zinc shows a downward trend in concentration.

There were questions and hypotheses about some of the data spikes. Did these reflect wet years? Was data collected during rain events? (possibly). Each year's data point represents the 12 monthly samples collected over the year.

Another approach to judging water quality of a river is to look at the number of times there are exceedences of the state water quality standards. On the Clinton we see more exceedences occurring in the mid 1980's than today. (The heavy metals have been sampled monthly only since 1984.)

The water quality standards for metals varies with the hardness of the water. Where 50 ppm (softwater) the standard for lead is 0.9 micrograms. Where 300 ppm the lead standard is 20.0 micrograms. So we cannot simply look at concentrations to draw a valid conclusion about a river's water quality. The right question to ask is: Were there exceedences of the water quality standard? We should not say the Clinton is the dirtiest river where it in fact has higher limits than other rivers.

Another shortcoming of the Clean Water Action report was using only a single year's data. You need 20 years of data to draw any conclusions about trends in water quality.

In summary the good news is that the quality of all Michigan rivers is improving over the years. The bad news is that we have a long ways to go yet to attain the desired water quality.

There was discussion as to why suspended solids might be showing an

increase. Historically the soils types in the watershed yield high suspended solids; but construction sites, storm drains, and CSOs may be contributing significant amounts of suspended solids.

The Clean Water Action report also addressed data from urban areas which showed a big increase in concentrations from above Pontiac to below. How might we account for this? The water quality above Pontiac may be exceptionally good so that discharges in Pontiac would result in a greater change. Also the river flow is down to a trickle in Pontiac because of the dams on lakes upstream, so there is little dilution.

A high pH (hardwater) lessons the effect of the metals on aquatic life. While the biology of the river may not be so impacted, what is the effect of the metals when they reach the Great Lakes?

The DNR is concerned about backtracking to find the sources of heavy metals. We don't want them to end up in the sludge at wastewater treatment plants. Pre-treatment limits imposed on industries to municipal sewers may get a shot in the arm as the result of recent court cases such as ACE Finishing where a $100,000 fine was imposed for violations of the pretreatment limits.

Are we collecting adequate data to get a good estimate of Clinton River loadings to the Great Lakes? No. More frequent sampling is needed. For example in the Lake Michigan LAMP study it was concluded that the Grand Calumet River, which is very stable, should be sampled 16 times annually, the Grand River 26 times, and the Muskegan River 26 times. $9 million is the cost of the proposed Lake Michigan monitoring.

It was suggested that the absence of DNR reports on water quality involving good analysis invites other groups to attempt use of the data perhaps with misinterpretations. It would be helpful if the DNR stated when there is not adequate date to draw valid conclusions. It would help the press with their reporting if DNR staff were available to take phone calls for information when other groups issue press releases.

(12) The meeting was adjourned at 9:30 pm.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
April 14, 1994
Verkuillen Building, Mt. Clemens
5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of the January 13, 1994 PAC Meeting
- Articles from the Oakland Press and Macomb Daily reporting on the Clinton River water quality presentation at the 1-13-94 PAC meeting.

(2) **Handouts** provided at the meeting included:

- News release of IJC on Seventh Biennial Report on Great Lakes Water Quality and news release of MDNR on State of the Great Lakes - 1993 Annual Report (Office of the Great Lakes). [Information was included on how interested PAC members might obtain copies.]
- Notice of May 3 EMEAC panel discussion on "Human Health and Chemicals of concern in the Great Lakes Basin"
- USGS National Water Quality Assessment Program (NAWQA) description
- The Southeast Michigan Initiative (SEMI): Questions and Answers Summary of Community Leaders Meeting 4/12/94 (P. Johnson)
- Clinton River Watershed Council Local Government Report - February 1994
- DNR Creates 18 Committees to Follow-up Relative Risk Report
- Flyer - "Help Make Clean Water the Wave of the Future" - Clean Water Media Campaign of NDRC/EPA/The Advertising Council [Video available]

(3) The meeting was called to order by Chairman Bill Smith at 5:30 pm.

Persons Attending

PAC Member/Alternate	
William Smith	Friends of the Clinton River
Shirley Barnett	Lake St. Clair Advisory Committee

Chuck Bellmore	City of Mt. Clemens
Frank Butterworth	Oakland University
Brent Avery	
Butch Sapp	
Dan Duncan	Huron Clinton Metropolitan Authority
Bill Feddeler	

RAP Team Members

Ben Okwumabua	DNR-Waste Management Div. - SEM
Hae-Jin Yoon	DNR Surface Water Quality Div. - SEM
Jenny Molloy	Clinton River RAP Coordinator
Bob Sweet	Clinton River RAP Coordinator
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Advisors

Tim Backhurst	Macomb County
Roger Darden	MDNR Communications Representative

Public

Jeffrey Sibley	St. Clair Shores

(4) Reports

- SPAC Mr. Smith reported that the Statewide Public Advisory Committee had set September 17 as the date for the annual Michigan Areas of Concern Citizens conference. It will be in Port Huron with meetings of the SPAC and the Ontario Council on Friday.

  Two applications for this year's outreach grants were submitted from the Clinton AOC, by Erich Ditschman (CRWC) and Al Martin (CRCA). A priority was placed on transferability of the demonstrations.

  MDNR has submitted to EPA the annual proposal for RAP funding and is awaiting the EPA response to see what activities will be funded for next year.

  Photos and event dates need to be submitted for the 14 month RAP calendar (Nov 94 - Dec 95).

The next SPAC meeting is April 28.

- RAP-Related News Ms. Johnson reported on the efforts of CRWC and others to recommend to the Natural Resources Commission changes in the DNR drafted position statement on watershed management, part of the state's positions for Clean Water Act reauthorization.

The March 8 AWRA Watershed Management Conference was very well attended. Proceedings will be available Another MSU-sponsored conference that week was on Great Lakes Rehabilitation: Back to the Future. CRWC is obtaining tape recordings for anyone interested.

The CRWC Science and Technology Committee is recommending or undertaking four activities:

- a fishing survey which could meet 3 needs - DNR fisheries management; determining exposure of people eating fish from the Clinton (especially poor and minority groups); fish tainting

- a "data crunching" meeting of persons interested in looking at the available Clinton River water quality data and exploring surmises as to causes (stimulated by the kinds of questions/hypotheses voiced at the end of the January 13 PAC meeting).

- a technical seminar on habitat - Conversations with participants in several RAP efforts suggest this may be one of the most difficult issues to address. Information gathering for all the Southeast Michigan RAPs might be jump-started by a technical seminar. Invited audiences might include citizens (backyard habitats), local government officials (taking habitat into account with local land use planning and acquisition), managers of parks, golf courses, sportsmen and wildlife interests.

- many new golf courses continue to be built across Michigan and in the watershed. An annual "river friendly golf course award is proposed as a way to promote good design, cooperating with the Audubon golf course habitat program, and to inform local government officials on what to consider in approval of golf course developments.

The RAP display will be exhibited at a number of fairs scheduled around Earth Day later this month. A caption "Clinton River RAP" was purchased.

Copies of the CRWC Local Government Report were provided as an update on river news.

CRWC and many other groups have provided letters in support of Michigan Land Trust Fund grants for acquisition of lands abutting Bald Mountain State Park of significant ecological interest as well as protecting the upstream watershed of the regionally significant Trout Lake in the park.

The Michigan Environmental Science Advisory Board is currently addressing chlorine and lead impacts and public policies. A report was released last year on mercury.

Peggy Johnson has been appointed to the Michigan Relative Risk project Nonpoint Source Discharges Task Force.

Ms. Johnson reported on the April 12 Community Leaders Meeting to launch the Southeast Michigan Initiative (SEMI) of EPA and MDNR. The four components are (1) public involvement, (2) RAPs/Sediments (3) Pollution Prevention (4) Compliance and Enforcement. Two handouts were provided: information which accompanied the meeting notice and Ms. Johnson's notes from the meeting.

It has long been noted that water quality data collected in each state and provided to EPA for biannual reports to Congress varies from state to state so the data cannot be meaningfully aggregated at the national level. And so Congress authorized the U. S. Geological Survey to inaugurate in 1991 a National Water Quality Assessment Program (NAWQA). Work for the Lake Erie basin hydrologic unit, which includes Lake St. Clair and the Clinton River, is now underway.

- MDNR RAP Update Bob Sweet introduced Jenny Molloy and reported she would become the Clinton River RAP coordinator in June when he would become the Detroit River RAP Coordinator.

Mr. Sweet noted that EPA budget cuts have resulted in a 58% cut in funding for RAPs. Michigan will get through FY-94 and FY-95 with carry over funds from the last two years so the crunch will come two years from now.

Discussion with USGS for the NAWQA work may lead to a couple of sites on the Clinton being included in the data collection program.

Three weeks ago Mr. Sweet and Ms. Molloy convened a meeting of agencies involved with nonpoint sources control (DNR, DOA, SCS, CES) to discuss focusing joint efforts on the St. Clair and Clinton AOCs. The initial focus would be on agricultural sources where the agencies have been involved in the past; it will evolve to include an urban component.

This year's Clinton RAP work program is scheduled to submit the plan update to the IJC in January 1995. Work groups will complete their components by September 7. During September all components will be integrated into a draft plan. Reviews and approvals will be conducted October - December.

The newly adopted Michigan protocol gets rid of the "stages" approach (Stage 1 = identify problems, Stage 2 = recommend actions, etc) so that activities can proceed simultaneously in different stages. For example, we could proceed to address remediation of contaminated sediments without waiting to complete the habitat recommendations. As soon as a solution is identified we move forward with action. There will be biennial reports of the progress of planning and implementation. New problems will always arise to be incorporated. We'll be working on a two-year cycle iterative process which allows us to act immediately when there is information available which supports an action. EPA and the IJC have endorsed this Michigan approach.

Mr. Sapp responded that this makes the PAC sound less like an information gathering and advisory group and more like an action group and he likes that.

Mr. Smith asked what kinds of technical and engineering staff will be involved? They will come in on individual action projects.

Ms. Barnett noted that the St. Clair River PAC has been meeting for seven years. They have a very viable organization and a high level of member commitment. She suggested it would be good to attend one of their meetings; the next one is May 25.

Ms. Yoon noted that industrial representatives have not responded to out invitations to participate in the RAP. It was suggested that once we start putting on paper recommendations impacting the industrial interests they are likely to become involved.

PAC review and approval was discussed. The work group products will be available after September 7 and can be formally reviewed by the PAC at its October 13 meeting. Additional portions of the RAP to be

written by staff will include:

- legislative updates
- institutional arrangements
- public outreach
- an Executive Summary

Final PAC approval could occur at a January meeting.

(5) Report of January 13, 1994 PAC Meeting

It was moved by Mr. Avery and supported by Mr. Butterworth to accept the report as submitted. All agreed.

(6) Introductions and Announcements

Mr. Smith reported that the City of Mt. Clemens has enacted a No Wake ordinance for jet skis following testimony at a hearing regarding the problems that have been evidenced. Harrison Township already had a similar ordinance in effect. He also noted that the annual river cleanup "SpringUp" would be June 4. He noted that there are now several computer networks from which information relevant to RAP efforts might be gleaned: EPA's PIES, Saginaw Valley College's waste management network, and the Great Lakes Commission's Great Lakes Information Network (GLIN).

Mr. Sweet reported that MDNR had been asked to proceed with preparing a work plan for sampling Clinton River sediments this year. This will be a cooperative effort with the Corps of Engineers which has the funding. EPA has volunteered use of their mud puppy. The purpose is to see if there are any "hot spots" of contaminated sediments outside of/or upstream of the navigation channel in the lower river.

(7) Meeting Places

The PAC was asked to suggest potential meeting places, especially in Oakland County. Macomb Community College was suggested as closer to Oakland County. We can probably find a suitable place at Oakland University. It was suggested we include a tour of the SOCSDS CSO facility as part of the July meeting.

(8) Libraries for RAP Files

In addition to the centralized files at the CRWC offices, we want to place files in Oakland and Macomb County where they will be more conveniently

accessible to the public. The PAC agreed that the Macomb County Library on Hall Road at Garfield and the Oakland University Library would be best.

(9) Work Group Reports

- Contaminated Sediments Chairman Butterfield reported that the work group had reached agreement on the impairments related to contaminated sediments and is helping to design the sediment sampling to be conducted this year. Professor Hough is creating a computer file of the past data related to locations so can look at a watershed map to see where information is available and discuss additional locations to sample as well as updating the old data. In the 1950's, a lot of hazardous materials were buried close to the river in landfills and landfilling with foundry sand. There was discussion of a newspaper ad or story to invite people to report their recollections of old dumping. Mr. Ditschman noted that on May 12 all the schools in the river monitoring program will be out sampling and this year they will collect a grab sample of sediments; Midwestern Analytical Labs has offered to perform analysis for metals. A draft paper "Contaminated Sediments in the Clinton River" was written by Ms. Johnson and when the workgroup has completed its review/revision this will be provided to PAC members.

- Habitat Chairman Duncan reported that the workgroup had also reached agreement on the impairments of concern which relate either directly or indirectly to habitat issues. Habitat issues have been listed and assignments made for members research. The next meeting is May 11 at which a schedule of work activities will be developed.

- Point/Nonpoint Sources Ms. Molloy reported that this workgroup had also agreed on the related impaired uses after some discussion of fish tainting and plankton degradation. There are now 10 impairments listed: 1 related to contaminated sediments, 3 related to habitat and 6 related to Point/Nonpoint Sources. The group reviewed additional expertise to be brought in. The next meeting of the workgroup will be April 19.

(10) Conference Attendance Opportunities

PAC members were reminded there is a little funding available for reimbursement of attendance costs. Notices of upcoming meetings included:

May 3 Human Health and Chemicals of Concern in the Great Lakes Basin. A panel discussion presented by EMEAC (Bloomfield

Hills)

April 28 — Environmental Empowerment of Local Communities, sponsored by Michigan Prospect (Novi)

May 2-3 — Empowering Watershed Stakeholders, EPA (Chicago)

June 4-5 — Citizens Forum on Lake Erie: It's Ecology and Economy, Environment Canada et al (Windsor)

June 6-9 — International Association for Great Lakes Research 37th Conference (Windsor)

(11) New Business

It was suggested that the PAC might want to review all the current construction work along M-59 as a case study of construction site sediment control, drainage design, and impacts of a direct outlet to the river.

(12) Adjournment and RAP Slides

The meeting was formally adjourned at 8:00 pm. Some stayed for a viewing of the RAP slide show assembled by CRWC staff. The audience was asked to be critical and comment by Roger Darden of the MDNR public relations staff were especially appreciated.

Submitted by Peggy B. Johnson

PBJ/sj

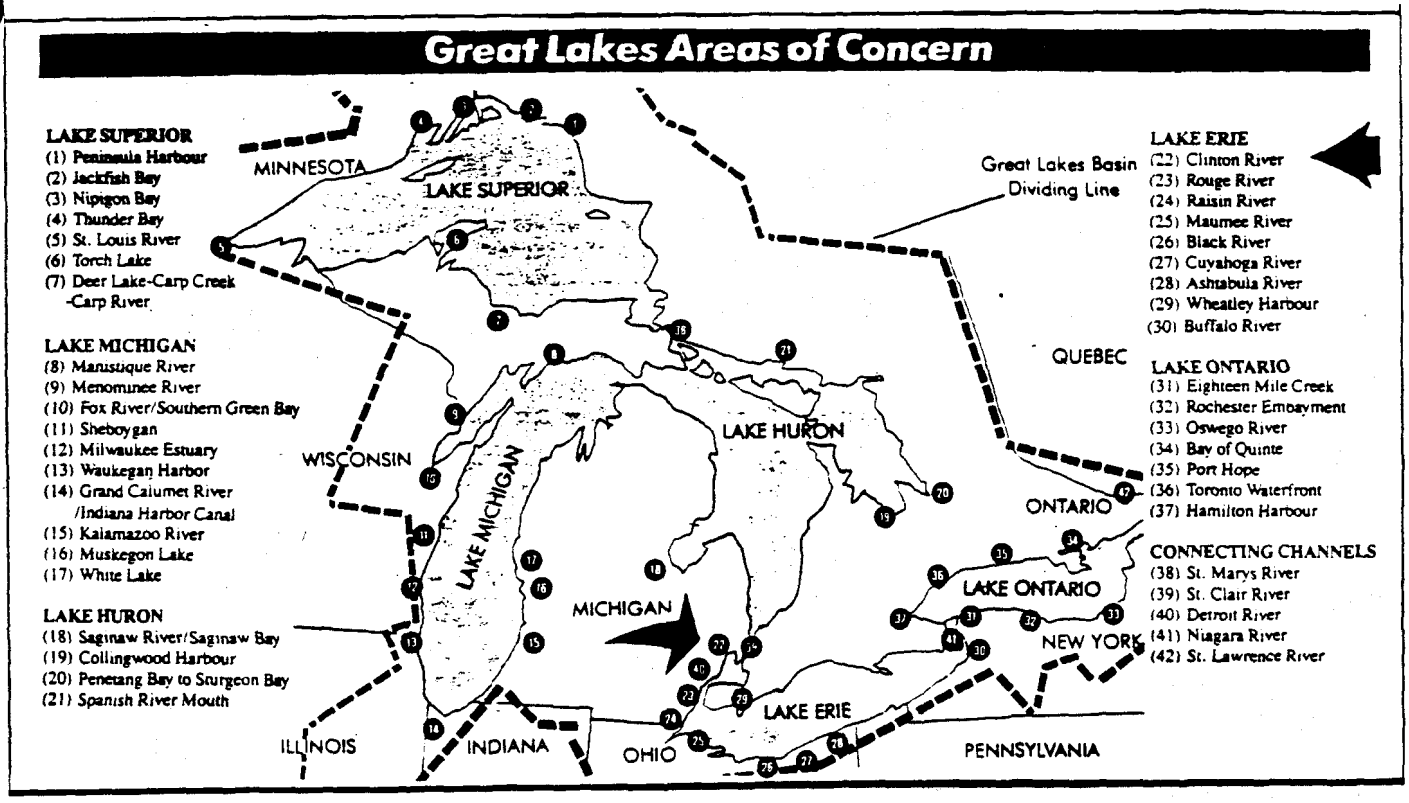
Clinton River RAP #1

The Remedial Action Plan 1989

Great Lakes Water Quality

In 1909, the United States and Canada signed a boundaries water treaty including a stipulation that each nation would not pollute the waters across the boundary to harm people or property. The International Joint Commission (IJC) was established to administer the U.S-Canada agreement. In 1972, a Great Lakes Water Quality Agreement was signed with an emphasis on reducing phosphorus inputs and lakes eutrophication, especially for Lake Erie. Control of phosphorus inputs through municipal wastewater treatment plant improvements and bans on phosphate detergents has reduced the phosphorus loading so the control objectives are largely met. Two exceptions are Saginaw Bay and the western end of Lake Erie where there is current emphasis on reducing nonpoint sources of phosphorus, in particular, from use of fertilizers on farms. The Clinton River is a tributary in the Lake Erie watershed.

The U.S-Canada Water Quality Agreement was revised in 1978 to incorporate an emphasis on control of toxics. The IJC has listed 42 Great Lakes "Areas of Concern", known colloquially as "toxic hotspots". The Clinton River is listed because of contaminated sediments in the lower river, as is the case with 41 of the 42 listed rivers and harbors.



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Remedial Action Plans

The IJC called for development of Remedial Action Plans, "RAP's", for each of the Areas of Concern. Each RAP must:

- Define the environmental problem, including geographic extent of the area.
- Identify beneficial uses that are impaired.
- Describe the causes of the problems and identify all known sources of pollutants.
- Identify remedial measures proposed to resolve the problems and restore beneficial uses.
- Provide a schedule for implementing and completing remedial measures.
- Identify jurisdictions and agencies responsible for implementing and regulating remedial measures.
- Describe the process for evaluating remedial program implementation and remedial measures.
- Describe monitoring activities that will be used to track effectiveness and eventual confirmation that uses have been restored so the area may be "delisted".

Toxic substances contamination is the major problem resulting in restrictions on fish consumption in 38 of the 42 in the Areas of Concern. (There is not an advisory on Clinton River fish; but species that travel between the river and Lake St. Clair have an advisory in the lake.) Restrictions on dredging activities due to toxic substances contamination are in effect in 31 Areas of Concern, including the Clinton River.

The Michigan Department of Natural Resources (MDNR) is responsible for developing the Remedial Action Plan (RAP). A Technical Advisory Committee, consisting of 15 representatives of state, local and federal governments met to assess the problems in the Clinton River. An MDNR RAP coordinator collected information and data on the river from members of the committee and other sources. The MDNR then wrote the draft RAP.

Three public meetings were held to exchange information with the public concerning the problems in the river and to review the draft RAP. A final RAP was written based on comments from that review, and was submitted to the International Joint Commission (IJC) in November 1988. The IJC will review and comment on the RAP adequacy.

RAP's represent a challenging departure from most historical pollution control efforts, where separate programs for regulation of municipal and industrial discharge, urban runoff and agricultural runoff were implemented without considering overlapping responsibilities. All programs, agencies, and communities affecting an Area of Concern must come together, recognizing their inter-relationships, to work on common goals and objectives in the RAP. This coming together and sitting around the table to resolve problems is the essence of the ecosystem approach.

Conclusions from the Clinton River RAP

Area of Concern:	The Main Branch of the Clinton River downstream of the Red Run to the mouth (17 miles) and the spillway (2 miles).
Source Areas:	The Red Run, the North and Middle Branches, the Main Branch upstream of the Red Run.

Problems:

- Contaminated sediments - heavy metals and PCB, oil and grease
- Degraded biota
- Low dissolved oxygen
- Sedimentation
- Excessive nutriants, pesticides, high fecal coliforms?

Category:

The Clinton is Category 2: "Causitive Factors are unknown; however, an investigative program is underway to identify causes". (Eventually the river may attain Category 6: "Confirmation that uses have been restored and delisting as Great Lakes Area of Concern").

Suspected Sources:

- Municipal and industrial discharges. Seven municipal wastewater treatment plants and 22 industrial sources discharge treated wastewater and cooling water into the AOC.
- Nonpoint urban runoff. Stormwater runoff in the AOC carries organic material, heavy metals and organic contaminants into the river and construction sites and bank erosion produces siltation.
- Agricultural runoff. Agricultural practices in the area surrounding the north branch of the river result in pesticides and excessive nitrogen being carried into the river.
- Contaminated sediments and groundwater. Sediments in the river are contaminated with PCB and heavy metals. Groundwater beneath municipal and industrial landfills may carry contaminants from the landfills into the river.

Characterizing the Clinton River

Historically, the initial pollution control focus was on bacterial contamination to control water-borne diseases. It has been suggested that high fecal coliforms are no longer a threat to Metropolitan Beach (unless there are other sewer breaks). But the fecal coliform counts do exceed standards and people are swimming in the river. Next the focus was on excessive nutriants because of euthrophication problems spotlighted in Lake Erie. Since the ban of phosphate detergents and upgrading of wastewater treatment plants, there has been a dramatic drop in the phosphorous levels in the Clinton River. The IJC has targeted tributaries to Saginaw Bay and Lake Erie for a phosphorous standard of 0.5 mg/l, half the general standard. Today, the major focus is on toxics. Dredging of the lower Clinton River will remove contaminated sediments for placement in a newly constructed Confined Disposal Facility. To what extent this will solve the contaminated sediments problem remains to be determined. 80% of the river flows are out the spillway, and it shows higher levels of sediment contamination. The extent of sediment contamination on upstream is not well documented. In some places dredging and resuspension of contaminated sediments may not be advisable. In others, burial of the contaminated sediments under newly deposited clean sediment may end the exposure of aquatic life. But on the lower Clinton it cannot be a matter of "let sleeping dogs lie", since there is so much boating activity and churning of the sediments by propellers.

What little fish contamination monitoring has occured has revealed traces of PCB and dioxin, but not excessive amounts. One intensive study of the river along the two Superfund sites - LDI and G&H - revealed no significant toxics in the river; but this was one snapshot in time.

Causes of the degraded biota are not unknown; there are several possibilities. Fish have returned to the river, but this depends on stocking not natural reproduction, an indication that while the river water quality is much better it is still not good.

The river flow plays a critical role in water quality. At drought flows, to which pollution control measures are aimed, only 15% is groundwater and tributary flows; 64% is from 7 municipal treatment plants, and 21% is industrial discharges largely non-contact cooling water.

The Clinton is typical of an urban river. When it's raining, because of development in watershed, there are much higher flows than for a natural watershed. When it's not raining, there are reduced base flows.

Topography also plays a critical role. The Clinton watershed divides into two halves. Roughly Oakland County is glacial morraines (hilly, sand and gravel soils, well defined stream drainage). Macomb County is glacial lake bed (flat, clay soils, poor drainage). As the river flows out of Oakland County onto the flat lands the flows slow, sediment drops out, and there is little re-aeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Most of the water supply is withdrawn from the Great Lakes and distributed through the Detroit system to then become municipal and industrial discharges to the Clinton. Seven out of 21 municipal plants which were on the river in the 1960's remain while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted during the 1972-77 window of opportunity to seek federal funding for control of combined sewer overflows(CSO), either separating old combined sewers (Pontiac and parts of Mt. Clemens) or constructing retention basins to provide primary treatment-oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Still the CSO annual loadings to the Red Run and Clinton River far exceed those of the Warren treatment plant with its tertiary treatment capacity.

Public construction projects on the Clinton total $380 million. These were financied by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. Based on an EPA report to Congress (assuming the Clinton experience reflects the national) when we include operating costs, private pollution control investments and administrative costs, $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The challenge today is to find answers to the outstanding questions about continuing sources of pollutants to the river. Once the sources are confirmed, additional actions can be recommended.

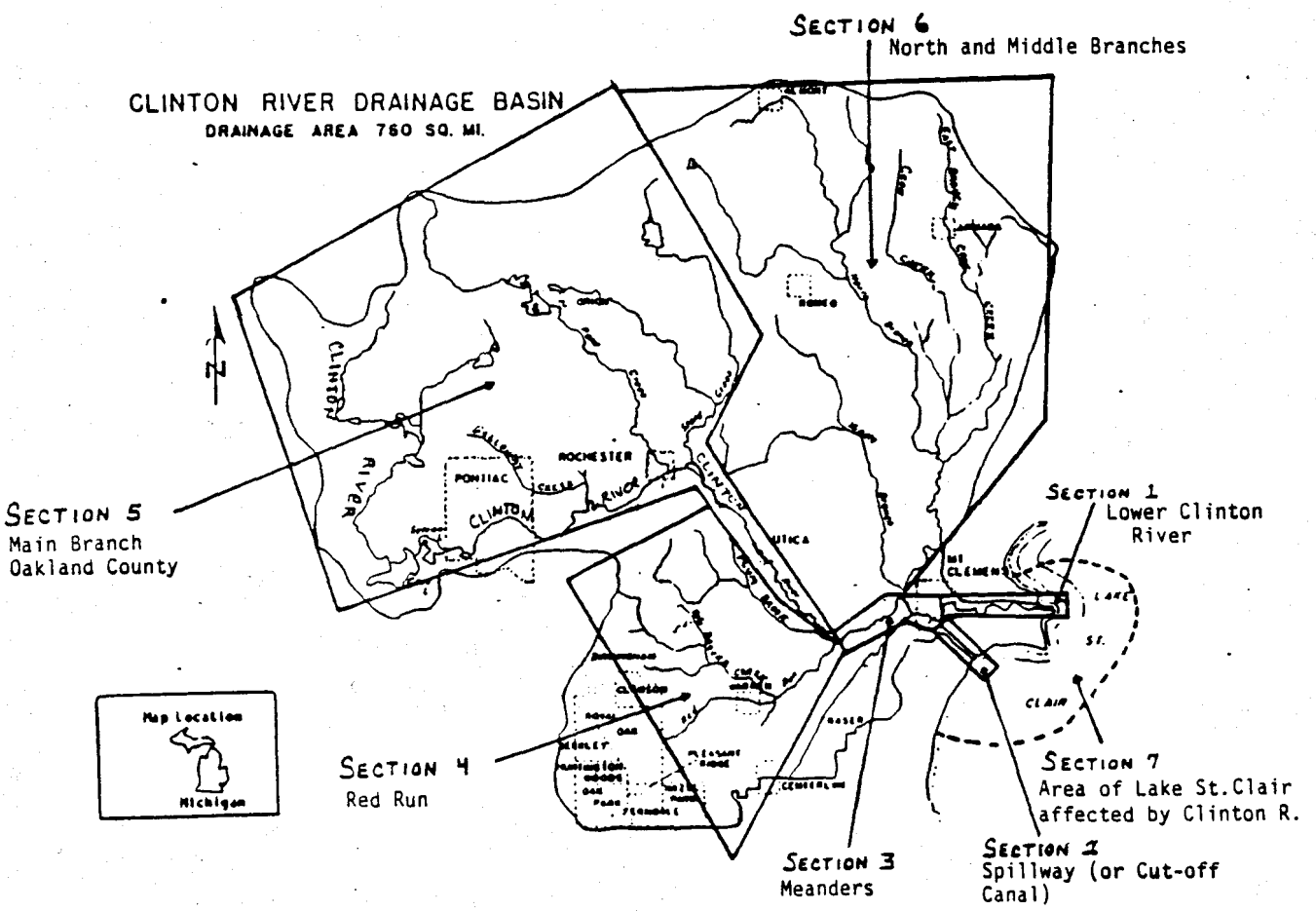
Recommended Actions

The Clinton River RAP includes 23 recommendations. Of these, 15 are for further investigations. Six are action steps, three of which are proceeding.

- Corps of Engineers dredging of the navigation channel below Mt Clemens.
- Complete upgrading of Mt. Clemens and Armada treatment plants.
- Cleanup of contaminated sites (307 and Superfund).
- Remove sediment at Shadyside Park.
- Detect and eliminate illicit connections to storm drains.
- Reduce frequency or eliminate overflows from SOCSDS combined sewers facility.

Two additional recommendations are for Nonpoint Sources management and establishment of a watershed-funded clearinghouse (institutional change).

The following two pages taken from the Clinton River Remedial Action Plan, present the recommended actions.



Clinton River Watershed, showing the six River Sections. Sections 1, 2, and 3 are the Area of Concern. Sections 4, 5, and 6 are the Source Area of Concern.

Clinton River Remedial Action Plan
Recommended Actions

Table 1.1 Impaired uses, problems, recommendations, cost estimates for proposed actions and possible funding sources, October, 1988.

Local Issues

Impaired Use	Problem	Recommendation	Cost	Funding Source
Warmwater fish	Low D. O. Degraded community	Survey to determine extent of problem	30,000	S
	Low D. O. Degraded community toxicity	Do caged fish study	47,000	S
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays	70,000	S
	Sediment toxicants Poor habitat	Support USCOE dredging	3,000,000	F
	Locally degraded community	Survey to document extent of problem	$ 65,000	S/O
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation	85,000	S/O
	Low D. O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers	$ 25,000	S/F
		Complete upgrading of Mt. Clemens and Armada WWTPs	$23,900,000	S/F/L
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF	Unknown	S/F/L
	Low D. O. Poor physical habitat Toxicants	Do smoke and dye studies for illegal hook-ups	195,000	U
	Low D. O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources	15,000,000	U

Local Issues (continued)

Impaired Use	Problem	Recommendation	Cost	Funding Source
Local fish and benthic macroinvertebrate community degradation	Low D. O. Low Flow	Determine effect of weir modification	200,000	S/L/O
	Diffuse toxicant loadings	Increase air quality monitoring	405,000	S/F
	Local toxicant loadings	Continue and expand 307 and superfund studies	9,000,000	S/F
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas	20,000	S/O
	PCB and other organics in surface water	Monitor water for organic contaminants by river section	22,000 annually	S
	PCB in aquatic environment	Expand fish contaminant monitoring	97,000	S
Sediments block river flow	Low flow Low D. O.	Define source of sediments	400,000	S/O
	Low flow Low D. O.	Remove sediments at Shadyside Park	200,000	L
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues	200,000 annually	L
Great Lakes Issues				
Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources	47,000	S
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations	20,000	S
	PCB in water	Sample water for PCB concentrations	22,000 annually	S/F

F = Federal; S = State; L = Local; O = Other; U = Uncertain

Characteristics of a Successful RAP

At a RAP workshop conducted by the IJC participants offered suggestions for successful implementation of remedial actions:

1. A RAP must be based on an ecosystem approach and overcome the fragmentation of governmental responsibilities. Through political processes, responsible federal/state/local governments, must implement policy guided by a perspective of our interrelated ecosystem which extends beyond political boundaries and ecosystem compartments. Institutional mechanisms must be set up which allow all stakeholders to come together to work on common goals and objectives, recognizing their interrelationships.

2. A multidisciplinary RAP development team is needed. Because RAP development will require expertise far beyond traditional water pollution control, a multidisciplinary team was recommended to include, but not limited to, expertise in municipal and industrial wastewater treatment, hazardous waste management, dredging and remediation of contaminated sediments, land use planning, and recreation.

3. Public participation/education are essential: The public has the most to gain and the most to lose. They must be involved from development through implementation to be able to generate and sustain the broad community support necessary to fully implement RAP's. The public has the power to keep political decision makers "feet to the fire".

4. Local ownership of RAP: For a RAP to be successful, it cannot be an IJC, U.S. Environmental Protection Agency, or a Michigan RAP. It must be a RAP owned by local residents.

5. Implementation will require a formal institutional structure: To ensure implementation of remedial actions consistent with an ecosystem approach, a formal institutional structure will be required with broad-based representation.

6. RAP maintenance will be necessary: The RAP process is being viewed as iterative, where RAPs are updated or improved based on new data or technologies. Therefore, a mechanism will have to be established for periodic RAP maintenance until all beneficial uses have been restored.

7. A long-term commitment to research is important. It was pointed out that where we have the most complete data bases and greatest understanding of Areas of Concern, we have a long history of research. Long-term commitment to research by government and universities is viewed as essential.

8. Realistically, we must build a record of success to keep momentum going on RAPs. For most Areas of Concern, people developing the RAP are: (1) identifying short-term remedial actions to build a record of success; and (2) undertaking long-term strategic planning to acquire the necessary data to be able to identify remedial actions for more complex problems (e.g. contaminated sediments).

From: "Remedial Action Plans: A Great Lakes Program Whose Time Has Come"
John H. Hartig
Environmental Scientist
International Joint Commission

Clinton River RAP #2

The Remedial Action Plan 1990

Progress in Implementing the Recommendations

The Clinton River RAP #1 provided background information on the listings of the 42 Great Lakes Areas of Concern, the Remedial Action Planning process, and the Clinton River Remedial Action Plan (RAP) forwarded by the Michigan Department of Natural Resources to the International Joint Commission in November 1988.

The Clinton River RAP presented 23 recommendations for further data collection to determine the causitive factors for the problems in the lower river and actions to remedy these problems. The one problem presented by the Clinton River from the perspective of impacting the Great Lakes is PCB's. The other problems relate to impaired uses of the Clinton River itself.

PCB's are persistent substances which bioaccumulative through the food chain to reach elevated concentrations in fish and wildlife and humans who eat the fish. Recent studies reveal troubled bird species at the top of the Great Lakes food web; defects correlate with high concentrations of PCB's in the birds although the causitive mechanisms remain to be established. A study of women accustomed to eating 2-3 meals per month of fish from Lake Michigan suggests statistically significant physical and mental impairments of their infants correlating with the levels of PCB's in the mothers.

The Clinton River Watershed Council received a grant of federal funds through the MDNR to facilitate public participation in the Clinton River RAP over the past year. The Council has been assisted in the public participation activities by a re-activated Friends of the Clinton River based in the Area of Concern. Meetings on the Clinton River RAP have also been conducted by East Michigan Environmental Action Council and the Clinton River Cleanup Committee.

In this second newsletter we will review the progress on the RAP recommendations. Each recommendation is related to an **impaired use** and a **specific problem.**

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Impaired Use	Problem	Recommendation
Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations
	PCB in water	Sample water for PCB concentrations
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas
	PCB and other organics in surface water	Monitor water for organic contaminants by river section
	PCB in aquatic environment	Expand fish contaminant monitoring

Progress

Because of the contaminated sediments in the lower river, the Clinton has been listed along with other Michigan rivers on the state's list of contaminated sites developed under the state Act 307 (1982), the Michigan Environmental Response Act. In 1988 voters authorized bonding to hasten cleanup of the sites of contamination. The DNR was able to obtain $120,000 for the following specific tasks:

1. Additional sediment and water sampling to define the distribution extent, and potential sources of PCB contamination. At least 30 samples would be collected and analyzed for PCB's. The cost for this aspect would be $20,000.

2. Sediment and ambient toxicity testing to identify the cause of impaired benthic communities. Approximately 20 samples would be collected. The cost for this aspect would be $40,000.

3. Caged fish study to evaluate PCB uptake in the Clinton River watershed and nearmouth area in Lake St. Clair. A total of 7 stations are proposed. The cost for this aspect would be $30,000.

4. Determine feasible remedial alternatives, evaluate their environmental effectiveness and develop cost estimates for each alternative. The cost for this aspect would be $30,000.

The caged fish study was completed in 1989. The sediment and water samples were completed in the summer of 1990. We are awaiting the results of the laboratory analyses and the project report.

Because detectable levels of PCB's have been found in Clinton River fish and because species of fish which migrate back and forth between the Clinton River and Lake St. Clair have previously had a fish consumption advisory in Lake St. Clair but not in the river, this year for the first time, the Michigan Department of Public Health included in its **Fish Consumption Advisory carp** from the Clinton River mouth upstream to the Yates Dam at the Macomb County/Oakland County line.

Impaired Use	Problem	Recommendations
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays
	Sediments toxicants	Support USCOE dredging
	Poor habitat	
	Locally degraded community	Survey to document extent of problem

"Benthic macroinvertebrate community" is the little critters that inhabit a stream and provide food for the fish. "Benthic" means bottom dwelling organisms that crawl upon or attach themselves to the river bottom. "Macroinvertibrates" means those that can be seen by eye; most are aquatic insects. A diversity of types indicates clean water. When there are relatively few types (or only one such as sludge worms) this indicates that only pollution - tolerant types are surviving. Since many live in the river over a year and cannot escape pollution as fish may, these little critters provide a bottom line indication of the water quality.

A degraded community can result from several factors: toxicants in the water or sediments; low dissolved oxygen sedimentation which smothers bottom life; high flows which scour the stream bottom; water temperature and food supply variations.

Progress

The Corps of Engineers (COE) has been dredging a federal navigation channel from the mouth of the Clinton River to Mt.Clemens since the mid 1800's. Since the mid-1970's it has been known that the sediments in this part of the river were contaminated with PCB's, heavy metals, oil and grease. And since then it has been required that dredging spoils be placed in a Confined Disposal Facility (CDF) and no longer placed in the waters of Lake St. Clair. Construction of a CDF on surplus lands at

Selfridge Air Base was completed last year. The dredged sediments from any project on the river, including private marina developments for example, may be disposed in this CDF (for a price).

It has been concluded that **continued Corps of Engineers dredging** will provide a way to remove the contaminated sediments from the aquatic environment to lessen the food chain uptake and contamination of fish. Dredging of the Clinton River is on the Corps schedule for 1991 (late summer). However, this is not "air tight" because of the federal budget crunch.

This may be the last time the federal government will finance dredging on the Clinton River. It has been suggested that people should start thinking about other ways to finance future river dredging.

There have been efforts to eliminate dredging in rivers used only for recreational purposes; so far the Clinton has retained its "commercial" label, but current priorities for dredging are for cargo hauling rivers.

Impaired Use	Problem	Recommendations
Warmwater fish	Low D.O. Degraded community	Survey to determine extent of problem
	Low D.O. Degraded community toxicity	Do caged fish study
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation
	Low D.O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers
		Complete upgrading of Mt. Clemens and Armada WWTP's
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF

Progress

Upgrading of the Mt. Clemens and Armada Wastewater Treatment Plants has been completed.

Point source dischargers to the Clinton River are in substantial compliance with their NPDES permits. There are

7 municipal wastewater treatment plants (Warren, Pontiac, Mt. Clemens, Rochester, Romeo, Armada, Almont) and 27 industrial discharges (primarily non-contact cooling water and stormwater).

Municipal treatment plants are expected to regulate and monitor any industrial discharges to the municipal sewers. This is to control discharges of toxic substances to the sewers which might cause **upsets** of the treatment processes, **pass-through** of the toxics to the river, high concentrations, of toxic heavy metals in the **sludge**, or **damage** to the sewer pipes.

Some concern remains regarding effectiveness of the Industrial Pretreatment Programs. The DNR approves the Municipal Industrial Pretreatment Program and conducts periodic audits or pretreatment compliance inspections. Pass-through of PCB's is a concern.

Based on the Upper Great Lakes Connecting Channels Study of municipal dischargers to Lake St. Clair, of greatest concern were the Wallaceburg WWTP, the Mt. Clemens WWTP and the Warren WWTP. Trace organics, heavy metals, phenols, ammonia and phosphorus were the notable pollutants contributed by these plants. All three received industrial wastewaters as a significant portion of their influent.

Amendments to the federal Clean Water Act in 1987 initiated new programs for control of toxics. States were required to submit a list of Toxic Impaired Waterways and Facilities that cause impairment under Section 304 (1). The Clinton River and Mt. Clemens WWTP (metals) are on the Michigan short list of 17 waterbodies where there are point sources and emphasis on pretreatment or some other individual control strategy is needed beyond the treatment plant technology improvements. The medium list for Michigan has 63 waterbodies affected by point and nonpoint toxic sources, including 30 miles of the Clinton River from Yates Dam to the mouth (PCB's - unknown sources). The Michigan long list has 258 waterbodies where water quality standards violations occur due to non-toxic as well as toxic pollutants. This list adds all stretches of the river where there are municipal treatment plants, (The Main Branch Pontiac to Yates, the North Branch, and Coon Creek, East Branch). The DNR expects to achieve control of toxics through the NPDES permits, using the state water quality standards (Rule 57 for toxics), chemical-specific permit limits, and new requirements for whole effluent toxicity testing.

Section 313 of the 1986 Community Right-to-Know Act (also known as Title III of the Superfund Amendments) requires annual reports of toxic releases to the environment (air, land, water) from industries with 10 or more employees and meeting threshold requirements for amounts of toxic chemicals used. The first toxic inventory report was released

in 1989 based on 1987 emissions data. Michigan ranked #16 among the states. 1% of the reported emissions were to water, 8% to land, and 91% to air.

Point sources are estimated to contribute 17% of the pollutants to the Clinton River; 83% are from nonpoint sources. The contribution from sites of contaminated groundwater is unknown.

The Clinton is an effluent dominated river at draught flows with 15% of the flow from natural sources (tributaries and groundwater), 64% from municipal treatment plants, and 21% industrial discharges, mostly non-contact cooling water.

The South Oakland County Sewage Disposal System (SOCSDS) is a **combined sewer** system in which both sanitary sewage and stormwater are conveyed in a single pipe. Recently developed communities are based on separate sewers for sanitary wastes and stormwater. During significant rainfall the capacity of the combined sewer is exceeded and there are overflows of raw sewage to the stream. In the early days of urban developments it was believed that the stormwater would adequately dilute the sewage to avoid harm: "the solution to pollution was dilution". Overflows from south Oakland County to the Red Run occured virtually every time it rained, perhaps 150 times a year, resulting in badly degraded water quality in the lower Clinton River. The Michigan Water Resources Commission ordered abatement and federal funds were obtained in the early 1970's to construct a pollution control facility (PCF). This is a two-mile long underground retention basin. For all but the heaviest of rainfalls the sewer overflows are captured in the basin and then pumped back into the sanitary sewers when there is again available capacity. The sewer conveys the flows to Detroit for treatment. The number of overflows to the Red Run is now averaging 11 per year during 15 days. A **primary** level of treatment has been provided when there is an overflow: heavy materials are settled out on the basin bottom, oil and grease are skimmed from the top, and the discharge is disinfected with chlorine.

In 1986-87, the Michigan Water Resources Commission (WRC) developed a state strategy to control combined sewer overflows (CSO's). It involves a <u>two-phase approach</u>: (1) An Interim CSO Control Program that requires optimum operation and maintenance of the collection system to minimize CSO's; and (2) A Final CSO Control Program which will result in the elimination or adequate treatment of combined sewage discharges contining raw sewage and compliance with the Water Quality Standards. The strategy is implemented by specific language incorporated into NPDES permits.

Some Michigan cities are proceeding to plan for CSO control subject to the DNR requirements and schedules, but the City of Detroit and suburban communities on the Detroit sewer system are challenging in court the 30 minute detention time which the DNR has specified for "adequate treatment". The longer the holding period, the larger the volume of water and size/costs of a detention basin.

At the April 26, 1990 meeting of the WRC, the Deputy Oakland County Drain Commissioner appealed to the Commission to amend the Clinton River RAP recommendation for further CSO control at the SOCSDS. He noted that this facility was designed so that the annual loading of pollutants to the Red Run/Clinton River would be comparable to that of a separated storm drain system. He suggested that the RAP comparison of the annual loadings of the SOCSDS/PCF to those of the Warren WWTP also discharging to the Red Run failed to take into account the loadings from the separated storm sewers. The south Oakland communities are still paying for the bonded indebtedness for construction of this facility and the annual operating costs exceed $6 million. WRC review of this facility will occur when its NPDES permit is up for renewal.

In 1988, a Michigan notification and health advisory process was instituted to give public warning when there has been a discharge of untreated sewage. County Health Department officials decide when a release warrants publicizing an advisory.

The federal Clean Water Act embodies a two-pronged approach to controlling discharges. One prong is the technology-based limits on discharges imposed on all facilities. For heavily polluted waterbodies where these basic limits will not result in meeting the water quality standards more stringent permit limits are to be developed. For the more heavily polluted waters states are to develop Total Maximum Daily Loads (TMDLs) - that amount of a pollutant that the waterbody can receive without violating water quality standards. The TMDL is to be implemented by a **wasteload allocation** which apportions the loading among all sources affecting that waterbody, point and nonpoint. The recent requirement for states to compile the 304 (l) lists establishes a means of tracking progress towards meeting water quality standards for both toxics and conventional pollutants.

Since 1984, the Michigan DNR has intended to establish a basin-by-basin approach to issuing the state's NPDES permits on a 5-year cycle. This would facilitate considering all the dischargers to the river at the same time, developing wasteload allocations, and encouraging public participation in permit reviews. However, other priorities (such as catching up with the back log of major permits reissuance) have continued to preoccupy DNR staff time and frustrate implementing the basin approach.

Impaired Use	Problem	Recommendations
(continued)	Low D.O.	Do smoke and dye studies for illegal hook-ups
	Poor physical habitat	
	Toxicants	

Progress

The presence of chemical and human wastes in storm drains is generally a problem, particularly in older urban areas. These result from illicit tap-ins of sewage which should go to sanitary sewers or floor drains from businesses. In Washtenaw County on the Huron River and Wayne County on the Rouge River pollution abatement projects have been undertaken focused on finding and eliminating these illegal tap-ins. The preponderance of the improper waste discharges to the urban stormwater systems has been motor vehicle service facilities.

Oil and grease is one of the contaminants in the Clinton River Area of Concern. Visual observations and reports of spills confirm that oil is a major problem for the lower Clinton River. To date there has been no project to identify the potential sources. EPA is expected to promulgate new permit requirements for urban storm drains in the fall of 1990. A first step in municipal programs to control the quality of stormwater discharges will be elimination of the unknown illegal point source tap-ins. In the case of large facilities, the Michigan Water Resources Commission has been increasingly imposing NDPES permits on storm drains for immediate control.

In Mt. Clemens, 13 storm drains ranging in size from 12" to 54" discharge into the Clinton River. Impact of these drains has not been documented. Seven of these drains have been ranked by MDNR as "high priority" for investigation.

In 1990, a new law was enacted which makes it a misdemeaner to improperly dispose of used motor oil by dumping on the ground or into storm drains. This is stimulating new efforts towards establishment of municipal disposal facilities conveniently located for residents use. Heretofore voluntary efforts of environmental groups and service stations have encourage do-it-yourself oil changers to seek proper disposal. In 1990, Michigan also enacted new legislation to help prevent oil spills and provide for more effective cleanup response in case of spills.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources

Progress

Reauthorization of the federal Clean Water Act in 1987 introducted a new emphasis on control of **nonpoint sources** (NPS) of pollution. With successful control of point sources (discharges through a specific pipe, from an industry or municipal wastewater treatment plant), the water quality in many rivers including the Clinton is now dominated by pollutants from diffuse sources, washed off by rain water. These "nonpoint" sources include agricultural lands, urban stormwater, construction sites erosion, septics, roadways, etc.. Last year Michigan produced a Nonpoint Pollution Assessment Report and Nonpoint Source Pollution Control Management Plan to be elligible for federal NPS funds. For the first time this year, grants are available for watershed-based projects to plan and implement best management practices (BMP's). Emphasis is on coordination efforts of all agencies and land owners. After approval of a plan, cost-sharing is available for implementation of selected BMP's. A proposal to use funds from the Department of Agriculture focused on agricultural practices to control NPS was submitted in 1990 by the Macomb County Agricultural Stablization and Conservation Service and Soil Conservation Service assisted by CRWC. The North Branch of the Clinton River above 32 Mile Road is the targeted area. A grant was not awarded in 1990, but an application can be again submitted in 1991. EPA funds are also available to local governments for nonpoint source control projects.

CRWC submitted a grant application on behalf of Oakland Township for the Paint Creek Watershed, with work to be initially focused on Gallagher Creek, (a high quality tributary of Paint Creek with brook trout and initial development proposals). Here the objective is to identify and implement BMP's for an urbanizing watershed. A grant was awarded with a project start in October 1990.

Another request for proposals for nonpoint source control grants is expected in the spring of 1991 for FY92 funding. Program emphasis is on watershed-based NPS controls, with planning grants up to $50,000 and implementation grants up to $100,000 per year (10% and 20% minimum local matches are required). Elligible local lead agencies for the NPS grants include county governments, cities, townships, villages, soil conservation districts, regional planning commissions, Lake Boards, and water management districts. FY90 funding for the NPS grants was $1.1 million. The FY91 funding is not yet determined; a number of state research, technical assistance, public information projects are currently being considered.

NPS controls include practices to avoid contamination of **groundwater** as well as surface water. The Kellogg Foundation is funding a number of Groundwater Education in Michigan (GEM) projects, including a three-year grant to the CRWC to work with local governments to establish groundwater protection programs and explore opportunities for intergovernmental coordination between the local/county/state levels. The CRWC work-to-date has focused on plugging the pathways from businesses through which there is potential for release of hazardous and polluting substances: floor drains, improper disposal in septics, secondary containment for above ground and storage areas. A Michigan Groundwater Protection Strategy and Implementation plan (November 1989) incorporates a number of new initiatives including developing the groundwater component of the NPS program, developing an agricultural chemical management program, assisting local government wellhead protection, implementing the underground storage tank program. East Michigan Environmental Action Council is also working with a GEM grant focusing on citizens as leaders in community change for protecting groundwater. East Michigan University has a grant to serve as a southeast Michigan regional center for assistance in groundwater protection. Macomb County Health Department and Oakland County Cooperative Extension Service are assisting in disposal of nousenold hazardous wastes.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Low Flow	Determine effect of weir modification

Progress

The spillway or cut-off canal was constructed in the early 1950's to relieve the lower Clinton River of flooding. A fixed level weir (dam) was built at the spillway head so that normal flows would continue down the natural channel and high flood flows would over-top the weir into the spillway. However, with a rise in the Great Lakes level the weir has been submerged; this together with the sediment accumulation on the upstream side of the weir providing a ramp has meant that in recent years 80% of the river flows have gone down the spillway. This has been compounded by the deposition of sediment where the river bends and the water slows at the head of the natural channel by Shadyside Park (See recommendation for dredging below). Water quality in the natural channel between the spill-way and river mouth has been poor. Low volumes and low velocities down the natural channel are thought to con-tribute to increased shoaling and low dissolved oxygen in this reach. Indeed, there are times when the river flows are reversed. The drought flows have been established as zero; this impacts the Mt. Clemens WWTP permit limits and costs. The extensive boating interests on the lower river also are concerned about maintaining flow down the natural channel.

Congressman Bonior has obtained $225,000 federal funding for the Corps of Engineers to complete two studies; to determine the benefits of replacing the weir and to research construction designs. An "adjustable" weir would allow setting the height to distribute the river flows appropriately between the natural channel and the spillway.

Impaired Use	Problems	Recommendations
(continued)	Diffuse Toxicants loadings	Increase air quality monitoring

Progress

A 1988 report "Sweet Water, Bitter Rain: **Toxic Air Pollution in the Great Lakes Basin**" concludes that 10 of the 11 IJC identified "critical" pollutants of the Great Lakes find their way to the lakes by way of the atmosphere. The air may be accountable for up to 90% of PCB's entering most of the Great Lakes.

There are current efforts at the federal and state levels to further regulate air toxics. Reauthorization of the federal Clean Air Act is before Congress this year. In 1987, the Michigan Air Pollution Control Commission began a lengthy process to develop an air toxics control strategy and rules to regulate both new and existing sources of toxic air emissions. Proposed rules were approved by the Commission in September and are before the Legislature's Joint Committee on Administrative Rules for further consideration before possible final approval.

Airborne deposition of **mercury** into Michigan's **inland lakes** has been recently documented, leading to a fish consumption advisory.

Mt. Clemens was one of seven stations across Michigan where the DNR collected data on **acid rain** from 1981-1985. The average acidity of rainfall over the year at Mt. Clemens ranged from 20 to 50 times the acidity of unpolluted rain, as high as any place in the state. 32x(1981), 20x(1982), 20x(1983), 50x(1984), 40x(1985).

Sources of airborne pollutants to the Clinton River or the Great Lakes range widely, indeed world-wide.

For the past couple of years, a consultant under contract to the United States Environmental Protection Agency has been involved in conducting a **study of air pollution in the Michigan/Ontario transboundary area.** The consultant has been working on estimating emissions of air pollutants: primarily in the Detroit-Windsor and Port Huron-Sarnia areas. Using these emission

estimates, the consultant is conducting dispersion modeling to estimate concentrations of pollutants. Those concentration estimates will then be used to estimate risk from air pollution in the trans-boundary area. Once this report is available we can see whether the information allows conclusions about the water impacts in the Areas of Concern.

Impaired Use	Problem	Recommendation
(continued)	Local toxicant loadings	Continue and expand 307 and superfund studies

Progress

The Michigan Environmental Response Act, (P.A. 307,1982) requires the annual listing of sites of contamination. This "307 priority list" provides the basis for allocation of cleanup funds each year. In 1988, Michigan voters approved the Quality of Life Bond Proposal which allocates $425 million additional funds to hasten cleanup of contaminated sites. Federal funds are also available through the "superfund" program for cleanup of Michigan sites that are on the National Priority List. Private funding from Responsible Parties is either used immediately for privately undertaken cleanups, obtained through agreements following site investigations and a decision on the appropriate cleanup action, or recovered through litigation following a public undertaking of the cleanup. Enactment of a "Polluters Pay" bill in Michigan will provide additional enforcement powers to hasten cleanups.

The FY91 307 list (February 1990) includes 77 listed sites in Macomb County and 119 sites in Oakland County. Of these 144 are in the Clinton River Watershed. There are four NPL "superfund" sites in the watershed. This past year there were 97 new sites listed in Macomb and Oakland almost entirely leaking underground storage tanks at retail gas stations or facilitites operating fleets of vehicles eg. (businesses, municipal DPW's, schools).

In the worst cases, years of investigations may be required before cleanup can be agreed to and proceed. Hence, in the early years of the federal and state cleanup programs few listed sites have actually been cleaned up, but remain in various stages of investigations. As the program matures there will be an acceleration of actual cleanups. In cases where the contamination has reached the groundwater, many years of groundwater purging may be involved.

To date, there has not been documented any impact of contaminated groundwater on the Clinton River. But the only effort to examine this question was a 1984 study of the river stretch between the LDI and G&H superfund sites. The recommended remedial actions at both these sites include groundwater purging to reduce the concentrations of groundwater contaminants so there will not be unacceptable releases to the river.

Impaired Use	Problem	Recommendation
Sediments block river flow	Low flow Low D.O.	Define sources of sediments

Progress

Sediment deposits occur throughout the river system but especially in Macomb County where there is the glacial lakebed plain. As the land flattens, the water flow slows down and suspended sediments settle out. By volume, sediment is the major nonpoint pollutant.

Sources of sediment include natural erosion, erosion from construction sites and farmlands, scouring of the stream banks, especially in a watershed where urban development has increased the runoff flows. Soil type and runoff velocity are major factors in erosion. Velocity of runoff is related to the slope of the ground. Sand will usually erode first, clay particles being more cohesive. But the finer clay particles will stay suspended in the water longer.

Erosion (detachment of soil particles) is the **first** step of the sedimentation process. Following steps are **transport** (movement in water), **deposition,** and **resuspension.**

Suspended Sediment in a stream clogs the gills of fish, covers spawning areas so there is not fish reproduction, reduces sunlight available to aquatic plants. Deposited sediments can accumulate in ditches, culverts, and shoals which impede river flows and boating. It has been estimated that 1¢ invested in erosion control would accomplish $1 of effort in maintenance of drainage systems and dredging of river channels.

Given the repeated public expenditures for dredging the lower Clinton River, maintenance of the spillway and Red Run Drain, dredging at Shadyside Park, a study to define sources of sediments and identify appropriate control measures is a priority. Control measures might include better enforcement of the Michigan Soil Erosion and Sedimentation Control Act on construction sites; promotion and installation of BMP's for erosion control on agricultural lands, river maintenance work to stabilize stream banks, design of development site stormwater facilities and municipal stormwater management programs to prevent erosion at the source (eg. management of vegetative cover) or capture sediment close to the source (eg. sediment basins, traps).

In 1990, faculty of the Wayne State University Department of Geology submitted a research proposal for the Michigan Great Lakes Protection Fund for a two-year geochemical study. Because the sources, fate, and environmental impact of sediment bound metals have yet to be determined, this study would (1) document the basic physical, chemical and mineralogical properties of the river sediments which would help identify sources; (2) document specific forms of heavy metals present; (3) test the hypothesis that heavy metal concentrations are greater downstream than upstream of urban areas; (4) test the hypothesis that the Clinton River is impacting Lake St. Clair with sediment bound heavy metals.

In December of 1988, a report on the "Upper Great Lakes Connecting Channels Study" was published. This report is based on extensive data collection in 1985-86. This study found that heavy metals and phosphorus in sediment discharges from the Clinton River to Lake St. Clair were of concern as well as PCB's. This contradicts the Clinton River RAP statement that the only substance of concern to the Great Lakes from the Clinton River is PCB's.

Impaired Use	Problem	Recommendation
(continued)	Low flow Low D.O.	Remove sediments at Shadyside Park

Progress

During 1990, the Clinton River Inter-County Drainage Board (ICDB) reached agreement on a new apportionment of costs and drainage district tax levy to finance continued operation and maintenance of the Clinton River Spillway. This drainage district was established following a large flood on the Clinton in 1947. The drainage district was the entire Clinton River Watershed. The Board then served as the local sponsoring agency for the Corps of Engineers construction of the Spillway in the early 1950's. Since the original apportionment of costs among the local/county/state governments was established in 1950 significant land use changes have occured which affect the determination of benefits from flood relief and contributions of flow to the river. The initial levy financed construction costs and maintenance costs until several years ago.

The 1990 levy will finance 10 years of maintenance work including removal of the accumulated sediments at the spillway weir. Laboratory analysis for the ICDB found the sediments to be not so contaminated as to require disposal in the Confined Disposal Facility. This means considerable cost savings for the dredging. This area has been dredged twice before following ten-year intervals of sediment accumulation.

Impaired Use	Problem	Recommendation
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues

Progress

In 1987, a Michigan Great Lakes and Water Resources Planning Commission presented "Water Resources for the Future: Michigan's Action Plan". This plan recognized the fragmented governmental scheme with water management responsiblities distributed among a myriad of agencies at the federal, state, regional, county, local levels and in the private sector. The plan also recognized that water flows freely from one political jurisdiction into another, so that water problems can result in one locality from actions in another, demanding solutions involving many jurisdictions in the watershed.

The plan called for water management organized on the basis of the state's major watersheds or river basins. Many of the issues now coming to the forefront especially require a watershed approach - control of nonpoint sources, stormwater management, combined sewer overflows, groundwater protection, waste load allocations, water-based recreation. Some "lead organization" is needed to actively facilitate coordination among the many agencies operating in a river basin, view comprehensively theinteractions among programs, and undertake information and education efforts to build the necessary understanding and political will for improved river management. Specifically, it was suggested that Michigan's enabling laws for a river basin "organization" be reviewed and possibly revised.

The Michigan Clean Water Strategy adopted in 1989 further focused on watershed management with the recommendation that "existing legislation should be amended or new legislation passed to strengthen the authority of watershed organizations". Beginning in January of this year, the Office of Water Resources convened an implementation team to draft appropriate enabling legislation. It is expected that draft legislation will be ready for introduction early in the 1991-92 session of the legislature.

Global Great Lakes Progress

"Think globally...act locally"

The Great Lakes Water Quality Agreement between the United States and Canada is based on two guiding principles which are revolutionary solutions to water quality problems:

- the ecosystem approach
- virtual elimination and zero discharge of persistent toxic substances

The **ecosystem** is defined as "the interacting components of air, land, water and living organisms including humans within the drainage basin". Political boundaries are meaningless in this approach.

Very small quantities of **persistent toxic substances** can have significant adverse effects. In quantities so low that they cannot be measured in the water, they are stored in the fatty tissue of fish and can **bioconcentrate** to levels one million times higher than in the water. When wildlife or humans eat the fish the toxic substances can further **biomagnify** up the food chain.

Thus, discharge permits which impose nondetectable limits on toxics and which are based on avoiding harmful concentrations at the point of discharge do not adequately control the toxic effects in the Great Lakes. The need to avoid all contamination from persistent toxic substances is especially critical in the Great Lakes because of the long period of time water stays in the lakes before being flushed out.

An IJC Committee which reviewed the Clinton River RAP observed "the RAP cites most of the ecosystem components, but does not tie them together in a comprehensive manner". Overcoming the disjointed approach remains as a challange for all interested in advancing the Clinton River Remedial Action Planning and concerned for the Clinton River ecosystem health.

A number of citizen organizations around the Great Lakes are forming a Zero Discharge Alliance to work towards ending the use, production, and, thus, the disposal of persistent and bio-accumulative toxic substances.

The International Joint Commission is beginning public discussion on turning "zero discharge" from rhetoric to reality.

This year, Governor Blanchard issued an Executive Order directing all state government agencies to manage water pollution control programs with the goal of virtual elimination of persistent toxic pollutants. The order

requires the DNR to administer the discharge permit program so that all permits for sources in a watershed are reviewed together. The order also calls for establishment of air toxic rules to reduce loadings to the Great Lakes. And it requires each state agency to conduct programs so as to accomplish Michigan's responsibilities in implementing Remedial Aciton Plans.

The Congress is considering a Great Lakes Critical Programs Act which codifies features of the Great Lakes Water Quality Agreement with Canada, set deadlines for Remedial Action Plans, and increases funds for the EPA Great Lakes Program.

Summary

The Clinton River Remedial Action Plan(1988) includes 23 recommendations. Of these, six are for specified actions and 14 call for investigations to provide information for further decision-making.

Six specified actions:	**Status**
• Upgrading of Mt Clemens and Armada WWTP's	Completed
• Sediments removal at Shadyside Park (spillway)	Completed
• 307 contaminated sites and superfund actions	Expanded
• Dredging by Corps of Engineers	Authorized for 1991, hopefully funded
• Storm drains investigations for illegal hook-ups	No action
• Reduce combined sewer overflows to Red Run	To be reviewed with NPDES permit re-issuance

Fourteen Investigations:	
• Four PCB's sampling efforts	Funded and undertaken by MDNR
• Analysis of spillway weir effects and design of an adjustable weir	Congress has authorized and funded COE work
• Nine other Clinton River studies	Yet to be initiated

Includes fish community study, fish contamination study, sediment bioassays for toxicity, macroinvertibrates survey, sediments investigation (sources/transport/loading), dissolved oxygen analyses (low flow caged fish study, 24-hour water chemistry sampling, waste load allocation), organic contaminants analyses.

Three Programs:	
• Nonpoint sources and erosion control	Underway
• Air quality monitoring	Underway
• Watershed funded clearing-house	Legislation being drafted

Clinton River RAP #3

The Remedial Action Plan 1993

The Clinton River RAP #1 newsletter provided a brief history of the Areas of Concern and the Remedial Action Plan programs, as well as a summary of the 1988 RAP. The Clinton River RAP #2 detailed progress that had been made in implementing the recommendations of the RAP. In this edition of the Clinton River RAP newsletter, the current status of the 14 beneficial use impairments will be presented, along with the new look and focus of the PAC, and a look at upcoming work on the RAP.

While RAP in our jargon stands for Remedial Action Plan, it can also stand for our ultimate goal: **Restore And Protect.**

What are RAPs and where do they come from?

This brief description of the RAP program should help de-mystify some of the commonly used jargon, and describe the AOC and RAP participants. Acronyms tend to abound in governmental activities and programs. Newcomers or outsiders to these processes can quickly become awash in an incomprehensible sea of alphabet soup.

The International Joint Commission (**IJC**) was established by the Boundary Waters Treaty of 1909, which specified the rights and obligations of the United States and Canada in regards to the lakes and rivers on their common boarder. The U.S. and Canada have designated 43 of the most heavily polluted areas in the Great Lakes basin as Areas of Concern (**AOC**s). The Clinton River is one of the 43 designated AOCs. Under terms of the 1978 Great Lakes Water Quality Agreement (**GLWQA**), as amended in 1987, each of these AOCs must have a Remedial Action Plan (**RAP**) prepared and implemented. A RAP is essentially a site-specific plan to restore and protect beneficial uses in the AOC (the GLWQA lists 14 potential impairments to beneficial uses).

The U.S. Environmental Protection

(Continued on page 2)

Clinton River PAC reorganized

The Clinton River Public Advisory Committee (PAC) was reorganized recently to begin the next phase of work on the RAP. There are now 27 PAC members representing 15 broad interest groups *(see the accompanying table on page 3 for details)*. Representatives are appointed to the PAC by the director of the Michigan Department of Natural Resources. Each member is responsible for ensuring that the views of their interest group are represented in the RAP process. Relaying information among the RAP participants, their interest group, and the general public is a second responsibility of each member.

The reorganization was made to ensure input from as many user groups in the watershed as possible while maintaining a small core group to make discussions and action easier. The PAC has been charged by the MDNR to provide local input to all facets of development and implementation of the RAP, and to take the lead in RAP-related public education and information.

Two subcommittees have been formed under the PAC. One will develop goals and a mission statement for the PAC. The second will work with public

(Continued on page 3)

DNR

Michigan Department of Natural Resources
Surface Water Quality Division

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What is a RAP

(Continued from page 1)

Agency (**EPA**) has designated the Michigan Department of Natural Resources (**MDNR** or **DNR**) as the lead agency for the Clinton River RAP and all other Michigan RAPs. The Surface Water Quality Division (**SWQD**) of the MDNR has accepted responsibility for overseeing the RAP process.

RAP participants include a Public Advisory Committee (**PAC**), which is made up of members of the general public, local governments, and local interest groups, and a **RAP Team** (a panel of federal and state experts, and the PAC officers). The article "PAC Reorganized" beginning on page one contains further details on the PAC, its makeup, and its charge.

The Michigan Statewide Public Advisory Council (**SPAC**) was established to provide the MDNR with a broad public perspective, and as a forum for discussion of AOC program, policies, priorities, public involvement activities, and technical issues relevant to the 14 AOCs. Each of the 14 Michigan AOCs is represented on the SPAC.

Clinton River facts

*The Clinton River Drainage Basin includes about 760 square miles, and portions of four Michigan counties.

*The Clinton River flows approximately 80 miles from its head waters northwest of Pontiac to its mouth at Lake St. Clair near Mt. Clemens.

*The Clinton River flows through 26 townships, 25 cities and 9 villages.

A new look for RAPs?

An annual citizens' conference on Great Lakes AOCs has been held for the past three years. The 1993 Citizens' Conference, sponsored jointly by the SPAC and the MDNR, focused on means to improve the efficiency and effectiveness of the RAP process. Discussions between the SPAC and the MDNR since the conference have lead to the formulation of several specific proposals along these lines. The RAP process has been criticized, focusing on documentation rather than action. Changes proposed by the MDNR and the SPAC will focus on actions and achieving short term goals rather than on a rigid format for a lengthy and complex document.

Regardless of form or format, the goal of the next Clinton River RAP remains the restoration and protection of beneficial uses in the Area of Concern.

Corps completes dredging

The U.S.Army Corps of Engineers has completed dredging of the federal navigation channel in the lower Clinton River. The navigation channel extends from Lake St. Clair upstream about eight river miles to the city of Mt. Clemens. Approximately 99,000 cubic yards of material were removed from this stretch of the river and placed in the Confined Disposal Facility (CDF) near Moores Bend. Placement in the CDF is required due to the contaminant level of the sediments (heavy metals, PCBs, and oil and grease are the parameters of concern). Restrictions on dredging activities is one of the 14 potential impairments to beneficial uses that RAPs must address. For more details see "Beneficial uses" (page 7).

PAC reorganized

(Continued from page 1)

involvement and education issues and programs. Additional subcommittees on financing and institutional frameworks have been discussed as future needs.

A RAP Team has also been formed to facilitate work on the next phase of the RAP. The RAP Team is composed primarily of state and federal experts who will ultimately review the RAP for technical merit and ensure that the recommendations of the RAP are consistent with state and federal programs and policies. The RAP Team will supply the PAC with technical information and serve as a conduit to the state and federal data bases, reports, and pertinent publications.

The actual RAP document will be written by work groups formed jointly by the PAC and the RAP Team. The work groups will have members from both the PAC and the RAP Team, as well as outside experts and interested members of the general public. This process will ensure the maximum opportunity for public input. The number of drafts or revisions of the RAP should be minimal since all groups are involved from the start, and major changes late in the development of the RAP will, therefore, be avoided.

Three work groups have been formed: Point Source-Nonpoint Source, Contaminated Sediments, and Habitat (Loss or Degradation). Each of the work group topics represents a factor that is the cause of

(Continued on page 4)

	USER GROUP	No. Members New PAC	Former PAC
1.	**Citizens at Large:**	**5**	**7**
2.	**Environmental Groups:**	**2**	**5**
3.	**Recreational Groups:**	**1**	**2**
4.	**Sportsperson Groups:**	**1**	
5.	**Labor Groups:**	**2**	
6.	**Business:**	**2**	**4 (Business & Tourism)**
7.	**Industry**	**2**	
8.	**Agriculture:**	**1**	**2**
9.	**Waste Water Treatment:**	**1**	
10.	**Drain Commissioners:**	**2**	
11.	**Planning/Zoning:**	**1**	
12.	**Governmental:**	**4**	**8**
13.	**Public Health:**	**1**	**2**
14.	**Education (K-12):**	**1**	**2 (Combined)**
15.	**Education (Higher):**	**1**	
			1 Communications Officer
	TOTALS	**27**	**33**

PAC reorganized

(Continued from page 3)

impairment of one or more of the beneficial uses of the Clinton River. The opportunity remains to create new work group topics, or to subdivide current topics into separate work groups if needed.

Participation in the work groups is unlimited. Interest is the only requirement, and all who are interested are invited to become involved in the RAP process through the work groups. A thorough understanding of the issues or a technical background, while helpful, is not required. Many of those already involved are not formally trained. We will all be learning as we go. Background information on the work group topics will be provided through short papers and presentations at upcoming PAC meetings. These meetings are open to the public. Anyone interested in serving on a work group is encouraged to attend these PAC meetings.

For more information on the RAP process or to volunteer for a work group contact:

Robert Sweet
MDNR Surface Water Quality Div.
P.O. Box 30273
Lansing, MI 48909
(517) 335-4182

Bill Smith (PAC Chairperson)
49 Breitmeyer
Mt. Clemens, MI 48043
(313) 468-4028

You may also use the reply page at the back of the newsletter to request information or to become involved in the RAP process.

Exotics-vs-Natives...the battle for habitat

A recent article in the Journal of Great Lakes Research[1] chronicled the introduction of exotic or foreign aquatic organisms to the Great Lakes basin. The authors point out that of the 139 species established in the basin since the early 1800s, shipping activities and unintentional releases account for over half of the introductions. Almost one-third of the species introductions have occurred within the past 30 years, and nearly 10 percent of all introduced species have caused substantial ecological or economic impacts to the resources of the Great Lakes.

As a tributary of the Great Lakes, the Clinton River is not immune from the impact of these invaders. The Clinton contains many well-known (the common carp and chinook salmon) or highly visible (purple loosestrife) exotic species, as well as several that are inconspicuous. Introduced species compete with native species for food and habitat, or prey directly on the native species. Lacking natural controls such as diseases and predators, the introduced species can quickly multiply and overwhelm an ecosystem.

Zebra mussels are one of the newly introduced species in the Great Lakes, arriving most likely in the ballast water of a trans-Atlantic ship. Bill Smith, president of both the Friends of the Clinton River and the PAC, recently reported to the Statewide Public Advisory Council (SPAC) that zebra mussels have been found eight and a half miles upstream of the natural mouth of the

(Continued on page 5)

[1]Mills, E.L., J.H. Leach, J.T. Carlton, and C.L. Secor. 1993. Exotic species in the Great Lakes: A history of biotic crises and anthropogenic introductions. Journal of Great Lakes Research 19(1):1-54.

Exotic Species...

(Continued from page 4)

Clinton. The Oakland Press has reported that zebra mussel larvae have been found in one of the head water lakes of the Clinton River. This is especially alarming because the Clinton is also home to several species of fresh water clams, or mussels, that are rare or endangered. Zebra mussels have been implicated in the reduction of native mussel populations in the Detroit River. Some experts are predicting the elimination of all native mussel species in the Detroit River within the next year. Zebra mussels are also suspected of causing the drastic reduction in young walleyes in Lake St. Clair. Zebra mussels will quickly become a nuisance in the downriver area by fouling surfaces and clogging water intakes.

Boaters may unintentionally spread zebra mussels from the Great Lakes to inland or upriver areas. The larvae, or veligers, can be transported in bilges, live wells, or any trapped water. Adults may be attached to aquatic plants which often hang on trailers during launching and loading. This may also spread Eurasian milfoil, an exotic nuisance plant that is spreading quickly. Boaters can help slow the spread of zebra mussels and milfoil through precautions such as draining and disinfecting boats and trailers when moving between waterbodies, and by using extra care when transporting bait fish from one waterbody to another. Contact your Michigan Sea Grant Extension Agent for more information on what you can do to help. In the Clinton River area contact:

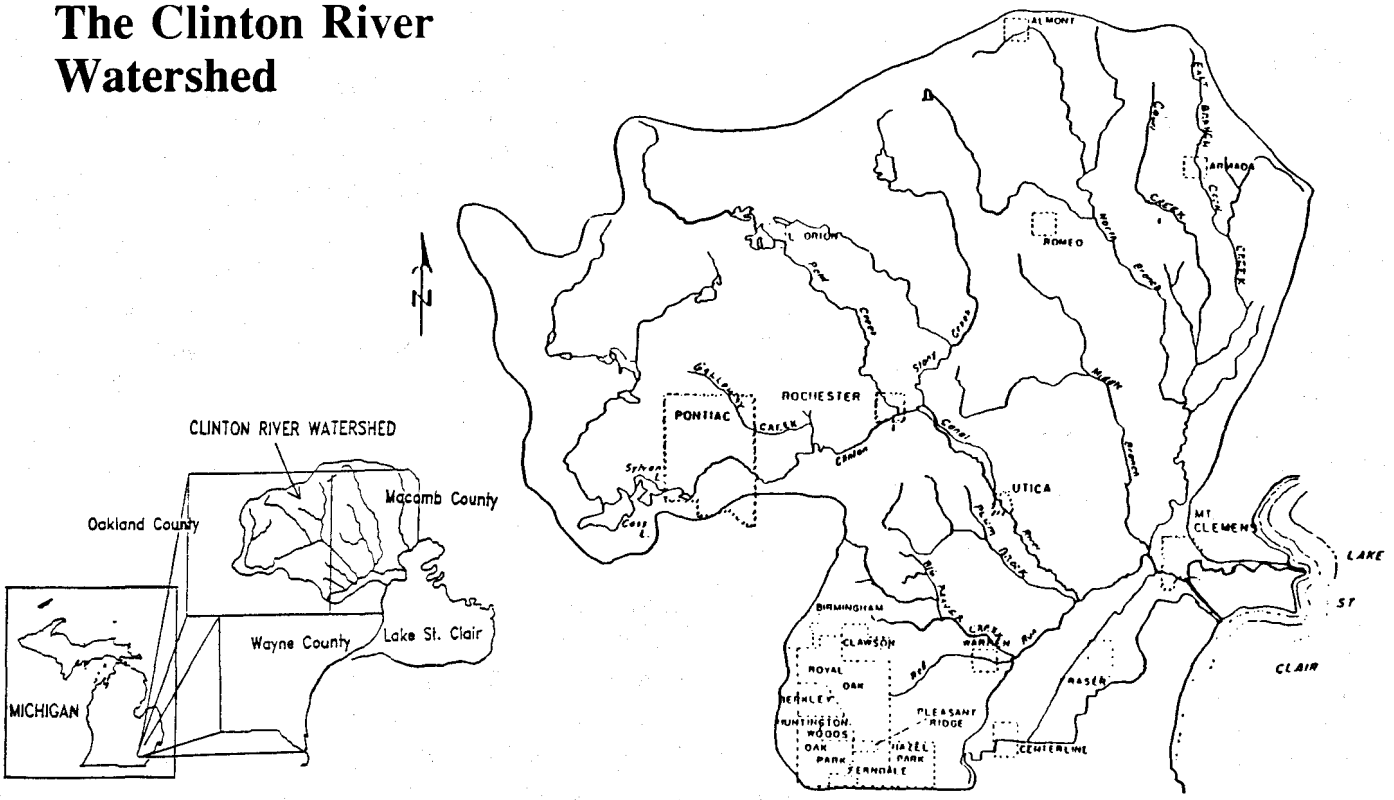
Steve Stewart, Michigan Sea Grant
21885 Dunham Rd.
Mt. Clemens, MI 48043

Sea lamprey are another well known exotic species. Sea lamprey are primitive eel-like fish with specialized sucker mouths. The adults feed by attaching to fish, rasping a hole with their bony tongue and gorging on the blood and tissue. While large healthy fish are able to withstand an occasional attack, the attacks are usually fatal to small or weakened fish. Sea lamprey predation and over-fishing have been cited as the two main causes of the collapse or extinction of several fish populations in the upper Great Lakes.

Sea lamprey populations have been somewhat controlled for many years with chemical treatments. Lamprey, like salmon, spawn in swift gravel-bottom streams. The larval lamprey burrow into the stream bottom were they remain for four to five years feeding on organic material. It is this larval stage that is most susceptible to chemical treatment. TFM, a chemical that is deadly to larval lamprey but harmless to most other species, is applied to known spawning streams every four years. This control strategy was effective for many years. However, the number of sea lamprey in the Great Lakes has increased in recent years. One of the causes of this increase is, ironically, improved water quality. Streams such as the Clinton River which in the past were too polluted for the sea lamprey are now available as lamprey spawning streams. Sea lamprey larvae were found during a recent fish survey of the Clinton.

Even as the need for expanded chemical treatments and sea lamprey research increases, the budget for these activities has been shrinking. Federal budget reductions may deal yet another blow to the ailing sport fishery of the Great Lakes.

The Clinton River Watershed



The CRWC and PAC support

The Clinton River Watershed Council (CRWC) was established in 1971 under the Michigan Local River Management Act. The CRWC has been widely recognized for its efforts on the Clinton River, and has served as the model for similar organizations throughout Michigan.

The CRWC has been a strong supporter of the RAP program and was actively involved in the development of the 1988 Clinton River RAP. The CRWC received grants from MDNR/EPA for the organization and support of a RAP Public Advisory Committee (PAC) in 1989 and for support of this PAC in 1993.

The 1993 grant also contained funding for public outreach and education projects. The CRWC will also prepare four issue papers for the PAC as part of this grant. The PAC selected the topics of these papers at the June meeting. The topics are, Contaminated Sediments, Point and Nonpoint Sources, Habitat, and Public Involvement. Presentations of these issues will be made to the PAC at upcoming meetings by guest speakers. These meetings are open to the public, and all who are interested are encouraged to attend. A schedule of the presentations and speakers is not yet available.

Nongame wildlife needs your help

Besides the rare and endangered mussels mentioned in a previous article, the Clinton River is home to several other species of concern as well as many other nongame species. Nongame species are those that are neither hunted, trapped, or fished. Nongame wildlife includes common species from song birds to salamanders as well as rare species such as eagles and loons. The nongame species usually account for 80 percent or more of the species in a given area.

Money from the sale of hunting and fishing licenses and a tax on hunting and fishing gear is used to purchase, enhance, and protect habitat for game species. These projects also benefit nongame species, but direct funding for nongame animals is very limited.

One way you can support nongame wildlife and unique habitats is through contributions to the Nongame Wildlife Fund on your Michigan income tax form, or send your check made payable to "Nongame Wildlife Fund" to:

MDNR/Natural Heritage Program
Wildlife Division
P.O.Box 30028
Lansing, Michigan 48909

Money from this fund is used for the protection and restoration of habitat, research, and public information and education.

Beneficial uses and the Clinton River

The 1987 amendments to the GLWQA contain 14 potential impairments to beneficial uses with which to judge the conditions in an AOC. These use impairments and a short definition of each are shown in the first two columns in the table on pages 8 and 9. The potential impairments to beneficial uses are somewhat vague and open to interpretation. For instance, if there are no beaches in the AOC can the use impairment "Beach Closings" exist? Or, are high bacteria concentrations in the water sufficient reason to list this as a use impairment? This must be decided point by point for each AOC, but must remain consistent with the listing guidelines (column two of the table).

The original Clinton River RAP was substantially completed prior to the authorization of the 1987 amendments. Therefore, it did not delineate problems in terms of these 14 use impairments. The PAC and RAP Team will soon be deciding definitions and the status of the 14 beneficial use impairments specific to the Clinton River AOC. The following table summarizes information from the 1988 RAP and other sources, and will be the starting point for our discussions. Blank spaces in the table denote either the lack of information or areas where opinions significantly differ. This table is not all-inclusive. It was developed primarily from information in the RAP files in Lansing. If you have additional information or a differing opinion, please use the reply page at the end of this newsletter.

Current Status of the Impaired uses of the Clinton River

Use Impairment	Listing guideline	Status	Reference	Cause/Source
Restrictions on Fish and Wildlife Consumption	When contaminant levels in fish or wildlife populations exceed currents standards, objectives, or guidelines, or public health advisories are in effect for human consumption of fish or wildlife. Contaminant levels must be due to input from the watershed.	Impaired. Public Health fish consumption advisory in effect for all carp caught downstream of Yates dam.	1993 Michigan Fishing Guide	Cause: PCBs Suspected source: Nonpoint Sources
Tainting of Fish and Wildlife Flavor	When ambient water quality standards, objectives, or guidelines, for the anthropogenic substance(s) known to cause tainting, are being exceeded or survey results have identified tainting of fish or wildlife flavor.	Not impaired.	Non-scientific Angler survey 1993. Two of 68 respondents reported off flavor. Both also fished other locations and did not specify that these fish came from the Clinton River.	
Degraded Fish and Wildlife Populations	When management programs have identified degraded fish or wildlife populations due to a cause within the watershed, or when bioassays confirm significant toxicity from water column or sediment contaminants.	Warm water fishery judged impaired.	Joint Fisheries/RAP workshop on habitat in AOCs, Fish. Tech. Report, and draft Fisheries Management Plan (1989).	Urbanization/Land use Impoundment Point Sources Nonpoint Sources
Fish Tumors or other Deformities	When the incidence rates of fish tumors or other deformities exceed the rates at unimpacted control sites or when surveys confirm the presence of neoplastic or prenoplastic tumors in bullheads or suckers.	Not impaired.	Popular literature contains several reports of tumors on walleye and northern pike.	Reports of tumors are due to Lymphosistys a common viral disease of both fish and not due to contamination.
Bird or Animal Deformities or Reproductive Problems	When surveys confirm the presence of deformities or reproductive problems in sentinel wildlife.		Literature review found no studies of deformities or reproductive problems in Clinton River basin.	
Degradation of Benthos	When the benthic macroinvertebrate community structure significantly diverges from unimpacted control sites or when sediment toxicity is significantly higher than controls.	Several sites have been surveyed. Benthos quality ranges from excellent to poor, generally being better in the upper reaches of the watershed. Impaired.	Strayer (1980), and several SWQD Reports.	Cause: Sedimentation, and low oxygen levels. Source: Point-Nonpoint Sources

Current Status of the Impaired Uses of the Clinton River (continued)				
Use Impairment	**Listing Guideline**	**Status**	**Reference**	**Cause/Source**
Restrictions on Dredging Activities	When there are restrictions on Dredging or Disposal due to contaminant levels in the sediments.	Sediments from navigation channel require confined disposal. Impaired.	EPA Dredged Materials Disposal Guidelines exceeded.	Cause: PCBs, Heavy Metals, and Oil and Grease Source: Point-Nonpoint Sources
Eutrophication or Undesirable Algae	When there are persistent water quality problems attributed to cultural eutrophication.			
Restrictions on Drinking Water Consumption or Taste and Odor Problems	When treated drinking water: 1) exceeds standards, objectives, or guidelines for disease organisms, hazardous/toxic chemicals, or radioactive substances, 2) taste and odor problems are present, 3) treatment required for raw water is beyond the standard treatment for the Great Lakes area.			
Beach Closings	When waters commonly used for full or partial body contact recreation exceed the standards, objectives, or guidelines for such use.	No beach closings since 1983. Combined Sewer Overflows reported in 1992.	1992 305(b) report, County Health Department records.	
Degradation of Aesthetics	When any substance in water produces a persistent objectionable deposit, color, turbidity, or odor.		No documented reports of aesthetic impacts from poor water quality, 1988 RAP.	
Added Cost to Agriculture or Industry	When additional treatment is required prior to use.	Due to Natural Causes (TDSs) not remediable.	1988 RAP	
Degradation of Plankton Populations	When populations significantly differ from unimpacted control sites.	Current status unknown, but expect some recovery from degraded levels last reported.	Biological Survey of the Clinton River Pontiac to Mouth. MDNR 1973.	
Loss of Fish and Wildlife Habitat	When fish and wildlife management goals have not been meet as a result of loss of habitat due to perturbation of the physical, chemical, or biological integrity.	Habitat limited by low Dissolved Oxygen levels, sedimentation, loss of wetlands, and high gradient areas and migration routes impacted by dams.	Fisheries/RAP Workshop Habitat in AOCs, Fisheries Tech. Report, and draft Fisheries Management Plan	Urbanization/Land use Impoundment Point sources Nonpoint Sources
Other	Please use the reply page at the back of this newsletter to inform us of any additional use impairments of the Clinton River.			

RAP recommendations 1988-1993: 5 years of progress

The 1988 RAP contained a list of 23 recommended actions. The recommendations included remedial actions, research or data needs, and one institutional arrangement. Many of the recommendations have been completed, and work has begun on most of those remaining. Details of this progress is chronicled in the Clinton River RAP #1, and #2 newsletters, and RAP progress reports. Copies are available from the RAP Coordinator or the Clinton River Watershed Council (use the reply page at the back to request information).

The condition of the Clinton River has improved drastically over the last 30 years. The Clinton was known as a dead river in the early 60s, a fish survey found no fish downstream of Pontiac. Today the Clinton has good runs of both walleye and salmon. Those involved in the changes have every right to be proud of their accomplishments. But in spite of these improvements, much remains to be done.

In the five years since the 1988 RAP, technologies have changed, and improving conditions have led to new opportunities. These changes, coupled with a focus on the Clinton River RAP at the state level, give us a good opportunity to take a step back to re-evaluate not only where we are and where we've been but also where we would like to be going. This evaluation process is the next step in the RAP process.

Get the most out of the Clinton River RAP through involvement. Share your vision of the Clinton River of the future. Voice your concerns at PAC meetings. Be involved with a work group.

Clinton permits up for review

The major National Pollution Discharge Elimination System (NPDES) permits in the Clinton River basin will be reviewed and reissued in fiscal year 1996. These permits are required of any facility that discharges to surface waters. The permit contains quantity and quality parameters for the effluent, as well as a monitoring regime, that the discharger must adhere to. The permits, required by federal and state law, are issued by the state.

This will mean increased field activities for the summer of 1994 in preparation for permit applications. Although a schedule of times and locations is not yet available, the MDNR is planning several surveys on the Clinton and its tributaries.

Clinton River history

The Clinton-Kalamazoo Canal, in 1837, was the first public works project authorized by the Michigan legislature. The project was to provide a waterway for transportation between Lake St. Clair and Lake Michigan. The waterway would have crossed 216 miles of dry land between Mt. Clemens in the east and the port city of Singapore on the shore of Lake Michigan. Twelve miles of the canal, between Mt. Clemens and Rochester, were completed over a four-year period. The state treasury then went into bankruptcy and halted construction activities. The advent of the rail-road era ended all further support for the canal. Portions of the canal still exist between Rochester and Utica and are visible in the Rochester Utica Recreation Area.

NAME_____

ADDRESS_____
STREET ADDRESS APT NUMBER

_____
CITY STATE ZIP CODE

TELEPHONE (Day)_____ (Evening)_____

1.) ____ Please add my name to the RAP mailing list

2.) Please send me the following information:

3.) I am interested in serving on the following work group:
____ Point Source/Nonpoint Source
____ Contaminated Sediments
____ Habitat

4.) I feel I am representative of the following interest groups:

5.) I am interested in the Clinton River because:

6.) Comments and Concerns:

Return to: Robert Sweet
Surface Water Quality Div.
Michigan Dept. of Nat. Res.
P.O. Box 30273
Lansing, Michigan 48909

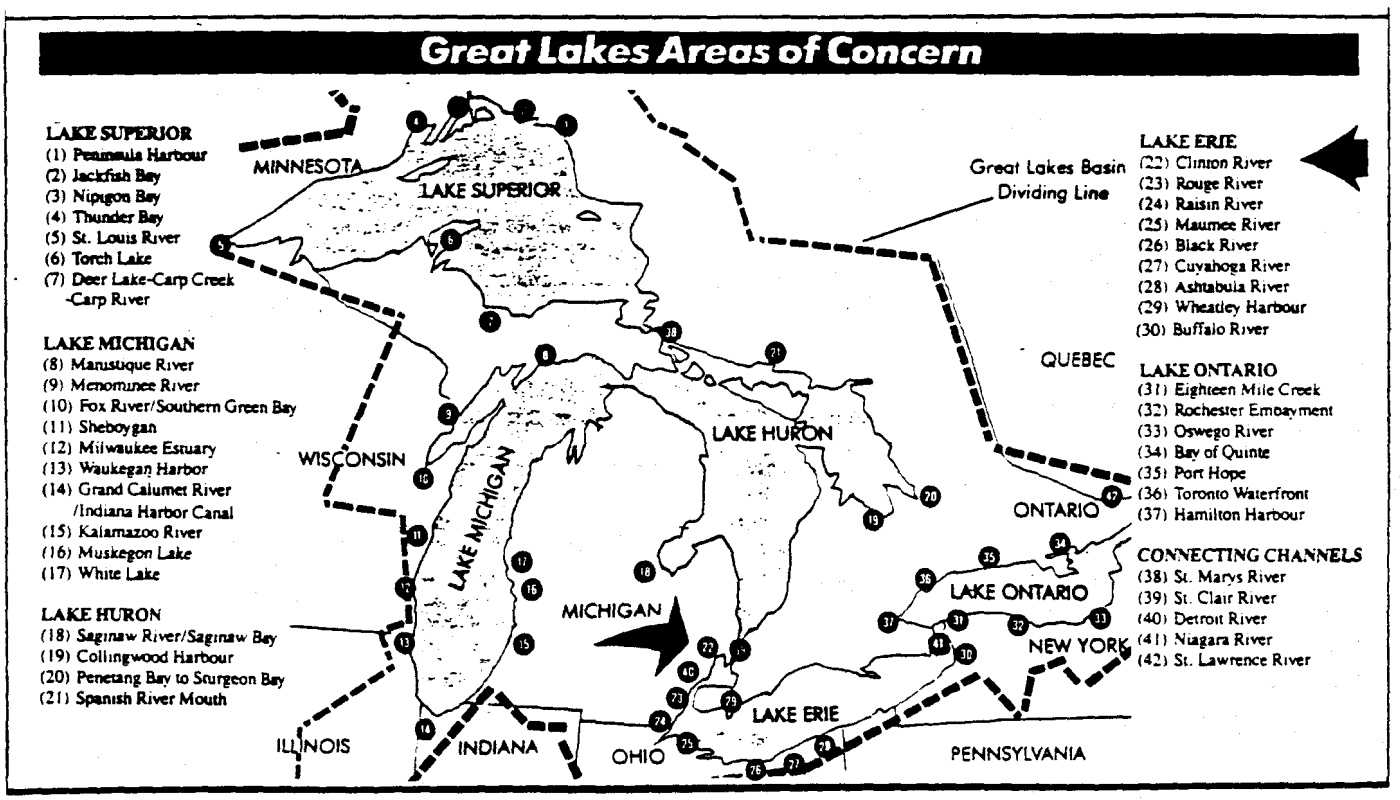
Clinton River RAP #1

The Remedial Action Plan 1989

Great Lakes Water Quality

In 1909, the United States and Canada signed a boundaries water treaty including a stipulation that each nation would not pollute the waters across the boundary to harm people or property. The International Joint Commission (IJC) was established to administer the U.S-Canada agreement. In 1972, a Great Lakes Water Quality Agreement was signed with an emphasis on reducing phosphorus inputs and lakes eutrophication, especially for Lake Erie. Control of phosphorus inputs through municipal wastewater treatment plant improvements and bans on phosphate detergents has reduced the phosphorus loading so the control objectives are largely met. Two exceptions are Saginaw Bay and the western end of Lake Erie where there is current emphasis on reducing nonpoint sources of phosphorus, in particular, from use of fertilizers on farms. The Clinton River is a tributary in the Lake Erie watershed.

The U.S-Canada Water Quality Agreement was revised in 1978 to incorporate an emphasis on control of toxics. The IJC has listed 42 Great Lakes "Areas of Concern", known colloquially as "toxic hotspots". The Clinton River is listed because of contaminated sediments in the lower river, as is the case with 41 of the 42 listed rivers and harbors.



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Remedial Action Plans

The IJC called for development of Remedial Action Plans, "RAP's", for each of the Areas of Concern. Each RAP must:

- Define the environmental problem, including geographic extent of the area.
- Identify beneficial uses that are impaired.
- Describe the causes of the problems and identify all known sources of pollutants.
- Identify remedial measures proposed to resolve the problems and restore beneficial uses.
- Provide a schedule for implementing and completing remedial measures.
- Identify jurisdictions and agencies responsible for implementing and regulating remedial measures.
- Describe the process for evaluating remedial program implementation and remedial measures.
- Describe monitoring activities that will be used to track effectiveness and eventual confirmation that uses have been restored so the area may be "delisted".

Toxic substances contamination is the major problem resulting in restrictions on fish consumption in 38 of the 42 in the Areas of Concern. (There is not an advisory on Clinton River fish; but species that travel between the river and Lake St. Clair have an advisory in the lake.) Restrictions on dredging activities due to toxic substances contamination are in effect in 31 Areas of Concern, including the Clinton River.

The Michigan Department of Natural Resources (MDNR) is responsible for developing the Remedial Action Plan (RAP). A Technical Advisory Committee, consisting of 15 representatives of state, local and federal governments met to assess the problems in the Clinton River. An MDNR RAP coordinator collected information and data on the river from members of the committee and other sources. The MDNR then wrote the draft RAP.

Three public meetings were held to exchange information with the public concerning the problems in the river and to review the draft RAP. A final RAP was written based on comments from that review, and was submitted to the International Joint Commission (IJC) in November 1988. The IJC will review and comment on the RAP adequacy.

RAP's represent a challenging departure from most historical pollution control efforts, where separate programs for regulation of municipal and industrial discharge, urban runoff and agricultural runoff were implemented without considering overlapping responsibilities. All programs, agencies, and communities affecting an Area of Concern must come together, recognizing their inter-relationships, to work on common goals and objectives in the RAP. This coming together and sitting around the table to resolve problems is the essence of the ecosystem approach.

Conclusions from the Clinton River RAP

Area of Concern:	The Main Branch of the Clinton River downstream of the Red Run to the mouth (17 miles) and the spillway (2 miles).
Source Areas:	The Red Run, the North and Middle Branches, the Main Branch upstream of the Red Run.

Problems:

- Contaminated sediments - heavy metals and PCB, oil and grease
- Degraded biota
- Low dissolved oxygen
- Sedimentation
- Excessive nutriants, pesticides, high fecal coliforms?

Category: The Clinton is Category 2: "Causitive Factors are unknown; however, an investigative program is underway to identify causes". (Eventually the river may attain Category 6: "Confirmation that uses have been restored and delisting as Great Lakes Area of Concern").

Suspected Sources:

- Municipal and industrial discharges. Seven municipal wastewater treatment plants and 22 industrial sources discharge treated wastewater and cooling water into the AOC.
- Nonpoint urban runoff. Stormwater runoff in the AOC carries organic material, heavy metals and organic contaminants into the river and construction sites and bank erosion produces siltation.
- Agricultural runoff. Agricultural practices in the area surrounding the north branch of the river result in pesticides and excessive nitrogen being carried into the river.
- Contaminated sediments and groundwater. Sediments in the river are contaminated with PCB and heavy metals. Groundwater beneath municipal and industrial landfills may carry contaminants from the landfills into the river.

Characterizing the Clinton River

Historically, the initial pollution control focus was on bacterial contamination to control water-borne diseases. It has been suggested that high fecal coliforms are no longer a threat to Metropolitan Beach (unless there are other sewer breaks). But the fecal coliform counts do exceed standards and people are swimming in the river. Next the focus was on excessive nutriants because of euthrophication problems spotlighted in Lake Erie. Since the ban of phosphate detergents and upgrading of wastewater treatment plants, there has been a dramatic drop in the phosphorous levels in the Clinton River. The IJC has targeted tributaries to Saginaw Bay and Lake Erie for a phosphorous standard of 0.5 mg/l, half the general standard. Today, the major focus is on toxics. Dredging of the lower Clinton River will remove contaminated sediments for placement in a newly constructed Confined Disposal Facility. To what extent this will solve the contaminated sediments problem remains to be determined. 80% of the river flows are out the spillway, and it shows higher levels of sediment contamination. The extent of sediment contamination on upstream is not well documented. In some places dredging and resuspension of contaminated sediments may not be advisable. In others, burial of the contaminated sediments under newly deposited clean sediment may end the exposure of aquatic life. But on the lower Clinton it cannot be a matter of "let sleeping dogs lie", since there is so much boating activity and churning of the sediments by propellers.

What little fish contamination monitoring has occured has revealed traces of PCB and dioxin, but not excessive amounts. One intensive study of the river along the two Superfund sites - LDI and G&H - revealed no significant toxics in the river; but this was one snapshot in time.

Causes of the degraded biota are not unknown; there are several possibilities. Fish have returned to the river, but this depends on stocking not natural reproduction, an indication that while the river water quality is much better it is still not good.

The river flow plays a critical role in water quality. At drought flows, to which pollution control measures are aimed, only 15% is groundwater and tributary flows; 64% is from 7 municipal treatment plants, and 21% is industrial discharges largely non-contact cooling water.

The Clinton is typical of an urban river. When it's raining, because of development in watershed, there are much higher flows than for a natural watershed. When it's not raining, there are reduced base flows.

Topography also plays a critical role. The Clinton watershed divides into two halves. Roughly Oakland County is glacial morraines (hilly, sand and gravel soils, well defined stream drainage). Macomb County is glacial lake bed (flat, clay soils, poor drainage). As the river flows out of Oakland County onto the flat lands the flows slow, sediment drops out, and there is little re-aeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Most of the water supply is withdrawn from the Great Lakes and distributed through the Detroit system to then become municipal and industrial discharges to the Clinton. Seven out of 21 municipal plants which were on the river in the 1960's remain while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted during the 1972-77 window of opportunity to seek federal funding for control of combined sewer overflows(CSO), either separating old combined sewers (Pontiac and parts of Mt. Clemens) or constructing retention basins to provide primary treatment-oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Still the CSO annual loadings to the Red Run and Clinton River far exceed those of the Warren treatment plant with its tertiary treatment capacity.

Public construction projects on the Clinton total $380 million. These were financied by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. Based on an EPA report to Congress (assuming the Clinton experience reflects the national) when we include operating costs, private pollution control investments and administrative costs, $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The challenge today is to find answers to the outstanding questions about continuing sources of pollutants to the river. Once the sources are confirmed, additional actions can be recommended.

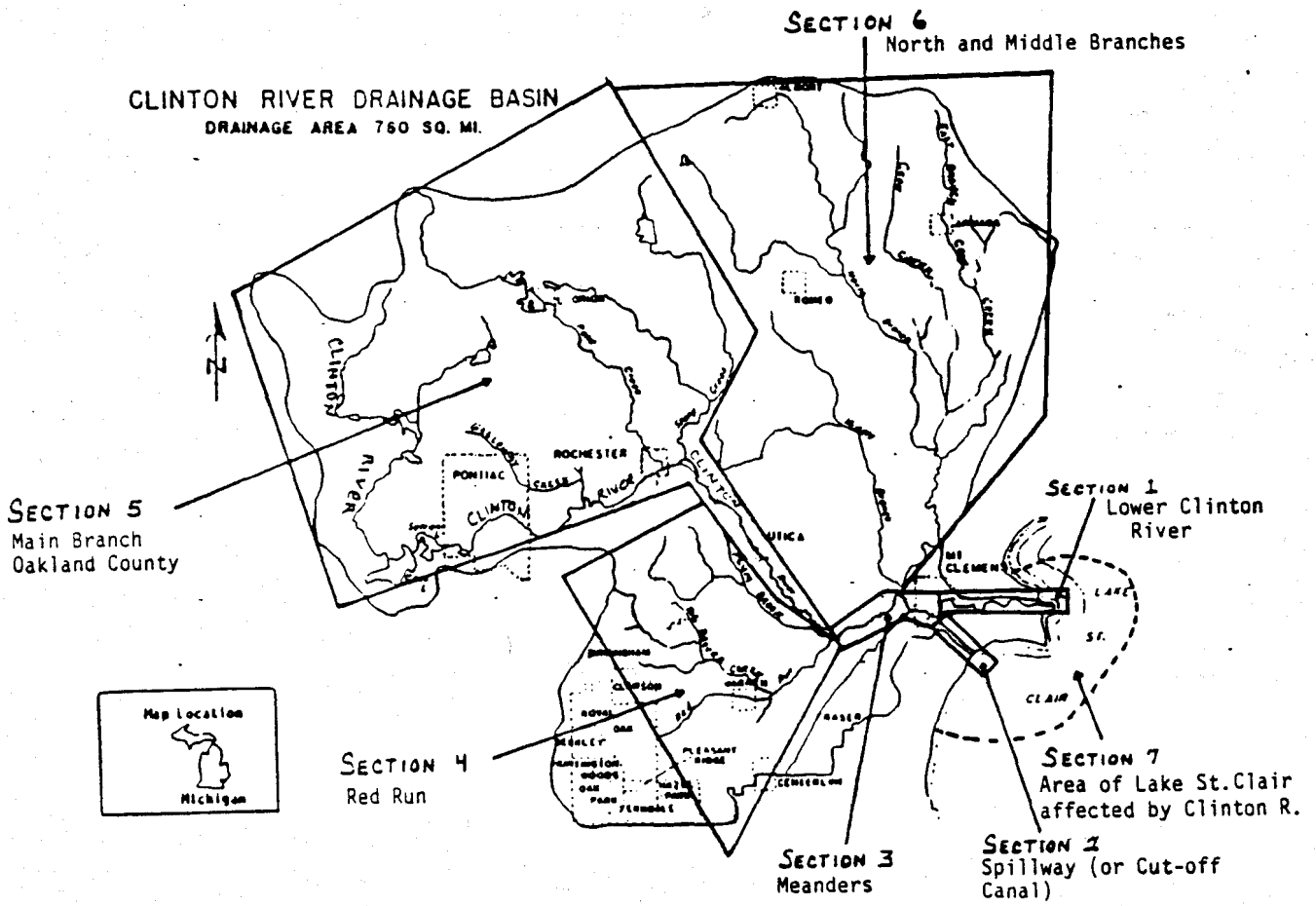
Recommended Actions

The Clinton River RAP includes 23 recommendations. Of these, 15 are for further investigations. Six are action steps, three of which are proceeding.

- Corps of Engineers dredging of the navigation channel below Mt Clemens.
- Complete upgrading of Mt. Clemens and Armada treatment plants.
- Cleanup of contaminated sites (307 and Superfund).
- Remove sediment at Shadyside Park.
- Detect and eliminate illicit connections to storm drains.
- Reduce frequency or eliminate overflows from SOCSDS combined sewers facility.

Two additional recommendations are for Nonpoint Sources management and establishment of a watershed-funded clearinghouse (institutional change).

The following two pages taken from the Clinton River Remedial Action Plan, present the recommended actions.



Clinton River Watershed, showing the six River Sections. Sections 1, 2, and 3 are the Area of Concern. Sections 4, 5, and 6 are the Source Area of Concern.

Clinton River Remedial Action Plan
Recommended Actions

Table 1.1 Impaired uses, problems, recommendations, cost estimates for proposed actions and possible funding sources, October, 1988.

Local Issues

Impaired Use	Problem	Recommendation	Cost	Funding Source
Warmwater fish	Low D. O. Degraded community	Survey to determine extent of problem	30,000	S
	Low D. O. Degraded community toxicity	Do caged fish study	47,000	S
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays	70,000	S
	Sediment toxicants Poor habitat	Support USCOE dredging	3,000,000	F
	Locally degraded community	Survey to document extent of problem	$ 65,000	S/O
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation	85,000	S/O
	Low D. O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers	$ 25,000	S/F
		Complete upgrading of Mt. Clemens and Armada WWTPs	$23,900,000	S/F/L
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF	Unknown	S/F/L
	Low D. O. Poor physical habitat Toxicants	Do smoke and dye studies for illegal hook-ups	195,000	U
	Low D. O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources	15,000,000	U

Local Issues (continued)

Impaired Use	Problem	Recommendation	Cost	Funding Source
Local fish and benthic macroinvertebrate community degradation	Low D. O. Low Flow	Determine effect of weir modification	200,000	S/L/O
	Diffuse toxicant loadings	Increase air quality monitoring	405,000	S/F
	Local toxicant loadings	Continue and expand 307 and superfund studies	9,000,000	S/F
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas	20,000	S/O
	PCB and other organics in surface water	Monitor water for organic contaminants by river section	22,000 annually	S
	PCB in aquatic environment	Expand fish contaminant monitoring	97,000	S
Sediments block river flow	Low flow Low D. O.	Define source of sediments	400,000	S/O
	Low flow Low D. O.	Remove sediments at Shadyside Park	200,000	L
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues	200,000 annually	L
Great Lakes Issues				
Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources	47,000	S
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations	20,000	S
	PCB in water	Sample water for PCB concentrations	22,000 annually	S/F

F = Federal; S = State; L = Local; O = Other; U = Uncertain

Characteristics of a Successful RAP

At a RAP workshop conducted by the IJC participants offered suggestions for successful implementation of remedial actions:

1. A RAP must be based on an ecosystem approach and overcome the fragmentation of governmental responsibilities. Through political processes, responsible federal/state/local governments, must implement policy guided by a perspective of our interrelated ecosystem which extends beyond political boundaries and ecosystem compartments. Institutional mechanisms must be set up which allow all stakeholders to come together to work on common goals and objectives, recognizing their interrelationships.

2. A multidisciplinary RAP development team is needed. Because RAP development will require expertise far beyond traditional water pollution control, a multidisciplinary team was recommended to include, but not limited to, expertise in municipal and industrial wastewater treatment, hazardous waste management, dredging and remediation of contaminated sediments, land use planning, and recreation.

3. Public participation/education are essential: The public has the most to gain and the most to lose. They must be involved from development through implementation to be able to generate and sustain the broad community support necessary to fully implement RAP's. The public has the power to keep political decision makers "feet to the fire".

4. Local ownership of RAP: For a RAP to be successful, it cannot be an IJC, U.S. Environmental Protection Agency, or a Michigan RAP. It must be a RAP owned by local residents.

5. Implementation will require a formal institutional structure: To ensure implementation of remedial actions consistent with an ecosystem approach, a formal institutional structure will be required with broad-based representation.

6. RAP maintenance will be necessary: The RAP process is being viewed as iterative, where RAPs are updated or improved based on new data or technologies. Therefore, a mechanism will have to be established for periodic RAP maintenance until all beneficial uses have been restored.

7. A long-term commitment to research is important. It was pointed out that where we have the most complete data bases and greatest understanding of Areas of Concern, we have a long history of research. Long-term commitment to research by government and universities is viewed as essential.

8. Realistically, we must build a record of success to keep momentum going on RAPs. For most Areas of Concern, people developing the RAP are: (1) identifying short-term remedial actions to build a record of success; and (2) undertaking long-term strategic planning to acquire the necessary data to be able to identify remedial actions for more complex problems (e.g. contaminated sediments).

From: "Remedial Action Plans: A Great Lakes Program Whose Time Has Come"
John H. Hartig
Environmental Scientist
International Joint Commission

Clinton River RAP #2

The Remedial Action Plan 1990

Progress in Implementing the Recommendations

The Clinton River RAP #1 provided background information on the listings of the 42 Great Lakes Areas of Concern, the Remedial Action Planning process, and the Clinton River Remedial Action Plan (RAP) forwarded by the Michigan Department of Natural Resources to the International Joint Commission in November 1988.

The Clinton River RAP presented 23 recommendations for further data collection to determine the causitive factors for the problems in the lower river and actions to remedy these problems. The one problem presented by the Clinton River from the perspective of impacting the Great Lakes is PCB's. The other problems relate to impaired uses of the Clinton River itself.

PCB's are persistent substances which bioaccumulative through the food chain to reach elevated concentrations in fish and wildlife and humans who eat the fish. Recent studies reveal troubled bird species at the top of the Great Lakes food web; defects correlate with high concentrations of PCB's in the birds although the causitive mechanisms remain to be established. A study of women accustomed to eating 2-3 meals per month of fish from Lake Michigan suggests statistically significant physical and mental impairments of their infants correlating with the levels of PCB's in the mothers.

The Clinton River Watershed Council received a grant of federal funds through the MDNR to facilitate public participation in the Clinton River RAP over the past year. The Council has been assisted in the public participation activities by a re-activated Friends of the Clinton River based in the Area of Concern. Meetings on the Clinton River RAP have also been conducted by East Michigan Environmental Action Council and the Clinton River Cleanup Committee.

In this second newsletter we will review the progress on the RAP recommendations. Each recommendation is related to an **impaired use** and a **specific problem.**

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Impaired Use	Problem	Recommendation
Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations
	PCB in water	Sample water for PCB concentrations
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas
	PCB and other organics in surface water	Monitor water for organic contaminants by river section
	PCB in aquatic environment	Expand fish contaminant monitoring

Progress

Because of the contaminated sediments in the lower river, the Clinton has been listed along with other Michigan rivers on the state's list of contaminated sites developed under the state Act 307 (1982), the Michigan Environmental Response Act. In 1988 voters authorized bonding to hasten cleanup of the sites of contamination. The DNR was able to obtain $120,000 for the following specific tasks:

1. Additional sediment and water sampling to define the distribution extent, and potential sources of PCB contamination. At least 30 samples would be collected and analyzed for PCB's. The cost for this aspect would be $20,000.

2. Sediment and ambient toxicity testing to identify the cause of impaired benthic communities. Approximately 20 samples would be collected. The cost for this aspect would be $40,000.

3. Caged fish study to evaluate PCB uptake in the Clinton River watershed and nearmouth area in Lake St. Clair. A total of 7 stations are proposed. The cost for this aspect would be $30,000.

4. Determine feasible remedial alternatives, evaluate their environmental effectiveness and develop cost estimates for each alternative. The cost for this aspect would be $30,000.

The caged fish study was completed in 1989. The sediment and water samples were completed in the summer of 1990. We are awaiting the results of the laboratory analyses and the project report.

Because detectable levels of PCB's have been found in Clinton River fish and because species of fish which migrate back and forth between the Clinton River and Lake St. Clair have previously had a fish consumption advisory in Lake St. Clair but not in the river, this year for the first time, the Michigan Department of Public Health included in its **Fish Consumption Advisory carp** from the Clinton River mouth upstream to the Yates Dam at the Macomb County/Oakland County line.

Impaired Use	Problem	Recommendations
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays
	Sediments toxicants Poor habitat	Support USCOE dredging
	Locally degraded community	Survey to document extent of problem

"Benthic macroinvertebrate community" is the little critters that inhabit a stream and provide food for the fish. "Benthic" means bottom dwelling organisms that crawl upon or attach themselves to the river bottom. "Macroinvertibrates" means those that can be seen by eye; most are aquatic insects. A diversity of types indicates clean water. When there are relatively few types (or only one such as sludge worms) this indicates that only pollution - tolerant types are surviving. Since many live in the river over a year and cannot escape pollution as fish may, these little critters provide a bottom line indication of the water quality.

A degraded community can result from several factors: toxicants in the water or sediments; low dissolved oxygen sedimentation which smothers bottom life; high flows which scour the stream bottom; water temperature and food supply variations.

Progress

The Corps of Engineers (COE) has been dredging a federal navigation channel from the mouth of the Clinton River to Mt.Clemens since the mid 1800's. Since the mid-1970's it has been known that the sediments in this part of the river were contaminated with PCB's, heavy metals, oil and grease. And since then it has been required that dredging spoils be placed in a Confined Disposal Facility (CDF) and no longer placed in the waters of Lake St. Clair. Construction of a CDF on surplus lands at

Selfridge Air Base was completed last year. The dredged sediments from any project on the river, including private marina developments for example, may be disposed in this CDF (for a price).

It has been concluded that **continued Corps of Engineers dredging** will provide a way to remove the contaminated sediments from the aquatic environment to lessen the food chain uptake and contamination of fish. Dredging of the Clinton River is on the Corps schedule for 1991 (late summer). However, this is not "air tight" because of the federal budget crunch.

This may be the last time the federal government will finance dredging on the Clinton River. It has been suggested that people should start thinking about other ways to finance future river dredging.

There have been efforts to eliminate dredging in rivers used only for recreational purposes; so far the Clinton has retained its "commercial" label, but current priorities for dredging are for cargo hauling rivers.

Impaired Use	Problem	Recommendations
Warmwater fish	Low D.O. Degraded community	Survey to determine extent of problem
	Low D.O. Degraded community toxicity	Do caged fish study
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation
	Low D.O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers
		Complete upgrading of Mt. Clemens and Armada WWTP's
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF

Progress

Upgrading of the Mt. Clemens and Armada Wastewater Treatment Plants has been completed.

Point source dischargers to the Clinton River are in substantial compliance with their NPDES permits. There are

7 municipal wastewater treatment plants (Warren, Pontiac, Mt. Clemens, Rochester, Romeo, Armada, Almont) and 27 industrial discharges (primarily non-contact cooling water and stormwater).

Municipal treatment plants are expected to regulate and monitor any industrial discharges to the municipal sewers. This is to control discharges of toxic substances to the sewers which might cause **upsets** of the treatment processes, **pass-through** of the toxics to the river, high concentrations, of toxic heavy metals in the **sludge**, or **damage** to the sewer pipes.

Some concern remains regarding effectiveness of the Industrial Pretreatment Programs. The DNR approves the Municipal Industrial Pretreatment Program and conducts periodic audits or pretreatment compliance inspections. Pass-through of PCB's is a concern.

Based on the Upper Great Lakes Connecting Channels Study of municipal dischargers to Lake St. Clair, of greatest concern were the Wallaceburg WWTP, the Mt. Clemens WWTP and the Warren WWTP. Trace organics, heavy metals, phenols, ammonia and phosphorus were the notable pollutants contributed by these plants. All three received industrial wastewaters as a significant portion of their influent.

Amendments to the federal Clean Water Act in 1987 initiated new programs for control of toxics. States were required to submit a list of Toxic Impaired Waterways and Facilities that cause impairment under Section 304 (1). The Clinton River and Mt. Clemens WWTP (metals) are on the Michigan short list of 17 waterbodies where there are point sources and emphasis on pretreatment or some other individual control strategy is needed beyond the treatment plant technology improvements. The medium list for Michigan has 63 waterbodies affected by point and nonpoint toxic sources, including 30 miles of the Clinton River from Yates Dam to the mouth (PCB's - unknown sources). The Michigan long list has 258 waterbodies where water quality standards violations occur due to non-toxic as well as toxic pollutants. This list adds all stretches of the river where there are municipal treatment plants, (The Main Branch Pontiac to Yates, the North Branch, and Coon Creek, East Branch). The DNR expects to achieve control of toxics through the NPDES permits, using the state water quality standards (Rule 57 for toxics), chemical-specific permit limits, and new requirements for whole effluent toxicity testing.

Section 313 of the 1986 Community Right-to-Know Act (also known as Title III of the Superfund Amendments) requires annual reports of toxic releases to the environment (air, land, water) from industries with 10 or more employees and meeting threshold requirements for amounts of toxic chemicals used. The first toxic inventory report was released

in 1989 based on 1987 emissions data. Michigan ranked #16 among the states. 1% of the reported emissions were to water, 8% to land, and 91% to air.

Point sources are estimated to contribute 17% of the pollutants to the Clinton River; 83% are from nonpoint sources. The contribution from sites of contaminated groundwater is unknown.

The Clinton is an effluent dominated river at draught flows with 15% of the flow from natural sources (tributaries and groundwater), 64% from municipal treatment plants, and 21% industrial discharges, mostly non-contact cooling water.

The South Oakland County Sewage Disposal System (SOCSDS) is a **combined sewer** system in which both sanitary sewage and stormwater are conveyed in a single pipe. Recently developed communities are based on separate sewers for sanitary wastes and stormwater. During significant rainfall the capacity of the combined sewer is exceeded and there are overflows of raw sewage to the stream. In the early days of urban developments it was believed that the stormwater would adequately dilute the sewage to avoid harm: "the solution to pollution was dilution". Overflows from south Oakland County to the Red Run occured virtually every time it rained, perhaps 150 times a year, resulting in badly degraded water quality in the lower Clinton River. The Michigan Water Resources Commission ordered abatement and federal funds were obtained in the early 1970's to construct a pollution control facility (PCF). This is a two-mile long underground retention basin. For all but the heaviest of rainfalls the sewer overflows are captured in the basin and then pumped back into the sanitary sewers when there is again available capacity. The sewer conveys the flows to Detroit for treatment. The number of overflows to the Red Run is now averaging 11 peryear during 15 days. A **primary** level of treatment has been provided when there is an overflow: heavy materials are settled out on the basin bottom, oil and grease are skimmed from the top, and the discharge is disinfected with chlorine.

In 1986-87, the Michigan Water Resources Commission (WRC) developed a state strategy to control combined sewer overflows (CSO's). It involves a <u>two-phase approach</u>: (1) An Interim CSO Control Program that requires optimum operation and maintenance of the collection system to minimize CSO's; and (2) A Final CSO Control Program which will result in the elimination or adequate treatment of combined sewage discharges contining raw sewage and compliance with the Water Quality Standards. The strategy is implemented by specific language incorporated into NPDES permits.

Some Michigan cities are proceeding to plan for CSO control subject to the DNR requirements and schedules, but the City of Detroit and suburban communities on the Detroit sewer system are challenging in court the 30 minute detention time which the DNR has specified for "adequate treatment". The longer the holding period, the larger the volume of water and size/costs of a detention basin.

At the April 26, 1990 meeting of the WRC, the Deputy Oakland County Drain Commissioner appealed to the Commission to amend the Clinton River RAP recommendation for further CSO control at the SOCSDS. He noted that this facility was designed so that the annual loading of pollutants to the Red Run/Clinton River would be comparable to that of a separated storm drain system. He suggested that the RAP comparison of the annual loadings of the SOCSDS/PCF to those of the Warren WWTP also discharging to the Red Run failed to take into account the loadings from the separated storm sewers. The south Oakland communities are still paying for the bonded indebtedness for construction of this facility and the annual operating costs exceed $6 million. WRC review of this facility will occur when its NPDES permit is up for renewal.

In 1988, a Michigan notification and health advisory process was instituted to give public warning when there has been a discharge of untreated sewage. County Health Department officials decide when a release warrants publicizing an advisory.

The federal Clean Water Act embodies a two-pronged approach to controlling discharges. One prong is the technology-based limits on discharges imposed on all facilities. For heavily polluted waterbodies where these basic limits will not result in meeting the water quality standards more stringent permit limits are to be developed. For the more heavily polluted waters states are to develop Total Maximum Daily Loads (TMDLs) - that amount of a pollutant that the waterbody can receive without violating water quality standards. The TMDL is to be implemented by a **wasteload allocation** which apportions the loading among all sources affecting that waterbody, point and nonpoint. The recent requirement for states to compile the 304 (l) lists establishes a means of tracking progress towards meeting water quality standards for both toxics and conventional pollutants.

Since 1984, the Michigan DNR has intended to establish a basin-by-basin approach to issuing the state's NPDES permits on a 5-year cycle. This would facilitate considering all the dischargers to the river at the same time, developing wasteload allocations, and encouraging public participation in permit reviews. However, other priorities (such as catching up with the back log of major permits reissuance) have continued to preoccupy DNR staff time and frustrate implementing the basin approach.

Impaired Use	Problem	Recommendations
(continued)	Low D.O. Poor physical habitat Toxicants	Do smoke and dye studies for illegal hook-ups

Progress

The presence of chemical and human wastes in storm drains is generally a problem, particularly in older urban areas. These result from illicit tap-ins of sewage which should go to sanitary sewers or floor drains from businesses. In Washtenaw County on the Huron River and Wayne County on the Rouge River pollution abatement projects have been undertaken focused on finding and eliminating these illegal tap-ins. The preponderance of the improper waste discharges to the urban stormwater systems has been motor vehicle service facilities.

Oil and grease is one of the contaminants in the Clinton River Area of Concern. Visual observations and reports of spills confirm that oil is a major problem for the lower Clinton River. To date there has been no project to identify the potential sources. EPA is expected to promulgate new permit requirements for urban storm drains in the fall of 1990. A first step in municipal programs to control the quality of stormwater discharges will be elimination of the unknown illegal point source tap-ins. In the case of large facilities, the Michigan Water Resources Commission has been increasingly imposing NDPES permits on storm drains for immediate control.

In Mt. Clemens, 13 storm drains ranging in size from 12" to 54" discharge into the Clinton River. Impact of these drains has not been documented. Seven of these drains have been ranked by MDNR as "high priority" for investigation.

In 1990, a new law was enacted which makes it a misdemeaner to improperly dispose of used motor oil by dumping on the ground or into storm drains. This is stimulating new efforts towards establishment of municipal disposal facilities conveniently located for residents use. Here-to-fore voluntary efforts of environmental groups and service stations have encourage do-it-yourself oil changers to seek proper disposal. In 1990, Michigan also enacted new legislation to help prevent oil spills and provide for more effective cleanup response in case of spills.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources

Progress

Reauthorization of the federal Clean Water Act in 1987 introducted a new emphasis on control of **nonpoint sources** (NPS) of pollution. With successful control of point sources (discharges through a specific pipe, from an industry or municipal wastewater treatment plant), the water quality in many rivers including the Clinton is now dominated by pollutants from diffuse sources, washed off by rain water. These "nonpoint" sources include agricultural lands, urban stormwater, construction sites erosion, septics, roadways, etc.. Last year Michigan produced a Nonpoint Pollution Assessment Report and Nonpoint Source Pollution Control Management Plan to be elligible for federal NPS funds. For the first time this year, grants are available for watershed-based projects to plan and implement best management practices (BMP's). Emphasis is on coordination efforts of all agencies and land owners. After approval of a plan, cost-sharing is available for implementation of selected BMP's. A proposal to use funds from the Department of Agriculture focused on agricultural practices to control NPS was submitted in 1990 by the Macomb County Agricultural Stablization and Conservation Service and Soil Conservation Service assisted by CRWC. The North Branch of the Clinton River above 32 Mile Road is the targeted area. A grant was not awarded in 1990, but an application can be again submitted in 1991. EPA funds are also available to local governments for nonpoint source control projects.

CRWC submitted a grant application on behalf of Oakland Township for the Paint Creek Watershed, with work to be initially focused on Gallagher Creek, (a high quality tributary of Paint Creek with brook trout and initial development proposals). Here the objective is to identify and implement BMP's for an urbanizing watershed. A grant was awarded with a project start in October 1990.

Another request for proposals for nonpoint source control grants is expected in the spring of 1991 for FY92 funding. Program emphasis is on watershed-based NPS controls, with planning grants up to $50,000 and implementation grants up to $100,000 per year (10% and 20% minimum local matches are required). Elligible local lead agencies for the NPS grants include county governments, cities, townships, villages, soil conservation districts, regional planning commissions, Lake Boards, and water management districts. FY90 funding for the NPS grants was $1.1 million. The FY91 funding is not yet determined; a number of state research, technical assistance, public information projects are currently being considered.

NPS controls include practices to avoid contamination of **groundwater** as well as surface water. The Kellogg Foundation is funding a number of Groundwater Education in Michigan (GEM) projects, including a three-year grant to the CRWC to work with local governments to establish groundwater protection programs and explore opportunities for intergovernmental coordination between the local/county/state levels. The CRWC work-to-date has focused on plugging the pathways from businesses through which there is potential for release of hazardous and polluting substances: floor drains, improper disposal in septics, secondary containment for above ground and storage areas. A Michigan Groundwater Protection Strategy and Implementation plan (November 1989) incorporates a number of new initiatives including developing the groundwater component of the NPS program, developing an agricultural chemical management program, assisting local government wellhead protection, implementing the underground storage tank program. East Michigan Environmental Action Council is also working with a GEM grant focusing on citizens as leaders in community change for protecting groundwater. East Michigan University has a grant to serve as a southeast Michigan regional center for assistance in groundwater protection. Macomb County Health Department and Oakland County Cooperative Extension Service are assisting in disposal of nousenold hazardous wastes.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Low Flow	Determine effect of weir modification

Progress

The spillway or cut-off canal was constructed in the early 1950's to relieve the lower Clinton River of flooding. A fixed level weir (dam) was built at the spillway head so that normal flows would continue down the natural channel and high flood flows would over-top the weir into the spillway. However, with a rise in the Great Lakes level the weir has been submerged; this together with the sediment accumulation on the upstream side of the weir providing a ramp has meant that in recent years 80% of the river flows have gone down the spillway. This has been compounded by the deposition of sediment where the river bends and the water slows at the head of the natural channel by Shadyside Park (See recommendation for dredging below). Water quality in the natural channel between the spill-way and river mouth has been poor. Low volumes and low velocities down the natural channel are thought to con-tribute to increased shoaling and low dissolved oxygen in this reach. Indeed, there are times when the river flows are reversed. The drought flows have been established as zero; this impacts the Mt. Clemens WWTP permit limits and costs. The extensive boating interests on the lower river also are concerned about maintaining flow down the natural channel.

Congressman Bonior has obtained $225,000 federal funding for the Corps of Engineers to complete two studies; to determine the benefits of replacing the weir and to research construction designs. An "adjustable" weir would allow setting the height to distribute the river flows appropriately between the natural channel and the spillway.

Impaired Use	Problems	Recommendations
(continued)	Diffuse Toxicants loadings	Increase air quality monitoring

Progress

A 1988 report "Sweet Water, Bitter Rain: **Toxic Air Pollution in the Great Lakes Basin**" concludes that 10 of the 11 IJC identified "critical" pollutants of the Great Lakes find their way to the lakes by way of the atmosphere. The air may be accountable for up to 90% of PCB's entering most of the Great Lakes.

There are current efforts at the federal and state levels to further regulate air toxics. Reauthorization of the federal Clean Air Act is before Congress this year. In 1987, the Michigan Air Pollution Control Commission began a lengthy process to develop an air toxics control strategy and rules to regulate both new and existing sources of toxic air emissions. Proposed rules were approved by the Commission in September and are before the Legislature's Joint Committee on Administrative Rules for further consideration before possible final approval.

Airborne deposition of **mercury** into Michigan's **inland lakes** has been recently documented, leading to a fish consumption **advisory**.

Mt. Clemens was one of seven stations across Michigan where the DNR collected data on **acid rain** from 1981-1985. The average acidity of rainfall over the year at Mt. Clemens ranged from 20 to 50 times the acidity of unpolluted rain, as high as any place in the state. 32x(1981), 20x(1982), 20x(1983), 50x(1984), 40x(1985).

Sources of airborne pollutants to the Clinton River or the Great Lakes range widely, indeed world-wide.

For the past couple of years, a consultant under contract to the United States Environmental Protection Agency has been involved in conducting a **study of air pollution in the Michigan/Ontario transboundary area.** The consultant has been working on estimating emissions of air pollutants: primarily in the Detroit-Windsor and Port Huron-Sarnia areas. Using these emission

estimates, the consultant is conducting dispersion modeling to estimate concentrations of pollutants. Those concentration estimates will then be used to estimate risk from air pollution in the trans-boundary area. Once this report is available we can see whether the information allows conclusions about the water impacts in the Areas of Concern.

Impaired Use	Problem	Recommendation
(continued)	Local toxicant loadings	Continue and expand 307 and superfund studies

Progress

The Michigan Environmental Response Act, (P.A. 307,1982) requires the annual listing of sites of contamination. This "307 priority list" provides the basis for allocation of cleanup funds each year. In 1988, Michigan voters approved the Quality of Life Bond Proposal which allocates $425 million additional funds to hasten cleanup of contaminated sites. Federal funds are also available through the "superfund" program for cleanup of Michigan sites that are on the National Priority List. Private funding from Responsible Parties is either used immediately for privately undertaken cleanups, obtained through agreements following site investigations and a decision on the appropriate cleanup action, or recovered through litigation following a public undertaking of the cleanup. Enactment of a "Polluters Pay" bill in Michigan will provide additional enforcement powers to hasten cleanups.

The FY91 307 list (February 1990) includes 77 listed sites in Macomb County and 119 sites in Oakland County. Of these 144 are in the Clinton River Watershed. There are four NPL "superfund" sites in the watershed. This past year there were 97 new sites listed in Macomb and Oakland almost entirely leaking underground storage tanks at retail gas stations or facilitites operating fleets of vehicles eg. (businesses, municipal DPW's, schools).

In the worst cases, years of investigations may be required before cleanup can be agreed to and proceed. Hence, in the early years of the federal and state cleanup programs few listed sites have actually been cleaned up, but remain in various stages of investigations. As the program matures there will be an acceleration of actual cleanups. In cases where the contamination has reached the groundwater, many years of groundwater purging may be involved.

To date, there has not been documented any impact of contaminated groundwater on the Clinton River. But the only effort to examine this question was a 1984 study of the river stretch between the LDI and G&H superfund sites. The recommended remedial actions at both these sites include groundwater purging to reduce the concentrations of groundwater contaminants so there will not be unacceptable releases to the river.

Impaired Use	Problem	Recommendation
Sediments block river flow	Low flow Low D.O.	Define sources of sediments

Progress

Sediment deposits occur throughout the river system but especially in Macomb County where there is the glacial lakebed plain. As the land flattens, the water flow slows down and suspended sediments settle out. By volume, sediment is the major nonpoint pollutant.

Sources of sediment include natural erosion, erosion from construction sites and farmlands, scouring of the stream banks, especially in a watershed where urban development has increased the runoff flows. Soil type and runoff velocity are major factors in erosion. Velocity of runoff is related to the slope of the ground. Sand will usually erode first, clay particles being more cohesive. But the finer clay particles will stay suspended in the water longer.

Erosion (detachment of soil particles) is the **first** step of the sedimentation process. Following steps are **transport** (movement in water), **deposition,** and **resuspension.**

Suspended Sediment in a stream clogs the gills of fish, covers spawning areas so there is not fish reproduction, reduces sunlight available to aquatic plants. Deposited sediments can accumulate in ditches, culverts, and shoals which impede river flows and boating. It has been estimated that 1¢ invested in erosion control would accomplish $1 of effort in maintenance of drainage systems and dredging of river channels.

Given the repeated public expenditures for dredging the lower Clinton River, maintenance of the spillway and Red Run Drain, dredging at Shadyside Park, a study to define sources of sediments and identify appropriate control measures is a priority. Control measures might include better enforcement of the Michigan Soil Erosion and Sedimentation Control Act on construction sites; promotion and installation of BMP's for erosion control on agricultural lands, river maintenance work to stabilize stream banks, design of development site stormwater facilities and municipal stormwater management programs to prevent erosion at the source (eg. management of vegetative cover) or capture sediment close to the source (eg. sediment basins, traps).

In 1990, faculty of the Wayne State University Department of Geology submitted a research proposal for the Michigan Great Lakes Protection Fund for a two-year geochemical study. Because the sources, fate, and environmental impact of sediment bound metals have yet to be determined, this study would (1) document the basic physical, chemical and mineralogical properties of the river sediments which would help identify sources; (2) document specific forms of heavy metals present; (3) test the hypothesis that heavy metal concentrations are greater downstream than upstream of urban areas; (4) test the hypothesis that the Clinton River is impacting Lake St. Clair with sediment bound heavy metals.

In December of 1988, a report on the "Upper Great Lakes Connecting Channels Study" was published. This report is based on extensive data collection in 1985-86. This study found that heavy metals and phosphorus in sediment discharges from the Clinton River to Lake St. Clair were of concern as well as PCB's. This contradicts the Clinton River RAP statement that the only substance of concern to the Great Lakes from the Clinton River is PCB's.

Impaired Use	Problem	Recommendation
(continued)	Low flow Low D.O.	Remove sediments at Shadyside Park

Progress

During 1990, the Clinton River Inter-County Drainage Board (ICDB) reached agreement on a new apportionment of costs and drainage district tax levy to finance continued operation and maintenance of the Clinton River Spillway. This drainage district was established following a large flood on the Clinton in 1947. The drainage district was the entire Clinton River Watershed. The Board then served as the local sponsoring agency for the Corps of Engineers construction of the Spillway in the early 1950's. Since the original apportionment of costs among the local/county/state governments was established in 1950 significant land use changes have occured which affect the determination of benefits from flood relief and contributions of flow to the river. The initial levy financed construction costs and maintenance costs until several years ago.

The 1990 levy will finance 10 years of maintenance work including removal of the accumulated sediments at the spillway weir. Laboratory analysis for the ICDB found the sediments to be not so contaminated as to require disposal in the Confined Disposal Facility. This means considerable cost savings for the dredging. This area has been dredged twice before following ten-year intervals of sediment accumulation.

Impaired Use	Problem	Recommendation
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues

Progress

In 1987, a Michigan Great Lakes and Water Resources Planning Commission presented "Water Resources for the Future: Michigan's Action Plan". This plan recognized the fragmented governmental scheme with water management responsiblities distributed among a myriad of agencies at the federal, state, regional, county, local levels and in the private sector. The plan also recognized that water flows freely from one political jurisdiction into another, so that water problems can result in one locality from actions in another, demanding solutions involving many jurisdictions in the watershed.

The plan called for water management organized on the basis of the state's major watersheds or river basins. Many of the issues now coming to the forefront especially require a watershed approach - control of nonpoint sources, stormwater management, combined sewer overflows, groundwater protection, waste load allocations, water-based recreation. Some "lead organization" is needed to actively facilitate coordination among the many agencies operating in a river basin, view comprehensively theinteractions among programs, and undertake information and education efforts to build the necessary understanding and political will for improved river management. Specifically, it was suggested that Michigan's enabling laws for a river basin "organization" be reviewed and possibly revised.

The Michigan Clean Water Strategy adopted in 1989 further focused on watershed management with the recommendation that "existing legislation should be amended or new legislation passed to strengthen the authority of watershed organizations". Beginning in January of this year, the Office of Water Resources convened an implementation team to draft appropriate enabling legislation. It is expected that draft legislation will be ready for introduction early in the 1991-92 session of the legislature.

Global Great Lakes Progress

"Think globally...act locally"

The Great Lakes Water Quality Agreement between the United States and Canada is based on two guiding principles which are revolutionary solutions to water quality problems:

- the ecosystem approach
- virtual elimination and zero discharge of persistent toxic substances

The **ecosystem** is defined as "the interacting components of air, land, water and living organisms including humans within the drainage basin". Political boundaries are meaningless in this approach.

Very small quantities of **persistent toxic substances** can have significant adverse effects. In quantities so low that they cannot be measured in the water, they are stored in the fatty tissue of fish and can **bioconcentrate** to levels one million times higher than in the water. When wildlife or humans eat the fish the toxic substances can further **biomagnify** up the food chain.

Thus, discharge permits which impose nondetectable limits on toxics and which are based on avoiding harmful concentrations at the point of discharge do not adequately control the toxic effects in the Great Lakes. The need to avoid all contamination from persistent toxic substances is especially critical in the Great Lakes because of the long period of time water stays in the lakes before being flushed out.

An IJC Committee which reviewed the Clinton River RAP observed "the RAP cites most of the ecosystem components, but does not tie them together in a comprehensive manner". Overcoming the disjointed approach remains as a challange for all interested in advancing the Clinton River Remedial Action Planning and concerned for the Clinton River ecosystem health.

A number of citizen organizations around the Great Lakes are forming a Zero Discharge Alliance to work towards ending the use, production, and, thus, the disposal of persistent and bio-accumulative toxic substances.

The International Joint Commission is beginning public discussion on turning "zero discharge" from rhetoric to reality.

This year, Governor Blanchard issued an Executive Order directing all state government agencies to manage water pollution control programs with the goal of virtual elimination of persistent toxic pollutants. The order

requires the DNR to administer the discharge permit program so that all permits for sources in a watershed are reviewed together. The order also calls for establishment of air toxic rules to reduce loadings to the Great Lakes. And it requires each state agency to conduct programs so as to accomplish Michigan's responsibilities in implementing Remedial Aciton Plans.

The Congress is considering a Great Lakes Critical Programs Act which codifies features of the Great Lakes Water Quality Agreement with Canada, set deadlines for Remedial Action Plans, and increases funds for the EPA Great Lakes Program.

Summary

The Clinton River Remedial Action Plan(1988) includes 23 recommendations. Of these, six are for specified actions and 14 call for investigations to provide information for further decision-making.

Six specified actions:	**Status**
• Upgrading of Mt Clemens and Armada WWTP's	Completed
• Sediments removal at Shadyside Park (spillway)	Completed
• 307 contaminated sites and superfund actions	Expanded
• Dredging by Corps of Engineers	Authorized for 1991, hopefully funded
• Storm drains investigations for illegal hook-ups	No action
• Reduce combined sewer overflows to Red Run	To be reviewed with NPDES permit re-issuance
Fourteen Investigations:	
• Four PCB's sampling efforts	Funded and undertaken by MDNR
• Analysis of spillway weir effects and design of an adjustable weir	Congress has authorized and funded COE work
• Nine other Clinton River studies	Yet to be initiated

Includes fish community study, fish contamination study, sediment bioassays for toxicity, macroinvertibrates survey, sediments investigation (sources/transport/loading), dissolved oxygen analyses (low flow caged fish study, 24-hour water chemistry sampling, waste load allocation), organic contaminants analyses.

Three Programs:	
• Nonpoint sources and erosion control	Underway
• Air quality monitoring	Underway
• Watershed funded clearing-house	Legislation being drafted

Clinton River RAP #3

The Remedial Action Plan 1993

The Clinton River RAP #1 newsletter provided a brief history of the Areas of Concern and the Remedial Action Plan programs, as well as a summary of the 1988 RAP. The Clinton River RAP #2 detailed progress that had been made in implementing the recommendations of the RAP. In this edition of the Clinton River RAP newsletter, the current status of the 14 beneficial use impairments will be presented, along with the new look and focus of the PAC, and a look at upcoming work on the RAP.

While RAP in our jargon stands for Remedial Action Plan, it can also stand for our ultimate goal: **Restore And Protect.**

What are RAPs and where do they come from?

This brief description of the RAP program should help de-mystify some of the commonly used jargon, and describe the AOC and RAP participants. Acronyms tend to abound in governmental activities and programs. Newcomers or outsiders to these processes can quickly become awash in an incomprehensible sea of alphabet soup.

The International Joint Commission (**IJC**) was established by the Boundary Waters Treaty of 1909, which specified the rights and obligations of the United States and Canada in regards to the lakes and rivers on their common boarder. The U.S. and Canada have designated 43 of the most heavily polluted areas in the Great Lakes basin as Areas of Concern (**AOCs**). The Clinton River is one of the 43 designated AOCs. Under terms of the 1978 Great Lakes Water Quality Agreement (**GLWQA**), as amended in 1987, each of these AOCs must have a Remedial Action Plan (**RAP**) prepared and implemented. A RAP is essentially a site-specific plan to restore and protect beneficial uses in the AOC (the GLWQA lists 14 potential impairments to beneficial uses).

The U.S. Environmental Protection

(Continued on page 2)

Clinton River PAC reorganized

The Clinton River Public Advisory Committee (PAC) was reorganized recently to begin the next phase of work on the RAP. There are now 27 PAC members representing 15 broad interest groups *(see the accompanying table on page 3 for details)*. Representatives are appointed to the PAC by the director of the Michigan Department of Natural Resources. Each member is responsible for ensuring that the views of their interest group are represented in the RAP process. Relaying information among the RAP participants, their interest group, and the general public is a second responsibility of each member.

The reorganization was made to ensure input from as many user groups in the watershed as possible while maintaining a small core group to make discussions and action easier. The PAC has been charged by the MDNR to provide local input to all facets of development and implementation of the RAP, and to take the lead in RAP-related public education and information.

Two subcommittees have been formed under the PAC. One will develop goals and a mission statement for the PAC. The second will work with public

(Continued on page 3)

DNR

Michigan Department of Natural Resources
Surface Water Quality Division

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What is a RAP

(Continued from page 1)

Agency (**EPA**) has designated the Michigan Department of Natural Resources (**MDNR** or **DNR**) as the lead agency for the Clinton River RAP and all other Michigan RAPs. The Surface Water Quality Division (**SWQD**) of the MDNR has accepted responsibility for overseeing the RAP process.

RAP participants include a Public Advisory Committee (**PAC**), which is made up of members of the general public, local governments, and local interest groups, and a **RAP Team** (a panel of federal and state experts, and the PAC officers). The article "PAC Reorganized" beginning on page one contains further details on the PAC, its makeup, and its charge.

The Michigan Statewide Public Advisory Council (**SPAC**) was established to provide the MDNR with a broad public perspective, and as a forum for discussion of AOC program, policies, priorities, public involvement activities, and technical issues relevant to the 14 AOCs. Each of the 14 Michigan AOCs is represented on the SPAC.

Clinton River facts

*The Clinton River Drainage Basin includes about 760 square miles, and portions of four Michigan counties.

*The Clinton River flows approximately 80 miles from its head waters northwest of Pontiac to its mouth at Lake St. Clair near Mt. Clemens.

*The Clinton River flows through 26 townships, 25 cities and 9 villages.

A new look for RAPs?

An annual citizens' conference on Great Lakes AOCs has been held for the past three years. The 1993 Citizens' Conference, sponsored jointly by the SPAC and the MDNR, focused on means to improve the efficiency and effectiveness of the RAP process. Discussions between the SPAC and the MDNR since the conference have lead to the formulation of several specific proposals along these lines. The RAP process has been criticized, focusing on documentation rather than action. Changes proposed by the MDNR and the SPAC will focus on actions and achieving short term goals rather than on a rigid format for a lengthy and complex document.

Regardless of form or format, the goal of the next Clinton River RAP remains the restoration and protection of beneficial uses in the Area of Concern.

Corps completes dredging

The U.S.Army Corps of Engineers has completed dredging of the federal navigation channel in the lower Clinton River. The navigation channel extends from Lake St. Clair upstream about eight river miles to the city of Mt. Clemens. Approximately 99,000 cubic yards of material were removed from this stretch of the river and placed in the Confined Disposal Facility (CDF) near Moores Bend. Placement in the CDF is required due to the contaminant level of the sediments (heavy metals, PCBs, and oil and grease are the parameters of concern). Restrictions on dredging activities is one of the 14 potential impairments to beneficial uses that RAPs must address. For more details see "Beneficial uses" (page 7).

PAC reorganized

(Continued from page 1)

involvement and education issues and programs. Additional subcommittees on financing and institutional frameworks have been discussed as future needs.

A RAP Team has also been formed to facilitate work on the next phase of the RAP. The RAP Team is composed primarily of state and federal experts who will ultimately review the RAP for technical merit and ensure that the recommendations of the RAP are consistent with state and federal programs and policies. The RAP Team will supply the PAC with technical information and serve as a conduit to the state and federal data bases, reports, and pertinent publications.

The actual RAP document will be written by work groups formed jointly by the PAC and the RAP Team. The work groups will have members from both the PAC and the RAP Team, as well as outside experts and interested members of the general public. This process will ensure the maximum opportunity for public input. The number of drafts or revisions of the RAP should be minimal since all groups are involved from the start, and major changes late in the development of the RAP will, therefore, be avoided.

Three work groups have been formed: Point Source-Nonpoint Source, Contaminated Sediments, and Habitat (Loss or Degradation). Each of the work group topics represents a factor that is the cause of

(Continued on page 4)

	USER GROUP	No. Members New PAC	Former PAC
1.	**Citizens at Large:**	**5**	**7**
2.	**Environmental Groups:**	**2**	**5**
3.	**Recreational Groups:**	**1**	**2**
4.	**Sportsperson Groups:**	**1**	
5.	**Labor Groups:**	**2**	
6.	**Business:**	**2**	**4 (Business & Tourism)**
7.	**Industry**	**2**	
8.	**Agriculture:**	**1**	**2**
9.	**Waste Water Treatment:**	**1**	
10.	**Drain Commissioners:**	**2**	
11.	**Planning/Zoning:**	**1**	
12.	**Governmental:**	**4**	**8**
13.	**Public Health:**	**1**	**2**
14.	**Education (K-12):**	**1**	**2 (Combined)**
15.	**Education (Higher):**	**1**	
			1 Communications Officer
	TOTALS	**27**	**33**

PAC reorganized

(Continued from page 3)

impairment of one or more of the beneficial uses of the Clinton River. The opportunity remains to create new work group topics, or to subdivide current topics into separate work groups if needed.

Participation in the work groups is unlimited. Interest is the only requirement, and all who are interested are invited to become involved in the RAP process through the work groups. A thorough understanding of the issues or a technical background, while helpful, is not required. Many of those already involved are not formally trained. We will all be learning as we go. Background information on the work group topics will be provided through short papers and presentations at upcoming PAC meetings. These meetings are open to the public. Anyone interested in serving on a work group is encouraged to attend these PAC meetings.

For more information on the RAP process or to volunteer for a work group contact:

Robert Sweet
MDNR Surface Water Quality Div.
P.O. Box 30273
Lansing, MI 48909
(517) 335-4182

Bill Smith (PAC Chairperson)
49 Breitmeyer
Mt. Clemens, MI 48043
(313) 468-4028

You may also use the reply page at the back of the newsletter to request information or to become involved in the RAP process.

Exotics-vs-Natives...the battle for habitat

A recent article in the Journal of Great Lakes Research[1] chronicled the introduction of exotic or foreign aquatic organisms to the Great Lakes basin. The authors point out that of the 139 species established in the basin since the early 1800s, shipping activities and unintentional releases account for over half of the introductions. Almost one-third of the species introductions have occurred within the past 30 years, and nearly 10 percent of all introduced species have caused substantial ecological or economic impacts to the resources of the Great Lakes.

As a tributary of the Great Lakes, the Clinton River is not immune from the impact of these invaders. The Clinton contains many well-known (the common carp and chinook salmon) or highly visible (purple loosestrife) exotic species, as well as several that are inconspicuous. Introduced species compete with native species for food and habitat, or prey directly on the native species. Lacking natural controls such as diseases and predators, the introduced species can quickly multiply and overwhelm an ecosystem.

Zebra mussels are one of the newly introduced species in the Great Lakes, arriving most likely in the ballast water of a trans-Atlantic ship. Bill Smith, president of both the Friends of the Clinton River and the PAC, recently reported to the Statewide Public Advisory Council (SPAC) that zebra mussels have been found eight and a half miles upstream of the natural mouth of the

(Continued on page 5)

[1]Mills, E.L., J.H. Leach, J.T. Carlton, and C.L. Secor. 1993. Exotic species in the Great Lakes: A history of biotic crises and anthropogenic introductions. Journal of Great Lakes Research 19(1):1-54.

Exotic Species...

(Continued from page 4)

Clinton. The Oakland Press has reported that zebra mussel larvae have been found in one of the head water lakes of the Clinton River. This is especially alarming because the Clinton is also home to several species of fresh water clams, or mussels, that are rare or endangered. Zebra mussels have been implicated in the reduction of native mussel populations in the Detroit River. Some experts are predicting the elimination of all native mussel species in the Detroit River within the next year. Zebra mussels are also suspected of causing the drastic reduction in young walleyes in Lake St. Clair. Zebra mussels will quickly become a nuisance in the downriver area by fouling surfaces and clogging water intakes.

Boaters may unintentionally spread zebra mussels from the Great Lakes to inland or upriver areas. The larvae, or veligers, can be transported in bilges, live wells, or any trapped water. Adults may be attached to aquatic plants which often hang on trailers during launching and loading. This may also spread Eurasian milfoil, an exotic nuisance plant that is spreading quickly. Boaters can help slow the spread of zebra mussels and milfoil through precautions such as draining and disinfecting boats and trailers when moving between waterbodies, and by using extra care when transporting bait fish from one waterbody to another. Contact your Michigan Sea Grant Extension Agent for more information on what you can do to help. In the Clinton River area contact:

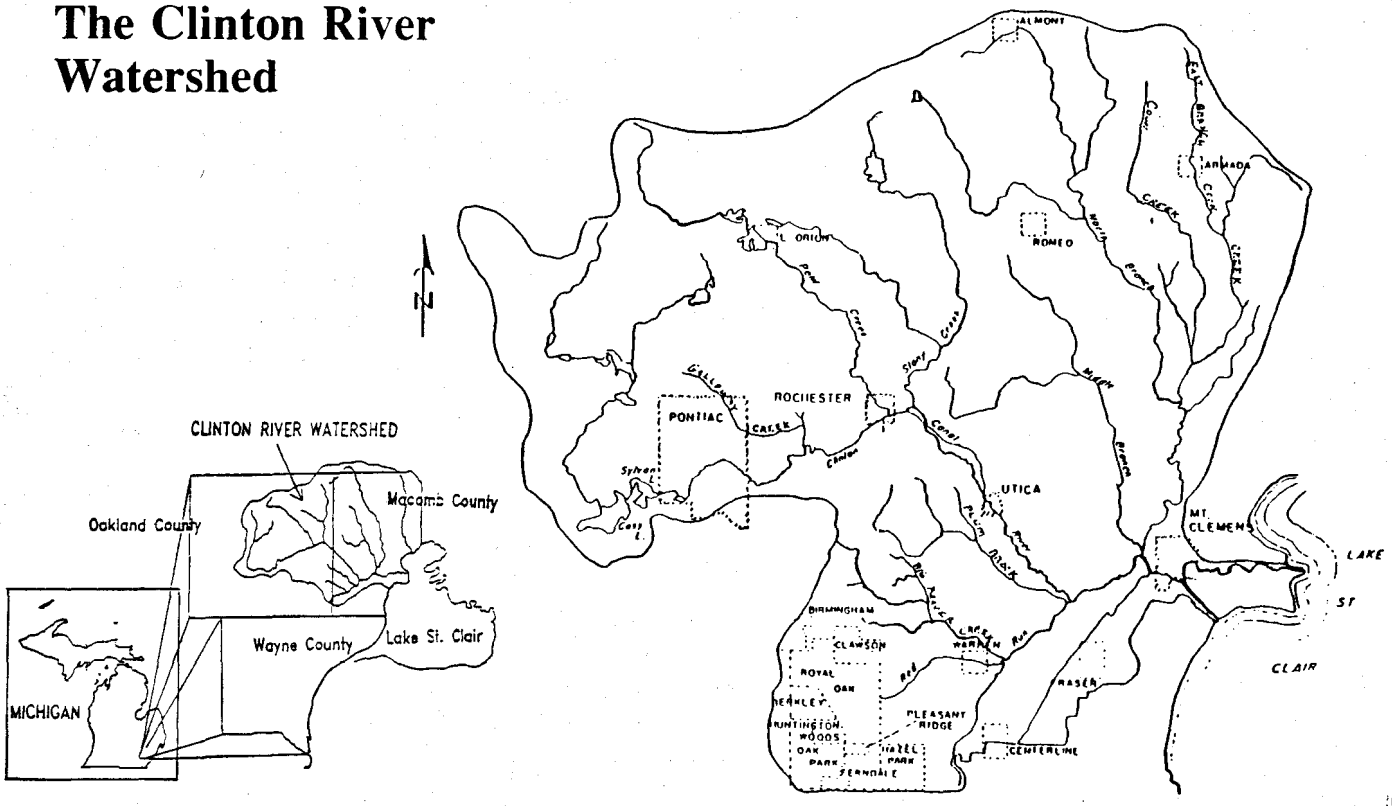
Steve Stewart, Michigan Sea Grant
21885 Dunham Rd.
Mt. Clemens, MI 48043

Sea lamprey are another well known exotic species. Sea lamprey are primitive eel-like fish with specialized sucker mouths. The adults feed by attaching to fish, rasping a hole with their bony tongue and gorging on the blood and tissue. While large healthy fish are able to withstand an occasional attack, the attacks are usually fatal to small or weakened fish. Sea lamprey predation and over-fishing have been cited as the two main causes of the collapse or extinction of several fish populations in the upper Great Lakes.

Sea lamprey populations have been somewhat controlled for many years with chemical treatments. Lamprey, like salmon, spawn in swift gravel-bottom streams. The larval lamprey burrow into the stream bottom were they remain for four to five years feeding on organic material. It is this larval stage that is most susceptible to chemical treatment. TFM, a chemical that is deadly to larval lamprey but harmless to most other species, is applied to known spawning streams every four years. This control strategy was effective for many years. However, the number of sea lamprey in the Great Lakes has increased in recent years. One of the causes of this increase is, ironically, improved water quality. Streams such as the Clinton River which in the past were too polluted for the sea lamprey are now available as lamprey spawning streams. Sea lamprey larvae were found during a recent fish survey of the Clinton.

Even as the need for expanded chemical treatments and sea lamprey research increases, the budget for these activities has been shrinking. Federal budget reductions may deal yet another blow to the ailing sport fishery of the Great Lakes.

The Clinton River Watershed



The CRWC and PAC support

The Clinton River Watershed Council (CRWC) was established in 1971 under the Michigan Local River Management Act. The CRWC has been widely recognized for its efforts on the Clinton River, and has served as the model for similar organizations throughout Michigan.

The CRWC has been a strong supporter of the RAP program and was actively involved in the development of the 1988 Clinton River RAP. The CRWC received grants from MDNR/EPA for the organization and support of a RAP Public Advisory Committee (PAC) in 1989 and for support of this PAC in 1993.

The 1993 grant also contained funding for public outreach and education projects. The CRWC will also prepare four issue papers for the PAC as part of this grant. The PAC selected the topics of these papers at the June meeting. The topics are, Contaminated Sediments, Point and Nonpoint Sources, Habitat, and Public Involvement. Presentations of these issues will be made to the PAC at upcoming meetings by guest speakers. These meetings are open to the public, and all who are interested are encouraged to attend. A schedule of the presentations and speakers is not yet available.

Nongame wildlife needs your help

Besides the rare and endangered mussels mentioned in a previous article, the Clinton River is home to several other species of concern as well as many other nongame species. Nongame species are those that are neither hunted, trapped, or fished. Nongame wildlife includes common species from song birds to salamanders as well as rare species such as eagles and loons. The nongame species usually account for 80 percent or more of the species in a given area.

Money from the sale of hunting and fishing licenses and a tax on hunting and fishing gear is used to purchase, enhance, and protect habitat for game species. These projects also benefit nongame species, but direct funding for nongame animals is very limited.

One way you can support nongame wildlife and unique habitats is through contributions to the Nongame Wildlife Fund on your Michigan income tax form, or send your check made payable to "Nongame Wildlife Fund" to:

MDNR/Natural Heritage Program
Wildlife Division
P.O.Box 30028
Lansing, Michigan 48909

Money from this fund is used for the protection and restoration of habitat, research, and public information and education.

Beneficial uses and the Clinton River

The 1987 amendments to the GLWQA contain 14 potential impairments to beneficial uses with which to judge the conditions in an AOC. These use impairments and a short definition of each are shown in the first two columns in the table on pages 8 and 9. The potential impairments to beneficial uses are somewhat vague and open to interpretation. For instance, if there are no beaches in the AOC can the use impairment "Beach Closings" exist? Or, are high bacteria concentrations in the water sufficient reason to list this as a use impairment? This must be decided point by point for each AOC, but must remain consistent with the listing guidelines (column two of the table).

The original Clinton River RAP was substantially completed prior to the authorization of the 1987 amendments. Therefore, it did not delineate problems in terms of these 14 use impairments. The PAC and RAP Team will soon be deciding definitions and the status of the 14 beneficial use impairments specific to the Clinton River AOC. The following table summarizes information from the 1988 RAP and other sources, and will be the starting point for our discussions. Blank spaces in the table denote either the lack of information or areas where opinions significantly differ. This table is not all-inclusive. It was developed primarily from information in the RAP files in Lansing. If you have additional information or a differing opinion, please use the reply page at the end of this newsletter.

Current Status of the Impaired uses of the Clinton River

Use Impairment	Listing guideline	Status	Reference	Cause/Source
Restrictions on Fish and Wildlife Consumption	When contaminant levels in fish or wildlife populations exceed currents standards, objectives, or guidelines, or public health advisories are in effect for human consumption of fish or wildlife. Contaminant levels must be due to input from the watershed.	Impaired. Public Health fish consumption advisory in effect for all carp caught downstream of Yates dam.	1993 Michigan Fishing Guide	Cause: PCBs Suspected source: Nonpoint Sources
Tainting of Fish and Wildlife Flavor	When ambient water quality standards, objectives, or guidelines, for the anthropogenic substance(s) known to cause tainting, are being exceeded or survey results have identified tainting of fish or wildlife flavor.	Not impaired.	Non-scientific Angler survey 1993. Two of 68 respondents reported off flavor. Both also fished other locations and did not specify that these fish came from the Clinton River.	
Degraded Fish and Wildlife Populations	When management programs have identified degraded fish or wildlife populations due to a cause within the watershed, or when bioassays confirm significant toxicity from water column or sediment contaminants.	Warm water fishery judged impaired.	Joint Fisheries/RAP workshop on habitat in AOCs, Fish. Tech. Report, and draft Fisheries Management Plan (1989).	Urbanization/Land use Impoundment Point Sources Nonpoint Sources
Fish Tumors or other Deformities	When the incidence rates of fish tumors or other deformities exceed the rates at unimpacted control sites or when surveys confirm the presence of neoplastic or prenoplastic tumors in bullheads or suckers.	Not impaired.	Popular literature contains several reports of tumors on walleye and northern pike.	Reports of tumors are due to Lymphosistys a common viral disease of both fish and not due to contamination.
Bird or Animal Deformities or Reproductive Problems	When surveys confirm the presence of deformities or reproductive problems in sentinel wildlife.		Literature review found no studies of deformities or reproductive problems in Clinton River basin.	
Degradation of Benthos	When the benthic macroinvertebrate community structure significantly diverges from unimpacted control sites or when sediment toxicity is significantly higher than controls.	Several sites have been surveyed. Benthos quality ranges from excellent to poor, generally being better in the upper reaches of the watershed. Impaired.	Strayer (1980), and several SWQD Reports.	Cause: Sedimentation, and low oxygen levels. Source: Point-Nonpoint Sources

Current Status of the Impaired Uses of the Clinton River (continued)				
Use Impairment	**Listing Guideline**	**Status**	**Reference**	**Cause/Source**
Restrictions on Dredging Activities	When there are restrictions on Dredging or Disposal due to contaminant levels in the sediments.	Sediments from navigation channel require confined disposal. Impaired.	EPA Dredged Materials Disposal Guidelines exceeded.	Cause: PCBs, Heavy Metals, and Oil and Grease Source: Point-Nonpoint Sources
Eutrophication or Undesirable Algae	When there are persistent water quality problems attributed to cultural eutrophication.			
Restrictions on Drinking Water Consumption or Taste and Odor Problems	When treated drinking water: 1) exceeds standards, objectives, or guidelines for disease organisms, hazardous/toxic chemicals, or radioactive substances, 2) taste and odor problems are present, 3) treatment required for raw water is beyond the standard treatment for the Great Lakes area.			
Beach Closings	When waters commonly used for full or partial body contact recreation exceed the standards, objectives, or guidelines for such use.	No beach closings since 1983. Combined Sewer Overflows reported in 1992.	1992 305(b) report, County Health Department records.	
Degradation of Aesthetics	When any substance in water produces a persistent objectionable deposit, color, turbidity, or odor.		No documented reports of aesthetic impacts from poor water quality, 1988 RAP.	
Added Cost to Agriculture or Industry	When additional treatment is required prior to use.	Due to Natural Causes (TDSs) not remediable.	1988 RAP	
Degradation of Plankton Populations	When populations significantly differ from unimpacted control sites.	Current status unknown, but expect some recovery from degraded levels last reported.	Biological Survey of the Clinton River Pontiac to Mouth. MDNR 1973.	
Loss of Fish and Wildlife Habitat	When fish and wildlife management goals have not been meet as a result of loss of habitat due to perturbation of the physical, chemical, or biological integrity.	Habitat limited by low Dissolved Oxygen levels, sedimentation, loss of wetlands, and high gradient areas and migration routes impacted by dams.	Fisheries/RAP Workshop Habitat in AOCs, Fisheries Tech. Report, and draft Fisheries Management Plan	Urbanization/Land use Impoundment Point sources Nonpoint Sources
Other	Please use the reply page at the back of this newsletter to inform us of any additional use impairments of the Clinton River.			

RAP recommendations 1988-1993: 5 years of progress

The 1988 RAP contained a list of 23 recommended actions. The recommendations included remedial actions, research or data needs, and one institutional arrangement. Many of the recommendations have been completed, and work has begun on most of those remaining. Details of this progress is chronicled in the Clinton River RAP #1, and #2 newsletters, and RAP progress reports. Copies are available from the RAP Coordinator or the Clinton River Watershed Council (use the reply page at the back to request information).

The condition of the Clinton River has improved drastically over the last 30 years. The Clinton was known as a dead river in the early 60s, a fish survey found no fish downstream of Pontiac. Today the Clinton has good runs of both walleye and salmon. Those involved in the changes have every right to be proud of their accomplishments. But in spite of these improvements, much remains to be done.

In the five years since the 1988 RAP, technologies have changed, and improving conditions have led to new opportunities. These changes, coupled with a focus on the Clinton River RAP at the state level, give us a good opportunity to take a step back to re-evaluate not only where we are and where we've been but also where we would like to be going. This evaluation process is the next step in the RAP process.

Get the most out of the Clinton River RAP through involvement. Share your vision of the Clinton River of the future. Voice your concerns at PAC meetings. Be involved with a work group.

Clinton permits up for review

The major National Pollution Discharge Elimination System (NPDES) permits in the Clinton River basin will be reviewed and reissued in fiscal year 1996. These permits are required of any facility that discharges to surface waters. The permit contains quantity and quality parameters for the effluent, as well as a monitoring regime, that the discharger must adhere to. The permits, required by federal and state law, are issued by the state.

This will mean increased field activities for the summer of 1994 in preparation for permit applications. Although a schedule of times and locations is not yet available, the MDNR is planning several surveys on the Clinton and its tributaries.

Clinton River history

The Clinton-Kalamazoo Canal, in 1837, was the first public works project authorized by the Michigan legislature. The project was to provide a waterway for transportation between Lake St. Clair and Lake Michigan. The waterway would have crossed 216 miles of dry land between Mt. Clemens in the east and the port city of Singapore on the shore of Lake Michigan. Twelve miles of the canal, between Mt. Clemens and Rochester, were completed over a four-year period. The state treasury then went into bankruptcy and halted construction activities. The advent of the rail-road era ended all further support for the canal. Portions of the canal still exist between Rochester and Utica and are visible in the Rochester Utica Recreation Area.

NAME_____

ADDRESS_____
STREET ADDRESS APT NUMBER

_____
CITY STATE ZIP CODE

TELEPHONE (Day)_____ (Evening)_____

1.) ____ Please add my name to the RAP mailing list

2.) Please send me the following information:

3.) I am interested in serving on the following work group:
____ Point Source/Nonpoint Source
____ Contaminated Sediments
____ Habitat

4.) I feel I am representative of the following interest groups:

5.) I am interested in the Clinton River because:

6.) Comments and Concerns:

Return to: Robert Sweet
Surface Water Quality Div.
Michigan Dept. of Nat. Res.
P.O. Box 30273
Lansing, Michigan 48909

Clinton River Remedial Action Plan (RAP)

Principles (Precepts) for RAP Planning

At a Clinton River Public Advisory Committee Goals and Objectives Subcommittee meeting 9/14/93 a set of Toronto RAP principles was reviewed for their relevance to the Clinton RAP. These notes reflect that discussion.

1. **Water is a basic necessity of life and should be conserved. Its quality should be protected and restored.**

   This recognizes the importance of water to our continued existence on earth. Efficient, non-wasteful use of water, can mean less strain on the environment and the taxpayer's pocketbook.

   This suggests that headwaters areas where the water is still clean should be protected. It also suggests that waters in the lower reaches should be cleaned up.

   Accepted.

2. **The river and watershed must be planned and managed using an ecosystem approach. Ecosystem means using a comprehensive and systematic consideration of interacting components of air, land, water and living organisms, including humans.**

   The implications of this are far reaching. For example, it suggests that solutions which simply transfer a problem from one place to another, or from medium (water) to another (air or land) would not be acceptable. This also suggests that before selecting an remedial action we may need a fairly sophisticated understanding of the efects of that action. It also means not only looking at the effects on the natural environment but also social and economic impacts.

   "Must" may not apply everywhere; perhaps "should" is better.

3. **The RAP goals form the basis for RAP action.**

   This ties the adopted RAP goals to any actions which may be proposed.
   Will any particular action help meet a RAP goal or goals?
   Will the overall package of actions- the RAP Plan- meet the goals?

   Accepted.

4. **Environmental decision-making and the selection of remedial actions should be coordinated and involve the participation of all stakeholders. Stakeholders include all perspectives: all levels of government, the private sector, non-governmental organizations, conservation groups and agencies, community groups and individuals.**

   This suggests that those persons who have a stake- who will be affected by a decision- should be involved in the making of that decision. The RAP process respects this principle by including all sectors in the committees and at key decision points opening up for formal consultation of the general public.

   Accepted (emphatically).

5. **We are all polluters and must be part of the solution.**

   Principles 5, 6, 7 are related as they deal with individuals.
   This recognizes that all of us who live and work in the watershed have impacts on the Clinton River and the Great Lakes. Through the amount of water we use, the products we buy and perhaps pour down the sink, the fertilizers and pesticides used on our lawns, through our day-to-day living we contribute to stress on the ecosystem.

   Agreed.

6. **Public awareness and education, including access to information, are important to the sucess of the RAP.**

   Taking responsibility for our actions requires information. This includes educational programs that make us aware of the impacts of our lifestyle and the opportunities for individual action.

   Accepted (critical)

7. **Both voluntary action and legislation should be considered as a means of implementing remedial actions.**

   This means also accepting that government legislation alone cannot fix the myriad of problems in our Area of Concern. Citizens, through voluntary actions, need to become involved.

   Accepted. Suggest adding "remedial **and preventive**" actions.

8. **Source control shall be an objective and take priority over end-of-pipe solutions.**

   End-of-pipe solutions can remove pollutants from effluents but may have residues of metals and persistent organic chemicals that are then landfilled or incinerated; thus surface waters may be protected at the expense of air, soil, or groundwater

   Control-at-source usually means reducing or eliminating the use of a toxic material at the source (substituting a non-toxic chemical, using a closed-loop system with no discharges, etc.). This is often termed "Pollution Prevention".

   Addition: We are not trying to banish end-of-pipe solutions. There are circumstances where these are the most efficient and effective solutions.

9. **Neither dilution nor dispersion should be considered satisfactory substitutes to reducing pollution.**

   The local impacts of a discharge pipe can be reduced for example by extending a pipe further into a lake or adding dillution water. The concentrations are reduced but the pollutants are only dispersed making it "somebody else's problem. Because the Great Lakes have such long residence time they act as a sink for persistent substances. For the lakes, it is the loadings that count not the concentration at the point of discharge. With today's discharge permits, dillution still counts; it is easier to get a permit to discharge into a larger stream. In looking at the river we focus on concentrations and short term impacts; in looking at the lakes we focus on loadings and long term impacts.

   Agreed.

10. **There should be zero discharge of persistent toxic chemicals.**

    This principle implies that the RAP should be working towards the goal of zero discharge. To test progress towards this goal we can test whether a particular action will reduce the loading of persistent toxic chemicals into the environment.

    It was acknowledged that this goal may not be achievable; but it serves to set the direction for actions...hence the term "should" not "must".

11. **The RAP should encourage and review research that supports RAP principles, but research must not be used as an excuse for inaction.**

    Given our inability to totally comprehend ecological systems, we must act when we know enough and not wait for perfect knowledge. This has been called "The Precautionary Principle".

    Agreed

12. Implementation consistent with RAP goals and principles should proceed along with development of the RAP.

Where people agree that an action is a good one, implementation should not be held up until the entire Remedial Action Plan is finalized.

Agreed

13. In addition to remediation, the RAP must include and encourage preservation, conservation, rehabilitation, and prevention.

To deal with the entire spectrum of problems facing the river and its watershed, the RAP must go beyond mere remediation of existing problems. The RAP should anticipate and prevent new problems from arising. And it must consider how to prevent problems from recurring. There is no point to cleaning up bottom sediments if we continue to pour pollutants into the river. This principle recognizes the need to rehabilitate (restore to health) degraded wetlands, fisheries, creeks, and the river. The preservation of important natural areas, and the conservation of natural resources are included.

Agreed.

14. The RAP goals and applicable actions should be integrated into land use planning and construction approvals.

This reflects the crucial need to bring together land use and environmental planning to ensure that implementation occurs. How can we make sure that the RAP plan will be followed and not just sit on a shelf? Integration of the RAP and land use planning will also help to prevent future problems from occuring.

Agreed. Add to this principle that local communities should be encouraged to plan in terms of watersheds and the river basin.

15. A RAP implementation action should be led and coordinated by the appropriate and clearly defined and mandated party.

This recognizes the need to ensure that implementation occurs. Implementation of the Plan will require the coordinated efforts of many government and non-government bodies. To ensure accountability, one designated party must be given the responsibility to carry out each of the planned actions. Some parties may be more appropriate to carry out particular tasks than others.

"Mandated" means that the designated lead agency must have adequate legal authority to implement the action.

Agreed. But beyond this provision for a responsible party for each action, there is a need for "someone" to be responsible for the overall RAP.

16. An integrated and coordinated program of environmental monitoring and reporting of progress is essential in developing, implementing, evaluating, and revising the RAP.

Monitoring allows us to evaluate the effectiveness of remedial actions, to measure if progress is being made and determine if goals are being reached. Reporting to the public assures accountability to taxpayers and other parties.

Agreed.

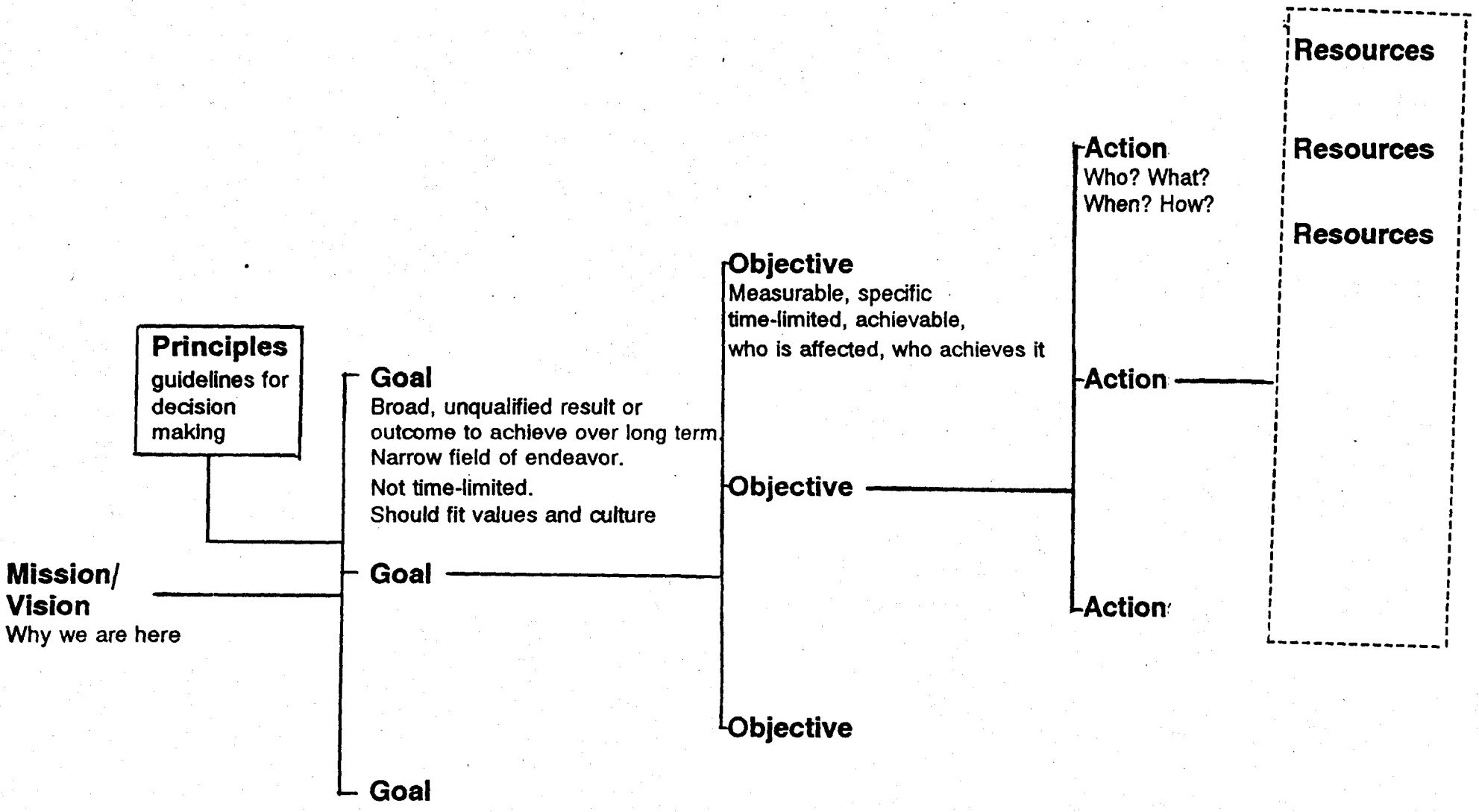
Several additional principles were suggested:

- Actions taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits achieved.
- We should take advantage of the investment in pollution control (improved water quality) and provide for recreational use of the "fishable/swimmable" waters.

- Watershed-based planning provides the opportunity for cross-jurisdictional decision-making amoung the local communities in the watershed and the opportunity for a cooperative and effective partnership between the federal, state, and local levels of government. The RAP planning should have an on-going institutional home at the watershed level.

The committee discovered that discussion of these principles served to reveal educational needs.

Planning Framework[1]



[1] Florence Green & Associates

Team Members Continued

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115 S Groesbeck
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Mark Breederland
International Joint Commission
PO Box 32869
Detroit MI 48232

Adopted June 16, 1993

Clinton River RAP-PAC: Organization

Council* Members: 27

Environmental Groups	2
Citizens at large	5
Health (County Health Department, hospitals, etc)	1
Municipal and County, POTW, Planning	8
Agriculture	1
Recreation, sportsperson	2
Business, industry	4
Education	2
Labor	2

- **Term of Service: 3 years***

  To get started with staggered terms half will be randomly assigned an initial two year term. There will be no limitation on the length of time of service. Each member should designate a alternate.

- **Advisors (RAP Advisors)**

  The PAC members are public advisors to the MDNR. The RAP Team member serve as Technical Advisors to the PAC. As needed key persons from the public and private sectors will be invited to meet with the PAC in an advisory role.

- **Officers**

  A Chairperson and Vice-Chairperson.
  Term: 2 years.

- **Staff**

  There is currently a DNR contract with the Clinton River Watershed Council to provide staff assistance for the PAC and its subcommittee.

* Amended September 16, 1993

- **Meetings**

Frequency:	Quarterly with special meetings as needed
Time of Day:	5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties to include both source areas and impacted areas.

- **Format of Meetings**

Format:	5:00 - 6:30	PAC Meeting - Subcommittee Reports
	6:30 - 7:00	Public Comment/Break
	7:00 - 8:00	Program: Public attendance emphasized

- **Voting**

There should be formal votes on procedures, budgets/expenditures, issues. Presence of a majority of the Committee Membership constitutes a quorum. A business item may be approved by a majority of those present or number of aye votes sufficient to prevail were a quorum present. Roberts Rules of Order will govern.

- **Meeting Notices**

- ♦ Agenda Packets mailed to expanded PAC list* prior to each meeting
- ♦ Formal legal notice not required to be published
- ♦ Publish in community calendars of Macomb Daily and Oakland Press
- ♦ Press release
- ♦ CRWC quarterly newsletters
- ♦ List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
- ♦ Flyers for Special Meetings

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* "Expanded PAC list" includes PAC members and alternates, RAP Team Members, key persons identified for information purposes. Approximately 60 persons.

PARLIAMENTARY PROCEDURE

Based on Roberts Rules of Order
***NOT AMENDABLE**

TO DO THIS	YOU SAY THIS	May You Interrupt Speaker?	Must You Be Seconded?	Is The Motion Debatable?	What Vote is Required?
• Adjourn the meeting	" I move the meeting be adjourned"	No	Yes	No	Majority
• Recess the meeting	" I move the meeting be recessed until ..."	No	Yes	No	Majority
• Complain about noise, room temperature, etc.	" point of privilege"	Yes	No	No	No Vote
• Suspend further consideration of something	" I move to table the motion"	No	Yes	No	Majority
End debate	" I move the previous question"	No	Yes	No	2/3 Vote
Postpone consideration of something	" I move this matter be postponed until ..."	No	Yes	Yes	Majority
Have something studied further	" I move this matter be referred to a committee"	No	Yes	Yes	Majority
Amend a motion	" I move that this motion be amended by"	No	Yes	Yes	Majority
Introduce business (a primary motion)	" I move that ..."	No	Yes	Yes	Majority
• Object to a procedure or to a personal affront	" Point of order"	Yes	No	No	No Vote Chair Decides
• Request information	" Point of information"	Yes	No	No	No Vote
• Ask for a vote by actual count to verify a voice vote	" I call for a division of the house"	No	No	No	No Vote
* Object to considering some undiplomatic matter	" I object to consideration of this question"	Yes	No	No	2/3 Vote
• Take up a matter previously tabled	" I move to take from the table"	No	Yes	No	Majority
• Reconsider something already disposed of	" I move to reconsider the action relative to ..."	Yes	Yes	Yes	Majority
• Consider something out of its scheduled order	" I move to suspend the rules and consider ..."	No	Yes	No	2/3 Vote
• Vote on a ruling by the chair	" I appeal the chair's decision"	Yes	Yes	Yes	Majority

Source Unknown

Clinton River Fact Sheet

Problems and Opportunities

Watershed Description

The Main Branch of the Clinton River extends for 80 miles from northwest Oakland County to the mouth of Lake St. Clair. The watershed is 760 square miles. There are 600 miles of stream including the major tributaries. Oakland County has 1165 lakes in the headwaters of the Clinton, Huron, Rouge and the Shiawassee (Saginaw) Rivers, more than any other Michigan County. Many of these lakes are "wide spots" in the Clinton River.

Glaciers left behind two distinct land forms. Glacial Lake St. Clair extended for inland so the eastern half of the watershed (Macomb County) is very flat, with clay lakeplain soils and poor drainage. The western half is glacial moraines, hilly, sand and gravel soils, well defined stream drainage.

Settlement divides the watershed into thirds. The southern part extending outward from 8 Mile Road (the City limits of Detroit) is urban; the middle third along the Main Branch is rapidly developing suburbs; the northern third is rural. Prime agricultural lands are along the Main Branch, draining north Macomb County. There is extensive industry in Pontiac and the southern watershed.

Over a million people live in the watershed in 56 municipalities and four counties.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Since the 1960's, 7 out of 21 municipal plants remain on the river while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted for control of combined sewer overflows, either separating old combined sewers (Pontiac and Mt. Clemens) or constructing retention basins to provide primary treatment - oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Yet the CSO annual loading to the Red Run and Clinton River far exceeds that of Warren Treatment Plant with its tertiary treatment.

Public construction projects on the Clinton total $380 million; these were financed

by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. When operating costs, private pollution control investments and administrative costs are included, it is estimated that $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The Clinton River water quality today is greatly improved. Where not a live fish could be found from Pontiac to the mouth in the 1960s, there is today a large and varied fishery (which does depend on stocking, not natural reproduction). Many people are fishing the river and enjoying canoeing and boating and riverfront parklands.

Problems

The lower watershed, below the confluence of the Red Run which drains urban south Oakland and Macomb Counties, is listed as one of the 43 Areas of Concerns throughout the Great Lakes. This is principally because of sediments contaminated with heavy metals, PCBs, oil and grease. Oil spills and discharges tot he river are frequent. Other problems are degraded biota, low dissolved oxygen, heavy sedimentation, excessive nutrients, pesticides, and fecal coliforms. Causative factors are largely unknown: suspected sources include point sources (7 municipal treatment plants and 22 industrial discharges), nonpoint urban runoff, agricultural runoff, combined sewer overflows and contaminated groundwater. There are 214 listed sites of contamination in the watershed, 4 on the national "Superfund" list. There are restrictions on dredging because of the contaminated sediments. The Corps has dredged the lower 8 miles of the navigation channel since the 1850's. Shoaling at the spillway head has required periodic dredging. An investigation is underway to determine if a adjustable weir to direct non-flood flows down the natural channel would help improve water quality on the lower river. A fish consumption advisory was issued for carp from the lower Clinton River in 1990.

Flooding has been a severe problem along the river in the lower watershed, and in Pontiac, with sewers backing up and basements being flooded. The Corps of Engineers constructed two major flood control projects in the 1950s - the cut-off canal and Red Run Drain. A 1968 rain revealed that the projects design capacities were exceeded as the result of increased runoff from continuing urban development. The Corps undertook flood control planning for another decade, but concluded that the cost of a federal channelization project would exceed the benefits in reduced flood damages.

In the upper watershed there are extensive wetlands playing a key role in flood

state and federal regulatory programs, and pressures of new urban develoment. Because of the intensive shoreline development and recreational use of the inland lakes, plus lakeshed drainage impacts, there is concern about water quality and private versus public interests in the use of lakes in the watershed. Septic system concerns persist on some lakes and for groundwater impacts. Because the many dams do not have minimum release rates, there are downstream concerns about instream uses. River flow plays a critical role in the water quality. At drought flows - to which pollution control measures are aimed - only 15% is groundwater and tributary flows - 64% is from 6 municipal treatment plants (water that's been pulled out of the Great Lakes through Detroit's water supply system), 21% is industrial - largely non-contact cooling water.

The Clinton is typical of an urban river - when it is raining, because of development in the watershed, there are much higher flows than for a natural watershed; when it is not raining, there are reduced base flows. High flows cause severe bank erosion. Uncontrolled erosion from construction sites remains a problem. Sedimentation is the major insult to the river.

Topography also plays a critical role. As the river flows out of Oakland County onto the flat lands, the flow slows, sediment drops out, and there is little reaeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions. The extent of nonpoint sources of pollution remains largely unknown; but estimates suggest it is the dominant influence on river water quality today. The problems resulting from stream enclosures and channelization are also now recognized.

Institutional problems are the major impediment to effective river management. There is a myriad of agencies and programs at the federal/state/local levels with some responsibilities fir water management; but their efforts are largely uncoordinated and sometimes contradictory. Effective means to deal with problems that transcend a single political jurisdiction are not available, or are little used.

New local and watershed funding sources are needed for water quality monitoring, programs to prevent as well as remedy problems, and local water management activities.

Opportunities

Remedial Action Plans are being developed for the Great Lakes Areas of Concern.

The Clinton River Plan, developed by the MDNR, was presented to the International Joint Commission in November 1988. The Clinton River Watershed Council received a grant to facilitate watershed community participation and implementation agreements. A Public Advisory Committee for the Clinton River RAP was inaugurated in 1991.

Congressman Bonior and the Clinton River Intercounty Drainage Board have pursued ways to address the shoaling and reconstruction of the weir at the spillway head through the federal government and/or drainage district.

The 1987 amendments to the federal Clean Water Act, new DNR programs (including the proposed air toxics strategy), the Clinton River Remedial Action Plan, and local programs for Industrial Pretreatment all add up to a new focus on control of toxics in the river and opportunities to answer outstanding questions on the impacts of toxics on Clinton River aquatic life.

Cleanup of contaminated sites has accelerated with voter approval of the Michigan Quality of Life Bond proposal and passage of "polluters pay" legislation.

Michigan developed a Nonpoint Sources Control Strategy in 1988; some state and federal funds are now available for source control and watershed projects. County and municipal enforcing agencies are increasing inspections and enforcement actions to control erosion from construction sites. Local inspections and ordinances can play a key role.

The Clinton River Cleanup Committee is sponsoring annual river debris removal days and some local government and private groups are undertaking river maintenance - not only removal of log jams, but stabilization of eroding banks and riverside vegetated buffers.

Local government management of floodplains provides the opportunity to go beyond minimum state and federal requirements to avoid flood damages resulting from new development upstream in the watershed and also to protect the environmental and recreation values of floodplains. There is now available a reduction in local flood insurance rates based on a good local flood management program. Local governments could undertake flood damage reduction projects identified in the Corps planning.

Local governments, supported by local citizens and developers, can play key roles in wetlands use and protection through coordination with DNR permitting, local wetlands ordinances, local planning for wetlands management and design of the local stormwater system.

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Over a million people live in the watershed in 56 municipalities and four counties.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Since the 1960's, 7 out of 21 municipal plants remain on the river while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted for control of combined sewer overflows, either separating old combined sewers (Pontiac and Mt. Clemens) or constructing retention basins to provide primary treatment - oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Yet the CSO annual loading to the Red Run and Clinton River far exceeds that of Warren Treatment Plant with its tertiary treatment.

Public construction projects on the Clinton total $380 million; these were financed

by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. When operating costs, private pollution control investments and administrative costs are included, it is estimated that $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The Clinton River water quality today is greatly improved. Where not a live fish could be found from Pontiac to the mouth in the 1960s, there is today a large and varied fishery (which does depend on stocking, not natural reproduction). Many people are fishing the river and enjoying canoeing and boating and riverfront parklands.

Problems

The lower watershed, below the confluence of the Red Run which drains urban south Oakland and Macomb Counties, is listed as one of the 43 Areas of Concerns throughout the Great Lakes. This is principally because of sediments contaminated with heavy metals, PCBs, oil and grease. Oil spills and discharges tot he river are frequent. Other problems are degraded biota, low dissolved oxygen, heavy sedimentation, excessive nutrients, pesticides, and fecal coliforms. Causative factors are largely unknown: suspected sources include point sources (7 municipal treatment plants and 22 industrial discharges), nonpoint urban runoff, agricultural runoff, combined sewer overflows and contaminated groundwater. There are 214 listed sites of contamination in the watershed, 4 on the national "Superfund" list. There are restrictions on dredging because of the contaminated sediments. The Corps has dredged the lower 8 miles of the navigation channel since the 1850's. Shoaling at the spillway head has required periodic dredging. An investigation is underway to determine if a adjustable weir to direct non-flood flows down the natural channel would help improve water quality on the lower river. A fish consumption advisory was issued for carp from the lower Clinton River in 1990.

Flooding has been a severe problem along the river in the lower watershed, and in Pontiac, with sewers backing up and basements being flooded. The Corps of Engineers constructed two major flood control projects in the 1950s - the cut-off canal and Red Run Drain. A 1968 rain revealed that the projects design capacities were exceeded as the result of increased runoff from continuing urban development. The Corps undertook flood control planning for another decade, but concluded that the cost of a federal channelization project would exceed the benefits in reduced flood damages.

In the upper watershed there are extensive wetlands playing a key role in flood

state and federal regulatory programs, and pressures of new urban develoment. Because of the intensive shoreline development and recreational use of the inland lakes, plus lakeshed drainage impacts, there is concern about water quality and private versus public interests in the use of lakes in the watershed. Septic system concerns persist on some lakes and for groundwater impacts. Because the many dams do not have minimum release rates, there are downstream concerns about instream uses. River flow plays a critical role in the water quality. At drought flows - to which pollution control measures are aimed - only 15% is groundwater and tributary flows - 64% is from 6 municipal treatment plants (water that's been pulled out of the Great Lakes through Detroit's water supply system), 21% is industrial - largely non-contact cooling water.

The Clinton is typical of an urban river - when it is raining, because of development in the watershed, there are much higher flows than for a natural watershed; when it is not raining, there are reduced base flows. High flows cause severe bank erosion. Uncontrolled erosion from construction sites remains a problem. Sedimentation is the major insult to the river.

Topography also plays a critical role. As the river flows out of Oakland County onto the flat lands, the flow slows, sediment drops out, and there is little reaeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions. The extent of nonpoint sources of pollution remains largely unknown; but estimates suggest it is the dominant influence on river water quality today. The problems resulting from stream enclosures and channelization are also now recognized.

Institutional problems are the major impediment to effective river management. There is a myriad of agencies and programs at the federal/state/local levels with some responsibilities fir water management; but their efforts are largely uncoordinated and sometimes contradictory. Effective means to deal with problems that transcend a single political jurisdiction are not available, or are little used.

New local and watershed funding sources are needed for water quality monitoring, programs to prevent as well as remedy problems, and local water management activities.

Opportunities

Remedial Action Plans are being developed for the Great Lakes Areas of Concern.

The Clinton River Plan, developed by the MDNR, was presented to the International Joint Commission in November 1988. The Clinton River Watershed Council received a grant to facilitate watershed community participation and implementation agreements. A Public Advisory Committee for the Clinton River RAP was inaugurated in 1991.

Congressman Bonior and the Clinton River Intercounty Drainage Board have pursued ways to address the shoaling and reconstruction of the weir at the spillway head through the federal government and/or drainage district.

The 1987 amendments to the federal Clean Water Act, new DNR programs (including the proposed air toxics strategy), the Clinton River Remedial Action Plan, and local programs for Industrial Pretreatment all add up to a new focus on control of toxics in the river and opportunities to answer outstanding questions on the impacts of toxics on Clinton River aquatic life.

Cleanup of contaminated sites has accelerated with voter approval of the Michigan Quality of Life Bond proposal and passage of "polluters pay" legislation.

Michigan developed a Nonpoint Sources Control Strategy in 1988; some state and federal funds are now available for source control and watershed projects. County and municipal enforcing agencies are increasing inspections and enforcement actions to control erosion from construction sites. Local inspections and ordinances can play a key role.

The Clinton River Cleanup Committee is sponsoring annual river debris removal days and some local government and private groups are undertaking river maintenance - not only removal of log jams, but stabilization of eroding banks and riverside vegetated buffers.

Local government management of floodplains provides the opportunity to go beyond minimum state and federal requirements to avoid flood damages resulting from new development upstream in the watershed and also to protect the environmental and recreation values of floodplains. There is now available a reduction in local flood insurance rates based on a good local flood management program. Local governments could undertake flood damage reduction projects identified in the Corps planning.

Local governments, supported by local citizens and developers, can play key roles in wetlands use and protection through coordination with DNR permitting, local wetlands ordinances, local planning for wetlands management and design of the local stormwater system.

Planning and coordinated action of local governments and County Health Departments should be pursued for management of septics systems in areas where construction of sewers is not cost-effective or anticipated in the near term.

Local governments, with support of citizens and developers and assistance from the Clinton River Watershed Council, Department of Natural Resources, private consultants can undertake stormwater management planning and implementation.

Often urban storm drains have improper connections of sewage pipes or floor drains which allows non-stormwater discharges and spills to enter the drains. Local government can initiate programs to investigate and eliminate illegal connections.

EPA regulations for municipal storm drains have been developed as prescribed by 1987 amendments to the Clean Water Act. It is the intent of Congress to foster stormwater management, focusing initially on larger urban areas. Municipalities are expected to both work up the local drain system with an NPDES permit stipulations on the end of the drain and work down with local nonpoint sources control. Industrial sites and construction sites disturbing more than 5 acres of land also require stormwater permits.

A number of Groundwater Education in Michigan (GEM) projects are currently being funded by the W.K. Kellogg Foundation. These offer opportunities for local government officials, citizens, teachers and students to explore local community opportunities for groundwater protection.

Management efforts by lakes associations and lakeshed planning and management by local governments can play a vital role in protecting the water quality of lakes, avoiding conflicting lake uses, and protecting lakefront property values. Past studies have suggested flow augmentation as a tool in the river management kit and identified the Clinton River as a most likely place in Michigan where this might be implemented. Rationalization of dam operation to balance instream needs versus impoundment interests has also been suggested.

Opportunities to enhance Clinton River related recreation opportunities include public support for acquisition of local parks and natural areas along the river; river corridor protection planning/implementation (using approaches developed under the Michigan Natural Rivers Program); implementation of local and county-wide trails networks; the Clinton River Fisheries Management Plan (drafted by the DNR in 1989); supporting projects of private and business groups.

Citizens may participate in the Clinton River Watershed Council and SEMCOG (Areawide Water Quality Board and Environmental Policy Advisory Council) efforts towards public education, coordination of water agencies, assistance to local government and strengthened institutional arrangements. Citizens are encouraged to communicate their interests to local officials and to participate in local government meetings and citizen committees.

Support is needed for appropriate new funding proposals to ensure continuation of basic water programs at the state, regional, watershed, and local levels. Rates paid for local services such as wastewater disposal, water supply, a local stormwater utility, can finance actions to minimize the impacts on human health, the river environment, and the level of taxes. New state permit fees are being proposed to cover administrative, monitoring, and enforcement costs of state water laws.

Education efforts about the Clinton River include activities of the Clinton River Watershed Council; County Cooperative Extension Services; Planning Departments; Nature Centers located along the river; the Oakland and Macomb County Intermediate Schools; the Clinton River Cleanup Committee; local government programs; many civic environmental and business interest groups; and last, but by no means least, the print and TV media. Add your name to the Clinton River Watershed Council mailing list to keep abreast of river news and current opportunities to learn and participate.

Areas of Concern

Overview

Since 1973, the International Joint Commission Water Quality Board has included in its annual and biennial reports, descriptions and evaluations of specific locations in the Great Lakes that have serious water pollution problems. These areas are principally near coastal urban centers and generally consist of harbors, bays and river mouths. The IJC refers to these locations as Areas of Concern and defines them as areas where degraded environmental quality has caused, or is likely to cause, impairment of beneficial uses or the area's ability to support aquatic life. Beneficial use impairment is defined as a change in the chemical, physical or biological integrity of the Great Lakes ecosystem sufficient to cause any of the following: restrictions on fish and wildlife consumption; tainting of fish and wildlife flavor; degradation of fish and wildlife populations; fish tumors or other deformities; bird or animal deformities or reproductive problems; degradation of benthos; restrictions on dredging activities; eutrophication or undesirable algae; restrictions on drinking water consumption, or taste and odor problems; beach closings; degradation of aesthetics; added costs to agriculture or industry; degradation of phytoplankton or zooplankton populations; or loss of fish and wildlife habitat. The specific Areas of Concern were designated by state or provincial jurisdictions based on a determination of whether or not Great Lakes Water Quality Agreement objectives, or jurisdictional guidelines, criteria or standards for environmental quality, were exceeded.

Presently there are 43 identified Areas of Concern in the Great Lakes basin. Ten of these areas are located exclusively within Michigan's jurisdiction and four are in Michigan boundary water areas shared with other jurisdictions (Figure I). Over the past 20 years there has been considerable improvement in the environmental quality of Michigan's Areas of Concern, particularly with respect to problems associated with conventional pollutants (such as phosphorus, suspended solids, and oil and grease) and to some extent for heavy metals. However, toxic substances remain problems in many locations. Contaminants in sediments are a concern in most Areas of Concern, but it is not definitively known if these contaminants are impairing bottom dwelling organisms or are a source to the water column and pelagic aquatic biota.

In 1985, each U.S. state and Canadian province with jurisdiction over a portion of the Great Lakes agreed to develop and implement a Remedial Action Plan (RAP) for each site within its jurisdiction that had been designated as an Area of Concern. Michigan entered into agreement with Wisconsin and Ontario to jointly develop one RAP for AOCs that lie in boundary water areas. The RAPs should describe programs and measures which, when implemented, will solve the identified water pollution problems existing in the Areas of Concern and restore all beneficial uses. According to the GLWQA of 1978, as amended in 1987, RAPs are to be developed and submitted to the International Joint Commission for review in three stages. Stage 1 contains a description of the problem in the AOC, including the causes of the problems, contaminants involved, and sources and loads of the contaminants of concern. The problem definition is based on identification of impairments to beneficial uses, and exceedances

of standards, objectives and guidelines. A Stage 2 RAP will identify the actions needed to restore beneficial uses that are identified as impaired in the Stage 1 RAP, and a strategy for tracking progress toward restoration of beneficial uses. A Stage 3 RAP will contain documentation that beneficial uses have been restored in an AOC, and that ambient water quality standards or objectives are no longer exceeded. If it is not deemed feasible to restore all beneficial uses, then the RAPs should explain why and identify the desired quality of the unattainable use(s).

Historically, water pollution control efforts have been program specific, that is, they focused on controlling either point sources or nonpoint sources. The RAP emphasis is on a systematic and comprehensive ecosystem approach to restoring beneficial uses in Areas of Concern.

The Michigan Department of Natural Resources is the state agency responsible for developing and overseeing implementation of Michigan RAPs. In February 1992, the MDNR completed the Areas of Concern Program Strategy. The strategy was developed in response to an increasing need to describe changes in the AOC Program since 1985 and to outline how Michigan RAPs are being developed to ensure consistency with the mandates of the GLWQA, as amended in 1987. The strategy describes a three-stage approach for developing RAPs, the content for each stage, how Michigan RAPs will embody a comprehensive ecosystem approach, the role of RAPs toward achieving zero discharge and virtual elimination of persistent toxic substances, and Michigan's two-tiered public participation program.

Public participation is an extremely important component of Michigan's AOC Program. Accordingly, the MDNR also completed a separate public participation and communications strategy for Michigan's AOC Program in February 1992. The strategy outlines Michigan's commitment to public participation and outlines the approach for actively seeking advice and input from the public on all aspects of Michigan's AOC Program, and for actively involving the public in the development and implementation of RAPs for each of Michigan's AOCs. Michigan has established the public participation program at two levels: (1) a statewide program to obtain advice on policy issues related to the statewide program, technical issues relevant to all 14 AOCs, and public participation strategies; and (2) local programs to actively involve the public in issues related specifically to the development and implementation of a particular RAP.

A Statewide Public Advisory Council was established in May 1991 to serve as the primary means for obtaining advice and input to the statewide program. The council reviewed drafts of both strategies and provided constructive input and comments to MDNR. The council's comments were incorporated into both final strategies.

Initial RAPs for nine of Michigan's 14 AOCs have been completed and are in various stages of implementation. Six of these were completed in 1987 for the following areas: Torch Lake; Deer Lake-Carp River/Creek; Manistique River; Muskegon Lake; White Lake and River Raisin. Three additional RAPs were finished in 1988 including Saginaw River/Bay, Clinton River and Rouge River. These nine RAPs were complete or substantially complete prior to the

1987 amendments to the GLWQA, and therefore contain elements of all three stages. To ensure that these RAPs are consistent with the requirements of the GLWQA and Michigan's program strategy, Stage 2 RAPs will be developed for these AOCs. The Stage 2 RAPs will include updates and revisions, as appropriate, for the Stage 1 elements to ensure that the problem definition is consistent with current requirements and expectations. The AOC program strategy outlines a schedule for completing Stage 1 and Stage 2 RAPs for Michigan's AOCs.

Stage 1 RAPs were completed and submitted to the IJC for the Menominee River in 1990, the Detroit River in 1991, and the St. Clair River in 1992. The St. Marys River RAP is scheduled for submittal later in 1992. The RAP for the Menominee River is being jointly developed by MDNR and the Wisconsin Department of Natural Resources (WDNR), and the RAPs for the St. Marys, St. Clair and Detroit rivers are being developed jointly by MDNR and the Ontario Ministry of the Environment (OMOE).

The major environmental problems in the Menominee River are located on the Wisconsin side of the river and the WDNR has the lead responsibility for preparing the Menominee River RAP with assistance from the MDNR. Similarly, the major problem areas in the St. Marys and St. Clair rivers are on the Canadian side. Therefore, the OMOE has the primary responsibility for developing the RAPs on these rivers. Conversely, most problem areas in the Detroit River are located on the U.S. side so the MDNR is coordinating the RAP preparation for this river, with cooperation and assistance from Canadian agencies.

The remaining Michigan RAP -- Kalamazoo River -- is currently being updated to meet the requirements of a Stage 1 RAP. The following area site descriptions describe more fully the status of RAP development or implementation in each of Michigan's 14 Areas of Concern.

Clinton River

The Clinton River is located in southeastern lower Michigan and drains 760 square miles. The river is 80 miles long and flows through several major municipalities including Pontiac, Rochester, Utica and Mt. Clemens prior to its discharge to Lake St. Clair. A weir near Mt. Clemens causes most of the river to flow down a spillway rather than through the natural channel, except during very high water. Land use in the river headwaters is agricultural, while along the main branch it is primarily residential and urban with some industrial use. The AOC includes the Clinton River main branch downstream of Red Run, and the spillway.

The Clinton River was identified as an AOC due to conventional pollutants, heavy metals, contaminated sediments, impacted biota and elevated levels of fecal coliform bacteria and total dissolved solids. Sources of pollutants were stormwater runoff, combined sewer overflows, and wastewater from municipal and industrial facilities.

The majority of problems with conventional pollutants and bacterial contamination in the Clinton River have been resolved primarily through wastewater treatment improvements made at industrial and municipal facilities. Combined sewer overflows in the Clinton River basin outside the Red Run drainage areas have been corrected except for occasional overflows at Almont and Mt. Clemens. Little improvement is expected from the Red Run watershed without large capital expenditures to separate storm and sanitary sewers. High dissolved solids concentrations have been determined to be naturally occurring due to the soil type in the watershed and are not correctable by existing technology.

Benthic macroinvertebrate and warmwater fish communities are substantially improved but remain impaired in parts of the AOC. The Clinton River RAP, completed in November 1988, identifies these as local issues with no impact on the Great Lakes.

The RAP does, however, identify PCBs in sediments as a potential source to Lake St. Clair or aquatic life. The sediments are contaminated downstream of Mt. Clemens and contain levels of heavy metals and PCBs that exceed U.S. EPA 1977 interim guidelines for open lake disposal of dredged materials.

exerpt from: Water Quality Pollution Control in Michigan 1992 Report
(Michigan 305(b) Report: Volume 12)

FIGURE 1: Forty-three Areas of Concern Identified in the Great Lakes Basin

Lake Superior

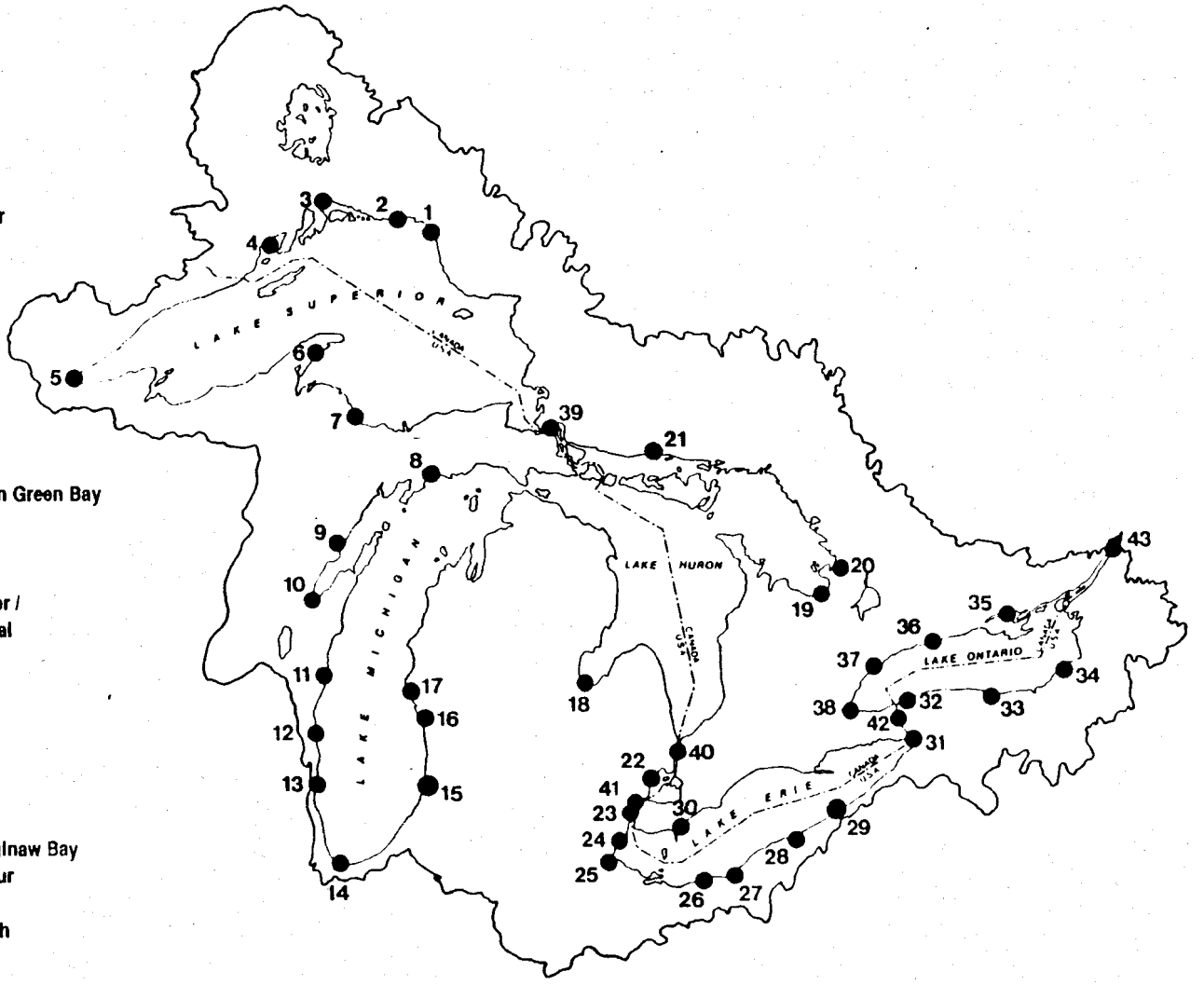
1 Peninsula Harbour
2 Jackfish Bay
3 Nipigon Bay
4 Thunder Bay
5 St. Louis Bay / River
6 Torch Lake
7 Deer Lake - Carp Creek / River

Lake Michigan

8 Manistique River
9 Menominee River
10 Fox River / Southern Green Bay
11 Sheboygan River
12 Milwaukee Estuary
13 Waukegan Harbor
14 Grand Calumet River / Indiana Harbor Canal
15 Kalamazoo River
16 Muskegon Lake
17 White Lake

Lake Huron

18 Saginaw River / Saginaw Bay
19 Collingwood Harbour
20 Severn Sound
21 Spanish River Mouth



Lake Erie

22 Clinton River
23 Rouge River
24 River Raisin
25 Maumee River
26 Black River
27 Cuyahoga River
28 Ashtabula River
29 Presque Isle Bay
30 Wheatley Harbour

Lake Ontario

31 Buffalo River
32 Eighteen Mile Creek
33 Rochester Embayment
34 Oswego River
35 Bay of Quinte
36 Port Hope
37 Metro Toronto
38 Hamilton Harbour

Connecting Channels

39 St. Marys River
40 St. Clair River
41 Detroit River
42 Niagara River
43 St. Lawrence River (Cornwall / Massena)

Ecosystem Charter for the Great Lake-St. Lawrence Basin

DRAFT

April 1994

Preamble

The Ecosystem Approach to Management: An Introduction

An "ecosystem approach" to management is being embraced by many public sector, non-governmental and citizen-based institutions in the Great Lakes-St. Lawrence Basin. This approach recognizes that the environmental and economic attributes of the Basin are fundamentally linked and interdependent, as are the goals for environmental protection and economic development. It also recognizes that resources must be managed as dynamic and complex communities and ecosystems, rather than as separate and distinct elements. Practicing the ecosystem approach means that all partners—government and private sector alike—understand the implications of their actions and strive to avoid unintended adverse consequences.

The Problem

Many of our laws, programs, policies and institutions support the concept of an ecosystem approach, yet application of the concept is difficult due to their often narrow, single media or issue specific mandates. The problem is the absence of a single, clearly articulated statement—or charter—that explicitly defines goals for an ecosystem approach to management and ties a common thread through these many activities and mandates.

Charter Format and Objectives

The Ecosystem Charter summarizes, in a concise and convenient form, commonly held principles drawn from existing laws, treaties, agreements and policies. It includes a vision statement and a series of principles in the categories of rights and responsibilities; ecological integrity and diversity; sustainable communities; institutional relations; and public information, education and participation. It includes a series of actions that all members of the Great Lakes-St. Lawrence Basin community can endorse or undertake in support of these principles.

The Charter has three primary uses. It is a tool for organizing, coordinating and periodically assessing public and private sector efforts to implement an ecosystem approach. It is a tool for information and education; offering a vision for the Great Lakes-St. Lawrence Basin Ecosystem and a means to achieve it. Finally, it is a tool for advocating the interests of the Basin Ecosystem and its inhabitants; a statement of unity acknowledging that all partners in the collective management effort—despite our differences—subscribe to a single set of fundamental principles.

The Charter is a "good faith" agreement among its signatories, which can include representatives from the array of public agencies, non-governmental organizations and private interests in the Great Lakes-St. Lawrence Basin. It is not a legally-binding-document, nor does it replace or otherwise affect implementation of existing laws, agreements and policies. Rather it showcases these initiatives, highlights their implementation and, in so doing, promotes an ecosystem approach to management in the Great Lakes-St. Lawrence Basin.

Charter Foundation

The foundation for the Ecosystem Charter is a heritage of binational cooperation to ensure the informed use,management, conservation and protection of the Great Lakes-St. Lawrence Basin Ecosystem. The Charter builds upon landmark agreements such as the U.S.-Canada Boundary Waters Treaty of 1909, which established procedures for avoiding or otherwise addressing transboundary environmental problems, and the Great Lakes Water Quality Agreement, which commits the two countries to restoring and maintaining the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem. Through these and many other initiatives, regional leadership has pioneered the ecosystem approach to resource and environmental management, conservation and protection. The Ecosystem Charter, as a statement of shared principles and commitments for an array of stakeholders, represents an important step forward in this approach. The Charter will help guide future actions to enhance and sustain the environmental health and economic viability of the world's greatest freshwater system. In so doing, it can serve as a model in North America and globally.

Charter Process

The Charter is a living document; it will be reviewed and revised periodically to ensure that it reflects current thinking on the ecosystem approach. It offers a benchmark for assessing progress and provides the guidance needed for further efforts. A broad cross-section of agencies, organizations and associations contributed to the draft of the Charter, and the document itself is "owned" by all signatories. The Great Lakes Commission, as a coordinating agency, will provide ongoing support in the distribution, use and updating of the Charter, including specific opportunities for periodic review and assessment of progress.

Charter Signatories

Any organization, agency or governmental jurisdiction that subscribes to these principles is invited to be a signatory to the Ecosystem Charter. Signatories agree to use the Charter as guidance in the development of their work plans and priorities, as a means to enhance communication and cooperation with others, and as a benchmark for assessing progress toward a shared vision for the Great Lakes-St. Lawrence Basin Ecosystem.

A VISION FOR THE GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM

OUR VISION IS A GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM...

Where all people consider and conduct themselves as part of our Ecosystem;

Where all people recognize the fundamental and inextricable link between economic well-being and the health of the Ecosystem;

In which all beneficial organisms can thrive free from preventable ecological threats to their well-being;

Where environmental degradation is a legacy of the past and a basis for present and future remedial action;

That exists as an evolving natural and cultural system which can successfully adapt to change;

In which use of natural resources is compatible with conservation of such resources;

That maintains the integrity of the Ecosystem and accommodates appropriate development;

That is a rich mosaic of waters and lands, of natural areas and places of human activity, and of different peoples who govern themselves in various ways;

That nurtures an abundance and diversity of plant and animal species in their natural communities and habitats as well as in specially protected and rehabilitated sites;

That embraces the concept of sustainable development by meeting the needs of this generation without compromising the ability of future generations to meet their needs;

Where all people and their governments act as good stewards and are committed to informed action and supportive policy decisions;

In which a shared governance process, among diverse and respected traditions, provides an accessible and equitable basis for responsible action and accountability among all people and their institutions.

RIGHTS AND RESPONSIBILITIES

Access to clean water, clean air, and healthy and productive soils is a fundamental right of all individuals within the Great Lakes-St. Lawrence Basin. This right infers a shared responsibility for the informed use, management, conservation and protection of the Basin's water and related land and air resources. The integrity of the Ecosystem—and the physical health, economic well-being and quality of life of its human element—must be enhanced and maintained for the current and future generations.

Signatories thereby adhere to the following principles:

Principle I

People in the Great Lakes-St. Lawrence Basin, as well as all communities of beneficial organisms, have a right to live in an ecosystem that supports their health and well-being.

Findings:
The natural world has intrinsic value; it is the basis for life on earth and is essential to human well-being. Activities which degrade its water, air and land resources threaten the health of the Ecosystem and, hence, its ability to support the health and well-being of those dependent upon it. The fundamental right of all people to a healthy environment is a basis for sustainable development and environmental protection.

This principle shall be addressed by:

- Recognizing the inherent value of the non-human elements of the Ecosystem apart from any benefits humans may receive from them.
- Accepting responsibility to conduct ourselves, individually and collectively, in ways that support a healthy ecosystem consistent with the principles set forth in this Charter.

Principle II

People have the right to use natural resources and processes for reasonable economic purpose and enjoyment, commensurate with the responsibility to restore, enhance and maintain the integrity of the Great Lakes -St. Lawrence Basin Ecosystem.

Findings:
People and their governments in the Great Lakes-St. Lawrence Basin are stewards of the Ecosystem; this entails a responsibility to enhance and maintain the health of the Ecosystem for the use, benefit and enjoyment of the current and future generations.

This principle shall be addressed by:

- Adopting, pursuing and promoting principles and practices of sustainable use of Ecosystem resources by businesses, agencies, organizations and individuals.
- Accepting the responsibility to minimize or prevent, to the greatest extent practicable, activities that cause environmental harm to other jurisdictions or individuals.
- Recognizing the role of the Great Lakes-St. Lawrence Basin Ecosystem in the larger global environment and taking actions, where possible, that can alleviate adverse impacts on that environment.
- Cooperating with all people in the Great Lakes-St. Lawrence Basin Ecosystem and with citizens in other biogeographical regions to achieve mutual objectives consistent with this Charter.

Principle III

People in the Great Lakes-St. Lawrence Basin have a responsibility to demonstrate that proposed activities and resource uses do not cause undue harm to the Ecosystem.

Findings:
Human activities in the Basin have historically been regulated in response to demonstrable proof that those activities cause injury or harm to human health or the environment. However, achieving Ecosystem integrity is not possible if it is the responsibility of governments to prove that a certain activity causes harm or injury. Ecosystem protection can be enhanced by reversing this burden of proof, known as "reverse onus," and by placing responsibility on those who are proposing such activities.

This principle shall be addressed by:

- Endorsing the concept of "reverse onus," and its incorporation over time into resource management and environmental protection programs in the Great Lakes-St. Lawrence Basin.
- Agreeing to examine new or proposed activities in the Great Lakes-St. Lawrence Basin to identify prospective adverse impacts and means to reduce, mitigate or eliminate them.
- Maintaining or encouraging maintenance of monitoring programs to provide baseline information on the environmental impacts of resource uses.

ECOLOGICAL INTEGRITY AND DIVERSITY

Ecological integrity is a state of the Ecosystem in which ecological diversity and resilience is present, allowing the Ecosystem to sustain itself and its inhabitants. Integrity cannot be achieved, however, when irresponsible actions impair

the beneficial uses of Basin resources. The extent of these threats is demonstrated by the numerous Areas of Concern designated by the International Joint Commission. Efforts to rehabilitate and protect the Ecosystem through scientific inquiry, public policy development and management programs are essential for achieving and maintaining ecological integ rity.

Signatories thereby adhere to the following principles:

Principle IV

The chemical, physical and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem shall be achieved by understanding, respecting, rehabilitating and protecting ecological processes and natural resources and by identifying and maintaining genetically diverse plant and animal communities within the Ecosystem.

Findings:
Binational and national commitments have been made to restore and maintain the chemical, physical, and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem. Despite some successes, the goal of Ecosystem integrity has yet to be achieved. Until that time, the health and well-being of the Ecosystem inhabitants will be compromised.

This principle shall be addressed by:

- Improving implementation of existing programs and, where appropriate, developing new ones to rehabilitate, protect and manage ecological resources and diversity within the Ecosystem.
- Providing strong citizen, government and industry support for timely and effective adoption and implementation of Lakewide Management Plans; timely and effective implementation of Remedial Action Plans for the Basin's Areas of Concern; and designation of additional Biosphere Reserve sites within the Basin.
- Increasing the binational effort to monitor aquatic species and wildlife communities in the Basin, both to sustain and rehabilitate these communities and so to better understand environmental threats to human health.
- Developing, adopting, and promoting strategies to integrate and expand efforts to protect areas of natural beauty and ecological significance such as wetlands and dunes.

Principle V

An ecosystem approach to management that involves rehabilitating and protecting ecological processes and resources of the Basin Ecosystem shall be fully and widely adopted, based on the understanding that human activities, natural resources and ecological processes are interdependent and parts of a unified whole.

Findings:
The ecosystem approach entails a multi-resource emphasis and broader, precautionary strategies that anticipate and prevent environmental harm. This approach respects and affirms the interconnectedness of ecological processes and requires humankind to understand and conduct itself as an integrated part of the Ecosystem rather than as an entity separate from it.

This principle shall be addressed by:

- Ensuring that ecological protection and rehabilitation efforts are based on an integrated, multi-resource approach.
- Emphasizing precautionary measures that anticipate and prevent harm to human health and the environment.
- Collaborating on and coordinating environmental quality, natural resource and economic development programs to ensure that pollution control and prevention, habitat restoration and protection, forestry management, fisheries management and other actions are consistent with the principles of ecosystem management.
- Adopting and applying principles of an ecosystem approach to individual agency, organization and business settings.

Principle VI

A coordinated, multi-disciplinary research agenda is necessary to improve understanding of the scientific, social and economic dimensions of the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Scientific, social and economic data and information form the basis for public policies, agreements and programs in the Great Lakes-St. Lawrence Basin Ecosystem. Yet, many aspects of the Ecosystem and its various dimensions and dynamics are not well understood. An enhanced, aggressive and innovative program of basic and applied research is a fundamental requirement.

This principle shall be addressed by:

- Forming partnerships among public agencies, academic institutions, businesses and citizens' organizations to conduct and coordinate basic and applied research on the Basin Ecosystem.
- Advancing pollution prevention efforts and supporting sustainable development in the Basin Ecosystem by conducting applied research on consumption attributes and production methods.
- Undertaking research initiatives, such as toxicological and epidemiological studies, that explore human health impacts of activities in the Basin Ecosystem.
- Making research results understandable to the public and usable by decision makers.
- Establishing new, and strengthening existing capabilities and networks for the exchange of data, research results and other information relevant to the Basin Ecosystem.

RIGHTS AND RESPONSIBILITIES

Access to clean water, clean air, and healthy and productive soils is a fundamental right of all individuals within the Great Lakes-St. Lawrence Basin. This right infers a shared responsibility for the informed use, management, conservation and protection of the Basin's water and related land and air resources. The integrity of the Ecosystem—and the physical health, economic well-being and quality of life of its human element—must be enhanced and maintained for the current and future generations.

Signatories thereby adhere to the following principles:

Principle I

People in the Great Lakes-St. Lawrence Basin, as well as all communities of beneficial organisms, have a right to live in an ecosystem that supports their health and well-being.

Findings:
The natural world has intrinsic value; it is the basis for life on earth and is essential to human well-being. Activities which degrade its water, air and land resources threaten the health of the Ecosystem and, hence, its ability to support the health and well-being of those dependent upon it. The fundamental right of all people to a healthy environment is a basis for sustainable development and environmental protection.

This principle shall be addressed by:

- Recognizing the inherent value of the non-human elements of the Ecosystem apart from any benefits humans may receive from them.
- Accepting responsibility to conduct ourselves, individually and collectively, in ways that support a healthy ecosystem consistent with the principles set forth in this Charter.

Principle II

People have the right to use natural resources and processes for reasonable economic purpose and enjoyment, commensurate with the responsibility to restore, enhance and maintain the integrity of the Great Lakes -St. Lawrence Basin Ecosystem.

Findings:
People and their governments in the Great Lakes-St. Lawrence Basin are stewards of the Ecosystem; this entails a responsibility to enhance and maintain the health of the Ecosystem for the use, benefit and enjoyment of the current and future generations.

This principle shall be addressed by:

- Adopting, pursuing and promoting principles and practices of sustainable use of Ecosystem resources by businesses, agencies, organizations and individuals.
- Accepting the responsibility to minimize or prevent, to the greatest extent practicable, activities that cause environmental harm to other jurisdictions or individuals.
- Recognizing the role of the Great Lakes-St. Lawrence Basin Ecosystem in the larger global environment and taking actions, where possible, that can alleviate adverse impacts on that environment.
- Cooperating with all people in the Great Lakes-St. Lawrence Basin Ecosystem and with citizens in other biogeographical regions to achieve mutual objectives consistent with this Charter.

Principle III

People in the Great Lakes-St. Lawrence Basin have a responsibility to demonstrate that proposed activities and resource uses do not cause undue harm to the Ecosystem.

Findings:
Human activities in the Basin have historically been regulated in response to demonstrable proof that those activities cause injury or harm to human health or the environment. However, achieving Ecosystem integrity is not possible if it is the responsibility of governments to prove that a certain activity causes harm or injury. Ecosystem protection can be enhanced by reversing this burden of proof, known as "reverse onus," and by placing responsibility on those who are proposing such activities.

This principle shall be addressed by:

- Endorsing the concept of "reverse onus," and its incorporation over time into resource management and environmental protection programs in the Great Lakes-St. Lawrence Basin.
- Agreeing to examine new or proposed activities in the Great Lakes-St. Lawrence Basin to identify prospective adverse impacts and means to reduce, mitigate or eliminate them.
- Maintaining or encouraging maintenance of monitoring programs to provide baseline information on the environmental impacts of resource uses.

ECOLOGICAL INTEGRITY AND DIVERSITY

Ecological integrity is a state of the Ecosystem in which ecological diversity and resilience is present, allowing the Ecosystem to sustain itself and its inhabitants. Integrity cannot be achieved, however, when irresponsible actions impair

the beneficial uses of Basin resources. The extent of these threats is demonstrated by the numerous Areas of Concern designated by the International Joint Commission. Efforts to rehabilitate and protect the Ecosystem through scientific inquiry, public policy development and management programs are essential for achieving and maintaining ecological integ rity.

Signatories thereby adhere to the following principles:

Principle IV

The chemical, physical and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem shall be achieved by understanding, respecting, rehabilitating and protecting ecological processes and natural resources and by identifying and maintaining genetically diverse plant and animal communities within the Ecosystem.

Findings:
Binational and national commitments have been made to restore and maintain the chemical, physical, and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem. Despite some successes, the goal of Ecosystem integrity has yet to be achieved. Until that time, the health and well-being of the Ecosystem inhabitants will be compromised.

This principle shall be addressed by:

- Improving implementation of existing programs and, where appropriate, developing new ones to rehabilitate, protect and manage ecological resources and diversity within the Ecosystem.
- Providing strong citizen, government and industry support for timely and effective adoption and implementation of Lakewide Management Plans; timely and effective implementation of Remedial Action Plans for the Basin's Areas of Concern; and designation of additional Biosphere Reserve sites within the Basin.
- Increasing the binational effort to monitor aquatic species and wildlife communities in the Basin, both to sustain and rehabilitate these communities and so to better understand environmental threats to human health.
- Developing, adopting, and promoting strategies to integrate and expand efforts to protect areas of natural beauty and ecological significance such as wetlands and dunes.

Principle V

An ecosystem approach to management that involves rehabilitating and protecting ecological processes and resources of the Basin Ecosystem shall be fully and widely adopted, based on the understanding that human activities, natural resources and ecological processes are interdependent and parts of a unified whole.

Findings:
The ecosystem approach entails a multi-resource emphasis and broader, precautionary strategies that anticipate and prevent environmental harm. This approach respects and affirms the interconnectedness of ecological processes and requires humankind to understand and conduct itself as an integrated part of the Ecosystem rather than as an entity separate from it.

This principle shall be addressed by:

- Ensuring that ecological protection and rehabilitation efforts are based on an integrated, multi-resource approach.
- Emphasizing precautionary measures that anticipate and prevent harm to human health and the environment.
- Collaborating on and coordinating environmental quality, natural resource and economic development programs to ensure that pollution control and prevention, habitat restoration and protection, forestry management, fisheries management and other actions are consistent with the principles of ecosystem management.
- Adopting and applying principles of an ecosystem approach to individual agency, organization and business settings.

Principle VI

A coordinated, multi-disciplinary research agenda is necessary to improve understanding of the scientific, social and economic dimensions of the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Scientific, social and economic data and information form the basis for public policies, agreements and programs in the Great Lakes-St. Lawrence Basin Ecosystem. Yet, many aspects of the Ecosystem and its various dimensions and dynamics are not well understood. An enhanced, aggressive and innovative program of basic and applied research is a fundamental requirement.

This principle shall be addressed by:

- Forming partnerships among public agencies, academic institutions, businesses and citizens' organizations to conduct and coordinate basic and applied research on the Basin Ecosystem.
- Advancing pollution prevention efforts and supporting sustainable development in the Basin Ecosystem by conducting applied research on consumption attributes and production methods.
- Undertaking research initiatives, such as toxicological and epidemiological studies, that explore human health impacts of activities in the Basin Ecosystem.
- Making research results understandable to the public and usable by decision makers.
- Establishing new, and strengthening existing capabilities and networks for the exchange of data, research results and other information relevant to the Basin Ecosystem.

Principle VII

The environmental quality of the Great Lakes-St. Lawrence Basin Ecosystem shall be improved by virtually eliminating the discharge or release of persistent bioaccumulative toxic substances into the Basin Ecosystem.

Findings:
Jurisdictions have implemented numerous pollution control and prevention programs and measures, and significant reductions in particular toxics and other pollutants have occurred. However, the complexity and pervasive nature of toxic contamination calls for continued vigorous action and innovative solutions. Thus, a broad-based commitment to the above principle is needed, consistent with the objectives of the Great Lakes Water Quality Agreement.

This principle shall be addressed by:

- Implementing pollution prevention practices to eliminate and/or reduce waste generation through changes in production processes, products and packaging and through resource reuse and recycling.
- Implementing policies, programs, and practices to eliminate the discharge or release of persistent bioaccumulative toxic substances and to prohibit the discharge in toxic amounts of toxic substances that are not for the purpose of achieving Ecosystem integrity (e.g., lamprey control.)
- Actively seeking cost-effective, benign alternatives to toxic substances and substituting them, where possible, to reduce reliance on toxic substances that threaten Ecosystem integrity.
- Supporting the development of binational objectives and measures to address air quality issues, including acid deposition, smog and airborne toxic contaminants as well as global atmospheric problems that affect the Basin, such as chlorofluorocarbons and global warming.

Principle VIII

The natural fluctuations of the levels and flows within the Great Lakes-St. Lawrence River System shall be accommodated to the extent possible, while maintaining appropriate water use and related coastal activities.

Findings:
The waters of the Great Lakes and St. Lawrence River are interconnected and form a single hydrologic system which geographically defines the Great Lakes-St. Lawrence Basin Ecosystem. This dynamic system, which supports a variety of organisms and human activities, is naturally subject to varying levels and flows. Many ecological processes rely upon and benefit from this variance. Resource uses and economic activity in coastal and near-shore areas are highly sensitive to fluctuating levels and flows; the magnitude and direction of the fluctuation impacts different uses in different ways.

This principle shall be addressed by:

- Supporting a binational process that allows all stakeholders to participate in decision-making and planning related to management of levels and flows and land use policies for coastal areas.
- Supporting continued improvement in the collection and maintenance of data regarding levels and flows, major uses and diversions of Basin water resources, and associated analysis, dissemination and public policy applications.
- Developing an effective process for state/provincial review and consideration of diversion and consumptive use proposals, and a Basin water resources management program to ensure that relevant data and information on proposed impacts is available.
- Prohibiting new diversions of Basin water resources that would have significant adverse impacts on the Basin Ecosystem.

Principle IX

Societal needs for a healthy Ecosystem and economy shall be addressed by promoting the use of renewable natural resources.

Findings:
Renewable resources such as topsoil, forests and fisheries, are threatened by poor land use practices, overharvesting, habitat degradation and the introduction of harmful non-native species, among others. Numerous measures have been taken to check, reverse, or compensate for this damage, but the availability and quality of renewable resources remain threatened. A binational commitment to the management of such resources must recognize the need for remedial actions as well as long-term planning and management on a comprehensive Basin-wide basis.

This principle shall be addressed by:

- Consulting and coordinating with affected jurisdictions when renewable resource management decisions will significantly affect their interests.
- Incorporating renewable resource needs and management objectives into broader environmental quality policies and programs.
- Developing measures to predict and assess the effects of renewable resource management practices on environmental protection efforts and economic activity.

Principle X

Biological diversity is an essential element of Ecosystem integrity, and shall be supported so that plant and animal populations may flourish in natural communities and habitats as well as in specially protected and rehabilitated sites.

Findings:
The Basin Ecosystem supports an abundance of fish, plant and wildlife species including naturalized non-native species. However, the natural biological diversity once found in the Ecosystem has been fundamentally altered, both by intentional and unintentional introductions, some beneficial and some harmful. Programs to preserve species variety and habitat, particularly that of native species, are an important part of efforts to achieve Ecosystem integrity.

This principle shall be addressed by:

- Developing strategies for the conservation of biological diversity and integrating those strategies into plans and practices concerning economic activities, environmental protection and resource management.
- Nurturing biological diversity and reducing habitat fragmentation by encouraging establishment of publicly-owned protected areas, networks of protected areas and encouraging private stewardship by landowners.
- Modifying land use practices and other human activities to prevent the loss of biodiversity and habitat.
- Preventing new introductions of nonindigenous nuisance species and controlling existing ones.

SUSTAINABLE COMMUNITIES

In a sustainable society, a fundamental and inextricable linkage exists between economic activity and the natural ecosystem. Sustainable economic activity meets the needs of the present generation without compromising the ability of future generations to meet their own needs, and respects the limits imposed by the capacity of the Ecosystem to absorb the impact of human activities. Adopting principles of sustainability at the community and Basin levels will promote long-term economic viability and continued improvements in environmental quality.

Signatories thereby adhere to the following principles:

Principle XI

Ecosystem integrity and the economic well-being of human communities are interdependent; achieving and protecting ecosystem integrity is therefore an essential part of economic activity within the Basin.

Findings:
Natural resources within the Great Lakes-St. Lawrence Basin Ecosystem supply tens of millions of people with drinking water; support a multi-billion dollar recreation/tourism industry; provide habitat for thousands of fish, wildlife and plant species; offer transportation and manufacturing opportunities; and support an extensive agricultural industry. To ensure that natural resources in the Basin Ecosystem continue to provide such benefits, economic strategies and activities must ensure that essential ecological processes are maintained, natural resources are used sustainably, biological diversity is conserved, and infrastructure investment is appropriately pursued.

This principle shall be addressed by:

- Reflecting principles of sustainability in relevant public and private sector plans and programs.
- Supporting and pursuing policies and programs that provide for the efficient and sustainable use of natural resources, and working to revise or eliminate those that do not.
- Identifying energy efficiency and conservation as a public and private sector priority and supporting the use of renewable energy sources.
- Supporting adequate and prudent infrastructure investment, particularly for water treatment and distribution systems.
- Developing common data collection measures and indicators to integrate and/or supplement traditional, independent measures of environmental, social and economic health and well-being to gauge progress in achieving a sustainable society.

Principle XII

Industry in the Great Lakes-St. Lawrence Basin is a key partner in achieving and protecting Ecosystem integrity; industry support for and implementation of environmental, conservation, and safety standards and practices is necessary.

Findings:
The Great Lakes-St. Lawrence Basin is one of the most industrialized areas of the world. Economic development created a high standard of living and quality of life for residents. As members of the Great Lakes-St. Lawrence community, industry (including the manufacturing, transportation and agricultural sectors) recognizes that its performance and contribution to the economy depends on a healthy Great Lakes-St. Lawrence Basin Ecosystem. Accordingly, industry will benefit from supporting and maintaining environmental, conservation and safety standards and practices.

This principle shall be addressed by:

- Supporting an active role by business and industry in the application of integrated environmental management to environmental policymaking.
- Encouraging the development of cost accounting and pricing mechanisms that determine the real cost of goods and services based on production and marketing costs, as well as costs of environmental management associated with their production, use and disposal.
- Encouraging the development and use of innovative conservation, environmental protection and related pollution prevention mechanisms by business and industry, including

the incorporation of economically and environmentally sustainable practices in management and operations. Ensuring strong communication between industrial facilities and local communities to provide information on local impacts and environmental management practices.

INSTITUTIONAL RELATIONS

Two federal governments, eight U.S. States, two Canadian provinces, numerous regional agencies, thousands of sub-state/provincial governments, many Native American authorities/First Nations and a multitude of other governmental entities have some legal authority or responsibility for matters pertaining to the Basin Ecosystem. The complexity and sophistication of the "institutional ecosystem" for Basin governance has garnered global recognition. Cooperative and collaborative relations among these jurisdictions, in partnership with business and industry, citizen organizations and all other Basin interests, are needed if Ecosystem integrity is to be achieved and maintained.

Signatories thereby adhere to the following principles:

Principle XIII

Cooperation is essential among government entities, including federal, state, provincial, Native American authorities/First Nations, regional and local governments, if the principles of this Charter are to become public policy priorities.

Findings:
Institutional arrangements in the Great Lakes-St. Lawrence Basin Ecosystem can provide innovative opportunities for addressing complex ecological problems, but they can also be rigid, fragmented, and even contradictory. The most effective means of overcoming institutional barriers and ensuring the integrity of the Ecosystem is through cooperative, coordinated and collaborative policies and programs agreed upon and implemented by Basin jurisdictions.

This principle shall be addressed by:

- Using the principles of the Charter as a basis to develop common objectives consistent with extant agreements, policies and laws, directed at achieving and maintaining the integrity of the Basin Ecosystem.
- Consulting with affected jurisdictions and other interested parties regarding the development and/or consideration of proposals with Basin-wide implications.
- Working to ensure that public and private sector activities are consistent with international, binational and regional obligations and agreements regarding the Basin Ecosystem.
- Continuing the practice and tradition of binational dispute management and resolution in the Basin Ecosystem.

Principle XIV

Great Lakes-St. Lawrence Basin Ecosystem governance and management shall emphasize partnership arrangements among government entities, the private sector, citizen organizations and other interests.

Findings:
The interdependence of the economy and the environment amplify the consequences of the individual and collective actions of all agencies, organizations, businesses and individuals within the Basin Ecosystem. Their mututal interests must be explicitly acknowledged and partnerships developed to pursue public and private sector actions that benefit the Basin Ecosystem.

This principle shall be addressed by:

- Supporting existing partnerships that integrate interests and management approaches in the Basin Ecosystem, such as Remedial Action Plans and Lakewide Management Plans.
- Implementing binational agreements and initiatives, such as the Great Lakes Water Quality Agreement and the Convention on Great Lakes Fisheries, in such a way that recognizes broader issues of shared concern, including habitat protection, fisheries management, shoreline protection, biodiversity and water quantity management.
- Developing partnerships with all Basin interests to address commonly identified problems and to harmonize institutional relationships and authorities.
- Basing Ecosystem policies and programs on scientific research.
- Evaluating current and prospective policies and programs on the basis of their consistency with, and responsiveness to, the principles of the Charter and the goals and objectives of relevant Basin laws and agreements.

PUBLIC INFORMATION, EDUCATION, AND PARTICIPATION

Public participation is the cornerstone for the development of public policies that promote a clean environment, strong economy and high quality of life in the Great Lakes-St. Lawrence Basin. Such participation ensures that the needs and concerns of interested individuals are heard, understood and incorporated into the policymaking process. In order to participate effectively in that process, residents must be informed of political, ecological, social, and economic issues in the Basin Ecosystem. This requires timely, accurate, and accessible information; a forum in which to voice concerns; and a mechanism to become involved in policymaking and implementation efforts.

Signatories thereby adhere to the following principles:

Principle XV

Timely, accurate and accessible information shall be provided to the public regarding all planned activities that may significantly affect the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Timely information enables the public to respond to current issues and opportunities in an appropriate time frame; accurate information enables the public to make informed decisions about their interests and concerns; and accessible information allows for all interested persons to obtain the desired information with relative ease. Programs that reflect these qualities help promote informed public policy, efficient and effective implementation, and strong partnerships among Basin interests.

This principle shall be addressed by:

- Gathering timely, accurate and meaningful information about the state of the Basin Ecosystem and monitoring and reporting on progress in implementing programs consistent with the principles of the Charter and other relevant laws and agreements.
- Ensuring that the public has full and equal access to available data, public policies, programs, and related information concerning current and prospective conditions of the Basin Ecosystem and the associated impact of proposed actions.
- Creating and supporting formal information links to ensure ongoing and substantive dialogue on and dissemination of data and information relating to the Basin Ecosystem.

Principle XVI

Stewardship of the Great Lakes-St. Lawrence Basin Ecosystem shall be fostered through educational efforts that promote greater understanding of the Ecosystem, the problems and opportunities facing it, and policies and programs designed to improve, protect and mange it.

Findings:
Education in ecological, economic, social and political matters relating to the Basin Ecosystem broadens the basis for enlightened public opinion and responsible conduct by all who make, implement or otherwise affect public policy. Education on such matters is a life-long process; it must be pursued by children and adults alike, and in both classroom and non-formal settings. Further, it must be multi-disciplinary and integrative, allowing all interested individuals to understand the basic elements and processes of the Basin Ecosystem; how various actions affect them; how the public policymaking process functions; and how the individual can make a difference.

This principle shall be addressed by:

- Establishing and enhancing Great Lakes-St. Lawrence education programs and curricula in both classrooms and non-traditional settings, with a special focus on at-risk groups.
- Encouraging coordination of, and partnerships among educators in the Basin to ensure that educational efforts are consistent, comprehensive and accessible.
- Establishing and/or maintaining permanent systems to disseminate and promote the use of education materials.
- Improving stewardship of the Basin Ecosystem by educating ourselves and others about the needs of a healthy Ecosystem, and opportunities to address these needs through individual and collective action.

Principle XVII

Meaningful public participation in decision making processes regarding the Great Lakes-St. Lawrence Basin Ecosystem shall be encouraged by providing enhanced opportunities for public involvement and empowerment.

Findings:
All people should have the opportunity for informed participation in the development, implementation and evaluation of public policies that affect the Basin Ecosystem. Meaningful public participation requires the public to be an active partner in the decision making process, including the identification and assessment of issues.

This principle shall be addressed by:

- Developing and maintaining decision making processes that promote and encourage active and informed public participation.
- Identifying and using resources, such as information networks and other communication technology, through which public participation can be enhanced.
- Planning outreach efforts to increase public access to, and use of those resources.
- Taking advantage of current and prospective means to further our knowledge of the Basin Ecosystem and opportunities to enhance environmental health, economic well-being and quality of life.

SPECIAL NOTE: In final form, the Charter will include an addendum presenting a glossary of terms, and a brief description of the principal treaties, agreements and other policies that the Charter can be used to promote. Also, each signatory will be able to provide a brief descriptive statement on its organization and the Charter.

The refinement and endorsement process will continue during the next several months; your input and support are valued.

Clinton River Remedial Action Plan
Habitat Work Group

Meeting Report
3 September 1993

Members Amos Bankston, Charles Barns*, Chuck Bellmore*, Erich Ditschman*, Dan Duncan*, John Filipus, Bob Fredricks, Ernie Kafcas, Colette Luff, Jack Prescott*, Butch Sapp, Bob Sweet*
Attendance denoted by *.

Also in attendance: Peggy Johnson

E. Ditschman opened the meeting with a brief overview of the RAP process and an explanation of the tentative role of the Habitat Work Group. Members had received earlier, a Habitat Work Group extended outline which attempted to catalogue relevant issues and papers concerning habitat in the Clinton River Basin. The outline was also drafted to gain participant's input on the Habitat Issue Paper to be drafted by E. Ditschman. The outline served as a catalyst for discussion at the meeting.

Each member of the work group took five minutes to provide a brief statement of their interest in the Clinton River RAP process and Clinton River Habitat.

C. Barnes is the Environmental Director for Selfridge Air Base. He has six environmental engineers each with specific specialties under his command. His office is new to the base and has only been in operation for one year. The office is in essence an environmental consulting firm for the air base. The office was established in an Air Force wide initiative to cleanup its public image and to become better corporate citizens. The Air Base has a $200 million/year positive economic impact on Macomb County. C. Barnes discussed his interest in proceeding with implementation on the RAP while balancing that with the need for study and planning for specific components.

There is opportunity for expedited cleanups on military bases as a result of the Defense Environmental Restoration Fund. The turn around time for cleanup is much quicker than those for Superfund sites. C. Barnes requested a copy of the RAP to have on file at Selfridge. Bob Sweet is fulfilling that request.

A primary concern at the base is for nonpoint source pollution. While the base does not have formalized ongoing recreation and wildlife management for its 3,500 acres, it does have specific management plans to control the deer population (trap and relocate) and avian species population in order to protect aircraft. P. Johnson asked if flight pattern information is available which could be used to identify areas where it would be inappropriate to foster wildlife and waterfowl. C. Barnes said that there are air incompatible use zones which were developed as planning tools used in locating residential developments. Harrison Township

has a copy of the zones on file.

C. Bellmore is Superintendent for the Mount Clemens Waste Water Treatment Plant. He brings the perspective of a community administrator to the RAP process. His experience in developing projects, policies, and rules for his "personal AOC" will be valuable in assessing proposed RAP projects. In particular he can provide insight into how other communities may adopt components of the Clinton River RAP. He is currently working on a wildlife habitat improvement project at the plant's stormwater detention pond. He observed that jet skis pose a significant threat to riverine habitat in the lower stretches of the river. The City of Mount Clemens has a jet ski ordinance in place.

J. Prescott has vast experience in agriculture, forestry, and biology. He is a private consultant and currently serves as a Forester to the City of Mount Clemens. He inventoried the newly created Sleepy Hollow Nature Preserve in the city. He indicated that the Mount Clemens has placed a new emphasis on people and parks.

D. Duncan is a planner for the Huron Clinton Metropolitan Authority. The HCMA has three major parks in the basin, including: Stony Creek, Wolcott Mill, and Metropolitan Beach.

Discussion on goals and direction. If a goal of this group is to restore human habitat with a particular emphasis on human health, then a logical tenet would be: "if you don't want to poison the kids then don't poison the fish." We have to ask, "Habitat for what?" The issue paper will help provide a basis to answer this question.
The issue paper should summarize the past and present and set direction for the future. Each member will spend time with the current outline to sketch technical outlines.

B. Sweet was asked about how the three topics were chosen for the work groups. The topics include: Point/Nonpoint Source, Contaminated Sediments, and Habitat. B. Sweet explained that if those three issues are tackled the AOC would basically be taken care of.

Large lot zoning is a major threat to habitat. The group will need to address the urban sprawl issue and work with local governments. In fact, it was suggested that each municipality would need to develop its own "mini-rap."

The issue of who makes up the RAP Team was also discussed. As it currently stands, the RAP Team is made up of State and Federal agency personnel and CRWC staff. It was agreed that Chair of the RAP work group would also be members of the RAP Team.

Overall the meeting resulted in a better understanding of the experience, expertise and commitment each member brings to the process.

Clinton River Remedial Action Plan (RAP)
Report of Public Advisory Committee Meeting
June 17, 1993
Oakland University - Kresge Library 6:00 - 9:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of May 13 PAC meeting
- Types of actions implemented: Michigan AOC's
- Clinton River Drainage Basin Map
- Impairment of Beneficial Uses: Great Lakes Water Quality Agreement 1987
- Impaired Use Status on the Clinton River
- Recommended Actions from the 1988 RAP (Clinton River)
- Remedial Action Plan: Institutional Framework, Levels of Involvement, Time-Line Example
- Previous Clinton River RAP Organization 4/18/91
- Public Advisory Council Structure and Procedures (Kalamazoo example)
- Charge

Handouts provided at the meeting included:

- Draft Charge: Clinton River AOC-PAC
- Work Groups examples from other RAPs
- Current Status of Impaired Uses of the Clinton River
- Summary of Clinton River RAP (1988): Issues, Sources, Recommended Actions
- List of Potential PAC Subcommittees and Priority Issues for Work Groups
- Michigan Areas of Concern News (Spring 1993) (includes article on Contaminated Sediments)
- Members: Clinton River RAP-PAC

(2) Persons Attending

	PAC Member/Alternate
Chuck Bellmore	City of Mt. Clemens POTW
Lori Simpson	St. Clair Advisory Comm.
Gary White	Macomb County Health Dept.
Spencer Teller	Ford Motor Company
Robbin Hough	Oakland Univ, - Rochester
Ken Bonin	Macomb County Department of Public Works

Helen Willis	Michigan Society of Planning Officials
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Gerald Herriman	Citizen: Warren (former manager POTW)
Frank Butterworth	Oakland University - Rochester Hills
Amos Bankston	United Auto Workers (UAW)
Butch Sapp	Great Lakes Outdoors

RAP Team Members

Bob Sweet	MDNR/Clinton River RAP Coordinator
Greg Goudy	MDNR-SWQD (Lansing)
John Filpus	Michigan Department of Public Health
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Other

Mark Breederland	International Joint Commission
Timothy Backhurst	Macomb County Planning

(3) RAPs News

- June 18 Streamlining Workshop
- AWQB meeting to discuss collaborative efforts among southeast Michigan's 5 RAPs
- Senator Levin desires to visit Clinton AOC: fall tour with PAC suggested
- IJC perspective (Breederland)
  (Want strong public participation. IT's up to PAC to define the AOC and scope of RAP 3 - should include award land as well as water)
- Statewide Newsletter provided

(4) Report of May 13 Meeting

One correction was made - delete MDNR from John Filpus' affiliation.

It was moved by Mr. Hough to accept the report. All assented.

There was discussion as to whether the meeting reports should be comprehensive (long), distilled (medium) or action items only (short). It was noted that in the early stages longer reports would be a way for new participants to catch up with the process/decisions. As an alternative it was suggested that there be tape recordings of the meetings with duplicates made available to members or miss a meeting or newcomers. There were no objections to tape recording. Reports should be at the discretion of the secretary, with continuing PAC feedback.

(5) Review of PAC Membership

a. Members present introduced themselves.

b. Ms. Johnson reported that additional members now designated for Macomb County are Mark Steenbergh (Chairman, County Board of Commissioners), and Alternate Ben Giampetroni (Planning Department) and for Oakland County Kevin Miltner (Commissioner - Waterford) and Alternate John Garfield (Commissioner - Rochester Hills).

c. Staff mailed letters and RAP-PAC information to 16 industrial persons to recruit added PAC members from this key stakeholder group.

d. Suggestions of additional alternatives are invited.

(6) PAC Organization and Procedures

The previously adopted organization outline (4/18/91) was used as the basis for discussion and new decisions.

Mr. Herriman suggested that if the RAP is successful there will be an end-point; a goal of the PAC should be to put itself out-of-business.

Term of Service 2 years. To get started with staggered terms it was agreed Mr. Sweet would randomly assign half of the members an initial term of 1 year and the other half an initial term of two years.

Advisors The PAC members are the public advisors. The Technical Advisors are members of the RAP-Team.

Officers A chairperson and Vice-Chair person.

Staff CRWC staff will serve as staff to the PAC and PAC Subcommittees

PAC Meetings

Frequency:	Quarterly with additional meetings as needed
Time of Day:	Weekdays 5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties (want ecosystem approach and inclusion of source areas as well as impacted areas)
Format:	5:00 - 6:30 PAC Meeting - Subcommittee Reports 6:30 - 7:00 Public Comment/Break 7:00 - 8:00 Program: Public attendance emphasized

Voting As previously stated. Use Roberts Rules of Order.

Meeting Notices

- Formal legal notice not required
- Publish in community calendars of Macomb Daily and Oakland Press
- Press release
- CRWC quarterly newsletters
- List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
- Flyers for Special Meetings

It was moved by Mr. Sapp and supported by Ms. Willis to adopt the organizational structure and procedures as discussed. Approval was unanimous.

(7) Next Meeting: Thursday, September 16, 5:00 - 8:00 p.m.
Verkulin Building - Mt. Clemens

(8) Charge

The draft charge is written as an MDNR charge to the PAC. The PAC could consider a more expansive charge to itself. Mr. Goudy said the DNR does not have a problem if the PAC chooses to go beyond the basic charge to provide

advice to MDNR. For example, it is hoped the PAC will undertake public outreach activities. The PAC might hold public hearings.

It was moved by Mr. Hough and supported by Mr. Herriman to approve the draft charge. The motion carried.

It was noted we have been using two terms: "Council" and "Committee".

(9) Report on RAP-Team, Outreach Products, New Information to Update the 1988 RAP

Mr. Sweet reported that he is assembling a RAP-Team of federal/state/local agency persons knowledgeable about the Clinton River.

Funds were approved for two Clinton River outreach products which will be completed by DNR staff in August: a newsletter and display.

New information includes the finding of zebra mussels in the river and their threat to nature species and habitats.

Apogee, a consulting firm, has been funded by EPA to review funding sources and present a RAPs financing strategy for each of the Great Lakes states.

A report has been produced by Wayne State University (John Hartig and Neely Law) from a workshop convened in Windsor on **Institutional Arrangements** to foster RAP planning and implementation.

It is intended that **work groups** be formed to assemble information and draft sections of the updated RAP. The PAC and RAP-Team will review all the components of the RAP.

The question was raised about a single agency responsible for the river's **data base** and bibliography of information relevant to RAPs. (The Saginaw Bay Initiative was suggested as an example).

Mr. Butterworth reported that a Water Resources Management Institute was being contemplated at Oakland University and he has started to assemble a bibliography. Ms. Johnson noted that the CRWC was intended to be the repository for information ont he Clinton River. The RAP process was improving the transfer of information between MDNR files and CRWC files. CRWC is assembling a special RAP file and bibliography.

Mr. Hough reported that a committee is working at Oakland University

towards an October 1994 water related exhibit in the Meadowbrook Art Gallery. Items provided by groups like this PAC are invited.

(10) Priority Clinton River RAP Issues, Workgroups, PAC Subcommittees

Using the examples of work teams from other RAPs and the staff provided list of potential issues the group decided on the following initial efforts.

I PAC Subcommittes

1. Mission, Goals, Objectives, Principles
2. Public Outreach

   (Financing: wait for Apogee report on Michigan funding sources)

   (Institutional: Wayne State report is available for use)

II Work Groups

1. Point/Nonpoint Sources (includes CSOs)
2. Habitat
3. Contaminated Sediments

III Issues Papers (to be written by CRWC staff before 9/30/93)

1. Contaminated sediments
2. Nonpoint Sources
3. Habitat
4. Public Involvement Efforts (to date on the Clinton)

(11) Formation of Workgroups and PAC Subcommittees

Some volunteers were enlisted at this meeting. A follow-up survey will be mailed to PAC members and suggestions for additional key persons solicited.

(12) The meeting as adjourned at 9:00 p.m. with informal conversations until 10:00.

Submitted by

Peggy B. Johnson

PBJ/sj

Clinton River RAP-PAC
Goals and Objectives Committee
Report of Meeting 9/14/93

(1) The meeting was from 9:00 - 11:00 a.m. at the Clinton River Watershed Council offices. Members present were: Helen Willis, Gerry Herriman, Tim Backhurst, Frank Butterworth, Bill Smith, Peggy Johnson (staff).

(2) Materials provided:

- Example definitions of "goal", "objective", "policy", "program", "mission statement" (generic)
- Example of 16 RAP principles (Toronto)
- Two examples of Goals./Objectives (Detroit and St. Clair Rivers)
- Criteria for Evaluating Environmental Policies
  The Policy Process
  Approaches to Environmental Policy
- Glossary

(3) Agenda

A. Consideration of definitions
B. Review of principles
C. Mission Statement
D. Goals and Objectives
E. Zero Discharge Goal

It was noted that we are addressing Goals and Objectives of the RAP or "Water Use Goals." There may also be goals and objectives developed for the PAC as an organization and for the work of the PAC subcommittees. (These might be in the form of long term and short term work program plans.)

(4) A. Definitions

It was agreed that we need some working definitions so we have a common understanding of the terms we are using. We agreed to use the examples provided for a first draft. Staff and committee members will search out other examples and we will have successive improved drafts. Other terms to define and elaborate on in issues papers would include "ecosystem" and "zero discharge". It was agreed it would be useful to have illustrative examples. It

was noted that the RAP guidance is emphasizing development of quantifiable/measurable objectives.

(5) B. Principles

A long and useful discussion evolved around the review of each of the principle examples. For some the groups verbally articulated a background rational for the principle in terms of existing pollution control laws and programs, analogies to the 208 Areawide Water Quality Planning of the 1970's, examples from the Clinton River situation, issues surfaced in the Great Lakes Initiative.

In many cases there was unanimous concurrence with the principle statement as written. In many cases we questioned the use of "must" versus "should." In some cases we wanted to change the wording (Numbers 5, 8, and possibly 9). We decided to draft immediately three additional principles emphasizing the need for a partnership among the levels of government, need for cooperation among local governments in watershed-based planning and management, and roles of individuals in remediation and prevention of pollution.

We felt that the Committee's discussion of these principles suggested the need for an informational background piece on each so that all RAP participants can understand how the principle relates to the Clinton River situation and to our RAP planning efforts. We then noted that the Toronto example includes an explanation for each principle. Mr. Smith will provide Ms. Johnson the original Toronto RAP document and she will draft appropriate explanations for the Clinton River for committee consideration at the next meeting.

Mr. Herriman drafted an additional proposed principle: "Action taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits to be achieved."

After much discussion we concurred with #15 as a statement reflective of the 208 process in which for each recommended action there was identified a lead agency critical to the implementation. ("Designated Management Agency") And there was an examination of whether the agency(s) has adequate legal authorities (mandates) to take effective action.

(6) Criteria, Planning Hierarchy

The Committee agreed the "Criteria for Evaluating Environmental Policies" looked useful and appropriate. Ms. Johnson noted that she could provide criteria for judging an institutional arrangement for a watershed organization, criteria for effective planning and regulation of water resources, and an outline

clarifying the various kinds of planning and stages of planning which might also help keep us on the same "wave length" in our discussions. [Summarized from "Water Management in Michigan " (1985) Volume 3 - background investigations prior to the two-year Great Lakes and Water Resources Planning Commission (1986-87) and adoption of "Water Resources for the Future: Michigan's Action Plan (1987).

(7) C. Mission Statement

We agreed this is to be the Mission Statement for the PAC (not for the RAP). Mr. Smith provided the mission statement proposed last year which needs updating.

Mr. Herriman asked "What authorities does the PAC have? This must guide the mission." We suggested the PAC can have authorities delegated from the DNR - for example the charge which we approved at the last PAC meeting. The PAC may also consider some self-determined "authorities".

Several committee members asked for clarification of the RAP players and their roles. Ms. Johnson noted the following players: IJC, EPA, MDNR, CRWC, PAC, RAP-Team.

Mr. Herriman suggested that the ambition of the mission will need to reflect the PAC's capabilities, the level of staff time available, and volunteers commitments.

It was agreed to first list the components of a mission statement and then let staff do the work-smithing for a first draft. We just started to list components when it was 11:00 a.m. Components may be such items as:

- provide a public forum
- respond to MDNR requests for advice
- monitor CR-RAP progress
- issue periodic progress reports
- review/amend/approve work products
- sponsor public outreach activities
- oversee plan implementation
- when impaired uses have been remediated, seek delisting and termination of the RAP
- participate in writing segments of the RAP

(8) D. Goals and Objectives

It was agreed that each committee member would mark-up the two examples

provided keeping in mind the relevance of these goals to the Clinton River. Ms. Johnson will review additional sets of goals from other RAPs and provide any additional examples for consideration. At the next meeting we will "cut and paste" a set of goals and think about any additional goals we may want to suggest.

(9) Next Meeting

The objective will be to have a draft set of goals to present to the PAC at a January meeting. The PAC will schedule another meeting in October or November (to be determined at the PAC 9/16 meeting).

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
September 16, 1993
Verkuilen Building - Macomb County 5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of June 17 PAC meeting
- IJC RAP Forum Notice October 21-22
- IJC Biennial Meeting Notice October 22-23
- Roberts Rules of Order
- Clinton River PAC: Organization and Procedures (adopted 6/17/93)
- 9/11 Detroit River RAP: Day at the River

Handouts provided at the meeting included:

- Areas of Concern: Overview and Clinton River Excerpt from Water Quality Pollution Control in Michigan 1992 Report (Michigan 305(b) Report)
- Progress on Spillway Weir Modification 8/6/93 Letter from Congressman Bonior
- Agenda from 9/15/93 Detroit Workshop "Improve and Protect Your Watershed: Opportunities for Local Action in Areas of Concern (IJC, SEMCOG, SPAC, MDNR)
- List of Clinton River Facilities with NPDES Discharge Permits (9/13/93)

(2)

Persons Attending	PAC Member/Alternate
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Charles Barnes	USAF/ANG
Spencer Teller	Ford Motor Company
Daniel Duncan	H. C. M. A.
Gerald Herriman	Citizen
Shirley Barnett	L. S. C. A. C.
Frank Butterworth	Oakland University
Jack Prescott	Citizen
Helen Willis	M. S. P. O.

Persons Attending Continued	PAC Member/Alternates Continued
John Johnson	Soil Conservation Service
David Potter	Oakland County Drain Office
Robert Fredericks	Oakland County Drain Office
Brent Avery	Citizen
Bill Feddeler	Education

RAP Team Members

Ben Okwumabua	DNR/WMD
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council (at 6:30)

Advisors

Timothy Backhurst	Macomb County Planning
Terry Gibbs	Macomb County CES

Speaker

Roy Schrameck	MDNR/SWQD/SEMDO

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the 8/18 RAP Streamlining Workshop. He and Mr. Ditschman attended this fruitful day to explore means to move the RAPs, more quickly to actions instead of merely writing documents. The strategies for change developed at the workshop focused on (1) Clarification of RAP expectations, (2) Training for RAP participants, (3) Enhanced Participation, (4) Realistic Goals and Measures, (5) Scientific Support. He observed that if the recommendations are acted on there will be valuable results.

The Statewide Public Advisory Committee met July 22. The concept of the streamlining strategy was approved. There was further discussion of the DNR's RAP-plans approval process and the fit of Michigan's procedures with the IJC Stages 1, 2, 3 protocol.

The 9/15 Detroit Workshop on "Opportunities for Local Action in Areas of Concern" provided a cafeteria selection of sessions, some good, some not well-related to RAPs. (Notes from selected sessions are available in the CRWC-RAP files. A copy of the agenda is provided to show the session topics.)

News from the Clinton River includes the finding of zebra mussels in the river 8.5 miles upstream from the mouth; a June opening of a new boat launch at Shadyside Park in Mt. Clemens; continued construction of the Macomb County bikepath beginning at Metrobeach Park and connecting to a spillway path and Shadyside Park with two bridges; City of Rochester voters favored an $8 million upgrade of the local Treatment Plan instead of a $3 million sewer connection to the Detroit system.

Ms. Johnson reported on tracking of the Great Lakes Initiative, an effort of EPA and the eight Great Lakes States to concur on uniform water quality standards for the region. A Michigan position was approved at a joint meeting of the Natural Resources Commission and Water Resources Commission in August and forwarded for the pubic comment record on the EPA published guidance. CRWC has a report available for anyone interested in information on the GLI status. Special concern has been expressed regarding the impact on POTWs. Final promulgation by EPA is expected in 18-24 months after further meetings to address the public comments.

In August, CRWC was contacted by MDNR in response to a request from the Attorney General's office for a list of potential Clinton River and Lake St. Clair Flats conservation projects towards which $750,000 of fines and penalties from the G & H Superfund site settlement might be applied. This may provide a good precedent as a funding source for RAP recommended actions. For example the weir modification was listed in case the Congressional appropriation does not cover 100% and a local match is required.

Mr. Sweet has completed assembling a RAP Team of state and federal agency staff for the Clinton RAP. A letter of appointment was mailed to each of the PAC members from MDNR Director Roland Harmes.

PAC members were invited to attend the CRWC summer meeting July 27, which reviewed spills response on the river.

(4) Report of the June 17 PAC Meeting

No corrections were suggested. The report stands approved as submitted.

(5) Election of PAC Officers

Ms. Johnson chaired the meeting for this agenda item. A list of the PAC members was provided for reference. It was noted that Lori Simpson should be included as the Alternate for the Lake St. Clair Advisory Committee.

Bill Smith was nominated for Chairman and stated he would be willing to serve. Several others were asked if they were willing to be nominated, but they declined.

> It was moved by Ms. Barnett and supported by Mr. Duncan to close nominations and unanimously elect Mr. Smith Chairman. The motion was approved unanimously.

Shirley Barnett was nominated Vice-Chair, but declined because of the time demands of her job. Charles Barnes volunteered to serve assuming no legal constraints of his job.

> It was moved by Ms. Barnett and supported by Mr. Herriman to close nominations and unanimously elect Mr. Barnes Vice-Chairman. The motion was approved unanimously.

(6) Selection of Clinton PAC Representative to IJC RAP Forum

The expenses will be paid for one official PAC representative to the RAP Forum October 21-22 in conjunction with the Biennial meting of the IJC in Windsor. Any PAC member is encouraged to attend. Copies of the Forum announcement and registration form were provided. It was noted that registrants will receive in advance the reports to be presented to the IJC. The IJC meeting agenda (copy provided) indicates the various reports.

Both Mr. Smith and Mr. Butterworth indicated they planned to attend the RAP Forum. The PAC suggested they decide between the two of them who would be the designated representative. Six other PAC members filled out the registration forms to be mailed in.

(7) Public Advisory "Council" or "Committee"

In referring to the Clinton River PAC both the terms "Council" and "Committee have been used. Following discussion -

> It was moved by Ms. Barnett and supported by Mr. Barnes to choose the term "Council". Approval was unanimous.

(8) Lengthened Terms for PAC Members

MDNR Director Harmes, has requested consideration of lengthening the terms from 1 and 2 years to 2 and 3 years. He would prefer not to make new appointments as soon as one year hence.

> It was moved by Ms. Willis and supported by Mr. Herriman to change the adopted terms for PAC members to 2 and 3 years. Approval was unanimous.

(9) Date and Location of Next PAC Meeting

It was first agreed that Thursday evenings are appropriate, and that the PAC meet quarterly. It was agreed to meet on the second Thursday of the first month of each quarter. Hence, the 1994 meetings will be January 13, April 14, July 14, October 13.

(10) Composition of RAP Team, Work Groups

Mr. Sweet noted that the PAC members had been surveyed regarding their individual special interests and on which committees they would prefer to serve. Representatives of state and federal agencies have been selected for the Clinton RAP Team. PAC members are welcome to also serve on the RAP Team. A list of Team members will be provided. The initial work groups for Habitat, Contaminated Sediments, and Point/Nonpoint Sources will begin the RAP writing. Mr. Fredericks said that the relationship between the PAC and the RAP Team was not clear in the letter from Director Harmes. There is need for further clarification of the state/local partnership and the PAC/CRWC relationship. Ms. Johnson noted that on October 8 she, Mr. Ditschman, Mr. Sweet, and Dianna Klemens would be meeting to seek clarification.

(11) Reports of Habitat Subcommittee and Goals and Objectives Work Group

- Mr. Ditschman reported on the first meeting of the Habitat Work Group September 3. He prepared an extensive outline of habitat components and issues to assist beginning of assembling habitat information. Each of the participants shared his personal knowledge of habitat in the watershed. We will characterize the past, present, and future potential habitat in the watershed. We will seek dual chairmen of the Habitat Committee, one a local representative and the other a RAP Team member. Mr. Ditschman will assemble a notebook of habitat background information starting with the materials shared at this meeting.

  Ms. Johnson reported on the latest of a series of court cases from the watershed related to wetlands protection. A Waterford developer was awarded $5.2 million in a case of DNR permit denial before the Lansing Court of Claims. Several newspapers and Michigan NPR interviewed Ms. Johnson for her reaction. Certainly the DNR will appeal the case.

- Ms. Johnson reported on the first meeting of the Goals and Objectives Subcommittee September 14. The group first considered definitions of the terms "mission", "principles", "goals", "objective", "policy", "criteria", to ensure a common understanding. The Principles from the Metro Toronto RAP were reviewed and amended as appropriate to fit the Clinton River AOC. Examples of Goals and Objectives were provided from other RAPs. It was agreed to draft a Mission Statement for the PAC as a PAC-determined complement to the MDNR Charge. Goals and Objectives for the PAC should be reflected in a work plan and schedule aimed at completing the RAP update and specifying the work assignments among DNR staff, CRWC staff, the RAP Team, the Work Groups. This subcommittee will draft Goals and Objectives for the RAP. Before the next meeting further examples from the literature and other RAPs will be compiled.

(12) Program: An Overview of Point and Nonpoint Sources of the Clinton River - Roy Schrameck, Chief, Surface Water Quality Division, MDNR - Livonia District

The Livonia District office serves the five counties of Oakland, Macomb, St. Clair, Wayne, and Monroe. The District handles all aspects of pollution control except for the drafting of the NPDES (National Pollution Discharge Elimination System) permits.

The permit development process has not been altered by the Governor's Executive Orders reorganizing the DNR; but the Water Resources Commission has been eliminated. The Water Resources Commission was the body which issued the NPDES permits. These will now be issued by the Director and noticed in the new Department Calendar.

Permit effluent limits are based on a characterization of the discharge (wastes), what kind of industry or publically owned treatment works (POTW) is involved. EPA sets nationwide Technology Based limits based on categorical guidelines for specific industries such as steel mills, paper mills. The industry-wide baseline criteria allow the discharge of X pounds of waste for each Y pounds of product. The intent of this approach is to create a uniform nationwide basis so that industries will not shop around to locate in states with lower standards.

A second tier of limits is derived from water quality standards. These look at the receiving stream and its designated uses. How are uses affected by the level of dissolved oxygen, the concentrations of toxic pollutants. How does the type of discharge, its volume, the constituent pollutants affect what is happening in the river. There is a 303(d) list of the state's waterbodies which are not meeting the water quality standards.

The TDML (Total Daily Maximum Load) process is used to examine the sum of effects of all the discharges influencing a stream section. A waste load allocation is then assigned to each of the discharges. Whenever the MDNR develops an NPDES permit a waste local allocation is performed.

The Clinton River is not currently on the 303(d) list. However, when all of the permits are collectively reviewed in FY96 the Clinton may end up on the list. NPDES permits are to be reissued every 5 years; historically a set of permits from all over the state were addressed in any given year. Recently the DNR is trying to get permits reissuance scheduled on a watershed basis and 5 year cycle. However, there has been a chronic backlog with minor permits which interferes with the 5 year cycle. The new General Permit and Permit-By-Rule authorities may help (for example, to cover cooling water discharges). When a permit expires after 5 years it remains in effect until there is a state decision to rescind the permit.

During FY94 (October 93 - September 94) there will be selected water quality studies on the Clinton. These are biological surveys. During FY95 the DNR will work on developing the new permits. And during FY96 the permits will actually be reissued.

The only consequence of being on the 303(d) list is that the state must first submit the waste load allocation to EPA for prior review. This new procedure has added another layer of EPA oversight on the state-delegated administration of the NPDES permits and another 30 day delay.

Rule 57 is the toxic substances control portion of Michigan's Water Quality Standards rules. It limits the discharge of toxics at the end-of-the-pipe, ie. no mixing zone. (A mixing zone is still allowed for oxygen-depleting substances.) The Rule 57 derived limits apply to a facility discharge even when not explicitly limited in the permit. The application value limits are embedded in the permit stipulations. Whole effluent toxicity studies may be required; this is one of the more recent provisions of the NPDES program. The advantage to a discharger of not having a parameter explicitly limited in the permit is that they need not monitor for that parameter. It would be appropriate for the PAC to look at the collective set of Clinton River permits. Bob Sweet could arrange for appropriate DNR staff to walk through the permits with the PAC. You could ask about substances not delimited in the permits and learn why.

The NPDES program depends on self-monitoring reports being submitted quarterly to the MDNR. Compliance monitoring includes spot checks of a facility by DNR staff to ascertain directly that the operations are in line with the permits and monitoring reports.

The DNR attempts compliance monitoring checks of all minor permittees once per year and the mayor permittees 3 times per year. There are four major permits on the Clinton (the larger POTWs). A list was provided including all current NPDES permitted facilities in the Clinton River Basin. A question was asked as to the impact of the minor permits as compared to the mayor permits. Mr. Schrameck said he cannot answer that tonight; but the information can be obtained. He added that he personally feels that more attention should be given to the minor permits.

Mr. Herriman noted that contrary to what many citizens think, a discharger can be trusted to provide good data in their monitoring reports to the DNR. When there are split samples analyzed separately by the permit holder and the DNR the results had better be similar. It is a criminal offense to falsify a data report not merely a fine.

Mr. Fredericks inquired about the South Oakland County Sewage Disposal System (SOCSDS) combined sewer overflow (CSO) control facility - the large detention basin in Madison Heights at the head of the Red Run. He said that Oakland County had reapplied for a new permit after 5 years, but there has been no response from the DNR and the permit is long expired. The county has been submitting the regular monitoring reports with no feedback from the

DNR, which would be helpful. Mr. Shrameck replied that this is a minor permit and may be part of the backlog problem. He does not know whether the DNR will try to reissue any CSO permits now or wait until after the results of the Rouge River Wetweather Demonstration Project. This project will evaluate various designs and control levels for a number of CSO basins being constructed on the Rouge. Mr. Fredericks noted that if Oakland County does not apply for the permit reissuance they could be subject to litigation by a third party for non-compliance.

As for Nonpoint Sources, the new federally mandated requirements for an NPDES permit for every construction site disturbing more that 5 acres will depend in Michigan on the established permit-by-rule authority. The 347 program is administered by county designated Local Enforcing Agencies (LEA) or some municipalities that choose to have their own permit program. For most of Oakland and Macomb Counties the county drain commissioners are the LEA. The Michigan Nonpoint Source Program is providing grants for local watershed planning and implementation of Best Management Practices (BMPs).

Initially the federal stormwater program is requiring a NPDES permit for the storm drains in large municipalities with a population over 100,000. Two Clinton River cities are involved, Warren and Sterling Heights.

1990 amendments to the federal Coastal Zone Act make NOAA (National Oceanic and Atmospheric Administration) and EPA partners in enforcing nonpoint source controls in designated coastal zone management areas. NOAA has suggested designating the entire State of Michigan as within the coastal zone, which would mean all Michigan communities would be subject to stormwater permits on their storm drains. NOAA has said it is up to the state to justify why any portion should be excluded from the coastal zone. DNR staff are not up to doing the work for this justification so Michigan may be hit be default.

Mr. Shrameck responded to several additional questions.

Q. With the DNR reorganization resulting from the Governor's Executive Orders what will be the public hearing process on NPDES permtis?

A. The new biweekly DNR calendar will provide public notice. If any issues are brought to the DNR's attention there will be an attempt to resolve these. If significant controversy remains after the staff level meeting eg. "substantial and relevant issues" remain unresolved, a Director's public hearing will be published in the calendar. To date, we do not know what appeal there will be of the Director's decision: to the NRC and the Contested Case Hearing procedure or directly to court.

Q. A recent PIRGIM report (August 1993) "Permit to Pollute: State-by-State Analysis of Serious Violations of the Clean Water Act" has received attention in the press. Michigan is reported as second among the states with major permit facilities in significant non-compliance (57/190 or 30%). The information is taken from the EPA Quarterly Non-Compliance reports for October 1991 - July 1992 and includes the Mt. Clemens, Rochester, and Warren Wastewater Treatment Plants on the Clinton; no industrial facilities are listed on the Clinton. How do we reconcile this with the 1988 RAP which states all dischargers on the Clinton are in compliance?

A. Mr. Shrameck has not seen the PIRGIM report and cannot comment. Procedural violations do occur but he would not consider them "significant noncompliance." STORET is the national system for compiling water quality data. Incorrect data sometimes does creep in an MDNR and EPA appreciate being notified whenever someone discovers a glitch. Both EPA and MDNR are establishing computerized Permit Compliance tracking systems which should improve the information available. We'll also be able to cross-reference data from Environmental Response Division (contaminated sites), Waste Management Division (use and disposal of hazardous materials), Air Quality Division.

Q. Is it fair to say that point sources are pretty well taken care of on the Clinton River?

A. I would say "yes" with the exception of resolving the situation in Rochester.

Q. What is the status of Industrial Pretreatment among the Clinton River POTW's? We note an August newspaper article about the City of Warren pursuing litigation against a metal finisher with a history of pollution violations?

A. A discussion of the IPP status would take another whole evening. You can always call Hae-jin Yoon; she is the primary compliance person for Oakland and Macomb Counties (810) 953-1451.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
January 13, 1994
Mt. Clemens Community Center 5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- **Report of the September 16, 1993 PAC Meeting**
- Reports of the IJC RAP FORUM
  Mr. Butterworth's report and article from IJC Focus
- 12/6/93 Macomb Daily article "Clinton River Not So Dirty DNR Memo Says"
  1/13/93 Macomb Daily article "Clinton is State's Dirtiest River"
- 1/11/93 Clean Water Action News Release "AuSable Cleanest, Clinton Most Polluted"
- 1/26/93 Memo to Clinton River Watershed Council from MDNR/SWQD (Richard Lundgren)

  Zebra Mussels in the Clinton River
  - see article in RAP #3
  - 12/8/93 Spinal Column article "INFESTATION First Inland Zebra Mussel Colony Established in Local Lake"
  - 12/14/93 Oakland Press article "State's Native Clams Could be in Danger From Zebra Mussels"
- Strategies to Improve Michigan's RAP Process
  12/2/93 memo of Diana Klemans regarding MDNR concurrence
- "Governments of Canada and the United States Act on Water Quality Recommendations" IJC FOCUS article on reports at Biennial Meeting October 1993
- Notice of March 8 Conference on Watershed Management - the annual conference of the Michigan Section of the American Water Resources Association

Handouts provided at the meeting included:

- Clinton River Area of Concern Progress Report, December 1993 by Robert Sweet, SWQD, MDNR

- Clinton River RAP Team (list of members)
- Guidelines for Recommending the Listing and Delisting of Great Lakes Areas of Concern
- "Clinton Carp are Health Risks, say Michigan Health Officials", Eccentric Newspaper article 12/20/93
- Southeast Michigan Initiative, Memo to AWQB 12/7/93
- Michigan Environmental Code Commission: A Summary by CRWC
- Clinton River RAP #3, MDNR December 1993
- Ambient Water Monitoring in Michigan: Concentration and Loading Trends in the Detroit River; and Great Lakes Tributaries by R. Lundgren, SWQD, MDNR, October 1993

(2) Persons Attending — PAC Member/Alternate

Charles Barns	USAF/ANG
Heidi Vogt	USAF/ANG
Charles Bellmore	Mt. Clemens WWTP
Jack Prescott	Citizen
Gary White	Macomb County Health Dept.
Gerald Herriman	Citizen
Frank Butterworth	Oakland University
Spencer Teller	Ford Motor Company
Patrick Meagher	Clinton Township
Bob Winkler	Mt. Clemens High School
Brent Avery	Citizen
Bill Feddeler	Citizen
John Johnson	Macomb County SCS

RAP Team Members

Ben Okwumabua	DNR/WMD
Greg Barrows	MDNR, ERD (Livonia)
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council

Advisors

Timothy Backhurst	Macomb County Planning

Speaker

Richard Lundgren	MDNR/SWQD

Public

Jim Reed	Citizen
Bob Selwa	Macomb Daily Newspaper
Jeff Green	Oakland Press Newspaper
Robert Hansen	Citizen

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the October 28 meeting of the Statewide Public Advisory Committee (SPAC). His report on the Clinton River included:

- The Clinton River Watershed Council was restructured into a non-profit organization for citizens, governments and businesses.
- The spillway hike/bike path was completed with funding from the Department of Agriculture.
- The settlement on the G & H Landfill includes funds for Clinton River improvement projects.
- The Clinton River PAC elected its officers and established four standing committees. They are looking into establishing a database/bibliography data center at Oakland University.

DNR managers have accepted the RAP Streamlining proposal which will eliminate lengthy reviews, with RAP Team recommendations going directly to Tracy Mehan, Director of the Office of the Great Lakes.

There are plans to produce a Michigan RAP Calendar spanning the 14 months of December 1994 - January 1996, with one page for each Area of Concern. Needed are photographs and dates of river events during that period. It was suggested this task be referred to the Public Outreach Subcommittee.

The annual Michigan citizens conference on Great Lakes Ares of Concern will be postponed from spring to fall of 1994.

Bob Sweet noted that the RAP display with photos illustrative of the Clinton River issues. This display board will be shared with some other AOCs, so he asked for upcoming dates when it would be suitable to display this on the Clinton.

Copies of the Clinton River RAP #3 published in December were mailed to PAC members and others who have expressed interest in the Clinton RAP. Additional copies are available at CRWC offices.

A 1993 draft progress report on the Clinton AOC was provided by Mr. Sweet. He asked PAC members to review it and respond by the next day.

He reported on the G &H Superfund Site court settlement which commits $800,000 towards conservation projects on the Clinton River and St. Clair Flats. 30 days following court approval of the settlement the funds are transferred to a Environmental Response Division (ERD) restricted fund account. There are several other Michigan cases coming to conclusion with similar commitments of the fines and penalties; a MDNR committee is looking at the best means to write the method of disbursement into the court orders.

- MDNR continues to work with CRWC staff to conclude the grant agreement for them to provide staff support to the PAC. This should be soon completed; but tonight Peggy Johnson is participating as a volunteer.

- A $151,000 proposal for analysis of contaminated sediments in the Clinton River has been submitted for funding under the Southeast Michigan Initiative (SEMI) and also to the Great Lakes National Program Office of EPA (GLNPO). There may be several other funding opportunities with the Corps of Engineers (COE) this year. The COE has decided to spend funds on RAPs, $250,000 in 1994 and $3 million in 1995.

- Sign-up sheets for the Work Groups were available and PAC members urged to sign-up.

Peggy Johnson reported on activities relevant to the RAP effort:

- **Clean Water Act Reauthorization** MDNR convened on December 16 a Reauthorization Advisory Group of Michigan stakeholders to obtain input for developing a state position as a basis for working with the

Michigan Congressional delegation. Issues addressed were Nonpoint Source/Coastal Zone, Watershed Management, Permit fees/10 year permits/stormwater, wetlands, state revolving fund, water quality standards, pollution prevention, clean lakes. DNR staff will use the input to complete draft positions for Natural Resources Commission approval.

- **Great Lakes Initiative** (GLI-1) Since EPA was flooded by public comments concluded last fall we are awaiting further work to respond to the comments and meet the court imposed deadline for final promulgation (in 18-24 months?). The initiative was aimed primarily at uniform standards among all the Great Lakes states for toxics reduction by point sources. Criteria were developed for control of Bioaccumulative Chemicals of Concern (BCCs) which EPA anticipates playing out in many programs.

- **Great Lakes Toxics Reduction Effort** (GLI-2) EPA has just completed a final draft report. The proposed strategy aims at nonpoint sources and incorporates three tracks:

  - a Pathways Approach
    (air deposition, sediments, spills, urban runoff, waste sites, plus continued evaluation of agricultural sources for BCC loadings)

  - a Virtual Elimination Project
    (which will be coordinated with the IJC project and initially focus on mercury and PCBs)

  - Lake Michigan Enhanced Monitoring
    (a pilot for LAMPS)

- **Environmental Code Commission** The Governor established this Commission a year ago to consolidate Michigan's Environmental protection and natural resources management laws. While the Commission was directed to codify but not consider substantial changes this has proved difficult. For example, review of the Drain Code proved very controversial. A handout was provided summarizing the status.

- **Michigan Science Advisory Board** was established to bring the best scientific expertise to bear on Michigan issues. The first completed review and report was on <u>mercury</u>. The Board was recently asked to review <u>chlorine</u>.

- **Michigan Office of the Great Lakes** has initiated bi-monthly reports on current Great Lakes issues.

- **Southeast Michigan Initiative** (SEMI) This is an EPA-Region V initiative that has been "underway" for several years. At a joint meeting of AWQB and EPAC December 7, Mindy Koch, DNR Deputy Director for Region III provided an "introduction". Initial elements identified for inclusion are pollution prevention, public participation, compliance and enforcement, and Remedial Action Plans. To date, EPA and DNR have been selecting people for involvement; it is hoped that by mid-January more people will be drawn in. With five RAPs in Southeast Michigan it would be a logical place to emphasize progress on RAPs and opportunities for work in common among the individual RAPs.

(4) Introductions and Comments

Gary White (Macomb County Health Department) reported that the Health Department has been studying ways to monitor CSOs; they are also exploring with the Oakland County Health Department ways to monitor for bacterial contamination following rainfalls to determine whether and where advisories should be issued to avoid total body contact.

Frank Butterworth (Oakland University) noted that he is involved with PCBs toxicity research. He is interested in citizens biomonitoring and will be chairing a symposium on biomonitoring for the International Association of Great Lakes Researchers at a conference in Windsor this summer. The City of Rochester will be abandoning its wastewater treatment plant and hooking up to the Detroit system. Voters elected to maintain the local plant in the spring of 1993; but when new and higher costs for upgrading the plant were presented a second referendum vote in the summer favored abandonment.

Heidi Vogt (Selfridge ANGB) noted she is working with other base staff on environmental restoration of the 4000 acres which significantly relates to the river mouth area.

Jack Prescott stated that he was particularly interested in parks development along the river.

Chuck Bellmore (Mt. Clemens POTW) reported that he was recently appointed Director of Utilities for the city so his responsibilities have been broadened. He is currently assisting the DNR with walleye rearing in ponds at the wastewater treatment plant and assisting the COE with hydrology studies of the Mt. Clemens section of the river. He provided a copy of a recent letter from Congressman Bonior to the Mayor of Mt. Clemens reporting that

Congress approved $2 million and President Clinton signed the appropriations bill to correct the design deficiency on the spillway weir; the Office of Management and Budget (OMB) released the funds. The Corps began collecting field data in December. The Corps will then coordinate design and analysis with the affected local parties. It will not be known until the final design is completed whether any local match is required.

(5) Report of September 16, 1993 Meeting

The report was accepted as presented.

(6) IJC RAP Forum Report

Frank Butterworth provided notes on the two days of the Forum October 21-22. These were included in the agenda packet. Mr. Butterworth reviewed these notes. He felt the RAP Forum provided a good opportunity to learn from other RAP efforts that are further along than the Clinton. A major theme was sustaining the momentum; speakers noted that RAPs often had started with a promise that energized people, then hit succession of road blocks and many walked away. Highlighted lessons learned included:

- the Cuyahoga RAP was set up for shared power with the Ohio EPA this negotiated partnership is important in sustaining momentum
- must struggle to incorporate the ecosystem approach - water and land
- form NPOs to facilitate as needed
- obtain a clear money commitment - public and private
- bureaucrats must be willing to take risks, perhaps fail
- get a facilitator to help with goal setting
- convene technical forums to garner expertise

Bill Smith noted that Tim Lozen, Chair of the St. Clair River PAC, was impressed with the effectiveness of the facilitator at the RAP Streamlining Workshop.

Chuck Barns commented that several of John Jackson's remarks would slingshot the RAP process forward: a clear timetable for cleanup, designating those responsible for cleanup actions and their roles (not just government), a clean money commitment.

(7) Subcommittee and Work Group Reports

No meetings since those reported at the last PAC Meeting.

(8) Outside Meeting Attendance Fund

Mr. Sweet noted that the budget for PAC support includes $465 for travel and registrations reimbursements for attendance by PAC members. Anyone delegated for reimbursement is expected to provide a written report; the Watershed Council can provide secretarial services for typing hand-written notes. Tonight the PAC needs to decide on the procedure for selecting candidates to attend conferences. Potential conferences this year which we can now suggest include the annual Michigan Citizens Conference on Areas of Concern (Port Huron), the Watershed Management Conference slated for March 8 at MSU, the summer Windsor conference of the International Association of Great Lakes Researchers.

> It was moved by Mr. Teller and supported by Mr. Herriman that applications for conference attendance/reimbursement be submitted to Ms. Johnson. She will then present these to the four PAC officers for decision. Approval was unanimous.

It was suggested that some PAC members might be able to have their employers cover costs of conference attendance.

(9) New Business - None

(10) Public Comment - None

(11) Program The Clinton River 20 Year Trend Analysis

Rick Lundgren, MDNR Surface Water Quality Division provided copies of the report he authored "Trends in the Detroit River and Great Lakes Tributaries" October 1993.

This report utilized river mouth data from 12 Michigan rivers tributary to the Great Lakes. These were selected because of their relatively stable flows.

Although an urban river, so much of the flow in the Clinton is from discharges that the year round flows are fairly stable. During low flows the Clinton is 85% effluent. The Clinton has the lowest flow of the rivers in this study. The "mouth" data is from sites far enough upstream to be beyond the influence of Great Lakes levels. In the Clinton the mouth station is at Gratiot, above the spillway.

Michigan includes five of the midwest ecoregions, areas of significant

differences in soils, land use. In any attempt to compare rivers we must not look only at concentrations but must also take ecoregions into account. That is the major flaw I find in the Clean Water Action report.

The report focuses on six key parameters: total phosphorus, suspended solids, chloride, lead, copper, and zinc. To see the impact on the Great Lakes we must look at the loadings rather than the concentrations.

The Clinton definitely has problems with phosphorus although the concentration has dropped over the years due to phosphate detergent bans and phosphorus removal at wastewater treatment plants. Regression plots were displayed to confirm a downward trend for the Clinton. Suspended solids show a slight upward trend; chloride-no confirmed trend; lead shows a definite downward trend in concentration; copper has a significant downward trend in concentration and loading; zinc shows a downward trend in concentration.

There were questions and hypotheses about some of the data spikes. Did these reflect wet years? Was data collected during rain events? (possibly). Each year's data point represents the 12 monthly samples collected over the year.

Another approach to judging water quality of a river is to look at the number of times there are exceedences of the state water quality standards. On the Clinton we see more exceedences occurring in the mid 1980's than today. (The heavy metals have been sampled monthly only since 1984.)

The water quality standards for metals varies with the hardness of the water. Where 50 ppm (softwater) the standard for lead is 0.9 micrograms. Where 300 ppm the lead standard is 20.0 micrograms. So we cannot simply look at concentrations to draw a valid conclusion about a river's water quality. The right question to ask is: Were there exceedences of the water quality standard? We should not say the Clinton is the dirtiest river where it in fact has higher limits than other rivers.

Another shortcoming of the Clean Water Action report was using only a single year's data. You need 20 years of data to draw any conclusions about trends in water quality.

In summary the good news is that the quality of all Michigan rivers is improving over the years. The bad news is that we have a long ways to go yet to attain the desired water quality.

There was discussion as to why suspended solids might be showing an

increase. Historically the soils types in the watershed yield high suspended solids; but construction sites, storm drains, and CSOs may be contributing significant amounts of suspended solids.

The Clean Water Action report also addressed data from urban areas which showed a big increase in concentrations from above Pontiac to below. How might we account for this? The water quality above Pontiac may be exceptionally good so that discharges in Pontiac would result in a greater change. Also the river flow is down to a trickle in Pontiac because of the dams on lakes upstream, so there is little dilution.

A high pH (hardwater) lessons the effect of the metals on aquatic life. While the biology of the river may not be so impacted, what is the effect of the metals when they reach the Great Lakes?

The DNR is concerned about backtracking to find the sources of heavy metals. We don't want them to end up in the sludge at wastewater treatment plants. Pre-treatment limits imposed on industries to municipal sewers may get a shot in the arm as the result of recent court cases such as ACE Finishing where a $100,000 fine was imposed for violations of the pretreatment limits.

Are we collecting adequate data to get a good estimate of Clinton River loadings to the Great Lakes? No. More frequent sampling is needed. For example in the Lake Michigan LAMP study it was concluded that the Grand Calumet River, which is very stable, should be sampled 16 times annually, the Grand River 26 times, and the Muskegan River 26 times. $9 million is the cost of the proposed Lake Michigan monitoring.

It was suggested that the absence of DNR reports on water quality involving good analysis invites other groups to attempt use of the data perhaps with misinterpretations. It would be helpful if the DNR stated when there is not adequate date to draw valid conclusions. It would help the press with their reporting if DNR staff were available to take phone calls for information when other groups issue press releases.

(12) The meeting was adjourned at 9:30 pm.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
April 14, 1994
Verkuillen Building, Mt. Clemens
5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of the January 13, 1994 PAC Meeting
- Articles from the Oakland Press and Macomb Daily reporting on the Clinton River water quality presentation at the 1-13-94 PAC meeting.

(2) **Handouts** provided at the meeting included:

- News release of IJC on Seventh Biennial Report on Great Lakes Water Quality and news release of MDNR on State of the Great Lakes - 1993 Annual Report (Office of the Great Lakes). [Information was included on how interested PAC members might obtain copies.]
- Notice of May 3 EMEAC panel discussion on "Human Health and Chemicals of concern in the Great Lakes Basin"
- USGS National Water Quality Assessment Program (NAWQA) description
- The Southeast Michigan Initiative (SEMI): Questions and Answers Summary of Community Leaders Meeting 4/12/94 (P. Johnson)
- Clinton River Watershed Council Local Government Report - February 1994
- DNR Creates 18 Committees to Follow-up Relative Risk Report
- Flyer - "Help Make Clean Water the Wave of the Future" - Clean Water Media Campaign of NDRC/EPA/The Advertising Council [Video available]

(3) The meeting was called to order by Chairman Bill Smith at 5:30 pm.

Persons Attending

PAC Member/Alternate	
William Smith	Friends of the Clinton River
Shirley Barnett	Lake St. Clair Advisory Committee

Chuck Bellmore	City of Mt. Clemens
Frank Butterworth	Oakland University
Brent Avery	
Butch Sapp	
Dan Duncan	Huron Clinton Metropolitan Authority
Bill Feddeler	

RAP Team Members

Ben Okwumabua	DNR-Waste Management Div. - SEM
Hae-Jin Yoon	DNR Surface Water Quality Div. - SEM
Jenny Molloy	Clinton River RAP Coordinator
Bob Sweet	Clinton River RAP Coordinator
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Advisors

Tim Backhurst	Macomb County
Roger Darden	MDNR Communications Representative

Public

Jeffrey Sibley	St. Clair Shores

(4) Reports

- SPAC Mr. Smith reported that the Statewide Public Advisory Committee had set September 17 as the date for the annual Michigan Areas of Concern Citizens conference. It will be in Port Huron with meetings of the SPAC and the Ontario Council on Friday.

  Two applications for this year's outreach grants were submitted from the Clinton AOC, by Erich Ditschman (CRWC) and Al Martin (CRCA). A priority was placed on transferability of the demonstrations.

  MDNR has submitted to EPA the annual proposal for RAP funding and is awaiting the EPA response to see what activities will be funded for next year.

  Photos and event dates need to be submitted for the 14 month RAP calendar (Nov 94 - Dec 95).

The next SPAC meeting is April 28.

- RAP-Related News Ms. Johnson reported on the efforts of CRWC and others to recommend to the Natural Resources Commission changes in the DNR drafted position statement on watershed management, part of the state's positions for Clean Water Act reauthorization.

The March 8 AWRA Watershed Management Conference was very well attended. Proceedings will be available Another MSU-sponsored conference that week was on Great Lakes Rehabilitation: Back to the Future. CRWC is obtaining tape recordings for anyone interested.

The CRWC Science and Technology Committee is recommending or undertaking four activities:

- a fishing survey which could meet 3 needs - DNR fisheries management; determining exposure of people eating fish from the Clinton (especially poor and minority groups); fish tainting

- a "data crunching" meeting of persons interested in looking at the available Clinton River water quality data and exploring surmises as to causes (stimulated by the kinds of questions/hypotheses voiced at the end of the January 13 PAC meeting).

- a technical seminar on habitat - Conversations with participants in several RAP efforts suggest this may be one of the most difficult issues to address. Information gathering for all the Southeast Michigan RAPs might be jump-started by a technical seminar. Invited audiences might include citizens (backyard habitats), local government officials (taking habitat into account with local land use planning and acquisition), managers of parks, golf courses, sportsmen and wildlife interests.

- many new golf courses continue to be built across Michigan and in the watershed. An annual "river friendly golf course award is proposed as a way to promote good design, cooperating with the Audubon golf course habitat program, and to inform local government officials on what to consider in approval of golf course developments.

The RAP display will be exhibited at a number of fairs scheduled around Earth Day later this month. A caption "Clinton River RAP" was purchased.

Copies of the CRWC Local Government Report were provided as an update on river news.

CRWC and many other groups have provided letters in support of Michigan Land Trust Fund grants for acquisition of lands abutting Bald Mountain State Park of significant ecological interest as well as protecting the upstream watershed of the regionally significant Trout Lake in the park.

The Michigan Environmental Science Advisory Board is currently addressing chlorine and lead impacts and public policies. A report was released last year on mercury.

Peggy Johnson has been appointed to the Michigan Relative Risk project Nonpoint Source Discharges Task Force.

Ms. Johnson reported on the April 12 Community Leaders Meeting to launch the Southeast Michigan Initiative (SEMI) of EPA and MDNR. The four components are (1) public involvement, (2) RAPs/Sediments (3) Pollution Prevention (4) Compliance and Enforcement. Two handouts were provided: information which accompanied the meeting notice and Ms. Johnson's notes from the meeting.

It has long been noted that water quality data collected in each state and provided to EPA for biannual reports to Congress varies from state to state so the data cannot be meaningfully aggregated at the national level. And so Congress authorized the U. S. Geological Survey to inaugurate in 1991 a National Water Quality Assessment Program (NAWQA). Work for the Lake Erie basin hydrologic unit, which includes Lake St. Clair and the Clinton River, is now underway.

♦ MDNR RAP Update Bob Sweet introduced Jenny Molloy and reported she would become the Clinton River RAP coordinator in June when he would become the Detroit River RAP Coordinator.

Mr. Sweet noted that EPA budget cuts have resulted in a 58% cut in funding for RAPs. Michigan will get through FY-94 and FY-95 with carry over funds from the last two years so the crunch will come two years from now.

Discussion with USGS for the NAWQA work may lead to a couple of sites on the Clinton being included in the data collection program.

Three weeks ago Mr. Sweet and Ms. Molloy convened a meeting of agencies involved with nonpoint sources control (DNR, DOA, SCS, CES) to discuss focusing joint efforts on the St. Clair and Clinton AOCs. The initial focus would be on agricultural sources where the agencies have been involved in the past; it will evolve to include an urban component.

This year's Clinton RAP work program is scheduled to submit the plan update to the IJC in January 1995. Work groups will complete their components by September 7. During September all components will be integrated into a draft plan. Reviews and approvals will be conducted October - December.

The newly adopted Michigan protocol gets rid of the "stages" approach (Stage 1 = identify problems, Stage 2 = recommend actions, etc) so that activities can proceed simultaneously in different stages. For example, we could proceed to address remediation of contaminated sediments without waiting to complete the habitat recommendations. As soon as a solution is identified we move forward with action. There will be biennial reports of the progress of planning and implementation. New problems will always arise to be incorporated. We'll be working on a two-year cycle iterative process which allows us to act immediately when there is information available which supports an action. EPA and the IJC have endorsed this Michigan approach.

Mr. Sapp responded that this makes the PAC sound less like an information gathering and advisory group and more like an action group and he likes that.

Mr. Smith asked what kinds of technical and engineering staff will be involved? They will come in on individual action projects.

Ms. Barnett noted that the St. Clair River PAC has been meeting for seven years. They have a very viable organization and a high level of member commitment. She suggested it would be good to attend one of their meetings; the next one is May 25.

Ms. Yoon noted that industrial representatives have not responded to out invitations to participate in the RAP. It was suggested that once we start putting on paper recommendations impacting the industrial interests they are likely to become involved.

PAC review and approval was discussed. The work group products will be available after September 7 and can be formally reviewed by the PAC at its October 13 meeting. Additional portions of the RAP to be

written by staff will include:

- legislative updates
- institutional arrangements
- public outreach
- an Executive Summary

Final PAC approval could occur at a January meeting.

(5) Report of January 13, 1994 PAC Meeting

It was moved by Mr. Avery and supported by Mr. Butterworth to accept the report as submitted. All agreed.

(6) Introductions and Announcements

Mr. Smith reported that the City of Mt. Clemens has enacted a No Wake ordinance for jet skis following testimony at a hearing regarding the problems that have been evidenced. Harrison Township already had a similar ordinance in effect. He also noted that the annual river cleanup "SpringUp" would be June 4. He noted that there are now several computer networks from which information relevant to RAP efforts might be gleaned: EPA's PIES, Saginaw Valley College's waste management network, and the Great Lakes Commission's Great Lakes Information Network (GLIN).

Mr. Sweet reported that MDNR had been asked to proceed with preparing a work plan for sampling Clinton River sediments this year. This will be a cooperative effort with the Corps of Engineers which has the funding. EPA has volunteered use of their mud puppy. The purpose is to see if there are any "hot spots" of contaminated sediments outside of/or upstream of the navigation channel in the lower river.

(7) Meeting Places

The PAC was asked to suggest potential meeting places, especially in Oakland County. Macomb Community College was suggested as closer to Oakland County. We can probably find a suitable place at Oakland University. It was suggested we include a tour of the SOCSDS CSO facility as part of the July meeting.

(8) Libraries for RAP Files

In addition to the centralized files at the CRWC offices, we want to place files in Oakland and Macomb County where they will be more conveniently

accessible to the public. The PAC agreed that the Macomb County Library on Hall Road at Garfield and the Oakland University Library would be best.

(9) Work Group Reports

- Contaminated Sediments Chairman Butterfield reported that the work group had reached agreement on the impairments related to contaminated sediments and is helping to design the sediment sampling to be conducted this year. Professor Hough is creating a computer file of the past data related to locations so can look at a watershed map to see where information is available and discuss additional locations to sample as well as updating the old data. In the 1950's, a lot of hazardous materials were buried close to the river in landfills and landfilling with foundry sand. There was discussion of a newspaper ad or story to invite people to report their recollections of old dumping. Mr. Ditschman noted that on May 12 all the schools in the river monitoring program will be out sampling and this year they will collect a grab sample of sediments; Midwestern Analytical Labs has offered to perform analysis for metals. A draft paper "Contaminated Sediments in the Clinton River" was written by Ms. Johnson and when the workgroup has completed its review/revision this will be provided to PAC members.

- Habitat Chairman Duncan reported that the workgroup had also reached agreement on the impairments of concern which relate either directly or indirectly to habitat issues. Habitat issues have been listed and assignments made for members research. The next meeting is May 11 at which a schedule of work activities will be developed.

- Point/Nonpoint Sources Ms. Molloy reported that this workgroup had also agreed on the related impaired uses after some discussion of fish tainting and plankton degradation. There are now 10 impairments listed: 1 related to contaminated sediments, 3 related to habitat and 6 related to Point/Nonpoint Sources. The group reviewed additional expertise to be brought in. The next meeting of the workgroup will be April 19.

(10) Conference Attendance Opportunities

PAC members were reminded there is a little funding available for reimbursement of attendance costs. Notices of upcoming meetings included:

May 3 Human Health and Chemicals of Concern in the Great Lakes Basin. A panel discussion presented by EMEAC (Bloomfield

Hills)

April 28	Environmental Empowerment of Local Communities, sponsored by Michigan Prospect (Novi)
May 2-3	Empowering Watershed Stakeholders, EPA (Chicago)
June 4-5	Citizens Forum on Lake Erie: It's Ecology and Economy, Environment Canada et al (Windsor)
June 6-9	International Association for Great Lakes Research 37th Conference (Windsor)

(11) New Business

It was suggested that the PAC might want to review all the current construction work along M-59 as a case study of construction site sediment control, drainage design, and impacts of a direct outlet to the river.

(12) Adjournment and RAP Slides

The meeting was formally adjourned at 8:00 pm. Some stayed for a viewing of the RAP slide show assembled by CRWC staff. The audience was asked to be critical and comment by Roger Darden of the MDNR public relations staff were especially appreciated.

Submitted by Peggy B. Johnson

PBJ/sj

DRAFT

Clinton River Remedial Action Plan (RAP)

Principles (Precepts) for RAP Planning

At a Clinton River Public Advisory Committee Goals and Objectives Subcommittee meeting 9/14/93 a set of Toronto RAP principles was reviewed for their relevance to the Clinton RAP. These notes reflect that discussion.

1. **Water is a basic necessity of life and should be conserved. Its quality should be protected and restored.**

   This recognizes the importance of water to our continued existence on earth. Efficient, non-wasteful use of water, can mean less strain on the environment and the taxpayer's pocketbook.

   This suggests that headwaters areas where the water is still clean should be protected. It also suggests that waters in the lower reaches should be cleaned up.

   Accepted.

2. **The river and watershed must be planned and managed using an ecosystem approach. Ecosystem means using a comprehensive and systematic consideration of interacting components of air, land, water and living organisms, including humans.**

   The implications of this are far reaching. For example, it suggests that solutions which simply transfer a problem from one place to another, or from medium (water) to another (air or land) would not be acceptable. This also suggests that before selecting an remedial action we may need a fairly sophisticated understanding of the efects of that action. It also means not only looking at the effects on the natural environment but also social and economic impacts.

   "Must" may not apply everywhere; perhaps "should" is better.

3. **The RAP goals form the basis for RAP action.**

   This ties the adopted RAP goals to any actions which may be proposed.
   Will any particular action help meet a RAP goal or goals?
   Will the overall package of actions- the RAP Plan- meet the goals?

   Accepted.

4. **Environmental decision-making and the selection of remedial actions should be coordinated and involve the participation of all stakeholders. Stakeholders include all perspectives: all levels of government, the private sector, non-governmental organizations, conservation groups and agencies, community groups and individuals.**

   This suggests that those persons who have a stake- who will be affected by a decision- should be involved in the making of that decision. The RAP process respects this principle by including all sectors in the committees and at key decision points opening up for formal consultation of the general public.

   Accepted (emphatically).

5. **We are all polluters and must be part of the solution.**

   Principles 5, 6, 7 are related as they deal with individuals.
   This recognizes that all of us who live and work in the watershed have impacts on the Clinton River and the Great Lakes. Through the amount of water we use, the products we buy and perhaps pour down the sink, the fertilizers and pesticides used on our lawns, through our day-to-day living we contribute to stress on the ecosystem.

   Agreed.

6. **Public awareness and education, including access to information, are important to the sucess of the RAP.**

   Taking responsibility for our actions requires information. This includes educational programs that make us aware of the impacts of our lifestyle and the opportunities for individual action.

   Accepted (critical)

7. **Both voluntary action and legislation should be considered as a means of implementing remedial actions.**

   This means also accepting that government legislation alone cannot fix the myriad of problems in our Area of Concern. Citizens, through voluntary actions, need to become involved.

   Accepted. Suggest adding "remedial **and preventive**" actions.

8. **Source control shall be an objective and take priority over end-of-pipe solutions.**

   End-of-pipe solutions can remove pollutants from effluents but may have residues of metals and persistent organic chemicals that are then landfilled or incinerated; thus surface waters may be protected at the expense of air, soil, or groundwater

   Control-at-source usually means reducing or eliminating the use of a toxic material at the source (substituting a non-toxic chemical, using a closed-loop system with no discharges, etc.). This is often termed "Pollution Prevention".

   Addition: We are not trying to banish end-of-pipe solutions. There are circumstances where these are the most efficient and effective solutions.

9. **Neither dilution nor dispersion should be considered satisfactory substitutes to reducing pollution.**

   The local impacts of a discharge pipe can be reduced for example by extending a pipe further into a lake or adding dillution water. The concentrations are reduced but the pollutants are only dispersed making it "somebody else's problem. Because the Great Lakes have such long residence time they act as a sink for persistent substances. For the lakes, it is the loadings that count not the concentration at the point of discharge. With today's discharge permits, dillution still counts; it is easier to get a permit to discharge into a larger stream. In looking at the river we focus on concentrations and short term impacts; in looking at the lakes we focus on loadings and long term impacts.

   Agreed.

10. **There should be zero discharge of persistent toxic chemicals.**

    This principle implies that the RAP should be working towards the goal of zero discharge. To test progress towards this goal we can test whether a particular action will reduce the loading of persistent toxic chemicals into the environment.

    It was acknowledged that this goal may not be achievable; but it serves to set the direction for actions...hence the term "should" not "must".

11. **The RAP should encourage and review research that supports RAP principles, but research must not be used as an excuse for inaction.**

    Given our inability to totally comprehend ecological systems, we must act when we know enough and not wait for perfect knowledge. This has been called "The Precautionary Principle".

    Agreed

12. Implementation consistent with RAP goals and principles should proceed along with development of the RAP.

Where people agree that an action is a good one, implementation should not be held up until the entire Remedial Action Plan is finalized.

Agreed

13. In addition to remediation, the RAP must include and encourage preservation, conservation, rehabilitation, and prevention.

To deal with the entire spectrum of problems facing the river and its watershed, the RAP must go beyond mere remediation of existing problems. The RAP should anticipate and prevent new problems from arising. And it must consider how to prevent problems from recurring. There is no point to cleaning up bottom sediments if we continue to pour pollutants into the river. This principle recognizes the need to rehabilitate (restore to health) degraded wetlands, fisheries, creeks, and the river. The preservation of important natural areas, and the conservation of natural resources are included.

Agreed.

14. The RAP goals and applicable actions should be integrated into land use planning and construction approvals.

This reflects the crucial need to bring together land use and environmental planning to ensure that implementation occurs. How can we make sure that the RAP plan will be followed and not just sit on a shelf? Integration of the RAP and land use planning will also help to prevent future problems from occuring.

Agreed. Add to this principle that local communities should be encouraged to plan in terms of watersheds and the river basin.

15. A RAP implementation action should be led and coordinated by the appropriate and clearly defined and mandated party.

This recognizes the need to ensure that implementation occurs. Implementation of the Plan will require the coordinated efforts of many government and non-government bodies. To ensure accountability, one designated party must be given the responsibility to carry out each of the planned actions. Some parties may be more appropriate to carry out particular tasks than others.

"Mandated" means that the designated lead agency must have adequate legal authority to implement the action.

Agreed. But beyond this provision for a responsible party for each action, there is a need for "someone" to be responsible for the overall RAP.

16. An integrated and coordinated program of environmental monitoring and reporting of progress is essential in developing, implementing, evaluating, and revising the RAP.

Monitoring allows us to evaluate the effectiveness of remedial actions, to measure if progress is being made and determine if goals are being reached. Reporting to the public assures accountability to taxpayers and other parties.

Agreed.

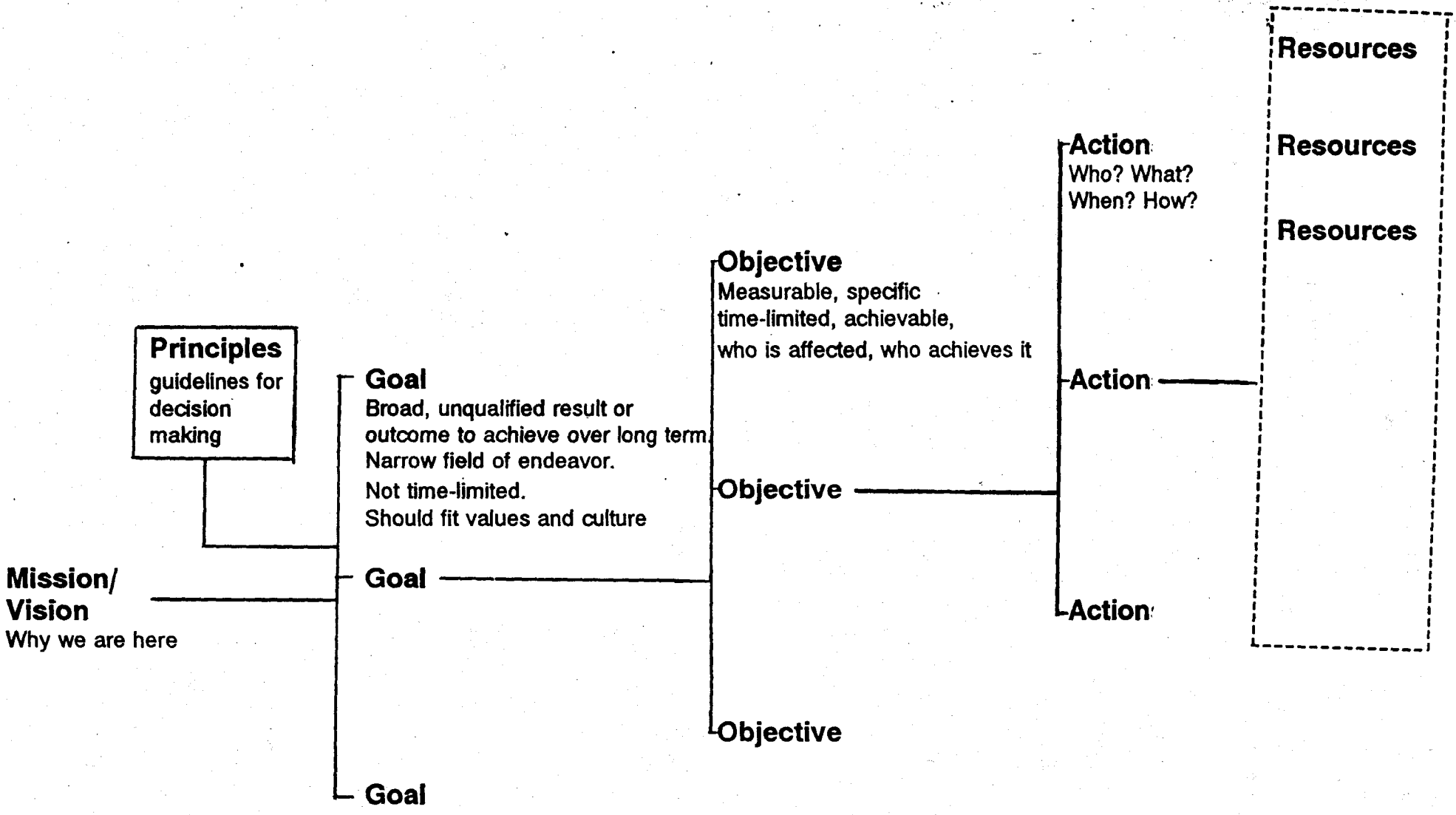
Several additional principles were suggested:

- Actions taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits achieved.
- We should take advantage of the investment in pollution control (improved water quality) and provide for recreational use of the "fishable/swimmable" waters.

- Watershed-based planning provides the opportunity for cross-jurisdictional decision-making amoung the local communities in the watershed and the opportunity for a cooperative and effective partnership between the federal, state, and local levels of government. The RAP planning should have an on-going institutional home at the watershed level.

The committee discovered that discussion of these principles served to reveal educational needs.

Planning Framework[1]



[1] Florence Green & Associates

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July 8, 1994

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Adopted June 16, 1993

Clinton River RAP-PAC: Organization

Council* Members: 27

Environmental Groups	2
Citizens at large	5
Health (County Health Department, hospitals, etc)	1
Municipal and County, POTW, Planning	8
Agriculture	1
Recreation, sportsperson	2
Business, industry	4
Education	2
Labor	2

- **Term of Service: 3 years***

  To get started with staggered terms half will be randomly assigned an initial two year term. There will be no limitation on the length of time of service. Each member should designate a alternate.

- **Advisors (RAP Advisors)**

  The PAC members are public advisors to the MDNR. The RAP Team member serve as Technical Advisors to the PAC. As needed key persons from the public and private sectors will be invited to meet with the PAC in an advisory role.

- **Officers**

  A Chairperson and Vice-Chairperson.
  Term: 2 years.

- **Staff**

  There is currently a DNR contract with the Clinton River Watershed Council to provide staff assistance for the PAC and its subcommittee.

* Amended September 16, 1993

- **Meetings**

Frequency:	Quarterly with special meetings as needed
Time of Day:	5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties to include both source areas and impacted areas.

- **Format of Meetings**

Format:	5:00 - 6:30	PAC Meeting - Subcommittee Reports
	6:30 - 7:00	Public Comment/Break
	7:00 - 8:00	Program: Public attendance emphasized

- **Voting**

There should be formal votes on procedures, budgets/expenditures, issues. Presence of a majority of the Committee Membership constitutes a quorum. A business item may be approved by a majority of those present or number of aye votes sufficient to prevail were a quorum present. Roberts Rules of Order will govern.

- **Meeting Notices**

  - ♦ Agenda Packets mailed to expanded PAC list* prior to each meeting
  - ♦ Formal legal notice not required to be published
  - ♦ Publish in community calendars of Macomb Daily and Oakland Press
  - ♦ Press release
  - ♦ CRWC quarterly newsletters
  - ♦ List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
  - ♦ Flyers for Special Meetings

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* "Expanded PAC list" includes PAC members and alternates, RAP Team Members, key persons identified for information purposes. Approximately 60 persons.

PARLIAMENTARY PROCEDURE

Based on Roberts Rules of Order
*NOT AMENDABLE

TO DO THIS	YOU SAY THIS	May You Interrupt Speaker?	Must You Be Seconded?	Is The Motion Debatable?	What Vote is Required?
* Adjourn the meeting	" I move the meeting be adjourned"	No	Yes	No	Majority
* Recess the meeting	" I move the meeting be recessed until ..."	No	Yes	No	Majority
* Complain about noise, room temperature, etc.	" point of privilege"	Yes	No	No	No Vote
* Suspend further consideration of something	" I move to table the motion"	No	Yes	No	Majority
End debate	" I move the previous question"	No	Yes	No	2/3 Vote
Postpone consideration of something	" I move this matter be postponed until ..."	No	Yes	Yes	Majority
Have something studied further	" I move this matter be referred to a committee"	No	Yes	Yes	Majority
Amend a motion	" I move that this motion be amended by"	No	Yes	Yes	Majority
Introduce business (a primary motion)	" I move that ..."	No	Yes	Yes	Majority
* Object to a procedure or to a personal affront	" Point of order"	Yes	No	No	No Vote Chair Decides
* Request information	" Point of information"	Yes	No	No	No Vote
* Ask for a vote by actual count to verify a voice vote	" I call for a division of the house"	No	No	No	No Vote
* Object to considering some undiplomatic matter	" I object to consideration of this question"	Yes	No	No	2/3 Vote
* Take up a matter previously tabled	" I move to take from the table"	No	Yes	No	Majority
* Reconsider something already disposed of	" I move to reconsider the action relative to ..."	Yes	Yes	Yes	Majority
* Consider something out of its scheduled order	" I move to suspend the rules and consider ..."	No	Yes	No	2/3 Vote
* Vote on a ruling by the chair	" I appeal the chair's decision"	Yes	Yes	Yes	Majority

Clinton River Fact Sheet

Problems and Opportunities

Watershed Description

The Main Branch of the Clinton River extends for 80 miles from northwest Oakland County to the mouth of Lake St. Clair. The watershed is 760 square miles. There are 600 miles of stream including the major tributaries. Oakland County has 1165 lakes in the headwaters of the Clinton, Huron, Rouge and the Shiawassee (Saginaw) Rivers, more than any other Michigan County. Many of these lakes are "wide spots" in the Clinton River.

Glaciers left behind two distinct land forms. Glacial Lake St. Clair extended for inland so the eastern half of the watershed (Macomb County) is very flat, with clay lakeplain soils and poor drainage. The western half is glacial moraines, hilly, sand and gravel soils, well defined stream drainage.

Settlement divides the watershed into thirds. The southern part extending outward from 8 Mile Road (the City limits of Detroit) is urban; the middle third along the Main Branch is rapidly developing suburbs; the northern third is rural. Prime agricultural lands are along the Main Branch, draining north Macomb County. There is extensive industry in Pontiac and the southern watershed.

Over a million people live in the watershed in 56 municipalities and four counties.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Since the 1960's, 7 out of 21 municipal plants remain on the river while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted for control of combined sewer overflows, either separating old combined sewers (Pontiac and Mt. Clemens) or constructing retention basins to provide primary treatment - oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Yet the CSO annual loading to the Red Run and Clinton River far exceeds that of Warren Treatment Plant with its tertiary treatment.

Public construction projects on the Clinton total $380 million; these were financed

by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. When operating costs, private pollution control investments and administrative costs are included, it is estimated that $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The Clinton River water quality today is greatly improved. Where not a live fish could be found from Pontiac to the mouth in the 1960s, there is today a large and varied fishery (which does depend on stocking, not natural reproduction). Many people are fishing the river and enjoying canoeing and boating and riverfront parklands.

Problems

The lower watershed, below the confluence of the Red Run which drains urban south Oakland and Macomb Counties, is listed as one of the 43 Areas of Concerns throughout the Great Lakes. This is principally because of sediments contaminated with heavy metals, PCBs, oil and grease. Oil spills and discharges tot he river are frequent. Other problems are degraded biota, low dissolved oxygen, heavy sedimentation, excessive nutrients, pesticides, and fecal coliforms. Causative factors are largely unknown: suspected sources include point sources (7 municipal treatment plants and 22 industrial discharges), nonpoint urban runoff, agricultural runoff, combined sewer overflows and contaminated groundwater. There are 214 listed sites of contamination in the watershed, 4 on the national "Superfund" list. There are restrictions on dredging because of the contaminated sediments. The Corps has dredged the lower 8 miles of the navigation channel since the 1850's. Shoaling at the spillway head has required periodic dredging. An investigation is underway to determine if a adjustable weir to direct non-flood flows down the natural channel would help improve water quality on the lower river. A fish consumption advisory was issued for carp from the lower Clinton River in 1990.

Flooding has been a severe problem along the river in the lower watershed, and in Pontiac, with sewers backing up and basements being flooded. The Corps of Engineers constructed two major flood control projects in the 1950s - the cut-off canal and Red Run Drain. A 1968 rain revealed that the projects design capacities were exceeded as the result of increased runoff from continuing urban development. The Corps undertook flood control planning for another decade, but concluded that the cost of a federal channelization project would exceed the benefits in reduced flood damages.

In the upper watershed there are extensive wetlands playing a key role in flood

state and federal regulatory programs, and pressures of new urban develoment. Because of the intensive shoreline development and recreational use of the inland lakes, plus lakeshed drainage impacts, there is concern about water quality and private versus public interests in the use of lakes in the watershed. Septic system concerns persist on some lakes and for groundwater impacts. Because the many dams do not have minimum release rates, there are downstream concerns about instream uses. River flow plays a critical role in the water quality. At drought flows - to which pollution control measures are aimed - only 15% is groundwater and tributary flows - 64% is from 6 municipal treatment plants (water that's been pulled out of the Great Lakes through Detroit's water supply system), 21% is industrial - largely non-contact cooling water.

The Clinton is typical of an urban river - when it is raining, because of development in the watershed, there are much higher flows than for a natural watershed; when it is not raining, there are reduced base flows. High flows cause severe bank erosion. Uncontrolled erosion from construction sites remains a problem. Sedimentation is the major insult to the river.

Topography also plays a critical role. As the river flows out of Oakland County onto the flat lands, the flow slows, sediment drops out, and there is little reaeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions. The extent of nonpoint sources of pollution remains largely unknown; but estimates suggest it is the dominant influence on river water quality today. The problems resulting from stream enclosures and channelization are also now recognized.

Institutional problems are the major impediment to effective river management. There is a myriad of agencies and programs at the federal/state/local levels with some responsibilities fir water management; but their efforts are largely uncoordinated and sometimes contradictory. Effective means to deal with problems that transcend a single political jurisdiction are not available, or are little used.

New local and watershed funding sources are needed for water quality monitoring. programs to prevent as well as remedy problems, and local water management activities.

Opportunities

Remedial Action Plans are being developed for the Great Lakes Areas of Concern.

The Clinton River Plan, developed by the MDNR, was presented to the International Joint Commission in November 1988. The Clinton River Watershed Council received a grant to facilitate watershed community participation and implementation agreements. A Public Advisory Committee for the Clinton River RAP was inaugurated in 1991.

Congressman Bonior and the Clinton River Intercounty Drainage Board have pursued ways to address the shoaling and reconstruction of the weir at the spillway head through the federal government and/or drainage district.

The 1987 amendments to the federal Clean Water Act, new DNR programs (including the proposed air toxics strategy), the Clinton River Remedial Action Plan, and local programs for Industrial Pretreatment all add up to a new focus on control of toxics in the river and opportunities to answer outstanding questions on the impacts of toxics on Clinton River aquatic life.

Cleanup of contaminated sites has accelerated with voter approval of the Michigan Quality of Life Bond proposal and passage of "polluters pay" legislation.

Michigan developed a Nonpoint Sources Control Strategy in 1988; some state and federal funds are now available for source control and watershed projects. County and municipal enforcing agencies are increasing inspections and enforcement actions to control erosion from construction sites. Local inspections and ordinances can play a key role.

The Clinton River Cleanup Committee is sponsoring annual river debris removal days and some local government and private groups are undertaking river maintenance - not only removal of log jams, but stabilization of eroding banks and riverside vegetated buffers.

Local government management of floodplains provides the opportunity to go beyond minimum state and federal requirements to avoid flood damages resulting from new development upstream in the watershed and also to protect the environmental and recreation values of floodplains. There is now available a reduction in local flood insurance rates based on a good local flood management program. Local governments could undertake flood damage reduction projects identified in the Corps planning.

Local governments, supported by local citizens and developers, can play key roles in wetlands use and protection through coordination with DNR permitting, local wetlands ordinances, local planning for wetlands management and design of the local stormwater system.

Planning and coordinated action of local governments and County Health Departments should be pursued for management of septics systems in areas where construction of sewers is not cost-effective or anticipated in the near term.

Local governments, with support of citizens and developers and assistance from the Clinton River Watershed Council, Department of Natural Resources, private consultants can undertake stormwater management planning and implementation.

Often urban storm drains have improper connections of sewage pipes or floor drains which allows non-stormwater discharges and spills to enter the drains. Local government can initiate programs to investigate and eliminate illegal connections.

EPA regulations for municipal storm drains have been developed as prescribed by 1987 amendments to the Clean Water Act. It is the intent of Congress to foster stormwater management, focusing initially on larger urban areas. Municipalities are expected to both work up the local drain system with an NPDES permit stipulations on the end of the drain and work down with local nonpoint sources control. Industrial sites and construction sites disturbing more than 5 acres of land also require stormwater permits.

A number of Groundwater Education in Michigan (GEM) projects are currently being funded by the W.K. Kellogg Foundation. These offer opportunities for local government officials, citizens, teachers and students to explore local community opportunities for groundwater protection.

Management efforts by lakes associations and lakeshed planning and management by local governments can play a vital role in protecting the water quality of lakes, avoiding conflicting lake uses, and protecting lakefront property values. Past studies have suggested flow augmentation as a tool in the river management kit and identified the Clinton River as a most likely place in Michigan where this might be implemented. Rationalization of dam operation to balance instream needs versus impoundment interests has also been suggested.

Opportunities to enhance Clinton River related recreation opportunities include public support for acquisition of local parks and natural areas along the river; river corridor protection planning/implementation (using approaches developed under the Michigan Natural Rivers Program); implementation of local and county-wide trails networks; the Clinton River Fisheries Management Plan (drafted by the DNR in 1989); supporting projects of private and business groups.

Citizens may participate in the Clinton River Watershed Council and SEMCOG (Areawide Water Quality Board and Environmental Policy Advisory Council) efforts towards public education, coordination of water agencies, assistance to local government and strengthened institutional arrangements. Citizens are encouraged to communicate their interests to local officials and to participate in local government meetings and citizen committees.

Support is needed for appropriate new funding proposals to ensure continuation of basic water programs at the state, regional, watershed, and local levels. Rates paid for local services such as wastewater disposal, water supply, a local stormwater utility, can finance actions to minimize the impacts on human health, the river environment, and the level of taxes. New state permit fees are being proposed to cover administrative, monitoring, and enforcement costs of state water laws.

Education efforts about the Clinton River include activities of the Clinton River Watershed Council; County Cooperative Extension Services; Planning Departments; Nature Centers located along the river; the Oakland and Macomb County Intermediate Schools; the Clinton River Cleanup Committee; local government programs; many civic environmental and business interest groups; and last, but by no means least, the print and TV media. Add your name to the Clinton River Watershed Council mailing list to keep abreast of river news and current opportunities to learn and participate.

Areas of Concern

Overview

Since 1973, the International Joint Commission Water Quality Board has included in its annual and biennial reports, descriptions and evaluations of specific locations in the Great Lakes that have serious water pollution problems. These areas are principally near coastal urban centers and generally consist of harbors, bays and river mouths. The IJC refers to these locations as Areas of Concern and defines them as areas where degraded environmental quality has caused, or is likely to cause, impairment of beneficial uses or the area's ability to support aquatic life. Beneficial use impairment is defined as a change in the chemical, physical or biological integrity of the Great Lakes ecosystem sufficient to cause any of the following: restrictions on fish and wildlife consumption; tainting of fish and wildlife flavor; degradation of fish and wildlife populations; fish tumors or other deformities; bird or animal deformities or reproductive problems; degradation of benthos; restrictions on dredging activities; eutrophication or undesirable algae; restrictions on drinking water consumption, or taste and odor problems; beach closings; degradation of aesthetics; added costs to agriculture or industry; degradation of phytoplankton or zooplankton populations; or loss of fish and wildlife habitat. The specific Areas of Concern were designated by state or provincial jurisdictions based on a determination of whether or not Great Lakes Water Quality Agreement objectives, or jurisdictional guidelines, criteria or standards for environmental quality, were exceeded.

Presently there are 43 identified Areas of Concern in the Great Lakes basin. Ten of these areas are located exclusively within Michigan's jurisdiction and four are in Michigan boundary water areas shared with other jurisdictions (Figure I). Over the past 20 years there has been considerable improvement in the environmental quality of Michigan's Areas of Concern, particularly with respect to problems associated with conventional pollutants (such as phosphorus, suspended solids, and oil and grease) and to some extent for heavy metals. However, toxic substances remain problems in many locations. Contaminants in sediments are a concern in most Areas of Concern, but it is not definitively known if these contaminants are impairing bottom dwelling organisms or are a source to the water column and pelagic aquatic biota.

In 1985, each U.S. state and Canadian province with jurisdiction over a portion of the Great Lakes agreed to develop and implement a Remedial Action Plan (RAP) for each site within its jurisdiction that had been designated as an Area of Concern. Michigan entered into agreement with Wisconsin and Ontario to jointly develop one RAP for AOCs that lie in boundary water areas. The RAPs should describe programs and measures which, when implemented, will solve the identified water pollution problems existing in the Areas of Concern and restore all beneficial uses. According to the GLWQA of 1978, as amended in 1987, RAPs are to be developed and submitted to the International Joint Commission for review in three stages. Stage 1 contains a description of the problem in the AOC, including the causes of the problems, contaminants involved, and sources and loads of the contaminants of concern. The problem definition is based on identification of impairments to beneficial uses, and exceedances

of standards, objectives and guidelines. A Stage 2 RAP will identify the actions needed to restore beneficial uses that are identified as impaired in the Stage 1 RAP, and a strategy for tracking progress toward restoration of beneficial uses. A Stage 3 RAP will contain documentation that beneficial uses have been restored in an AOC, and that ambient water quality standards or objectives are no longer exceeded. If it is not deemed feasible to restore all beneficial uses, then the RAPs should explain why and identify the desired quality of the unattainable use(s).

Historically, water pollution control efforts have been program specific, that is, they focused on controlling either point sources or nonpoint sources. The RAP emphasis is on a systematic and comprehensive ecosystem approach to restoring beneficial uses in Areas of Concern.

The Michigan Department of Natural Resources is the state agency responsible for developing and overseeing implementation of Michigan RAPs. In February 1992, the MDNR completed the Areas of Concern Program Strategy. The strategy was developed in response to an increasing need to describe changes in the AOC Program since 1985 and to outline how Michigan RAPs are being developed to ensure consistency with the mandates of the GLWQA, as amended in 1987. The strategy describes a three-stage approach for developing RAPs, the content for each stage, how Michigan RAPs will embody a comprehensive ecosystem approach, the role of RAPs toward achieving zero discharge and virtual elimination of persistent toxic substances, and Michigan's two-tiered public participation program.

Public participation is an extremely important component of Michigan's AOC Program. Accordingly, the MDNR also completed a separate public participation and communications strategy for Michigan's AOC Program in February 1992. The strategy outlines Michigan's commitment to public participation and outlines the approach for actively seeking advice and input from the public on all aspects of Michigan's AOC Program, and for actively involving the public in the development and implementation of RAPs for each of Michigan's AOCs. Michigan has established the public participation program at two levels: (1) a statewide program to obtain advice on policy issues related to the statewide program, technical issues relevant to all 14 AOCs, and public participation strategies; and (2) local programs to actively involve the public in issues related specifically to the development and implementation of a particular RAP.

A Statewide Public Advisory Council was established in May 1991 to serve as the primary means for obtaining advice and input to the statewide program. The council reviewed drafts of both strategies and provided constructive input and comments to MDNR. The council's comments were incorporated into both final strategies.

Initial RAPs for nine of Michigan's 14 AOCs have been completed and are in various stages of implementation. Six of these were completed in 1987 for the following areas: Torch Lake; Deer Lake-Carp River/Creek; Manistique River; Muskegon Lake; White Lake and River Raisin. Three additional RAPs were finished in 1988 including Saginaw River/Bay, Clinton River and Rouge River. These nine RAPs were complete or substantially complete prior to the

1987 amendments to the GLWQA, and therefore contain elements of all three stages. To ensure that these RAPs are consistent with the requirements of the GLWQA and Michigan's program strategy, Stage 2 RAPs will be developed for these AOCs. The Stage 2 RAPs will include updates and revisions, as appropriate, for the Stage 1 elements to ensure that the problem definition is consistent with current requirements and expectations. The AOC program strategy outlines a schedule for completing Stage 1 and Stage 2 RAPs for Michigan's AOCs.

Stage 1 RAPs were completed and submitted to the IJC for the Menominee River in 1990, the Detroit River in 1991, and the St. Clair River in 1992. The St. Marys River RAP is scheduled for submittal later in 1992. The RAP for the Menominee River is being jointly developed by MDNR and the Wisconsin Department of Natural Resources (WDNR), and the RAPs for the St. Marys, St. Clair and Detroit rivers are being developed jointly by MDNR and the Ontario Ministry of the Environment (OMOE).

The major environmental problems in the Menominee River are located on the Wisconsin side of the river and the WDNR has the lead responsibility for preparing the Menominee River RAP with assistance from the MDNR. Similarly, the major problem areas in the St. Marys and St. Clair rivers are on the Canadian side. Therefore, the OMOE has the primary responsibility for developing the RAPs on these rivers. Conversely, most problem areas in the Detroit River are located on the U.S. side so the MDNR is coordinating the RAP preparation for this river, with cooperation and assistance from Canadian agencies.

The remaining Michigan RAP -- Kalamazoo River -- is currently being updated to meet the requirements of a Stage 1 RAP. The following area site descriptions describe more fully the status of RAP development or implementation in each of Michigan's 14 Areas of Concern.

Clinton River

The Clinton River is located in southeastern lower Michigan and drains 760 square miles. The river is 80 miles long and flows through several major municipalities including Pontiac, Rochester, Utica and Mt. Clemens prior to its discharge to Lake St. Clair. A weir near Mt. Clemens causes most of the river to flow down a spillway rather than through the natural channel, except during very high water. Land use in the river headwaters is agricultural, while along the main branch it is primarily residential and urban with some industrial use. The AOC includes the Clinton River main branch downstream of Red Run, and the spillway.

The Clinton River was identified as an AOC due to conventional pollutants, heavy metals, contaminated sediments, impacted biota and elevated levels of fecal coliform bacteria and total dissolved solids. Sources of pollutants were stormwater runoff, combined sewer overflows, and wastewater from municipal and industrial facilities.

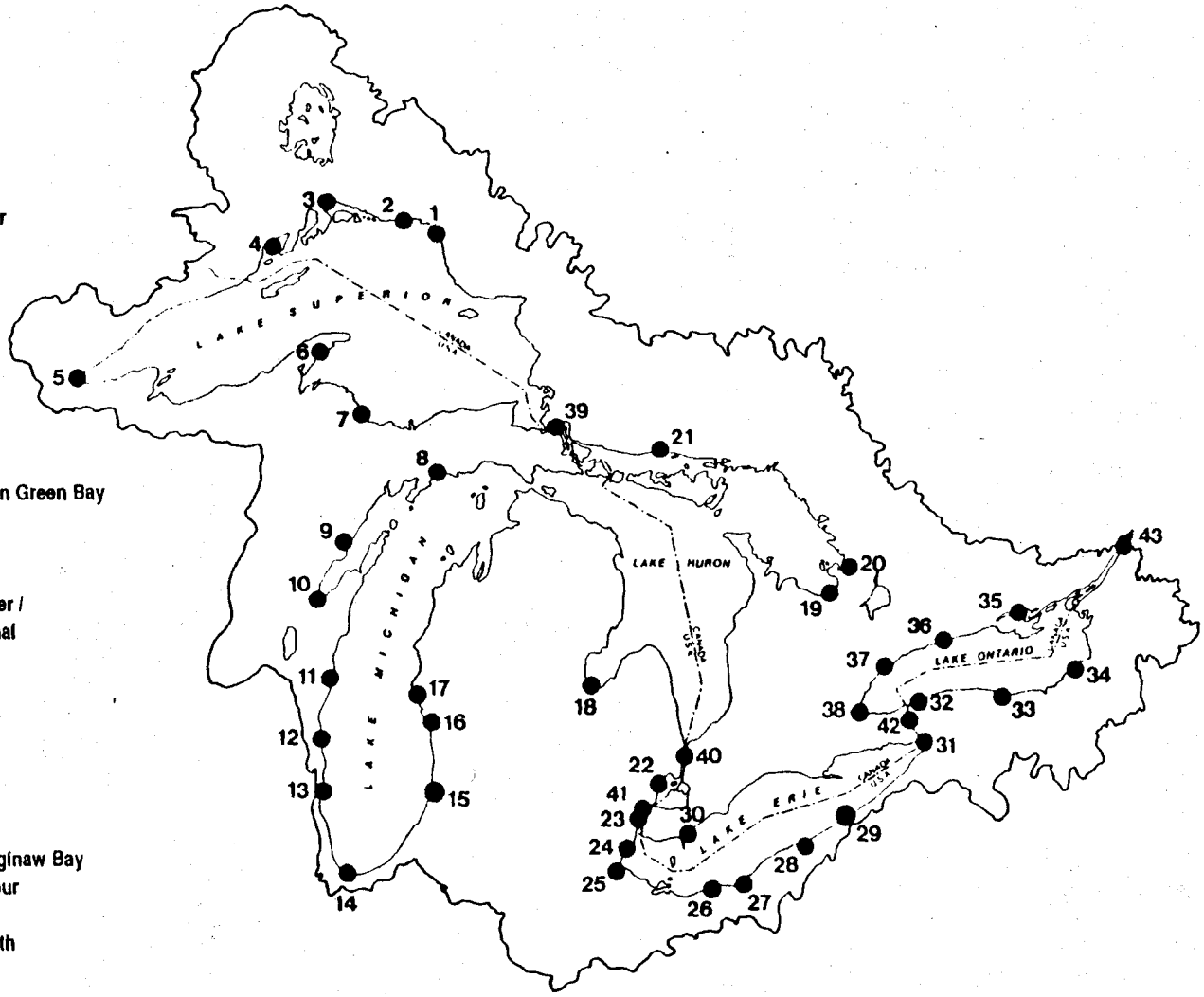
The majority of problems with conventional pollutants and bacterial contamination in the Clinton River have been resolved primarily through wastewater treatment improvements made at industrial and municipal facilities. Combined sewer overflows in the Clinton River basin outside the Red Run drainage areas have been corrected except for occasional overflows at Almont and Mt. Clemens. Little improvement is expected from the Red Run watershed without large capital expenditures to separate storm and sanitary sewers. High dissolved solids concentrations have been determined to be naturally occurring due to the soil type in the watershed and are not correctable by existing technology.

Benthic macroinvertebrate and warmwater fish communities are substantially improved but remain impaired in parts of the AOC. The Clinton River RAP, completed in November 1988, identifies these as local issues with no impact on the Great Lakes.

The RAP does, however, identify PCBs in sediments as a potential source to Lake St. Clair or aquatic life. The sediments are contaminated downstream of Mt. Clemens and contain levels of heavy metals and PCBs that exceed U.S. EPA 1977 interim guidelines for open lake disposal of dredged materials.

exerpt from: Water Quality Pollution Control in Michigan 1992 Report
(Michigan 305(b) Report: Volume 12)

FIGURE 1: Forty-three Areas of Concern Identified in the Great Lakes Basin



Lake Superior

1 Peninsula Harbour
2 Jackfish Bay
3 Nipigon Bay
4 Thunder Bay
5 St. Louis Bay / River
6 Torch Lake
7 Deer Lake - Carp Creek / River

Lake Michigan

8 Manistique River
9 Menominee River
10 Fox River / Southern Green Bay
11 Sheboygan River
12 Milwaukee Estuary
13 Waukegan Harbor
14 Grand Calumet River / Indiana Harbor Canal
15 Kalamazoo River
16 Muskegon Lake
17 White Lake

Lake Huron

18 Saginaw River / Saginaw Bay
19 Collingwood Harbour
20 Severn Sound
21 Spanish River Mouth

Lake Erie

22 Clinton River
23 Rouge River
24 River Raisin
25 Maumee River
26 Black River
27 Cuyahoga River
28 Ashtabula River
29 Presque Isle Bay
30 Wheatley Harbour

Lake Ontario

31 Buffalo River
32 Eighteen Mile Creek
33 Rochester Embayment
34 Oswego River
35 Bay of Quinte
36 Port Hope
37 Metro Toronto
38 Hamilton Harbour

Connecting Channels

39 St. Marys River
40 St. Clair River
41 Detroit River
42 Niagara River
43 St. Lawrence River (Cornwall / Massena)

Ecosystem Charter for the Great Lake-St. Lawrence Basin

DRAFT

April 1994

Preamble

The Ecosystem Approach to Management: An Introduction

An "ecosystem approach" to management is being embraced by many public sector, non-governmental and citizen-based institutions in the Great Lakes-St. Lawrence Basin. This approach recognizes that the environmental and economic attributes of the Basin are fundamentally linked and interdependent, as are the goals for environmental protection and economic development. It also recognizes that resources must be managed as dynamic and complex communities and ecosystems, rather than as separate and distinct elements. Practicing the ecosystem approach means that all partners—government and private sector alike—understand the implications of their actions and strive to avoid unintended adverse consequences.

The Problem

Many of our laws, programs, policies and institutions support the concept of an ecosystem approach, yet application of the concept is difficult due to their often narrow, single media or issue specific mandates. The problem is the absence of a single, clearly articulated statement—or charter—that explicitly defines goals for an ecosystem approach to management and ties a common thread through these many activities and mandates.

Charter Format and Objectives

The Ecosystem Charter summarizes, in a concise and convenient form, commonly held principles drawn from existing laws, treaties, agreements and policies. It includes a vision statement and a series of principles in the categories of rights and responsibilities; ecological integrity and diversity; sustainable communities; institutional relations; and public information, education and participation. It includes a series of actions that all members of the Great Lakes-St. Lawrence Basin community can endorse or undertake in support of these principles.

The Charter has three primary uses. It is a tool for organizing, coordinating and periodically assessing public and private sector efforts to implement an ecosystem approach. It is a tool for information and education; offering a vision for the Great Lakes-St. Lawrence Basin Ecosystem and a means to achieve it. Finally, it is a tool for advocating the interests of the Basin ecosystem and its inhabitants; a statement of unity acknowledging that all partners in the collective management effort—despite our differences—subscribe to a single set of fundamental principles.

The Charter is a "good faith" agreement among its signatories, which can include representatives from the array of public agencies, non-governmental organizations and private interests in the Great Lakes-St. Lawrence Basin. It is not a legally-binding-document, nor does it replace or otherwise affect implementation of existing laws, agreements and policies. Rather it showcases these initiatives, highlights their implementation and, in so doing, promotes an ecosystem approach to management in the Great Lakes-St. Lawrence Basin.

Charter Foundation

The foundation for the Ecosystem Charter is a heritage of binational cooperation to ensure the informed use,management, conservation and protection of the Great Lakes-St. Lawrence Basin Ecosystem. The Charter builds upon landmark agreements such as the U.S.-Canada Boundary Waters Treaty of 1909, which established procedures for avoiding or otherwise addressing transboundary environmental problems, and the Great Lakes Water Quality Agreement, which commits the two countries to restoring and maintaining the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem. Through these and many other initiatives, regional leadership has pioneered the ecosystem approach to resource and environmental management, conservation and protection. The Ecosystem Charter, as a statement of shared principles and commitments for an array of stakeholders, represents an important step forward in this approach. The Charter will help guide future actions to enhance and sustain the environmental health and economic viability of the world's greatest freshwater system. In so doing, it can serve as a model in North America and globally.

Charter Process

The Charter is a living document; it will be reviewed and revised periodically to ensure that it reflects current thinking on the ecosystem approach. It offers a benchmark for assessing progress and provides the guidance needed for further efforts. A broad cross-section of agencies, organizations and associations contributed to the draft of the Charter, and the document itself is "owned" by all signatories. The Great Lakes Commission, as a coordinating agency, will provide ongoing support in the distribution, use and updating of the Charter, including specific opportunities for periodic review and assessment of progress.

Charter Signatories

Any organization, agency or governmental jurisdiction that subscribes to these principles is invited to be a signatory to the Ecosystem Charter. Signatories agree to use the Charter as guidance in the development of their work plans and priorities, as a means to enhance communication and cooperation with others, and as a benchmark for assessing progress toward a shared vision for the Great Lakes-St. Lawrence Basin Ecosystem.

A VISION FOR THE GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM

OUR VISION IS A GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM...

Where all people consider and conduct themselves as part of our Ecosystem;

Where all people recognize the fundamental and inextricable link between economic well-being and the health of the Ecosystem;

In which all beneficial organisms can thrive free from preventable ecological threats to their well-being;

Where environmental degradation is a legacy of the past and a basis for present and future remedial action;

That exists as an evolving natural and cultural system which can successfully adapt to change;

In which use of natural resources is compatible with conservation of such resources;

That maintains the integrity of the Ecosystem and accommodates appropriate development;

That is a rich mosaic of waters and lands, of natural areas and places of human activity, and of different peoples who govern themselves in various ways;

That nurtures an abundance and diversity of plant and animal species in their natural communities and habitats as well as in specially protected and rehabilitated sites;

That embraces the concept of sustainable development by meeting the needs of this generation without compromising the ability of future generations to meet their needs;

Where all people and their governments act as good stewards and are committed to informed action and supportive policy decisions;

In which a shared governance process, among diverse and respected traditions, provides an accessible and equitable basis for responsible action and accountability among all people and their institutions.

RIGHTS AND RESPONSIBILITIES

Access to clean water, clean air, and healthy and productive soils is a fundamental right of all individuals within the Great Lakes-St. Lawrence Basin. This right infers a shared responsibility for the informed use, management, conservation and protection of the Basin's water and related land and air resources. The integrity of the Ecosystem—and the physical health, economic well-being and quality of life of its human element—must be enhanced and maintained for the current and future generations.

Signatories thereby adhere to the following principles:

Principle I

People in the Great Lakes-St. Lawrence Basin, as well as all communities of beneficial organisms, have a right to live in an ecosystem that supports their health and well-being.

Findings:
The natural world has intrinsic value; it is the basis for life on earth and is essential to human well-being. Activities which degrade its water, air and land resources threaten the health of the Ecosystem and, hence, its ability to support the health and well-being of those dependent upon it. The fundamental right of all people to a healthy environment is a basis for sustainable development and environmental protection.

This principle shall be addressed by:

- Recognizing the inherent value of the non-human elements of the Ecosystem apart from any benefits humans may receive from them.
- Accepting responsibility to conduct ourselves, individually and collectively, in ways that support a healthy ecosystem consistent with the principles set forth in this Charter.

Principle II

People have the right to use natural resources and processes for reasonable economic purpose and enjoyment, commensurate with the responsibility to restore, enhance and maintain the integrity of the Great Lakes -St. Lawrence Basin Ecosystem.

Findings:
People and their governments in the Great Lakes-St. Lawrence Basin are stewards of the Ecosystem; this entails a responsibility to enhance and maintain the health of the Ecosystem for the use, benefit and enjoyment of the current and future generations.

This principle shall be addressed by:

- Adopting, pursuing and promoting principles and practices of sustainable use of Ecosystem resources by businesses, agencies, organizations and individuals.
- Accepting the responsibility to minimize or prevent, to the greatest extent practicable, activities that cause environmental harm to other jurisdictions or individuals.
- Recognizing the role of the Great Lakes-St. Lawrence Basin Ecosystem in the larger global environment and taking actions, where possible, that can alleviate adverse impacts on that environment.
- Cooperating with all people in the Great Lakes-St. Lawrence Basin Ecosystem and with citizens in other biogeographical regions to achieve mutual objectives consistent with this Charter.

Principle III

People in the Great Lakes-St. Lawrence Basin have a responsibility to demonstrate that proposed activities and resource uses do not cause undue harm to the Ecosystem.

Findings:
Human activities in the Basin have historically been regulated in response to demonstrable proof that those activities cause injury or harm to human health or the environment. However, achieving Ecosystem integrity is not possible if it is the responsibility of governments to prove that a certain activity causes harm or injury. Ecosystem protection can be enhanced by reversing this burden of proof, known as "reverse onus," and by placing responsibility on those who are proposing such activities.

This principle shall be addressed by:

- Endorsing the concept of "reverse onus," and its incorporation over time into resource management and environmental protection programs in the Great Lakes-St. Lawrence Basin.
- Agreeing to examine new or proposed activities in the Great Lakes-St. Lawrence Basin to identify prospective adverse impacts and means to reduce, mitigate or eliminate them.
- Maintaining or encouraging maintenance of monitoring programs to provide baseline information on the environmental impacts of resource uses.

ECOLOGICAL INTEGRITY AND DIVERSITY

Ecological integrity is a state of the Ecosystem in which ecological diversity and resilience is present, allowing the Ecosystem to sustain itself and its inhabitants. Integrity cannot be achieved, however, when irresponsible actions impair

the beneficial uses of Basin resources. The extent of these threats is demonstrated by the numerous Areas of Concern designated by the International Joint Commission. Efforts to rehabilitate and protect the Ecosystem through scientific inquiry, public policy development and management programs are essential for achieving and maintaining ecological integ rity.

Signatories thereby adhere to the following principles:

Principle IV

The chemical, physical and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem shall be achieved by understanding, respecting, rehabilitating and protecting ecological processes and natural resources and by identifying and maintaining genetically diverse plant and animal communities within the Ecosystem.

Findings:
Binational and national commitments have been made to restore and maintain the chemical, physical, and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem. Despite some successes, the goal of Ecosystem integrity has yet to be achieved. Until that time, the health and well-being of the Ecosystem inhabitants will be compromised.

This principle shall be addressed by:

- Improving implementation of existing programs and, where appropriate, developing new ones to rehabilitate, protect and manage ecological resources and diversity within the Ecosystem.
- Providing strong citizen, government and industry support for timely and effective adoption and implementation of Lakewide Management Plans; timely and effective implementation of Remedial Action Plans for the Basin's Areas of Concern; and designation of additional Biosphere Reserve sites within the Basin.
- Increasing the binational effort to monitor aquatic species and wildlife communities in the Basin, both to sustain and rehabilitate these communities and so to better understand environmental threats to human health.
- Developing, adopting, and promoting strategies to integrate and expand efforts to protect areas of natural beauty and ecological significance such as wetlands and dunes.

Principle V

An ecosystem approach to management that involves rehabilitating and protecting ecological processes and resources of the Basin Ecosystem shall be fully and widely adopted, based on the understanding that human activities, natural resources and ecological processes are interdependent and parts of a unified whole.

Findings:
The ecosystem approach entails a multi-resource emphasis and broader, precautionary strategies that anticipate and prevent environmental harm. This approach respects and affirms the interconnectedness of ecological processes and requires humankind to understand and conduct itself as an integrated part of the Ecosystem rather than as an entity separate from it.

This principle shall be addressed by:

- Ensuring that ecological protection and rehabilitation efforts are based on an integrated, multi-resource approach.
- Emphasizing precautionary measures that anticipate and prevent harm to human health and the environment.
- Collaborating on and coordinating environmental quality, natural resource and economic development programs to ensure that pollution control and prevention, habitat restoration and protection, forestry management, fisheries management and other actions are consistent with the principles of ecosystem management.
- Adopting and applying principles of an ecosystem approach to individual agency, organization and business settings.

Principle VI

A coordinated, multi-disciplinary research agenda is necessary to improve understanding of the scientific, social and economic dimensions of the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Scientific, social and economic data and information form the basis for public policies, agreements and programs in the Great Lakes-St. Lawrence Basin Ecosystem. Yet, many aspects of the Ecosystem and its various dimensions and dynamics are not well understood. An enhanced, aggressive and innovative program of basic and applied research is a fundamental requirement.

This principle shall be addressed by:

- Forming partnerships among public agencies, academic institutions, businesses and citizens' organizations to conduct and coordinate basic and applied research on the Basin Ecosystem.
- Advancing pollution prevention efforts and supporting sustainable development in the Basin Ecosystem by conducting applied research on consumption attributes and production methods.
- Undertaking research initiatives, such as toxicological and epidemiological studies, that explore human health impacts of activities in the Basin Ecosystem.
- Making research results understandable to the public and usable by decision makers.
- Establishing new, and strengthening existing capabilities and networks for the exchange of data, research results and other information relevant to the Basin Ecosystem.

Principle VII

The environmental quality of the Great Lakes-St. Lawrence Basin Ecosystem shall be improved by virtually eliminating the discharge or release of persistent bioaccumulative toxic substances into the Basin Ecosystem.

Findings:
Jurisdictions have implemented numerous pollution control and prevention programs and measures, and significant reductions in particular toxics and other pollutants have occurred. However, the complexity and pervasive nature of toxic contamination calls for continued vigorous action and innovative solutions. Thus, a broad-based commitment to the above principle is needed, consistent with the objectives of the Great Lakes Water Quality Agreement.

This principle shall be addressed by:

- Implementing pollution prevention practices to eliminate and/or reduce waste generation through changes in production processes, products and packaging and through resource reuse and recycling.
- Implementing policies, programs, and practices to eliminate the discharge or release of persistent bioaccumulative toxic substances and to prohibit the discharge in toxic amounts of toxic substances that are not for the purpose of achieving Ecosystem integrity (e.g., lamprey control.)
- Actively seeking cost-effective, benign alternatives to toxic substances and substituting them, where possible, to reduce reliance on toxic substances that threaten Ecosystem integrity.
- Supporting the development of binational objectives and measures to address air quality issues, including acid deposition, smog and airborne toxic contaminants as well as global atmospheric problems that affect the Basin, such as chlorofluorocarbons and global warming.

Principle VIII

The natural fluctuations of the levels and flows within the Great Lakes-St. Lawrence River System shall be accommodated to the extent possible, while maintaining appropriate water use and related coastal activities.

Findings:
The waters of the Great Lakes and St. Lawrence River are interconnected and form a single hydrologic system which geographically defines the Great Lakes-St. Lawrence Basin Ecosystem. This dynamic system, which supports a variety of organisms and human activities, is naturally subject to varying levels and flows. Many ecological processes rely upon and benefit from this variance. Resource uses and economic activity in coastal and near-shore areas are highly sensitive to fluctuating levels and flows; the magnitude and direction of the fluctuation impacts different uses in different ways.

This principle shall be addressed by:

- Supporting a binational process that allows all stakeholders to participate in decision-making and planning related to management of levels and flows and land use policies for coastal areas.
- Supporting continued improvement in the collection and maintenance of data regarding levels and flows, major uses and diversions of Basin water resources, and associated analysis, dissemination and public policy applications.
- Developing an effective process for state/provincial review and consideration of diversion and consumptive use proposals, and a Basin water resources management program to ensure that relevant data and information on proposed impacts is available.
- Prohibiting new diversions of Basin water resources that would have significant adverse impacts on the Basin Ecosystem.

Principle IX

Societal needs for a healthy Ecosystem and economy shall be addressed by promoting the use of renewable natural resources.

Findings:
Renewable resources such as topsoil, forests and fisheries, are threatened by poor land use practices, overharvesting, habitat degradation and the introduction of harmful non-native species, among others. Numerous measures have been taken to check, reverse, or compensate for this damage, but the availability and quality of renewable resources remain threatened.. A binational commitment to the management of such resources must recognize the need for remedial actions as well as long-term planning and management on a comprehensive Basin-wide basis.

This principle shall be addressed by:

- Consulting and coordinating with affected jurisdictions when renewable resource management decisions will significantly affect their interests.
- Incorporating renewable resource needs and management objectives into broader environmental quality policies and programs.
- Developing measures to predict and assess the effects of renewable resource management practices on environmental protection efforts and economic activity.

Principle X

Biological diversity is an essential element of Ecosystem integrity, and shall be supported so that plant and animal populations may flourish in natural communities and habitats as well as in specially protected and rehabilitated sites.

Findings:
The Basin Ecosystem supports an abundance of fish, plant and wildlife species including naturalized non-native species. However, the natural biological diversity once found in the Ecosystem has been fundamentally altered, both by intentional and unintentional introductions, some beneficial and some harmful. Programs to preserve species variety and habitat, particularly that of native species, are an important part of efforts to achieve Ecosystem integrity.

This principle shall be addressed by:

- Developing strategies for the conservation of biological diversity and integrating those strategies into plans and practices concerning economic activities, environmental protection and resource management.
- Nurturing biological diversity and reducing habitat fragmentation by encouraging establishment of publicly-owned protected areas, networks of protected areas and encouraging private stewardship by landowners.
- Modifying land use practices and other human activities to prevent the loss of biodiversity and habitat.
- Preventing new introductions of nonindigenous nuisance species and controlling existing ones.

SUSTAINABLE COMMUNITIES

In a sustainable society, a fundamental and inextricable linkage exists between economic activity and the natural ecosystem. Sustainable economic activity meets the needs of the present generation without compromising the ability of future generations to meet their own needs, and respects the limits imposed by the capacity of the Ecosystem to absorb the impact of human activities. Adopting principles of sustainability at the community and Basin levels will promote long-term economic viability and continued improvements in environmental quality.

Signatories thereby adhere to the following principles:

Principle XI

Ecosystem integrity and the economic well-being of human communities are interdependent; achieving and protecting ecosystem integrity is therefore an essential part of economic activity within the Basin.

Findings:
Natural resources within the Great Lakes-St. Lawrence Basin Ecosystem supply tens of millions of people with drinking water; support a multi-billion dollar recreation/tourism industry; provide habitat for thousands of fish, wildlife and plant species; offer transportation and manufacturing opportunities; and support an extensive agricultural industry. To ensure that natural resources in the Basin Ecosystem continue to provide such benefits, economic strategies and activities must ensure that essential ecological processes are maintained, natural resources are used sustainably, biological diversity is conserved, and infrastructure investment is appropriately pursued.

This principle shall be addressed by:

- Reflecting principles of sustainability in relevant public and private sector plans and programs.
- Supporting and pursuing policies and programs that provide for the efficient and sustainable use of natural resources, and working to revise or eliminate those that do not.
- Identifying energy efficiency and conservation as a public and private sector priority and supporting the use of renewable energy sources.
- Supporting adequate and prudent infrastructure investment, particularly for water treatment and distribution systems.
- Developing common data collection measures and indicators to integrate and/or supplement traditional, independent measures of environmental, social and economic health and well-being to gauge progress in achieving a sustainable society.

Principle XII

Industry in the Great Lakes-St. Lawrence Basin is a key partner in achieving and protecting Ecosystem integrity; industry support for and implementation of environmental, conservation, and safety standards and practices is necessary.

Findings:
The Great Lakes-St. Lawrence Basin is one of the most industrialized areas of the world. Economic development created a high standard of living and quality of life for residents. As members of the Great Lakes-St. Lawrence community, industry (including the manufacturing, transportation and agricultural sectors) recognizes that its performance and contribution to the economy depends on a healthy Great Lakes-St. Lawrence Basin Ecosystem. Accordingly, industry will benefit from supporting and maintaining environmental, conservation and safety standards and practices.

This principle shall be addressed by:

- Supporting an active role by business and industry in the application of integrated environmental management to environmental policymaking.
- Encouraging the development of cost accounting and pricing mechanisms that determine the real cost of goods and services based on production and marketing costs, as well as costs of environmental management associated with their production, use and disposal.
- Encouraging the development and use of innovative conservation, environmental protection and related pollution prevention mechanisms by business and industry, including

the incorporation of economically and environmentally sustainable practices in management and operations.
- Ensuring strong communication between industrial facilities and local communities to provide information on local impacts and environmental management practices.

INSTITUTIONAL RELATIONS

Two federal governments, eight U.S. States, two Canadian provinces, numerous regional agencies, thousands of sub-state/provincial governments, many Native American authorities/First Nations and a multitude of other governmental entities have some legal authority or responsibility for matters pertaining to the Basin Ecosystem. The complexity and sophistication of the "institutional ecosystem" for Basin governance has garnered global recognition. Cooperative and collaborative relations among these jurisdictions, in partnership with business and industry, citizen organizations and all other Basin interests, are needed if Ecosystem integrity is to be achieved and maintained.

Signatories thereby adhere to the following principles:

Principle XIII

Cooperation is essential among government entities, including federal, state, provincial, Native American authorities/First Nations, regional and local governments, if the principles of this Charter are to become public policy priorities.

Findings:
Institutional arrangements in the Great Lakes-St. Lawrence Basin Ecosystem can provide innovative opportunities for addressing complex ecological problems, but they can also be rigid, fragmented, and even contradictory. The most effective means of overcoming institutional barriers and ensuring the integrity of the Ecosystem is through cooperative, coordinated and collaborative policies and programs agreed upon and implemented by Basin jurisdictions.

This principle shall be addressed by:

- Using the principles of the Charter as a basis to develop common objectives consistent with extant agreements, policies and laws, directed at achieving and maintaining the integrity of the Basin Ecosystem.
- Consulting with affected jurisdictions and other interested parties regarding the development and/or consideration of proposals with Basin-wide implications.
- Working to ensure that public and private sector activities are consistent with international, binational and regional obligations and agreements regarding the Basin Ecosystem.
- Continuing the practice and tradition of binational dispute management and resolution in the Basin Ecosystem.

Principle XIV

Great Lakes-St. Lawrence Basin Ecosystem governance and management shall emphasize partnership arrangements among government entities, the private sector, citizen organizations and other interests.

Findings:
The interdependence of the economy and the environment amplify the consequences of the individual and collective actions of all agencies, organizations, businesses and individuals within the Basin Ecosystem. Their mututal interests must be explicitly acknowledged and partnerships developed to pursue public and private sector actions that benefit the Basin Ecosystem.

This principle shall be addressed by:

- Supporting existing partnerships that integrate interests and management approaches in the Basin Ecosystem, such as Remedial Action Plans and Lakewide Management Plans.
- Implementing binational agreements and initiatives, such as the Great Lakes Water Quality Agreement and the Convention on Great Lakes Fisheries, in such a way that recognizes broader issues of shared concern, including habitat protection, fisheries management, shoreline protection, biodiversity and water quantity management.
- Developing partnerships with all Basin interests to address commonly identified problems and to harmonize institutional relationships and authorities.
- Basing Ecosystem policies and programs on scientific research.
- Evaluating current and prospective policies and programs on the basis of their consistency with, and responsiveness to, the principles of the Charter and the goals and objectives of relevant Basin laws and agreements.

PUBLIC INFORMATION, EDUCATION, AND PARTICIPATION

Public participation is the cornerstone for the development of public policies that promote a clean environment, strong economy and high quality of life in the Great Lakes-St. Lawrence Basin. Such participation ensures that the needs and concerns of interested individuals are heard, understood and incorporated into the policymaking process. In order to participate effectively in that process, residents must be informed of political, ecological, social, and economic issues in the Basin Ecosystem. This requires timely, accurate, and accessible information; a forum in which to voice concerns; and a mechanism to become involved in policymaking and implementation efforts.

Signatories thereby adhere to the following principles:

Principle XV

Timely, accurate and accessible information shall be provided to the public regarding all planned activities that may significantly affect the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:
Timely information enables the public to respond to current issues and opportunities in an appropriate time frame; accurate information enables the public to make informed decisions about their interests and concerns; and accessible information allows for all interested persons to obtain the desired information with relative ease. Programs that reflect these qualities help promote informed public policy, efficient and effective implementation, and strong partnerships among Basin interests.

This principle shall be addressed by:

- Gathering timely, accurate and meaningful information about the state of the Basin Ecosystem and monitoring and reporting on progress in implementing programs consistent with the principles of the Charter and other relevant laws and agreements.
- Ensuring that the public has full and equal access to available data, public policies, programs, and related information concerning current and prospective conditions of the Basin Ecosystem and the associated impact of proposed actions.
- Creating and supporting formal information links to ensure ongoing and substantive dialogue on and dissemination of data and information relating to the Basin Ecosystem.

Principle XVI

Stewardship of the Great Lakes-St. Lawrence Basin Ecosystem shall be fostered through educational efforts that promote greater understanding of the Ecosystem, the problems and opportunities facing it, and policies and programs designed to improve, protect and mange it.

Findings:
Education in ecological, economic, social and political matters relating to the Basin Ecosystem broadens the basis for enlightened public opinion and responsible conduct by all who make, implement or otherwise affect public policy. Education on such matters is a life-long process; it must be pursued by children and adults alike, and in both classroom and non-formal settings. Further, it must be multi-disciplinary and integrative, allowing all interested individuals to understand the basic elements and processes of the Basin Ecosystem; how various actions affect them; how the public policymaking process functions; and how the individual can make a difference.

This principle shall be addressed by:

- Establishing and enhancing Great Lakes-St. Lawrence education programs and curricula in both classrooms and non traditional settings, with a special focus on at-risk groups.
- Encouraging coordination of, and partnerships among educators in the Basin to ensure that educational efforts are consistent, comprehensive and accessible.
- Establishing and/or maintaining permanent systems to disseminate and promote the use of education materials.
- Improving stewardship of the Basin Ecosystem by educating ourselves and others about the needs of a healthy Ecosystem, and opportunities to address these needs through individual and collective action.

Principle XVII

Meaningful public participation in decision making processes regarding the Great Lakes-St. Lawrence Basin Ecosystem shall be encouraged by providing enhanced opportunities for public involvement and empowerment.

Findings:
All people should have the opportunity for informed participation in the development, implementation and evaluation of public policies that affect the Basin Ecosystem. Meaningful public participation requires the public to be an active partner in the decision making process, including the identification and assessment of issues.

This principle shall be addressed by:

- Developing and maintaining decision making processes that promote and encourage active and informed public participation.
- Identifying and using resources, such as information networks and other communication technology, through which public participation can be enhanced.
- Planning outreach efforts to increase public access to, and use of those resources.
- Taking advantage of current and prospective means to further our knowledge of the Basin Ecosystem and opportunities to enhance environmental health, economic well-being and quality of life.

SPECIAL NOTE: In final form, the Charter will include an addendum presenting a glossary of terms, and a brief description of the principal treaties, agreements and other policies that the Charter can be used to promote. Also, each signatory will be able to provide a brief descriptive statement on its organization and the Charter.

The refinement and endorsement process will continue during the next several months; your input and support are valued.

Clinton River Remedial Action Plan
Habitat Work Group

Meeting Report
3 September 1993

Members Amos Bankston, Charles Barns*, Chuck Bellmore*, Erich Ditschman*, Dan Duncan*, John Filipus, Bob Fredricks, Ernie Kafcas, Colette Luff, Jack Prescott*, Butch Sapp, Bob Sweet*
Attendance denoted by *.

Also in attendance: Peggy Johnson

E. Ditschman opened the meeting with a brief overview of the RAP process and an explanation of the tentative role of the Habitat Work Group. Members had received earlier, a Habitat Work Group extended outline which attempted to catalogue relevant issues and papers concerning habitat in the Clinton River Basin. The outline was also drafted to gain participant's input on the Habitat Issue Paper to be drafted by E. Ditschman. The outline served as a catalyst for discussion at the meeting.

Each member of the work group took five minutes to provide a brief statement of their interest in the Clinton River RAP process and Clinton River Habitat.

C. Barnes is the Environmental Director for Selfridge Air Base. He has six environmental engineers each with specific specialties under his command. His office is new to the base and has only been in operation for one year. The office is in essence an environmental consulting firm for the air base. The office was established in an Air Force wide initiative to cleanup its public image and to become better corporate citizens. The Air Base has a $200 million/year positive economic impact on Macomb County. C. Barnes discussed his interest in proceeding with implementation on the RAP while balancing that with the need for study and planning for specific components.

There is opportunity for expedited cleanups on military bases as a result of the Defense Environmental Restoration Fund. The turn around time for cleanup is much quicker than those for Superfund sites. C. Barnes requested a copy of the RAP to have on file at Selfridge. Bob Sweet is fulfilling that request.

A primary concern at the base is for nonpoint source pollution. While the base does not have formalized ongoing recreation and wildlife management for its 3,500 acres, it does have specific management plans to control the deer population (trap and relocate) and avian species population in order to protect aircraft. P. Johnson asked if flight pattern information is available which could be used to identify areas where it would be inappropriate to foster wildlife and waterfowl. C. Barnes said that there are air incompatible use zones which were developed as planning tools used in locating residential developments. Harrison Township

has a copy of the zones on file.

C. Bellmore is Superintendent for the Mount Clemens Waste Water Treatment Plant. He brings the perspective of a community administrator to the RAP process. His experience in developing projects, policies, and rules for his "personal AOC" will be valuable in assessing proposed RAP projects. In particular he can provide insight into how other communities may adopt components of the Clinton River RAP. He is currently working on a wildlife habitat improvement project at the plant's stormwater detention pond. He observed that jet skis pose a significant threat to riverine habitat in the lower stretches of the river. The City of Mount Clemens has a jet ski ordinance in place.

J. Prescott has vast experience in agriculture, forestry, and biology. He is a private consultant and currently serves as a Forester to the City of Mount Clemens. He inventoried the newly created Sleepy Hollow Nature Preserve in the city. He indicated that the Mount Clemens has placed a new emphasis on people and parks.

D. Duncan is a planner for the Huron Clinton Metropolitan Authority. The HCMA has three major parks in the basin, including: Stony Creek, Wolcott Mill, and Metropolitan Beach.

Discussion on goals and direction. If a goal of this group is to restore human habitat with a particular emphasis on human health, then a logical tenet would be: "if you don't want to poison the kids then don't poison the fish." We have to ask, "Habitat for what?" The issue paper will help provide a basis to answer this question.
The issue paper should summarize the past and present and set direction for the future. Each member will spend time with the current outline to sketch technical outlines.

B. Sweet was asked about how the three topics were chosen for the work groups. The topics include: Point/Nonpoint Source, Contaminated Sediments, and Habitat. B. Sweet explained that if those three issues are tackled the AOC would basically be taken care of.

Large lot zoning is a major threat to habitat. The group will need to address the urban sprawl issue and work with local governments. In fact, it was suggested that each municipality would need to develop its own "mini-rap."

The issue of who makes up the RAP Team was also discussed. As it currently stands, the RAP Team is made up of State and Federal agency personnel and CRWC staff. It was agreed that Chair of the RAP work group would also be members of the RAP Team.

Overall the meeting resulted in a better understanding of the experience, expertise and commitment each member brings to the process.

Clinton River Remedial Action Plan (RAP)
Report of Public Advisory Committee Meeting
June 17, 1993
Oakland University - Kresge Library 6:00 - 9:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of May 13 PAC meeting
- Types of actions implemented: Michigan AOC's
- Clinton River Drainage Basin Map
- Impairment of Beneficial Uses: Great Lakes Water Quality Agreement 1987
- Impaired Use Status on the Clinton River
- Recommended Actions from the 1988 RAP (Clinton River)
- Remedial Action Plan: Institutional Framework, Levels of Involvement, Time-Line Example
- Previous Clinton River RAP Organization 4/18/91
- Public Advisory Council Structure and Procedures (Kalamazoo example)
- Charge

Handouts provided at the meeting included:

- Draft Charge: Clinton River AOC-PAC
- Work Groups examples from other RAPs
- Current Status of Impaired Uses of the Clinton River
- Summary of Clinton River RAP (1988): Issues, Sources, Recommended Actions
- List of Potential PAC Subcommittees and Priority Issues for Work Groups
- Michigan Areas of Concern News (Spring 1993) (includes article on Contaminated Sediments)
- Members: Clinton River RAP-PAC

(2)

Persons Attending	PAC Member/Alternate
Chuck Bellmore	City of Mt. Clemens POTW
Lori Simpson	St. Clair Advisory Comm.
Gary White	Macomb County Health Dept.
Spencer Teller	Ford Motor Company
Robbin Hough	Oakland Univ, - Rochester
Ken Bonin	Macomb County Department of Public Works

Helen Willis	Michigan Society of Planning Officials
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Gerald Herriman	Citizen: Warren (former manager POTW)
Frank Butterworth	Oakland University - Rochester Hills
Amos Bankston	United Auto Workers (UAW)
Butch Sapp	Great Lakes Outdoors

RAP Team Members

Bob Sweet	MDNR/Clinton River RAP Coordinator
Greg Goudy	MDNR-SWQD (Lansing)
John Filpus	Michigan Department of Public Health
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Other

Mark Breederland	International Joint Commission
Timothy Backhurst	Macomb County Planning

(3) RAPs News

- June 18 Streamlining Workshop
- AWQB meeting to discuss collaborative efforts among southeast Michigan's 5 RAPs
- Senator Levin desires to visit Clinton AOC: fall tour with PAC suggested
- IJC perspective (Breederland)
  (Want strong public participation. IT's up to PAC to define the AOC and scope of RAP 3 - should include award land as well as water)
- Statewide Newsletter provided

(4) Report of May 13 Meeting

One correction was made - delete MDNR from John Filpus' affiliation.

It was moved by Mr. Hough to accept the report. All assented.

There was discussion as to whether the meeting reports should be comprehensive (long), distilled (medium) or action items only (short). It was noted that in the early stages longer reports would be a way for new participants to catch up with the process/decisions. As an alternative it was suggested that there be tape recordings of the meetings with duplicates made available to members or miss a meeting or newcomers. There were no objections to tape recording. Reports should be at the discretion of the secretary, with continuing PAC feedback.

(5) Review of PAC Membership

a. Members present introduced themselves.

b. Ms. Johnson reported that additional members now designated for Macomb County are Mark Steenbergh (Chairman, County Board of Commissioners), and Alternate Ben Giampetroni (Planning Department) and for Oakland County Kevin Miltner (Commissioner - Waterford) and Alternate John Garfield (Commissioner - Rochester Hills).

c. Staff mailed letters and RAP-PAC information to 16 industrial persons to recruit added PAC members from this key stakeholder group.

d. Suggestions of additional alternatives are invited.

(6) PAC Organization and Procedures

The previously adopted organization outline (4/18/91) was used as the basis for discussion and new decisions.

Mr. Herriman suggested that if the RAP is successful there will be an end-point; a goal of the PAC should be to put itself out-of-business.

Term of Service 2 years. To get started with staggered terms it was agreed Mr. Sweet would randomly assign half of the members an initial term of 1 year and the other half an initial term of two years.

Advisors The PAC members are the public advisors. The Technical Advisors are members of the RAP-Team.

Officers A chairperson and Vice-Chair person.

Staff CRWC staff will serve as staff to the PAC and PAC Subcommittees

PAC Meetings

Frequency:	Quarterly with additional meetings as needed
Time of Day:	Weekdays 5:00 - 8:00 p.m.
Place:	Both Macomb and Oakland Counties (want ecosystem approach and inclusion of source areas as well as impacted areas)
Format:	5:00 - 6:30 PAC Meeting - Subcommittee Reports 6:30 - 7:00 Public Comment/Break 7:00 - 8:00 Program: Public attendance emphasized

Voting As previously stated. Use Roberts Rules of Order.

Meeting Notices

- Formal legal notice not required
- Publish in community calendars of Macomb Daily and Oakland Press
- Press release
- CRWC quarterly newsletters
- List of persons with expressed interest in RAP - includes legislators (local, county, state, federal)
- Flyers for Special Meetings

It was moved by Mr. Sapp and supported by Ms. Willis to adopt the organizational structure and procedures as discussed. Approval was unanimous.

(7) Next Meeting: Thursday, September 16, 5:00 - 8:00 p.m.
Verkulin Building - Mt. Clemens

(8) Charge

The draft charge is written as an MDNR charge to the PAC. The PAC could consider a more expansive charge to itself. Mr. Goudy said the DNR does not have a problem if the PAC chooses to go beyond the basic charge to provide

advice to MDNR. For example, it is hoped the PAC will undertake public outreach activities. The PAC might hold public hearings.

> It was moved by Mr. Hough and supported by Mr. Herriman to approve the draft charge. The motion carried.

It was noted we have been using two terms: "Council" and "Committee".

(9) Report on RAP-Team, Outreach Products, New Information to Update the 1988 RAP

Mr. Sweet reported that he is assembling a RAP-Team of federal/state/local agency persons knowledgeable about the Clinton River.

Funds were approved for two Clinton River outreach products which will be completed by DNR staff in August: a newsletter and display.

New information includes the finding of zebra mussels in the river and their threat to nature species and habitats.

Apogee, a consulting firm, has been funded by EPA to review funding sources and present a RAPs financing strategy for each of the Great Lakes states.

A report has been produced by Wayne State University (John Hartig and Neely Law) from a workshop convened in Windsor on **Institutional Arrangements** to foster RAP planning and implementation.

It is intended that **work groups** be formed to assemble information and draft sections of the updated RAP. The PAC and RAP-Team will review all the components of the RAP.

The question was raised about a single agency responsible for the river's **data base** and bibliography of information relevant to RAPs. (The Saginaw Bay Initiative was suggested as an example).

Mr. Butterworth reported that a Water Resources Management Institute was being contemplated at Oakland University and he has started to assemble a bibliography. Ms. Johnson noted that the CRWC was intended to be the repository for information ont he Clinton River. The RAP process was improving the transfer of information between MDNR files and CRWC files. CRWC is assembling a special RAP file and bibliography.

Mr. Hough reported that a committee is working at Oakland University

towards an October 1994 water related exhibit in the Meadowbrook Art Gallery. Items provided by groups like this PAC are invited.

(10) Priority Clinton River RAP Issues, Workgroups, PAC Subcommittees

Using the examples of work teams from other RAPs and the staff provided list of potential issues the group decided on the following initial efforts.

I PAC Subcommittes

1. Mission, Goals, Objectives, Principles
2. Public Outreach

   (Financing: wait for Apogee report on Michigan funding sources)

   (Institutional: Wayne State report is available for use)

II Work Groups

1. Point/Nonpoint Sources (includes CSOs)
2. Habitat
3. Contaminated Sediments

III Issues Papers (to be written by CRWC staff before 9/30/93)

1. Contaminated sediments
2. Nonpoint Sources
3. Habitat
4. Public Involvement Efforts (to date on the Clinton)

(11) Formation of Workgroups and PAC Subcommittees

Some volunteers were enlisted at this meeting. A follow-up survey will be mailed to PAC members and suggestions for additional key persons solicited.

(12) The meeting as adjourned at 9:00 p.m. with informal conversations until 10:00.

Submitted by

Peggy B. Johnson

PBJ/sj

Clinton River RAP-PAC
Goals and Objectives Committee
Report of Meeting 9/14/93

(1) The meeting was from 9:00 - 11:00 a.m. at the Clinton River Watershed Council offices. Members present were: Helen Willis, Gerry Herriman, Tim Backhurst, Frank Butterworth, Bill Smith, Peggy Johnson (staff).

(2) Materials provided:

- Example definitions of "goal", "objective", "policy", "program", "mission statement" (generic)
- Example of 16 RAP principles (Toronto)
- Two examples of Goals./Objectives (Detroit and St. Clair Rivers)
- Criteria for Evaluating Environmental Policies
  The Policy Process
  Approaches to Environmental Policy
- Glossary

(3) Agenda

A. Consideration of definitions
B. Review of principles
C. Mission Statement
D. Goals and Objectives
E. Zero Discharge Goal

It was noted that we are addressing Goals and Objectives of the RAP or "Water Use Goals." There may also be goals and objectives developed for the PAC as an organization and for the work of the PAC subcommittees. (These might be in the form of long term and short term work program plans.)

(4) A. Definitions

It was agreed that we need some working definitions so we have a common understanding of the terms we are using. We agreed to use the examples provided for a first draft. Staff and committee members will search out other examples and we will have successive improved drafts. Other terms to define and elaborate on in issues papers would include "ecosystem" and "zero discharge". It was agreed it would be useful to have illustrative examples. It

was noted that the RAP guidance is emphasizing development of quantifiable/measurable objectives.

(5) B. Principles

A long and useful discussion evolved around the review of each of the principle examples. For some the groups verbally articulated a background rational for the principle in terms of existing pollution control laws and programs, analogies to the 208 Areawide Water Quality Planning of the 1970's, examples from the Clinton River situation, issues surfaced in the Great Lakes Initiative.

In many cases there was unanimous concurrence with the principle statement as written. In many cases we questioned the use of "must" versus "should." In some cases we wanted to change the wording (Numbers 5, 8, and possibly 9). We decided to draft immediately three additional principles emphasizing the need for a partnership among the levels of government, need for cooperation among local governments in watershed-based planning and management, and roles of individuals in remediation and prevention of pollution.

We felt that the Committee's discussion of these principles suggested the need for an informational background piece on each so that all RAP participants can understand how the principle relates to the Clinton River situation and to our RAP planning efforts. We then noted that the Toronto example includes an explanation for each principle. Mr. Smith will provide Ms. Johnson the original Toronto RAP document and she will draft appropriate explanations for the Clinton River for committee consideration at the next meeting.

Mr. Herriman drafted an additional proposed principle: "Action taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits to be achieved."

After much discussion we concurred with #15 as a statement reflective of the 208 process in which for each recommended action there was identified a lead agency critical to the implementation. ("Designated Management Agency") And there was an examination of whether the agency(s) has adequate legal authorities (mandates) to take effective action.

(6) Criteria, Planning Hierarchy

The Committee agreed the "Criteria for Evaluating Environmental Policies" looked useful and appropriate. Ms. Johnson noted that she could provide criteria for judging an institutional arrangement for a watershed organization, criteria for effective planning and regulation of water resources, and an outline

clarifying the various kinds of planning and stages of planning which might also help keep us on the same "wave length" in our discussions. [Summarized from "Water Management in Michigan " (1985) Volume 3 - background investigations prior to the two-year Great Lakes and Water Resources Planning Commission (1986-87) and adoption of "Water Resources for the Future: Michigan's Action Plan (1987).

(7) C. Mission Statement

We agreed this is to be the Mission Statement for the PAC (not for the RAP). Mr. Smith provided the mission statement proposed last year which needs updating.

Mr. Herriman asked "What authorities does the PAC have? This must guide the mission." We suggested the PAC can have authorities delegated from the DNR - for example the charge which we approved at the last PAC meeting. The PAC may also consider some self-determined "authorities".

Several committee members asked for clarification of the RAP players and their roles. Ms. Johnson noted the following players: IJC, EPA, MDNR, CRWC, PAC, RAP-Team.

Mr. Herriman suggested that the ambition of the mission will need to reflect the PAC's capabilities, the level of staff time available, and volunteers commitments.

It was agreed to first list the components of a mission statement and then let staff do the work-smithing for a first draft. We just started to list components when it was 11:00 a.m. Components may be such items as:

- provide a public forum
- respond to MDNR requests for advice
- monitor CR-RAP progress
- issue periodic progress reports
- review/amend/approve work products
- sponsor public outreach activities
- oversee plan implementation
- when impaired uses have been remediated, seek delisting and termination of the RAP
- participate in writing segments of the RAP

(8) D. Goals and Objectives

It was agreed that each committee member would mark-up the two examples

provided keeping in mind the relevance of these goals to the Clinton River. Ms. Johnson will review additional sets of goals from other RAPs and provide any additional examples for consideration. At the next meeting we will "cut and paste" a set of goals and think about any additional goals we may want to suggest.

(9) Next Meeting

The objective will be to have a draft set of goals to present to the PAC at a January meeting. The PAC will schedule another meeting in October or November (to be determined at the PAC 9/16 meeting).

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
September 16, 1993
Verkuilen Building - Macomb County 5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of June 17 PAC meeting
- IJC RAP Forum Notice October 21-22
- IJC Biennial Meeting Notice October 22-23
- Roberts Rules of Order
- Clinton River PAC: Organization and Procedures (adopted 6/17/93)
- 9/11 Detroit River RAP: Day at the River

Handouts provided at the meeting included:

- Areas of Concern: Overview and Clinton River Excerpt from Water Quality Pollution Control in Michigan 1992 Report (Michigan 305(b) Report)
- Progress on Spillway Weir Modification 8/6/93 Letter from Congressman Bonior
- Agenda from 9/15/93 Detroit Workshop "Improve and Protect Your Watershed: Opportunities for Local Action in Areas of Concern (IJC, SEMCOG, SPAC, MDNR)
- List of Clinton River Facilities with NPDES Discharge Permits (9/13/93)

(2)

Persons Attending	PAC Member/Alternate
Bill Smith	Friends of the Clinton River/Mt. Clemens
Patrick Meagher	Clinton Township
Charles Barnes	USAF/ANG
Spencer Teller	Ford Motor Company
Daniel Duncan	H. C. M. A.
Gerald Herriman	Citizen
Shirley Barnett	L. S. C. A. C.
Frank Butterworth	Oakland University
Jack Prescott	Citizen
Helen Willis	M. S. P. O.

Persons Attending Continued	PAC Member/Alternates Continued
John Johnson	Soil Conservation Service
David Potter	Oakland County Drain Office
Robert Fredericks	Oakland County Drain Office
Brent Avery	Citizen
Bill Feddeler	Education

RAP Team Members

Ben Okwumabua	DNR/WMD
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council (at 6:30)

Advisors

Timothy Backhurst	Macomb County Planning
Terry Gibbs	Macomb County CES

Speaker

Roy Schrameck	MDNR/SWQD/SEMDO

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the 8/18 RAP Streamlining Workshop. He and Mr. Ditschman attended this fruitful day to explore means to move the RAPs, more quickly to actions instead of merely writing documents. The strategies for change developed at the workshop focused on (1) Clarification of RAP expectations, (2) Training for RAP participants, (3) Enhanced Participation, (4) Realistic Goals and Measures, (5) Scientific Support. He observed that if the recommendations are acted on there will be valuable results.

The Statewide Public Advisory Committee met July 22. The concept of the streamlining strategy was approved. There was further discussion of the DNR's RAP-plans approval process and the fit of Michigan's procedures with the IJC Stages 1, 2, 3 protocol.

The 9/15 Detroit Workshop on "Opportunities for Local Action in Areas of Concern" provided a cafeteria selection of sessions, some good, some not well-related to RAPs. (Notes from selected sessions are available in the CRWC-RAP files. A copy of the agenda is provided to show the session topics.)

News from the Clinton River includes the finding of zebra mussels in the river 8.5 miles upstream from the mouth; a June opening of a new boat launch at Shadyside Park in Mt. Clemens; continued construction of the Macomb County bikepath beginning at Metrobeach Park and connecting to a spillway path and Shadyside Park with two bridges; City of Rochester voters favored an $8 million upgrade of the local Treatment Plan instead of a $3 million sewer connection to the Detroit system.

Ms. Johnson reported on tracking of the Great Lakes Initiative, an effort of EPA and the eight Great Lakes States to concur on uniform water quality standards for the region. A Michigan position was approved at a joint meeting of the Natural Resources Commission and Water Resources Commission in August and forwarded for the pubic comment record on the EPA published guidance. CRWC has a report available for anyone interested in information on the GLI status. Special concern has been expressed regarding the impact on POTWs. Final promulgation by EPA is expected in 18-24 months after further meetings to address the public comments.

In August, CRWC was contacted by MDNR in response to a request from the Attorney General's office for a list of potential Clinton River and Lake St. Clair Flats conservation projects towards which $750,000 of fines and penalties from the G & H Superfund site settlement might be applied. This may provide a good precedent as a funding source for RAP recommended actions. For example the weir modification was listed in case the Congressional appropriation does not cover 100% and a local match is required.

Mr. Sweet has completed assembling a RAP Team of state and federal agency staff for the Clinton RAP. A letter of appointment was mailed to each of the PAC members from MDNR Director Roland Harmes.

PAC members were invited to attend the CRWC summer meeting July 27, which reviewed spills response on the river.

(4) Report of the June 17 PAC Meeting

No corrections were suggested. The report stands approved as submitted.

(5) Election of PAC Officers

Ms. Johnson chaired the meeting for this agenda item. A list of the PAC members was provided for reference. It was noted that Lori Simpson should be included as the Alternate for the Lake St. Clair Advisory Committee.

Bill Smith was nominated for Chairman and stated he would be willing to serve. Several others were asked if they were willing to be nominated, but they declined.

> It was moved by Ms. Barnett and supported by Mr. Duncan to close nominations and unanimously elect Mr. Smith Chairman. The motion was approved unanimously.

Shirley Barnett was nominated Vice-Chair, but declined because of the time demands of her job. Charles Barnes volunteered to serve assuming no legal constraints of his job.

> It was moved by Ms. Barnett and supported by Mr. Herriman to close nominations and unanimously elect Mr. Barnes Vice-Chairman. The motion was approved unanimously.

(6) Selection of Clinton PAC Representative to IJC RAP Forum

The expenses will be paid for one official PAC representative to the RAP Forum October 21-22 in conjunction with the Biennial meting of the IJC in Windsor. Any PAC member is encouraged to attend. Copies of the Forum announcement and registration form were provided. It was noted that registrants will receive in advance the reports to be presented to the IJC. The IJC meeting agenda (copy provided) indicates the various reports.

Both Mr. Smith and Mr. Butterworth indicated they planned to attend the RAP Forum. The PAC suggested they decide between the two of them who would be the designated representative. Six other PAC members filled out the registration forms to be mailed in.

(7) Public Advisory "Council" or "Committee"

In referring to the Clinton River PAC both the terms "Council" and "Committee have been used. Following discussion -

> It was moved by Ms. Barnett and supported by Mr. Barnes to choose the term "Council". Approval was unanimous.

(8) Lengthened Terms for PAC Members

MDNR Director Harmes, has requested consideration of lengthening the terms from 1 and 2 years to 2 and 3 years. He would prefer not to make new appointments as soon as one year hence.

> It was moved by Ms. Willis and supported by Mr. Herriman to change the adopted terms for PAC members to 2 and 3 years. Approval was unanimous.

(9) Date and Location of Next PAC Meeting

It was first agreed that Thursday evenings are appropriate, and that the PAC meet quarterly. It was agreed to meet on the second Thursday of the first month of each quarter. Hence, the 1994 meetings will be January 13, April 14, July 14, October 13.

(10) Composition of RAP Team, Work Groups

Mr. Sweet noted that the PAC members had been surveyed regarding their individual special interests and on which committees they would prefer to serve. Representatives of state and federal agencies have been selected for the Clinton RAP Team. PAC members are welcome to also serve on the RAP Team. A list of Team members will be provided. The initial work groups for Habitat, Contaminated Sediments, and Point/Nonpoint Sources will begin the RAP writing. Mr. Fredericks said that the relationship between the PAC and the RAP Team was not clear in the letter from Director Harmes. There is need for further clarification of the state/local partnership and the PAC/CRWC relationship. Ms. Johnson noted that on October 8 she, Mr. Ditschman, Mr. Sweet, and Dianna Klemens would be meeting to seek clarification.

(11) Reports of Habitat Subcommittee and Goals and Objectives Work Group

- Mr. Ditschman reported on the first meeting of the Habitat Work Group September 3. He prepared an extensive outline of habitat components and issues to assist beginning of assembling habitat information. Each of the participants shared his personal knowledge of habitat in the watershed. We will characterize the past, present, and future potential habitat in the watershed. We will seek dual chairmen of the Habitat Committee, one a local representative and the other a RAP Team member. Mr. Ditschman will assemble a notebook of habitat background information starting with the materials shared at this meeting.

  Ms. Johnson reported on the latest of a series of court cases from the watershed related to wetlands protection. A Waterford developer was awarded $5.2 million in a case of DNR permit denial before the Lansing Court of Claims. Several newspapers and Michigan NPR interviewed Ms. Johnson for her reaction. Certainly the DNR will appeal the case.

- Ms. Johnson reported on the first meeting of the Goals and Objectives Subcommittee September 14. The group first considered definitions of the terms "mission", "principles", "goals", "objective", "policy", "criteria", to ensure a common understanding. The Principles from the Metro Toronto RAP were reviewed and amended as appropriate to fit the Clinton River AOC. Examples of Goals and Objectives were provided from other RAPs. It was agreed to draft a Mission Statement for the PAC as a PAC-determined complement to the MDNR Charge. Goals and Objectives for the PAC should be reflected in a work plan and schedule aimed at completing the RAP update and specifying the work assignments among DNR staff, CRWC staff, the RAP Team, the Work Groups. This subcommittee will draft Goals and Objectives for the RAP. Before the next meeting further examples from the literature and other RAPs will be compiled.

(12) Program: An Overview of Point and Nonpoint Sources of the Clinton River - Roy Schrameck, Chief, Surface Water Quality Division, MDNR - Livonia District

The Livonia District office serves the five counties of Oakland, Macomb, St. Clair, Wayne, and Monroe. The District handles all aspects of pollution control except for the drafting of the NPDES (National Pollution Discharge Elimination System) permits.

The permit development process has not been altered by the Governor's Executive Orders reorganizing the DNR; but the Water Resources Commission has been eliminated. The Water Resources Commission was the body which issued the NPDES permits. These will now be issued by the Director and noticed in the new Department Calendar.

Permit effluent limits are based on a characterization of the discharge (wastes), what kind of industry or publically owned treatment works (POTW) is involved. EPA sets nationwide Technology Based limits based on categorical guidelines for specific industries such as steel mills, paper mills. The industry-wide baseline criteria allow the discharge of X pounds of waste for each Y pounds of product. The intent of this approach is to create a uniform nationwide basis so that industries will not shop around to locate in states with lower standards.

A second tier of limits is derived from water quality standards. These look at the receiving stream and its designated uses. How are uses affected by the level of dissolved oxygen, the concentrations of toxic pollutants. How does the type of discharge, its volume, the constituent pollutants affect what is happening in the river. There is a 303(d) list of the state's waterbodies which are not meeting the water quality standards.

The TDML (Total Daily Maximum Load) process is used to examine the sum of effects of all the discharges influencing a stream section. A waste load allocation is then assigned to each of the discharges. Whenever the MDNR develops an NPDES permit a waste local allocation is performed.

The Clinton River is not currently on the 303(d) list. However, when all of the permits are collectively reviewed in FY96 the Clinton may end up on the list. NPDES permits are to be reissued every 5 years; historically a set of permits from all over the state were addressed in any given year. Recently the DNR is trying to get permits reissuance scheduled on a watershed basis and 5 year cycle. However, there has been a chronic backlog with minor permits which interferes with the 5 year cycle. The new General Permit and Permit-By-Rule authorities may help (for example, to cover cooling water discharges). When a permit expires after 5 years it remains in effect until there is a state decision to rescind the permit.

During FY94 (October 93 - September 94) there will be selected water quality studies on the Clinton. These are biological surveys. During FY95 the DNR will work on developing the new permits. And during FY96 the permits will actually be reissued.

The only consequence of being on the 303(d) list is that the state must first submit the waste load allocation to EPA for prior review. This new procedure has added another layer of EPA oversight on the state-delegated administration of the NPDES permits and another 30 day delay.

Rule 57 is the toxic substances control portion of Michigan's Water Quality Standards rules. It limits the discharge of toxics at the end-of-the-pipe, ie. no mixing zone. (A mixing zone is still allowed for oxygen-depleting substances.) The Rule 57 derived limits apply to a facility discharge even when not explicitly limited in the permit. The application value limits are embedded in the permit stipulations. Whole effluent toxicity studies may be required; this is one of the more recent provisions of the NPDES program. The advantage to a discharger of not having a parameter explicitly limited in the permit is that they need not monitor for that parameter. It would be appropriate for the PAC to look at the collective set of Clinton River permits. Bob Sweet could arrange for appropriate DNR staff to walk through the permits with the PAC. You could ask about substances not delimited in the permits and learn why.

The NPDES program depends on self-monitoring reports being submitted quarterly to the MDNR. Compliance monitoring includes spot checks of a facility by DNR staff to ascertain directly that the operations are in line with the permits and monitoring reports.

The DNR attempts compliance monitoring checks of all minor permittees once per year and the mayor permittees 3 times per year. There are four major permits on the Clinton (the larger POTWs). A list was provided including all current NPDES permitted facilities in the Clinton River Basin. A question was asked as to the impact of the minor permits as compared to the mayor permits. Mr. Schrameck said he cannot answer that tonight; but the information can be obtained. He added that he personally feels that more attention should be given to the minor permits.

Mr. Herriman noted that contrary to what many citizens think, a discharger can be trusted to provide good data in their monitoring reports to the DNR. When there are split samples analyzed separately by the permit holder and the DNR the results had better be similar. It is a criminal offense to falsify a data report not merely a fine.

Mr. Fredericks inquired about the South Oakland County Sewage Disposal System (SOCSDS) combined sewer overflow (CSO) control facility - the large detention basin in Madison Heights at the head of the Red Run. He said that Oakland County had reapplied for a new permit after 5 years, but there has been no response from the DNR and the permit is long expired. The county has been submitting the regular monitoring reports with no feedback from the

DNR, which would be helpful. Mr. Shrameck replied that this is a minor permit and may be part of the backlog problem. He does not know whether the DNR will try to reissue any CSO permits now or wait until after the results of the Rouge River Wetweather Demonstration Project. This project will evaluate various designs and control levels for a number of CSO basins being constructed on the Rouge. Mr. Fredericks noted that if Oakland County does not apply for the permit reissuance they could be subject to litigation by a third party for non-compliance.

As for Nonpoint Sources, the new federally mandated requirements for an NPDES permit for every construction site disturbing more that 5 acres will depend in Michigan on the established permit-by-rule authority. The 347 program is administered by county designated Local Enforcing Agencies (LEA) or some municipalities that choose to have their own permit program. For most of Oakland and Macomb Counties the county drain commissioners are the LEA. The Michigan Nonpoint Source Program is providing grants for local watershed planning and implementation of Best Management Practices (BMPs).

Initially the federal stormwater program is requiring a NPDES permit for the storm drains in large municipalities with a population over 100,000. Two Clinton River cities are involved, Warren and Sterling Heights.

1990 amendments to the federal Coastal Zone Act make NOAA (National Oceanic and Atmospheric Administration) and EPA partners in enforcing nonpoint source controls in designated coastal zone management areas. NOAA has suggested designating the entire State of Michigan as within the coastal zone, which would mean all Michigan communities would be subject to stormwater permits on their storm drains. NOAA has said it is up to the state to justify why any portion should be excluded from the coastal zone. DNR staff are not up to doing the work for this justification so Michigan may be hit be default.

Mr. Shrameck responded to several additional questions.

Q. With the DNR reorganization resulting from the Governor's Executive Orders what will be the public hearing process on NPDES permtis?

A. The new biweekly DNR calendar will provide public notice. If any issues are brought to the DNR's attention there will be an attempt to resolve these. If significant controversy remains after the staff level meeting eg. "substantial and relevant issues" remain unresolved, a Director's public hearing will be published in the calendar. To date, we do not know what appeal there will be of the Director's decision: to the NRC and the Contested Case Hearing procedure or directly to court.

Q. A recent PIRGIM report (August 1993) "Permit to Pollute: State-by-State Analysis of Serious Violations of the Clean Water Act" has received attention in the press. Michigan is reported as second among the states with major permit facilities in significant non-compliance (57/190 or 30%). The information is taken from the EPA Quarterly Non-Compliance reports for October 1991 - July 1992 and includes the Mt. Clemens, Rochester, and Warren Wastewater Treatment Plants on the Clinton; no industrial facilities are listed on the Clinton. How do we reconcile this with the 1988 RAP which states all dischargers on the Clinton are in compliance?

A. Mr. Shrameck has not seen the PIRGIM report and cannot comment. Procedural violations do occur but he would not consider them "significant noncompliance." STORET is the national system for compiling water quality data. Incorrect data sometimes does creep in an MDNR and EPA appreciate being notified whenever someone discovers a glitch. Both EPA and MDNR are establishing computerized Permit Compliance tracking systems which should improve the information available. We'll also be able to cross-reference data from Environmental Response Division (contaminated sites), Waste Management Division (use and disposal of hazardous materials), Air Quality Division.

Q. Is it fair to say that point sources are pretty well taken care of on the Clinton River?

A. I would say "yes" with the exception of resolving the situation in Rochester.

Q. What is the status of Industrial Pretreatment among the Clinton River POTW's? We note an August newspaper article about the City of Warren pursuing litigation against a metal finisher with a history of pollution violations?

A. A discussion of the IPP status would take another whole evening. You can always call Hae-jin Yoon; she is the primary compliance person for Oakland and Macomb Counties (810) 953-1451.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
January 13, 1994
Mt. Clemens Community Center 5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of the September 16, 1993 PAC Meeting
- Reports of the IJC RAP FORUM
  Mr. Butterworth's report and article from IJC Focus
- 12/6/93 Macomb Daily article "Clinton River Not So Dirty DNR Memo Says"
  1/13/93 Macomb Daily article "Clinton is State's Dirtiest River"
- 1/11/93 Clean Water Action News Release "AuSable Cleanest, Clinton Most Polluted"
- 1/26/93 Memo to Clinton River Watershed Council from MDNR/SWQD (Richard Lundgren)

  Zebra Mussels in the Clinton River
  - see article in RAP #3
  - 12/8/93 Spinal Column article "INFESTATION First Inland Zebra Mussel Colony Established in Local Lake"
  - 12/14/93 Oakland Press article "State's Native Clams Could be in Danger From Zebra Mussels"
- Strategies to Improve Michigan's RAP Process
  12/2/93 memo of Diana Klemans regarding MDNR concurrence
- "Governments of Canada and the United States Act on Water Quality Recommendations" IJC FOCUS article on reports at Biennial Meeting October 1993
- Notice of March 8 Conference on Watershed Management - the annual conference of the Michigan Section of the American Water Resources Association

Handouts provided at the meeting included:

- Clinton River Area of Concern Progress Report, December 1993 by Robert Sweet, SWQD, MDNR

- Clinton River RAP Team (list of members)
- Guidelines for Recommending the Listing and Delisting of Great Lakes Areas of Concern
- "Clinton Carp are Health Risks, say Michigan Health Officials", Eccentric Newspaper article 12/20/93
- Southeast Michigan Initiative, Memo to AWQB 12/7/93
- Michigan Environmental Code Commission: A Summary by CRWC
- Clinton River RAP #3, MDNR December 1993
- Ambient Water Monitoring in Michigan: Concentration and Loading Trends in the Detroit River; and Great Lakes Tributaries by R. Lundgren, SWQD, MDNR, October 1993

(2) Persons Attending — PAC Member/Alternate

Charles Barns	USAF/ANG
Heidi Vogt	USAF/ANG
Charles Bellmore	Mt. Clemens WWTP
Jack Prescott	Citizen
Gary White	Macomb County Health Dept.
Gerald Herriman	Citizen
Frank Butterworth	Oakland University
Spencer Teller	Ford Motor Company
Patrick Meagher	Clinton Township
Bob Winkler	Mt. Clemens High School
Brent Avery	Citizen
Bill Feddeler	Citizen
John Johnson	Macomb County SCS

RAP Team Members

Ben Okwumabua	DNR/WMD
Greg Barrows	MDNR, ERD (Livonia)
Bob Sweet	MDNR/Clinton River RAP Coordinator (at 7:00)
Peggy Johnson	Clinton River Watershed Council

Advisors

Timothy Backhurst	Macomb County Planning

Speaker

Richard Lundgren	MDNR/SWQD

Public

Jim Reed	Citizen
Bob Selwa	Macomb Daily Newspaper
Jeff Green	Oakland Press Newspaper
Robert Hansen	Citizen

Bill Smith Chaired the meeting.

(3) RAP News

Bill Smith reported on the October 28 meeting of the Statewide Public Advisory Committee (SPAC). His report on the Clinton River included:

- The Clinton River Watershed Council was restructured into a non-profit organization for citizens, governments and businesses.
- The spillway hike/bike path was completed with funding from the Department of Agriculture.
- The settlement on the G & H Landfill includes funds for Clinton River improvement projects.
- The Clinton River PAC elected its officers and established four standing committees. They are looking into establishing a database/bibliography data center at Oakland University.

DNR managers have accepted the RAP Streamlining proposal which will eliminate lengthy reviews, with RAP Team recommendations going directly to Tracy Mehan, Director of the Office of the Great Lakes.

There are plans to produce a Michigan RAP Calendar spanning the 14 months of December 1994 - January 1996, with one page for each Area of Concern. Needed are photographs and dates of river events during that period. It was suggested this task be referred to the Public Outreach Subcommittee.

The annual Michigan citizens conference on Great Lakes Ares of Concern will be postponed from spring to fall of 1994.

Bob Sweet noted that the RAP display with photos illustrative of the Clinton River issues. This display board will be shared with some other AOCs, so he asked for upcoming dates when it would be suitable to display this on the Clinton.

Copies of the Clinton River RAP #3 published in December were mailed to PAC members and others who have expressed interest in the Clinton RAP. Additional copies are available at CRWC offices.

A 1993 draft progress report on the Clinton AOC was provided by Mr. Sweet. He asked PAC members to review it and respond by the next day.

He reported on the G &H Superfund Site court settlement which commits $800,000 towards conservation projects on the Clinton River and St. Clair Flats. 30 days following court approval of the settlement the funds are transferred to a Environmental Response Division (ERD) restricted fund account. There are several other Michigan cases coming to conclusion with similar commitments of the fines and penalties; a MDNR committee is looking at the best means to write the method of disbursement into the court orders.

- MDNR continues to work with CRWC staff to conclude the grant agreement for them to provide staff support to the PAC. This should be soon completed; but tonight Peggy Johnson is participating as a volunteer.

- A $151,000 proposal for analysis of contaminated sediments in the Clinton River has been submitted for funding under the Southeast Michigan Initiative (SEMI) and also to the Great Lakes National Program Office of EPA (GLNPO). There may be several other funding opportunities with the Corps of Engineers (COE) this year. The COE has decided to spend funds on RAPs, $250,000 in 1994 and $3 million in 1995.

- Sign-up sheets for the Work Groups were available and PAC members urged to sign-up.

Peggy Johnson reported on activities relevant to the RAP effort:

- **Clean Water Act Reauthorization** MDNR convened on December 16 a Reauthorization Advisory Group of Michigan stakeholders to obtain input for developing a state position as a basis for working with the

Michigan Congressional delegation. Issues addressed were Nonpoint Source/Coastal Zone, Watershed Management, Permit fees/10 year permits/stormwater, wetlands, state revolving fund, water quality standards, pollution prevention, clean lakes. DNR staff will use the input to complete draft positions for Natural Resources Commission approval.

- **Great Lakes Initiative** (GLI-1) Since EPA was flooded by public comments concluded last fall we are awaiting further work to respond to the comments and meet the court imposed deadline for final promulgation (in 18-24 months?). The initiative was aimed primarily at uniform standards among all the Great Lakes states for toxics reduction by point sources. Criteria were developed for control of Bioaccumulative Chemicals of Concern (BCCs) which EPA anticipates playing out in many programs.

- **Great Lakes Toxics Reduction Effort** (GLI-2) EPA has just completed a final draft report. The proposed strategy aims at nonpoint sources and incorporates three tracks:

  - a Pathways Approach
    (air deposition, sediments, spills, urban runoff, waste sites, plus continued evaluation of agricultural sources for BCC loadings)

  - a Virtual Elimination Project
    (which will be coordinated with the IJC project and initially focus on mercury and PCBs)

  - Lake Michigan Enhanced Monitoring
    (a pilot for LAMPS)

- **Environmental Code Commission** The Governor established this Commission a year ago to consolidate Michigan's Environmental protection and natural resources management laws. While the Commission was directed to codify but not consider substantial changes this has proved difficult. For example, review of the Drain Code proved very controversial. A handout was provided summarizing the status.

- **Michigan Science Advisory Board** was established to bring the best scientific expertise to bear on Michigan issues. The first completed review and report was on mercury. The Board was recently asked to review chlorine.

- **Michigan Office of the Great Lakes** has initiated bi-monthly reports on current Great Lakes issues.

- **Southeast Michigan Initiative** (SEMI) This is an EPA-Region V initiative that has been "underway" for several years. At a joint meeting of AWQB and EPAC December 7, Mindy Koch, DNR Deputy Director for Region III provided an "introduction". Initial elements identified for inclusion are pollution prevention, public participation, compliance and enforcement, and Remedial Action Plans. To date, EPA and DNR have been selecting people for involvement; it is hoped that by mid-January more people will be drawn in. With five RAPs in Southeast Michigan it would be a logical place to emphasize progress on RAPs and opportunities for work in common among the individual RAPs.

(4) Introductions and Comments

Gary White (Macomb County Health Department) reported that the Health Department has been studying ways to monitor CSOs; they are also exploring with the Oakland County Health Department ways to monitor for bacterial contamination following rainfalls to determine whether and where advisories should be issued to avoid total body contact.

Frank Butterworth (Oakland University) noted that he is involved with PCBs toxicity research. He is interested in citizens biomonitoring and will be chairing a symposium on biomonitoring for the International Association of Great Lakes Researchers at a conference in Windsor this summer. The City of Rochester will be abandoning its wastewater treatment plant and hooking up to the Detroit system. Voters elected to maintain the local plant in the spring of 1993; but when new and higher costs for upgrading the plant were presented a second referendum vote in the summer favored abandonment.

Heidi Vogt (Selfridge ANGB) noted she is working with other base staff on environmental restoration of the 4000 acres which significantly relates to the river mouth area.

Jack Prescott stated that he was particularly interested in parks development along the river.

Chuck Bellmore (Mt. Clemens POTW) reported that he was recently appointed Director of Utilities for the city so his responsibilities have been broadened. He is currently assisting the DNR with walleye rearing in ponds at the wastewater treatment plant and assisting the COE with hydrology studies of the Mt. Clemens section of the river. He provided a copy of a recent letter from Congressman Bonior to the Mayor of Mt. Clemens reporting that

Congress approved $2 million and President Clinton signed the appropriations bill to correct the design deficiency on the spillway weir; the Office of Management and Budget (OMB) released the funds. The Corps began collecting field data in December. The Corps will then coordinate design and analysis with the affected local parties. It will not be known until the final design is completed whether any local match is required.

(5) Report of September 16, 1993 Meeting

The report was accepted as presented.

(6) IJC RAP Forum Report

Frank Butterworth provided notes on the two days of the Forum October 21-22. These were included in the agenda packet. Mr. Butterworth reviewed these notes. He felt the RAP Forum provided a good opportunity to learn from other RAP efforts that are further along than the Clinton. A major theme was sustaining the momentum; speakers noted that RAPs often had started with a promise that energized people, then hit succession of road blocks and many walked away. Highlighted lessons learned included:

- the Cuyahoga RAP was set up for shared power with the Ohio EPA this negotiated partnership is important in sustaining momentum
- must struggle to incorporate the ecosystem approach - water and land
- form NPOs to facilitate as needed
- obtain a clear money commitment - public and private
- bureaucrats must be willing to take risks, perhaps fail
- get a facilitator to help with goal setting
- convene technical forums to garner expertise

Bill Smith noted that Tim Lozen, Chair of the St. Clair River PAC, was impressed with the effectiveness of the facilitator at the RAP Streamlining Workshop.

Chuck Barns commented that several of John Jackson's remarks would slingshot the RAP process forward: a clear timetable for cleanup, designating those responsible for cleanup actions and their roles (not just government), a clean money commitment.

(7) Subcommittee and Work Group Reports

No meetings since those reported at the last PAC Meeting.

(8) Outside Meeting Attendance Fund

Mr. Sweet noted that the budget for PAC support includes $465 for travel and registrations reimbursements for attendance by PAC members. Anyone delegated for reimbursement is expected to provide a written report; the Watershed Council can provide secretarial services for typing hand-written notes. Tonight the PAC needs to decide on the procedure for selecting candidates to attend conferences. Potential conferences this year which we can now suggest include the annual Michigan Citizens Conference on Areas of Concern (Port Huron), the Watershed Management Conference slated for March 8 at MSU, the summer Windsor conference of the International Association of Great Lakes Researchers.

> It was moved by Mr. Teller and supported by Mr. Herriman that applications for conference attendance/reimbursement be submitted to Ms. Johnson. She will then present these to the four PAC officers for decision. Approval was unanimous.

It was suggested that some PAC members might be able to have their employers cover costs of conference attendance.

(9) New Business - None

(10) Public Comment - None

(11) Program The Clinton River 20 Year Trend Analysis

Rick Lundgren, MDNR Surface Water Quality Division provided copies of the report he authored "Trends in the Detroit River and Great Lakes Tributaries" October 1993.

This report utilized river mouth data from 12 Michigan rivers tributary to the Great Lakes. These were selected because of their relatively stable flows.

Although an urban river, so much of the flow in the Clinton is from discharges that the year round flows are fairly stable. During low flows the Clinton is 85% effluent. The Clinton has the lowest flow of the rivers in this study. The "mouth" data is from sites far enough upstream to be beyond the influence of Great Lakes levels. In the Clinton the mouth station is at Gratiot, above the spillway.

Michigan includes five of the midwest ecoregions, areas of significant

differences in soils, land use. In any attempt to compare rivers we must not look only at concentrations but must also take ecoregions into account. That is the major flaw I find in the Clean Water Action report.

The report focuses on six key parameters: total phosphorus, suspended solids, chloride, lead, copper, and zinc. To see the impact on the Great Lakes we must look at the loadings rather than the concentrations.

The Clinton definitely has problems with phosphorus although the concentration has dropped over the years due to phosphate detergent bans and phosphorus removal at wastewater treatment plants. Regression plots were displayed to confirm a downward trend for the Clinton. Suspended solids show a slight upward trend; chloride-no confirmed trend; lead shows a definite downward trend in concentration; copper has a significant downward trend in concentration and loading; zinc shows a downward trend in concentration.

There were questions and hypotheses about some of the data spikes. Did these reflect wet years? Was data collected during rain events? (possibly). Each year's data point represents the 12 monthly samples collected over the year.

Another approach to judging water quality of a river is to look at the number of times there are exceedences of the state water quality standards. On the Clinton we see more exceedences occurring in the mid 1980's than today. (The heavy metals have been sampled monthly only since 1984.)

The water quality standards for metals varies with the hardness of the water. Where 50 ppm (softwater) the standard for lead is 0.9 micrograms. Where 300 ppm the lead standard is 20.0 micrograms. So we cannot simply look at concentrations to draw a valid conclusion about a river's water quality. The right question to ask is: Were there exceedences of the water quality standard? We should not say the Clinton is the dirtiest river where it in fact has higher limits than other rivers.

Another shortcoming of the Clean Water Action report was using only a single year's data. You need 20 years of data to draw any conclusions about trends in water quality.

In summary the good news is that the quality of all Michigan rivers is improving over the years. The bad news is that we have a long ways to go yet to attain the desired water quality.

There was discussion as to why suspended solids might be showing an

increase. Historically the soils types in the watershed yield high suspended solids; but construction sites, storm drains, and CSOs may be contributing significant amounts of suspended solids.

The Clean Water Action report also addressed data from urban areas which showed a big increase in concentrations from above Pontiac to below. How might we account for this? The water quality above Pontiac may be exceptionally good so that discharges in Pontiac would result in a greater change. Also the river flow is down to a trickle in Pontiac because of the dams on lakes upstream, so there is little dilution.

A high pH (hardwater) lessons the effect of the metals on aquatic life. While the biology of the river may not be so impacted, what is the effect of the metals when they reach the Great Lakes?

The DNR is concerned about backtracking to find the sources of heavy metals. We don't want them to end up in the sludge at wastewater treatment plants. Pre-treatment limits imposed on industries to municipal sewers may get a shot in the arm as the result of recent court cases such as ACE Finishing where a $100,000 fine was imposed for violations of the pretreatment limits.

Are we collecting adequate data to get a good estimate of Clinton River loadings to the Great Lakes? No. More frequent sampling is needed. For example in the Lake Michigan LAMP study it was concluded that the Grand Calumet River, which is very stable, should be sampled 16 times annually, the Grand River 26 times, and the Muskegan River 26 times. $9 million is the cost of the proposed Lake Michigan monitoring.

It was suggested that the absence of DNR reports on water quality involving good analysis invites other groups to attempt use of the data perhaps with misinterpretations. It would be helpful if the DNR stated when there is not adequate date to draw valid conclusions. It would help the press with their reporting if DNR staff were available to take phone calls for information when other groups issue press releases.

(12) The meeting was adjourned at 9:30 pm.

Submitted by: Peggy B. Johnson

PBJ/sj

Clinton River Remedial Action Plan (RAP
Report of Public Advisory Committee Meeting
April 14, 1994
Verkuillen Building, Mt. Clemens
5:00 - 8:00 p.m.

(1) The **agenda packet** mailed prior to the meeting included:

- Report of the January 13, 1994 PAC Meeting
- Articles from the Oakland Press and Macomb Daily reporting on the Clinton River water quality presentation at the 1-13-94 PAC meeting.

(2) **Handouts** provided at the meeting included:

- News release of IJC on Seventh Biennial Report on Great Lakes Water Quality and news release of MDNR on State of the Great Lakes - 1993 Annual Report (Office of the Great Lakes). [Information was included on how interested PAC members might obtain copies.]
- Notice of May 3 EMEAC panel discussion on "Human Health and Chemicals of concern in the Great Lakes Basin"
- USGS National Water Quality Assessment Program (NAWQA) description
- The Southeast Michigan Initiative (SEMI): Questions and Answers Summary of Community Leaders Meeting 4/12/94 (P. Johnson)
- Clinton River Watershed Council Local Government Report - February 1994
- DNR Creates 18 Committees to Follow-up Relative Risk Report
- Flyer - "Help Make Clean Water the Wave of the Future" - Clean Water Media Campaign of NDRC/EPA/The Advertising Council [Video available]

(3) The meeting was called to order by Chairman Bill Smith at 5:30 pm.

Persons Attending

PAC Member/Alternate	
William Smith	Friends of the Clinton River
Shirley Barnett	Lake St. Clair Advisory Committee

Chuck Bellmore	City of Mt. Clemens
Frank Butterworth	Oakland University
Brent Avery	
Butch Sapp	
Dan Duncan	Huron Clinton Metropolitan Authority
Bill Feddeler	

RAP Team Members

Ben Okwumabua	DNR-Waste Management Div. - SEM
Hae-Jin Yoon	DNR Surface Water Quality Div. - SEM
Jenny Molloy	Clinton River RAP Coordinator
Bob Sweet	Clinton River RAP Coordinator
Peggy Johnson	Clinton River Watershed Council
Erich Ditschman	Clinton River Watershed Council

Advisors

Tim Backhurst	Macomb County
Roger Darden	MDNR Communications Representative

Public

Jeffrey Sibley	St. Clair Shores

(4) Reports

- SPAC Mr. Smith reported that the Statewide Public Advisory Committee had set September 17 as the date for the annual Michigan Areas of Concern Citizens conference. It will be in Port Huron with meetings of the SPAC and the Ontario Council on Friday.

  Two applications for this year's outreach grants were submitted from the Clinton AOC, by Erich Ditschman (CRWC) and Al Martin (CRCA). A priority was placed on transferability of the demonstrations.

  MDNR has submitted to EPA the annual proposal for RAP funding and is awaiting the EPA response to see what activities will be funded for next year.

  Photos and event dates need to be submitted for the 14 month RAP calendar (Nov 94 - Dec 95).

The next SPAC meeting is April 28.

- RAP-Related News Ms. Johnson reported on the efforts of CRWC and others to recommend to the Natural Resources Commission changes in the DNR drafted position statement on watershed management, part of the state's positions for Clean Water Act reauthorization.

The March 8 AWRA Watershed Management Conference was very well attended. Proceedings will be available Another MSU-sponsored conference that week was on Great Lakes Rehabilitation: Back to the Future. CRWC is obtaining tape recordings for anyone interested.

The CRWC Science and Technology Committee is recommending or undertaking four activities:

- a fishing survey which could meet 3 needs - DNR fisheries management; determining exposure of people eating fish from the Clinton (especially poor and minority groups); fish tainting

- a "data crunching" meeting of persons interested in looking at the available Clinton River water quality data and exploring surmises as to causes (stimulated by the kinds of questions/hypotheses voiced at the end of the January 13 PAC meeting).

- a technical seminar on habitat - Conversations with participants in several RAP efforts suggest this may be one of the most difficult issues to address. Information gathering for all the Southeast Michigan RAPs might be jump-started by a technical seminar. Invited audiences might include citizens (backyard habitats), local government officials (taking habitat into account with local land use planning and acquisition), managers of parks, golf courses, sportsmen and wildlife interests.

- many new golf courses continue to be built across Michigan and in the watershed. An annual "river friendly golf course award is proposed as a way to promote good design, cooperating with the Audubon golf course habitat program, and to inform local government officials on what to consider in approval of golf course developments.

The RAP display will be exhibited at a number of fairs scheduled around Earth Day later this month. A caption "Clinton River RAP" was purchased.

Copies of the CRWC Local Government Report were provided as an update on river news.

CRWC and many other groups have provided letters in support of Michigan Land Trust Fund grants for acquisition of lands abutting Bald Mountain State Park of significant ecological interest as well as protecting the upstream watershed of the regionally significant Trout Lake in the park.

The Michigan Environmental Science Advisory Board is currently addressing chlorine and lead impacts and public policies. A report was released last year on mercury.

Peggy Johnson has been appointed to the Michigan Relative Risk project Nonpoint Source Discharges Task Force.

Ms. Johnson reported on the April 12 Community Leaders Meeting to launch the Southeast Michigan Initiative (SEMI) of EPA and MDNR. The four components are (1) public involvement, (2) RAPs/Sediments (3) Pollution Prevention (4) Compliance and Enforcement. Two handouts were provided: information which accompanied the meeting notice and Ms. Johnson's notes from the meeting.

It has long been noted that water quality data collected in each state and provided to EPA for biannual reports to Congress varies from state to state so the data cannot be meaningfully aggregated at the national level. And so Congress authorized the U. S. Geological Survey to inaugurate in 1991 a National Water Quality Assessment Program (NAWQA). Work for the Lake Erie basin hydrologic unit, which includes Lake St. Clair and the Clinton River, is now underway.

- MDNR RAP Update Bob Sweet introduced Jenny Molloy and reported she would become the Clinton River RAP coordinator in June when he would become the Detroit River RAP Coordinator.

Mr. Sweet noted that EPA budget cuts have resulted in a 58% cut in funding for RAPs. Michigan will get through FY-94 and FY-95 with carry over funds from the last two years so the crunch will come two years from now.

Discussion with USGS for the NAWQA work may lead to a couple of sites on the Clinton being included in the data collection program.

Three weeks ago Mr. Sweet and Ms. Molloy convened a meeting of agencies involved with nonpoint sources control (DNR, DOA, SCS, CES) to discuss focusing joint efforts on the St. Clair and Clinton AOCs. The initial focus would be on agricultural sources where the agencies have been involved in the past; it will evolve to include an urban component.

This year's Clinton RAP work program is scheduled to submit the plan update to the IJC in January 1995. Work groups will complete their components by September 7. During September all components will be integrated into a draft plan. Reviews and approvals will be conducted October - December.

The newly adopted Michigan protocol gets rid of the "stages" approach (Stage 1 = identify problems, Stage 2 = recommend actions, etc) so that activities can proceed simultaneously in different stages. For example, we could proceed to address remediation of contaminated sediments without waiting to complete the habitat recommendations. As soon as a solution is identified we move forward with action. There will be biennial reports of the progress of planning and implementation. New problems will always arise to be incorporated. We'll be working on a two-year cycle iterative process which allows us to act immediately when there is information available which supports an action. EPA and the IJC have endorsed this Michigan approach.

Mr. Sapp responded that this makes the PAC sound less like an information gathering and advisory group and more like an action group and he likes that.

Mr. Smith asked what kinds of technical and engineering staff will be involved? They will come in on individual action projects.

Ms. Barnett noted that the St. Clair River PAC has been meeting for seven years. They have a very viable organization and a high level of member commitment. She suggested it would be good to attend one of their meetings; the next one is May 25.

Ms. Yoon noted that industrial representatives have not responded to out invitations to participate in the RAP. It was suggested that once we start putting on paper recommendations impacting the industrial interests they are likely to become involved.

PAC review and approval was discussed. The work group products will be available after September 7 and can be formally reviewed by the PAC at its October 13 meeting. Additional portions of the RAP to be

written by staff will include:

- legislative updates
- institutional arrangements
- public outreach
- an Executive Summary

Final PAC approval could occur at a January meeting.

(5) Report of January 13, 1994 PAC Meeting

It was moved by Mr. Avery and supported by Mr. Butterworth to accept the report as submitted. All agreed.

(6) Introductions and Announcements

Mr. Smith reported that the City of Mt. Clemens has enacted a No Wake ordinance for jet skis following testimony at a hearing regarding the problems that have been evidenced. Harrison Township already had a similar ordinance in effect. He also noted that the annual river cleanup "SpringUp" would be June 4. He noted that there are now several computer networks from which information relevant to RAP efforts might be gleaned: EPA's PIES, Saginaw Valley College's waste management network, and the Great Lakes Commission's Great Lakes Information Network (GLIN).

Mr. Sweet reported that MDNR had been asked to proceed with preparing a work plan for sampling Clinton River sediments this year. This will be a cooperative effort with the Corps of Engineers which has the funding. EPA has volunteered use of their mud puppy. The purpose is to see if there are any "hot spots" of contaminated sediments outside of/or upstream of the navigation channel in the lower river.

(7) Meeting Places

The PAC was asked to suggest potential meeting places, especially in Oakland County. Macomb Community College was suggested as closer to Oakland County. We can probably find a suitable place at Oakland University. It was suggested we include a tour of the SOCSDS CSO facility as part of the July meeting.

(8) Libraries for RAP Files

In addition to the centralized files at the CRWC offices, we want to place files in Oakland and Macomb County where they will be more conveniently

accessible to the public. The PAC agreed that the Macomb County Library on Hall Road at Garfield and the Oakland University Library would be best.

(9) Work Group Reports

- Contaminated Sediments Chairman Butterfield reported that the work group had reached agreement on the impairments related to contaminated sediments and is helping to design the sediment sampling to be conducted this year. Professor Hough is creating a computer file of the past data related to locations so can look at a watershed map to see where information is available and discuss additional locations to sample as well as updating the old data. In the 1950's, a lot of hazardous materials were buried close to the river in landfills and landfilling with foundry sand. There was discussion of a newspaper ad or story to invite people to report their recollections of old dumping. Mr. Ditschman noted that on May 12 all the schools in the river monitoring program will be out sampling and this year they will collect a grab sample of sediments; Midwestern Analytical Labs has offered to perform analysis for metals. A draft paper "Contaminated Sediments in the Clinton River" was written by Ms. Johnson and when the workgroup has completed its review/revision this will be provided to PAC members.

- Habitat Chairman Duncan reported that the workgroup had also reached agreement on the impairments of concern which relate either directly or indirectly to habitat issues. Habitat issues have been listed and assignments made for members research. The next meeting is May 11 at which a schedule of work activities will be developed.

- Point/Nonpoint Sources Ms. Molloy reported that this workgroup had also agreed on the related impaired uses after some discussion of fish tainting and plankton degradation. There are now 10 impairments listed: 1 related to contaminated sediments, 3 related to habitat and 6 related to Point/Nonpoint Sources. The group reviewed additional expertise to be brought in. The next meeting of the workgroup will be April 19.

(10) Conference Attendance Opportunities

PAC members were reminded there is a little funding available for reimbursement of attendance costs. Notices of upcoming meetings included:

May 3 Human Health and Chemicals of Concern in the Great Lakes Basin. A panel discussion presented by EMEAC (Bloomfield

Hills)

April 28	Environmental Empowerment of Local Communities, sponsored by Michigan Prospect (Novi)
May 2-3	Empowering Watershed Stakeholders, EPA (Chicago)
June 4-5	Citizens Forum on Lake Erie: It's Ecology and Economy, Environment Canada et al (Windsor)
June 6-9	International Association for Great Lakes Research 37th Conference (Windsor)

(11) New Business

It was suggested that the PAC might want to review all the current construction work along M-59 as a case study of construction site sediment control, drainage design, and impacts of a direct outlet to the river.

(12) Adjournment and RAP Slides

The meeting was formally adjourned at 8:00 pm. Some stayed for a viewing of the RAP slide show assembled by CRWC staff. The audience was asked to be critical and comment by Roger Darden of the MDNR public relations staff were especially appreciated.

Submitted by Peggy B. Johnson

PBJ/sj

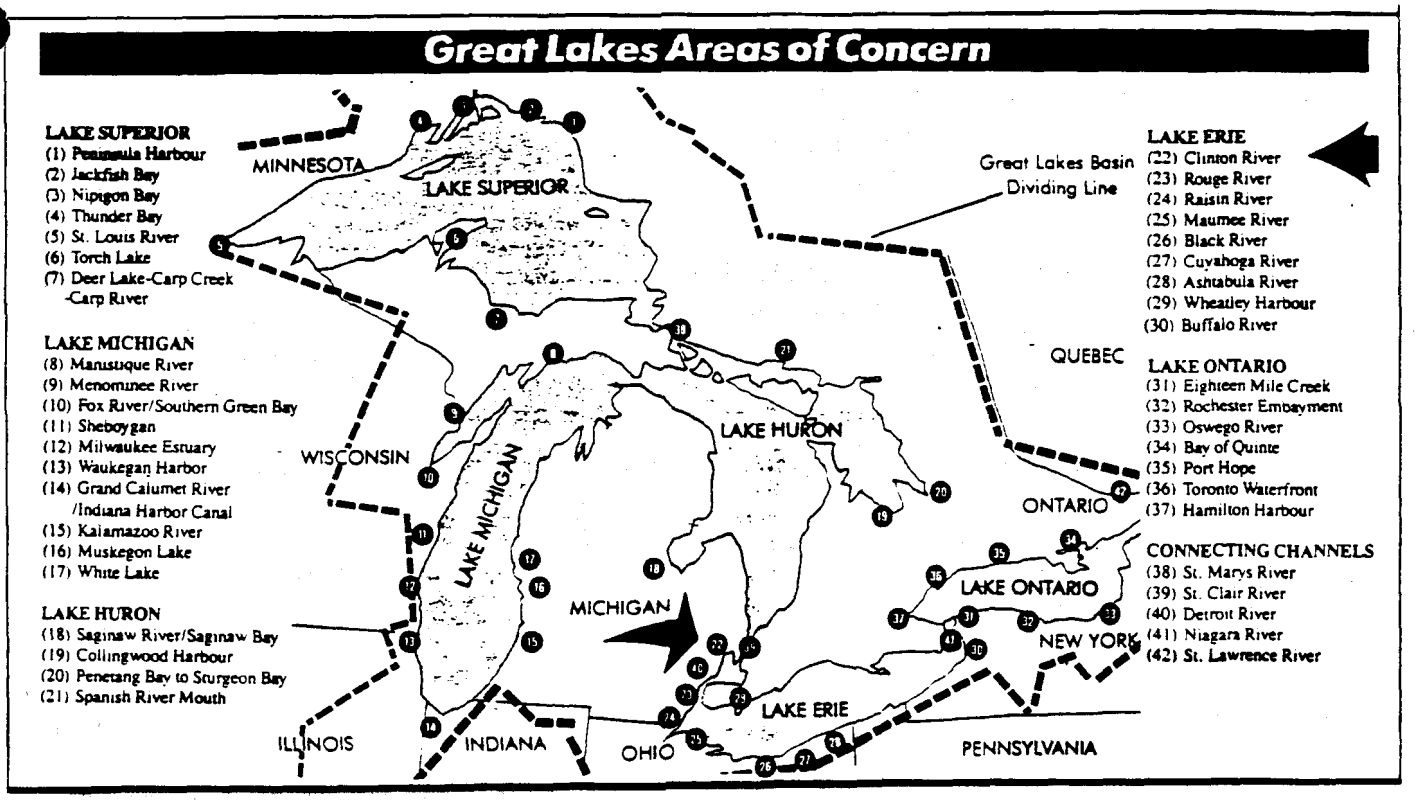
Clinton River RAP #1

The Remedial Action Plan 1989

Great Lakes Water Quality

In 1909, the United States and Canada signed a boundaries water treaty including a stipulation that each nation would not pollute the waters across the boundary to harm people or property. The International Joint Commission (IJC) was established to administer the U.S-Canada agreement. In 1972, a Great Lakes Water Quality Agreement was signed with an emphasis on reducing phosphorus inputs and lakes eutrophication, especially for Lake Erie. Control of phosphorus inputs through municipal wastewater treatment plant improvements and bans on phosphate detergents has reduced the phosphorus loading so the control objectives are largely met. Two exceptions are Saginaw Bay and the western end of Lake Erie where there is current emphasis on reducing nonpoint sources of phosphorus, in particular, from use of fertilizers on farms. The Clinton River is a tributary in the Lake Erie watershed.

The U.S-Canada Water Quality Agreement was revised in 1978 to incorporate an emphasis on control of toxics. The IJC has listed 42 Great Lakes "Areas of Concern", known colloqually as "toxic hotspots". The Clinton River is listed because of contaminated sediments in the lower river, as is the case with 41 of the 42 listed rivers and harbors.



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Remedial Action Plans

The IJC called for development of Remedial Action Plans, "RAP's", for each of the Areas of Concern. Each RAP must:

- Define the environmental problem, including geographic extent of the area.
- Identify beneficial uses that are impaired.
- Describe the causes of the problems and identify all known sources of pollutants.
- Identify remedial measures proposed to resolve the problems and restore beneficial uses.
- Provide a schedule for implementing and completing remedial measures.
- Identify jurisdictions and agencies responsible for implementing and regulating remedial measures.
- Describe the process for evaluating remedial program implementation and remedial measures.
- Describe monitoring activities that will be used to track effectiveness and eventual confirmation that uses have been restored so the area may be "delisted".

Toxic substances contamination is the major problem resulting in restrictions on fish consumption in 38 of the 42 in the Areas of Concern. (There is not an advisory on Clinton River fish; but species that travel between the river and Lake St. Clair have an advisory in the lake.) Restrictions on dredging activities due to toxic substances contamination are in effect in 31 Areas of Concern, including the Clinton River.

The Michigan Department of Natural Resources (MDNR) is responsible for developing the Remedial Action Plan (RAP). A Technical Advisory Committee, consisting of 15 representatives of state, local and federal governments met to assess the problems in the Clinton River. An MDNR RAP coordinator collected information and data on the river from members of the committee and other sources. The MDNR then wrote the draft RAP.

Three public meetings were held to exchange information with the public concerning the problems in the river and to review the draft RAP. A final RAP was written based on comments from that review, and was submitted to the International Joint Commission (IJC) in November 1988. The IJC will review and comment on the RAP adequacy.

RAP's represent a challenging departure from most historical pollution control efforts, where separate programs for regulation of municipal and industrial discharge, urban runoff and agricultural runoff were implemented without considering overlapping responsibilities. All programs, agencies, and communities affecting an Area of Concern must come together, recognizing their inter-relationships, to work on common goals and objectives in the RAP. This coming together and sitting around the table to resolve problems is the essence of the ecosystem approach.

Conclusions from the Clinton River RAP

Area of Concern:	The Main Branch of the Clinton River downstream of the Red Run to the mouth (17 miles) and the spillway (2 miles).
Source Areas:	The Red Run, the North and Middle Branches, the Main Branch upstream of the Red Run.

Problems:

- Contaminated sediments - heavy metals and PCB, oil and grease
- Degraded biota
- Low dissolved oxygen
- Sedimentation
- Excessive nutriants, pesticides, high fecal coliforms?

Category:

The Clinton is Category 2: "Causitive Factors are unknown; however, an investigative program is underway to identify causes". (Eventually the river may attain Category 6: "Confirmation that uses have been restored and delisting as Great Lakes Area of Concern").

Suspected Sources:

- Municipal and industrial discharges. Seven municipal wastewater treatment plants and 22 industrial sources discharge treated wastewater and cooling water into the AOC.
- Nonpoint urban runoff. Stormwater runoff in the AOC carries organic material, heavy metals and organic contaminants into the river and construction sites and bank erosion produces siltation.
- Agricultural runoff. Agricultural practices in the area surrounding the north branch of the river result in pesticides and excessive nitrogen being carried into the river.
- Contaminated sediments and groundwater. Sediments in the river are contaminated with PCB and heavy metals. Groundwater beneath municipal and industrial landfills may carry contaminants from the landfills into the river.

Characterizing the Clinton River

Historically, the initial pollution control focus was on bacterial contamination to control water-borne diseases. It has been suggested that high fecal coliforms are no longer a threat to Metropolitan Beach (unless there are other sewer breaks). But the fecal coliform counts do exceed standards and people are swimming in the river. Next the focus was on excessive nutriants because of euthrophication problems spotlighted in Lake Erie. Since the ban of phosphate detergents and upgrading of wastewater treatment plants, there has been a dramatic drop in the phosphorous levels in the Clinton River. The IJC has targeted tributaries to Saginaw Bay and Lake Erie for a phosphorous standard of 0.5 mg/l, half the general standard. Today, the major focus is on toxics. Dredging of the lower Clinton River will remove contaminated sediments for placement in a newly constructed Confined Disposal Facility. To what extent this will solve the contaminated sediments problem remains to be determined. 80% of the river flows are out the spillway, and it shows higher levels of sediment contamination. The extent of sediment contamination on upstream is not well documented. In some places dredging and resuspension of contaminated sediments may not be advisable. In others, burial of the contaminated sediments under newly deposited clean sediment may end the exposure of aquatic life. But on the lower Clinton it cannot be a matter of "let sleeping dogs lie", since there is so much boating activity and churning of the sediments by propellers.

What little fish contamination monitoring has occured has revealed traces of PCB and dioxin, but not excessive amounts. One intensive study of the river along the two Superfund sites - LDI and G&H - revealed no significant toxics in the river; but this was one snapshot in time.

Causes of the degraded biota are not unknown; there are several possibilities. Fish have returned to the river, but this depends on stocking not natural reproduction, an indication that while the river water quality is much better it is still not good.

The river flow plays a critical role in water quality. At drought flows, to which pollution control measures are aimed, only 15% is groundwater and tributary flows; 64% is from 7 municipal treatment plants, and 21% is industrial discharges largely non-contact cooling water.

The Clinton is typical of an urban river. When it's raining, because of development in watershed, there are much higher flows than for a natural watershed. When it's not raining, there are reduced base flows.

Topography also plays a critical role. The Clinton watershed divides into two halves. Roughly Oakland County is glacial morraines (hilly, sand and gravel soils, well defined stream drainage). Macomb County is glacial lake bed (flat, clay soils, poor drainage). As the river flows out of Oakland County onto the flat lands the flows slow, sediment drops out, and there is little re-aeration. The watershed soil types account for naturally high total dissolved solids which exceed standards for agricultural irrigation. The areas of clay soils have little infiltration and high runoff, a factor in nonpoint sources contributions.

Past Water Quality Improvements

Water quality in the Clinton River has improved due to the decrease in discharges and construction of new treatment plants. Most of the water supply is withdrawn from the Great Lakes and distributed through the Detroit system to then become municipal and industrial discharges to the Clinton. Seven out of 21 municipal plants which were on the river in the 1960's remain while others were abandoned as municipalities joined the regional collection system with treatment in Detroit. Many industries no longer discharge directly to the river, but into municipal sewers and are controlled through the Industrial Pretreatment Program. Local governments acted during the 1972-77 window of opportunity to seek federal funding for control of combined sewer overflows(CSO), either separating old combined sewers (Pontiac and parts of Mt. Clemens) or constructing retention basins to provide primary treatment-oil skimming, settling and chlorination of any remaining overflows (southern Oakland County and Mt. Clemens). Still the CSO annual loadings to the Red Run and Clinton River far exceed those of the Warren treatment plant with its tertiary treatment capacity.

Public construction projects on the Clinton total $380 million. These were financied by $230 million federal grants, $100 million from local governments (bond issues) and $50 million from the state government. Based on an EPA report to Congress (assuming the Clinton experience reflects the national) when we include operating costs, private pollution control investments and administrative costs, $84 million has been spent annually for pollution control on the Clinton over the past 15 years.

The challenge today is to find answers to the outstanding questions about continuing sources of pollutants to the river. Once the sources are confirmed, additional actions can be recommended.

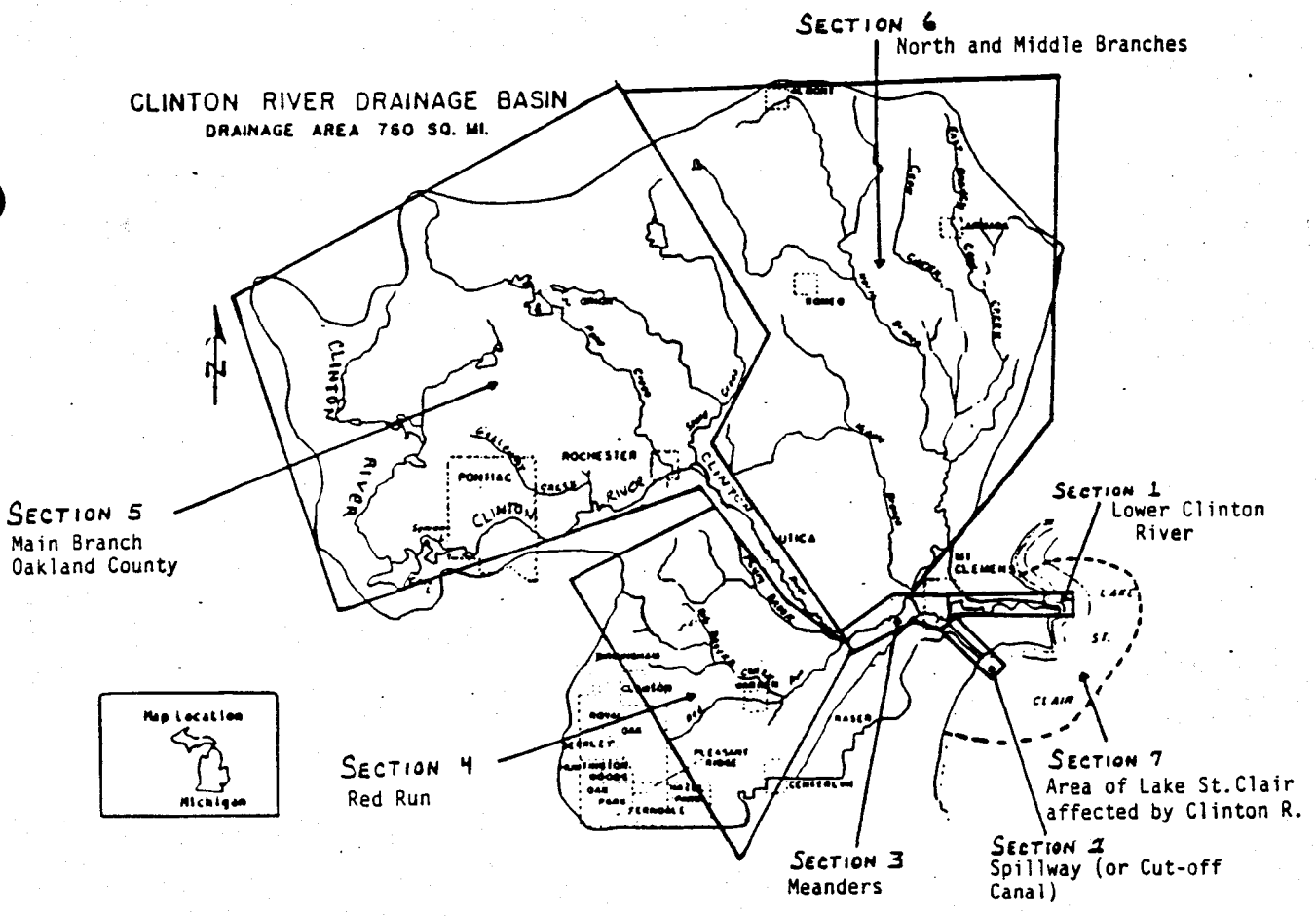
Recommended Actions

The Clinton River RAP includes 23 recommendations. Of these, 15 are for further investigations. Six are action steps, three of which are proceeding.

- Corps of Engineers dredging of the navigation channel below Mt Clemens.
- Complete upgrading of Mt. Clemens and Armada treatment plants.
- Cleanup of contaminated sites (307 and Superfund).
- Remove sediment at Shadyside Park.
- Detect and eliminate illicit connections to storm drains.
- Reduce frequency or eliminate overflows from SOCSDS combined sewers facility.

Two additional recommendations are for Nonpoint Sources management and establishment of a watershed-funded clearinghouse (institutional change).

The following two pages taken from the Clinton River Remedial Action Plan, present the recommended actions.



Clinton River Watershed, showing the six River Sections. Sections 1, 2, and 3 are the Area of Concern. Sections 4, 5, and 6 are the Source Area of Concern.

Table 1.1 Impaired uses, problems, recommendations, cost estimates for proposed actions and possible funding sources, October, 1988.

Local Issues

Impaired Use	Problem	Recommendation	Cost	Funding Source
Warmwater fish	Low D. O. Degraded community	Survey to determine extent of problem	30,000	S
	Low D. O. Degraded community toxicity	Do caged fish study	47,000	S
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays	70,000	S
	Sediment toxicants Poor habitat	Support USCOE dredging	3,000,000	F
	Locally degraded community	Survey to document extent of problem	$ 65,000	S/O
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation	85,000	S/O
	Low D. O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers	$ 25,000	S/F
		Complete upgrading of Mt. Clemens and Armada WWTPs	$23,900,000	S/F/L
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF	Unknown	S/F/L
	Low D. O. Poor physical habitat Toxicants	Do smoke and dye studies for illegal hook-ups	195,000	U
	Low D. O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources	15,000,000	U

Local Issues (continued)

Impaired Use	Problem	Recommendation	Cost	Funding Source
Local fish and benthic macroinvertebrate community degradation	Low D. O. Low Flow	Determine effect of weir modification	200,000	S/L/O
	Diffuse toxicant loadings	Increase air quality monitoring	405,000	S/F
	Local toxicant loadings	Continue and expand 307 and superfund studies	9,000,000	S/F
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas	20,000	S/O
	PCB and other organics in surface water	Monitor water for organic contaminants by river section	22,000 annually	S
	PCB in aquatic environment	Expand fish contaminant monitoring	97,000	S
Sediments block river flow	Low flow Low D. O.	Define source of sediments	400,000	S/O
	Low flow Low D. O.	Remove sediments at Shadyside Park	200,000	L
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues	200,000 annually	L

Great Lakes Issues

Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources	47,000	S
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations	20,000	S
	PCB in water	Sample water for PCB concentrations	22,000 annually	S/F

F = Federal; S = State; L = Local; O = Other; U = Uncertain

Characteristics of a Successful RAP

At a RAP workshop conducted by the IJC participants offered suggestions for successful implementation of remedial actions:

1. A RAP must be based on an ecosystem approach and overcome the fragmentation of governmental responsibilities. Through political processes, responsible federal/state/local governments, must implement policy guided by a perspective of our interrelated ecosystem which extends beyond political boundaries and ecosystem compartments. Institutional mechanisms must be set up which allow all stakeholders to come together to work on common goals and objectives, recognizing their interrelationships.

2. A multidisciplinary RAP development team is needed. Because RAP development will require expertise far beyond traditional water pollution control, a multidisciplinary team was recommended to include, but not limited to, expertise in municipal and industrial wastewater treatment, hazardous waste management, dredging and remediation of contaminated sediments, land use planning, and recreation.

3. Public participation/education are essential: The public has the most to gain and the most to lose. They must be involved from development through implementation to be able to generate and sustain the broad community support necessary to fully implement RAP's. The public has the power to keep political decision makers "feet to the fire".

4. Local ownership of RAP: For a RAP to be successful, it cannot be an IJC, U.S. Environmental Protection Agency, or a Michigan RAP. It must be a RAP owned by local residents.

5. Implementation will require a formal institutional structure: To ensure implementation of remedial actions consistent with an ecosystem approach, a formal institutional structure will be required with broad-based representation.

6. RAP maintenance will be necessary: The RAP process is being viewed as iterative, where RAPs are updated or improved based on new data or technologies. Therefore, a mechanism will have to be established for periodic RAP maintenance until all beneficial uses have been restored.

7. A long-term commitment to research is important. It was pointed out that where we have the most complete data bases and greatest understanding of Areas of Concern, we have a long history of research. Long-term commitment to research by government and universities is viewed as essential.

8. Realistically, we must build a record of success to keep momentum going on RAPs. For most Areas of Concern, people developing the RAP are: (1) identifying short-term remedial actions to build a record of success; and (2) undertaking long-term strategic planning to acquire the necessary data to be able to identify remedial actions for more complex problems (e.g. contaminated sediments).

From: "Remedial Action Plans: A Great Lakes Program Whose Time Has Come"
John H. Hartig
Environmental Scientist
International Joint Commission

Clinton River RAP #2

The Remedial Action Plan 1990

Progress in Implementing the Recommendations

The Clinton River RAP #1 provided background information on the listings of the 42 Great Lakes Areas of Concern, the Remedial Action Planning process, and the Clinton River Remedial Action Plan (RAP) forwarded by the Michigan Department of Natural Resources to the International Joint Commission in November 1988.

The Clinton River RAP presented 23 recommendations for further data collection to determine the causitive factors for the problems in the lower river and actions to remedy these problems. The one problem presented by the Clinton River from the perspective of impacting the Great Lakes is PCB's. The other problems relate to impaired uses of the Clinton River itself.

PCB's are persistent substances which bioaccumulative through the food chain to reach elevated concentrations in fish and wildlife and humans who eat the fish. Recent studies reveal troubled bird species at the top of the Great Lakes food web; defects correlate with high concentrations of PCB's in the birds although the causitive mechanisms remain to be established. A study of women accustomed to eating 2-3 meals per month of fish from Lake Michigan suggests statistically significant physical and mental impairments of their infants correlating with the levels of PCB's in the mothers.

The Clinton River Watershed Council received a grant of federal funds through the MDNR to facilitate public participation in the Clinton River RAP over the past year. The Council has been assisted in the public participation activities by a re-activated Friends of the Clinton River based in the Area of Concern. Meetings on the Clinton River RAP have also been conducted by East Michigan Environmental Action Council and the Clinton River Cleanup Committee.

In this second newsletter we will review the progress on the RAP recommendations. Each recommendation is related to an **impaired use** and a **specific problem.**

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Impaired Use	Problem	Recommendation
Potential fish consumption advisories	PCB in fish	Do caged fish studies to determine local PCB sources
PCB in aquatic life derived from sediments or water	PCB in sediments	Sample sediments for PCB concentrations
	PCB in water	Sample water for PCB concentrations
Potential local & Great Lakes PCB contamination of fish	PCB in sediments	Verify presence or absence in previously reported areas
	PCB and other organics in surface water	Monitor water for organic contaminants by river section
	PCB in aquatic environment	Expand fish contaminant monitoring

Progress

Because of the contaminated sediments in the lower river, the Clinton has been listed along with other Michigan rivers on the state's list of contaminated sites developed under the state Act 307 (1982), the Michigan Environmental Response Act. In 1988 voters authorized bonding to hasten cleanup of the sites of contamination. The DNR was able to obtain $120,000 for the following specific tasks:

1. Additional sediment and water sampling to define the distribution extent, and potential sources of PCB contamination. At least 30 samples would be collected and analyzed for PCB's. The cost for this aspect would be $20,000.

2. Sediment and ambient toxicity testing to identify the cause of impaired benthic communities. Approximately 20 samples would be collected. The cost for this aspect would be $40,000.

3. Caged fish study to evaluate PCB uptake in the Clinton River watershed and nearmouth area in Lake St. Clair. A total of 7 stations are proposed. The cost for this aspect would be $30,000.

4. Determine feasible remedial alternatives, evaluate their environmental effectiveness and develop cost estimates for each alternative. The cost for this aspect would be $30,000.

The caged fish study was completed in 1989. The sediment and water samples were completed in the summer of 1990. We are awaiting the results of the laboratory analyses and the project report.

Because detectable levels of PCB's have been found in Clinton River fish and because species of fish which migrate back and forth between the Clinton River and Lake St. Clair have previously had a fish consumption advisory in Lake St. Clair but not in the river, this year for the first time, the Michigan Department of Public Health included in its **Fish Consumption Advisory carp** from the Clinton River mouth upstream to the Yates Dam at the Macomb County/Oakland County line.

Impaired Use	Problem	Recommendations
Benthic macroinvertebrate community degradation	Sediment toxicants	Do sediment bioassays
	Sediments toxicants	Support USCOE dredging
	Poor habitat	
	Locally degraded community	Survey to document extent of problem

"Benthic macroinvertebrate community" is the little critters that inhabit a stream and provide food for the fish. "Benthic" means bottom dwelling organisms that crawl upon or attach themselves to the river bottom. "Macroinvertibrates" means those that can be seen by eye; most are aquatic insects. A diversity of types indicates clean water. When there are relatively few types (or only one such as sludge worms) this indicates that only pollution - tolerant types are surviving. Since many live in the river over a year and cannot escape pollution as fish may, these little critters provide a bottom line indication of the water quality.

A degraded community can result from several factors: toxicants in the water or sediments; low dissolved oxygen sedimentation which smothers bottom life; high flows which scour the stream bottom; water temperature and food supply variations.

Progress

The Corps of Engineers (COE) has been dredging a federal navigation channel from the mouth of the Clinton River to Mt.Clemens since the mid 1800's. Since the mid-1970's it has been known that the sediments in this part of the river were contaminated with PCB's, heavy metals, oil and grease. And since then it has been required that dredging spoils be placed in a Confined Disposal Facility (CDF) and no longer placed in the waters of Lake St. Clair. Construction of a CDF on surplus lands at

Selfridge Air Base was completed last year. The dredged sediments from any project on the river, including private marina developments for example, may be disposed in this CDF (for a price).

It has been concluded that **continued Corps of Engineers dredging** will provide a way to remove the contaminated sediments from the aquatic environment to lessen the food chain uptake and contamination of fish. Dredging of the Clinton River is on the Corps schedule for 1991 (late summer). However, this is not "air tight" because of the federal budget crunch.

This may be the last time the federal government will finance dredging on the Clinton River. It has been suggested that people should start thinking about other ways to finance future river dredging.

There have been efforts to eliminate dredging in rivers used only for recreational purposes; so far the Clinton has retained its "commercial" label, but current priorities for dredging are for cargo hauling rivers.

Impaired Use	Problem	Recommendations
Warmwater fish	Low D.O. Degraded community	Survey to determine extent of problem
	Low D.O. Degraded community toxicity	Do caged fish study
Local fish and benthic macroinvertebrate community degradation	Locally degraded community	Survey to determine sources of oxygen consuming substances for waste load allocation
	Low D.O. Poor physical habitat Poor flow regime	Waste load allocation for Clinton River point source dischargers
		Complete upgrading of Mt. Clemens and Armada WWTP's
		Reduce frequency or eliminate overflow to Red Run from SOCSDS/PCF

Progress

Upgrading of the Mt. Clemens and Armada Wastewater Treatment Plants has been completed.

Point source dischargers to the Clinton River are in substantial compliance with their NPDES permits. There are

7 municipal wastewater treatment plants (Warren, Pontiac, Mt. Clemens, Rochester, Romeo, Armada, Almont) and 27 industrial discharges (primarily non-contact cooling water and stormwater).

Municipal treatment plants are expected to regulate and monitor any industrial discharges to the municipal sewers. This is to control discharges of toxic substances to the sewers which might cause **upsets** of the treatment processes, **pass-through** of the toxics to the river, high concentrations, of toxic heavy metals in the **sludge**, or **damage** to the sewer pipes.

Some concern remains regarding effectiveness of the Industrial Pretreatment Programs. The DNR approves the Municipal Industrial Pretreatment Program and conducts periodic audits or pretreatment compliance inspections. Pass-through of PCB's is a concern.

Based on the Upper Great Lakes Connecting Channels Study of municipal dischargers to Lake St. Clair, of greatest concern were the Wallaceburg WWTP, the Mt. Clemens WWTP and the Warren WWTP. Trace organics, heavy metals, phenols, ammonia and phosphorus were the notable pollutants contributed by these plants. All three received industrial wastewaters as a significant portion of their influent.

Amendments to the federal Clean Water Act in 1987 initiated new programs for control of toxics. States were required to submit a list of Toxic Impaired Waterways and Facilities that cause impairment under Section 304 (1). The Clinton River and Mt. Clemens WWTP (metals) are on the Michigan short list of 17 waterbodies where there are point sources and emphasis on pretreatment or some other individual control strategy is needed beyond the treatment plant technology improvements. The medium list for Michigan has 63 waterbodies affected by point and nonpoint toxic sources, including 30 miles of the Clinton River from Yates Dam to the mouth (PCB's - unknown sources). The Michigan long list has 258 waterbodies where water quality standards violations occur due to non-toxic as well as toxic pollutants. This list adds all stretches of the river where there are municipal treatment plants, (The Main Branch Pontiac to Yates, the North Branch, and Coon Creek, East Branch). The DNR expects to achieve control of toxics through the NPDES permits, using the state water quality standards (Rule 57 for toxics), chemical-specific permit limits, and new requirements for whole effluent toxicity testing.

Section 313 of the 1986 Community Right-to-Know Act (also known as Title III of the Superfund Amendments) requires annual reports of toxic releases to the environment (air, land, water) from industries with 10 or more employees and meeting threshold requirements for amounts of toxic chemicals used. The first toxic inventory report was released

in 1989 based on 1987 emissions data. Michigan ranked #16 among the states. 1% of the reported emissions were to water, 8% to land, and 91% to air.

Point sources are estimated to contribute 17% of the pollutants to the Clinton River; 83% are from nonpoint sources. The contribution from sites of contaminated groundwater is unknown.

The Clinton is an effluent dominated river at draught flows with 15% of the flow from natural sources (tributaries and groundwater), 64% from municipal treatment plants, and 21% industrial discharges, mostly non-contact cooling water.

The South Oakland County Sewage Disposal System (SOCSDS) is a **combined sewer** system in which both sanitary sewage and stormwater are conveyed in a single pipe. Recently developed communities are based on separate sewers for sanitary wastes and stormwater. During significant rainfall the capacity of the combined sewer is exceeded and there are overflows of raw sewage to the stream. In the early days of urban developments it was believed that the stormwater would adequately dilute the sewage to avoid harm: "the solution to pollution was dilution". Overflows from south Oakland County to the Red Run occured virtually every time it rained, perhaps 150 times a year, resulting in badly degraded water quality in the lower Clinton River. The Michigan Water Resources Commission ordered abatement and federal funds were obtained in the early 1970's to construct a pollution control facility (PCF). This is a two-mile long underground retention basin. For all but the heaviest of rainfalls the sewer overflows are captured in the basin and then pumped back into the sanitary sewers when there is again available capacity. The sewer conveys the flows to Detroit for treatment. The number of overflows to the Red Run is now averaging 11 peryear during 15 days. A **primary** level of treatment has been provided when there is an overflow: heavy materials are settled out on the basin bottom, oil and grease are skimmed from the top, and the discharge is disinfected with chlorine.

In 1986-87, the Michigan Water Resources Commission (WRC) developed a state strategy to control combined sewer overflows (CSO's). It involves a <u>two-phase approach</u>: (1) An Interim CSO Control Program that requires optimum operation and maintenance of the collection system to minimize CSO's; and (2) A Final CSO Control Program which will result in the elimination or adequate treatment of combined sewage discharges contining raw sewage and compliance with the Water Quality Standards. The strategy is implemented by specific language incorporated into NPDES permits.

Some Michigan cities are proceeding to plan for CSO control subject to the DNR requirements and schedules, but the City of Detroit and suburban communities on the Detroit sewer system are challenging in court the 30 minute detention time which the DNR has specified for "adequate treatment". The longer the holding period, the larger the volume of water and size/costs of a detention basin.

At the April 26, 1990 meeting of the WRC, the Deputy Oakland County Drain Commissioner appealed to the Commission to amend the Clinton River RAP recommendation for further CSO control at the SOCSDS. He noted that this facility was designed so that the annual loading of pollutants to the Red Run/Clinton River would be comparable to that of a separated storm drain system. He suggested that the RAP comparison of the annual loadings of the SOCSDS/PCF to those of the Warren WWTP also discharging to the Red Run failed to take into account the loadings from the separated storm sewers. The south Oakland communities are still paying for the bonded indebtedness for construction of this facility and the annual operating costs exceed $6 million. WRC review of this facility will occur when its NPDES permit is up for renewal.

In 1988, a Michigan notification and health advisory process was instituted to give public warning when there has been a discharge of untreated sewage. County Health Department officials decide when a release warrants publicizing an advisory.

The federal Clean Water Act embodies a two-pronged approach to controlling discharges. One prong is the technology-based limits on discharges imposed on all facilities. For heavily polluted waterbodies where these basic limits will not result in meeting the water quality standards more stringent permit limits are to be developed. For the more heavily polluted waters states are to develop Total Maximum Daily Loads (TMDLs) - that amount of a pollutant that the waterbody can receive without violating water quality standards. The TMDL is to be implemented by a **wasteload allocation** which apportions the loading among all sources affecting that waterbody, point and nonpoint. The recent requirement for states to compile the 304 (l) lists establishes a means of tracking progress towards meeting water quality standards for both toxics and conventional pollutants.

Since 1984, the Michigan DNR has intended to establish a basin-by-basin approach to issuing the state's NPDES permits on a 5-year cycle. This would facilitate considering all the dischargers to the river at the same time, developing wasteload allocations, and encouraging public participation in permit reviews. However, other priorities (such as catching up with the back log of major permits reissuance) have continued to preoccupy DNR staff time and frustrate implementing the basin approach.

Impaired Use	Problem	Recommendations
(continued)	Low D.O.	Do smoke and dye studies for illegal hook-ups
	Poor physical habitat	
	Toxicants	

Progress

The presence of chemical and human wastes in storm drains is generally a problem, particularly in older urban areas. These result from illicit tap-ins of sewage which should go to sanitary sewers or floor drains from businesses. In Washtenaw County on the Huron River and Wayne County on the Rouge River pollution abatement projects have been undertaken focused on finding and eliminating these illegal tap-ins. The preponderance of the improper waste discharges to the urban stormwater systems has been motor vehicle service facilities.

Oil and grease is one of the contaminants in the Clinton River Area of Concern. Visual observations and reports of spills confirm that oil is a major problem for the lower Clinton River. To date there has been no project to identify the potential sources. EPA is expected to promulgate new permit requirements for urban storm drains in the fall of 1990. A first step in municipal programs to control the quality of stormwater discharges will be elimination of the unknown illegal point source tap-ins. In the case of large facilities, the Michigan Water Resources Commission has been increasingly imposing NDPES permits on storm drains for immediate control.

In Mt. Clemens, 13 storm drains ranging in size from 12" to 54" discharge into the Clinton River. Impact of these drains has not been documented. Seven of these drains have been ranked by MDNR as "high priority" for investigation.

In 1990, a new law was enacted which makes it a misdemeaner to improperly dispose of used motor oil by dumping on the ground or into storm drains. This is stimulating new efforts towards establishment of municipal disposal facilities conveniently located for residents use. Here-to-fore voluntary efforts of environmental groups and service stations have encourage do-it-yourself oil changers to seek proper disposal. In 1990, Michigan also enacted new legislation to help prevent oil spills and provide for more effective cleanup response in case of spills.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Poor physical habitat Toxicants	Enforce Best Management Practices for nonpoint sources

Progress

Reauthorization of the federal Clean Water Act in 1987 introducted a new emphasis on control of **nonpoint sources** (NPS) of pollution. With successful control of point sources (discharges through a specific pipe, from an industry or municipal wastewater treatment plant), the water quality in many rivers including the Clinton is now dominated by pollutants from diffuse sources, washed off by rain water. These "nonpoint" sources include agricultural lands, urban stormwater, construction sites erosion, septics, roadways, etc.. Last year Michigan produced a Nonpoint Pollution Assessment Report and Nonpoint Source Pollution Control Management Plan to be elligible for federal NPS funds. For the first time this year, grants are available for watershed-based projects to plan and implement best management practices (BMP's). Emphasis is on coordination efforts of all agencies and land owners. After approval of a plan, cost-sharing is available for implementation of selected BMP's. A proposal to use funds from the Department of Agriculture focused on agricultural practices to control NPS was submitted in 1990 by the Macomb County Agricultural Stablization and Conservation Service and Soil Conservation Service assisted by CRWC. The North Branch of the Clinton River above 32 Mile Road is the targeted area. A grant was not awarded in 1990, but an application can be again submitted in 1991. EPA funds are also available to local governments for nonpoint source control projects.

CRWC submitted a grant application on behalf of Oakland Township for the Paint Creek Watershed, with work to be initially focused on Gallagher Creek, (a high quality tributary of Paint Creek with brook trout and initial development proposals). Here the objective is to identify and implement BMP's for an urbanizing watershed. A grant was awarded with a project start in October 1990.

Another request for proposals for nonpoint source control grants is expected in the spring of 1991 for FY92 funding. Program emphasis is on watershed-based NPS controls, with planning grants up to $50,000 and implementation grants up to $100,000 per year (10% and 20% minimum local matches are required). Elligible local lead agencies for the NPS grants include county governments, cities, townships, villages, soil conservation districts, regional planning commissions, Lake Boards, and water management districts. FY90 funding for the NPS grants was $1.1 million. The FY91 funding is not yet determined; a number of state research, technical assistance, public information projects are currently being considered.

NPS controls include practices to avoid contamination of **groundwater** as well as surface water. The Kellogg Foundation is funding a number of Groundwater Education in Michigan (GEM) projects, including a three-year grant to the CRWC to work with local governments to establish groundwater protection programs and explore opportunities for intergovernmental coordination between the local/county/state levels. The CRWC work-to-date has focused on plugging the pathways from businesses through which there is potential for release of hazardous and polluting substances: floor drains, improper disposal in septics, secondary containment for above ground and storage areas. A Michigan Groundwater Protection Strategy and Implementation plan (November 1989) incorporates a number of new initiatives including developing the groundwater component of the NPS program, developing an agricultural chemical management program, assisting local government wellhead protection, implementing the underground storage tank program. East Michigan Environmental Action Council is also working with a GEM grant focusing on citizens as leaders in community change for protecting groundwater. East Michigan University has a grant to serve as a southeast Michigan regional center for assistance in groundwater protection. Macomb County Health Department and Oakland County Cooperative Extension Service are assisting in disposal of nousenold hazardous wastes.

Impaired Use	Problem	Recommendation
(continued)	Low D.O. Low Flow	Determine effect of weir modification

Progress

The spillway or cut-off canal was constructed in the early 1950's to relieve the lower Clinton River of flooding. A fixed level weir (dam) was built at the spillway head so that normal flows would continue down the natural channel and high flood flows would overtop the weir into the spillway. However, with a rise in the Great Lakes level the weir has been submerged; this together with the sediment accumulation on the upstream side of the weir providing a ramp has meant that in recent years 80% of the river flows have gone down the spillway. This has been compounded by the deposition of sediment where the river bends and the water slows at the head of the natural channel by Shadyside Park (See recommendation for dredging below). Water quality in the natural channel between the spillway and river mouth has been poor. Low volumes and low velocities down the natural channel are thought to contribute to increased shoaling and low dissolved oxygen in this reach. Indeed, there are times when the river flows are reversed. The drought flows have been established as zero; this impacts the Mt. Clemens WWTP permit limits and costs. The extensive boating interests on the lower river also are concerned about maintaining flow down the natural channel.

Congressman Bonior has obtained $225,000 federal funding for the Corps of Engineers to complete two studies; to determine the benefits of replacing the weir and to research construction designs. An "adjustable" weir would allow setting the height to distribute the river flows appropriately between the natural channel and the spillway.

Impaired Use	Problems	Recommendations
(continued)	Diffuse Toxicants loadings	Increase air quality monitoring

Progress

A 1988 report "Sweet Water, Bitter Rain: **Toxic Air Pollution in the Great Lakes Basin**" concludes that 10 of the 11 IJC identified "critical" pollutants of the Great Lakes find their way to the lakes by way of the atmosphere. The air may be accountable for up to 90% of PCB's entering most of the Great Lakes.

There are current efforts at the federal and state levels to further regulate air toxics. Reauthorization of the federal Clean Air Act is before Congress this year. In 1987, the Michigan Air Pollution Control Commission began a lengthy process to develop an air toxics control strategy and rules to regulate both new and existing sources of toxic air emissions. Proposed rules were approved by the Commission in September and are before the Legislature's Joint Committee on Administrative Rules for further consideration before possible final approval.

Airborne deposition of **mercury** into Michigan's **inland lakes** has been recently documented, leading to a fish consumption advisory.

Mt. Clemens was one of seven stations across Michigan where the DNR collected data on **acid rain** from 1981-1985. The average acidity of rainfall over the year at Mt. Clemens ranged from 20 to 50 times the acidity of unpolluted rain, as high as any place in the state. 32x(1981), 20x(1982), 20x(1983), 50x(1984), 40x(1985).

Sources of airborne pollutants to the Clinton River or the Great Lakes range widely, indeed world-wide.

For the past couple of years, a consultant under contract to the United States Environmental Protection Agency has been involved in conducting a **study of air pollution in the Michigan/Ontario transboundary area.** The consultant has been working on estimating emissions of air pollutants: primarily in the Detroit-Windsor and Port Huron-Sarnia areas. Using these emission

estimates, the consultant is conducting dispersion modeling to estimate concentrations of pollutants. Those concentration estimates will then be used to estimate risk from air pollution in the trans-boundary area. Once this report is available we can see whether the information allows conclusions about the water impacts in the Areas of Concern.

Impaired Use	Problem	Recommendation
(continued)	Local toxicant loadings	Continue and expand 307 and superfund studies

Progress

The Michigan Environmental Response Act, (P.A. 307,1982) requires the annual listing of sites of contamination. This "307 priority list" provides the basis for allocation of cleanup funds each year. In 1988, Michigan voters approved the Quality of Life Bond Proposal which allocates $425 million additional funds to hasten cleanup of contaminated sites. Federal funds are also available through the "superfund" program for cleanup of Michigan sites that are on the National Priority List. Private funding from Responsible Parties is either used immediately for privately undertaken cleanups, obtained through agreements following site investigations and a decision on the appropriate cleanup action,or recovered through litigation following a public undertaking of the cleanup. Enactment of a "Polluters Pay" bill in Michigan will provide additional enforcement powers to hasten cleanups.

The FY91 307 list (February 1990) includes 77 listed sites in Macomb County and 119 sites in Oakland County. Of these 144 are in the Clinton River Watershed. There are four NPL "superfund" sites in the watershed. This past year there were 97 new sites listed in Macomb and Oakland almost entirely leaking underground storage tanks at retail gas stations or facilitites operating fleets of vehicles eg. (businesses, municipal DPW's, schools).

In the worst cases, years of investigations may be required before cleanup can be agreed to and proceed. Hence, in the early years of the federal and state cleanup programs few listed sites have actually been cleaned up, but remain in various stages of investigations. As the program matures there will be an acceleration of actual cleanups. In cases where the contamination has reached the groundwater, many years of groundwater purging may be involved.

To date, there has not been documented any impact of contaminated groundwater on the Clinton River. But the only effort to examine this question was a 1984 study of the river stretch between the LDI and G&H superfund sites. The recommended remedial actions at both these sites include groundwater purging to reduce the concentrations of groundwater contaminants so there will not be unacceptable releases to the river.

Impaired Use	Problem	Recommendation
Sediments block river flow	Low flow Low D.O.	Define sources of sediments

Progress

Sediment deposits occur throughout the river system but especially in Macomb County where there is the glacial lakebed plain. As the land flattens, the water flow slows down and suspended sediments settle out. By volume, sediment is the major nonpoint pollutant.

Sources of sediment include natural erosion, erosion from construction sites and farmlands, scouring of the stream banks, especially in a watershed where urban development has increased the runoff flows. Soil type and runoff velocity are major factors in erosion. Velocity of runoff is related to the slope of the ground. Sand will usually erode first, clay particles being more cohesive. But the finer clay particles will stay suspended in the water longer.

Erosion (detachment of soil particles) is the **first** step of the sedimentation process. Following steps are **transport** (movement in water), **deposition,** and **resuspension.**

Suspended Sediment in a stream clogs the gills of fish, covers spawning areas so there is not fish reproduction, reduces sunlight available to aquatic plants. Deposited sediments can accumulate in ditches, culverts, and shoals which impede river flows and boating. It has been estimated that 1¢ invested in erosion control would accomplish $1 of effort in maintenance of drainage systems and dredging of river channels.

Given the repeated public expenditures for dredging the lower Clinton River, maintenance of the spillway and Red Run Drain, dredging at Shadyside Park, a study to define sources of sediments and identify appropriate control measures is a priority. Control measures might include better enforcement of the Michigan Soil Erosion and Sedimentation Control Act on construction sites; promotion and installation of BMP's for erosion control on agricultural lands, river maintenance work to stabilize stream banks, design of development site stormwater facilities and municipal stormwater management programs to prevent erosion at the source (eg. management of vegetative cover) or capture sediment close to the source (eg. sediment basins, traps).

In 1990, faculty of the Wayne State University Department of Geology submitted a research proposal for the Michigan Great Lakes Protection Fund for a two-year geochemical study. Because the sources, fate, and environmental impact of sediment bound metals have yet to be determined, this study would (1) document the basic physical, chemical and mineralogical properties of the river sediments which would help identify sources; (2) document specific forms of heavy metals present; (3) test the hypothesis that heavy metal concentrations are greater downstream than upstream of urban areas; (4) test the hypothesis that the Clinton River is impacting Lake St. Clair with sediment bound heavy metals.

In December of 1988, a report on the "Upper Great Lakes Connecting Channels Study" was published. This report is based on extensive data collection in 1985-86. This study found that heavy metals and phosphorus in sediment discharges from the Clinton River to Lake St. Clair were of concern as well as PCB's. This contradicts the Clinton River RAP statement that the only substance of concern to the Great Lakes from the Clinton River is PCB's.

Impaired Use	Problem	Recommendation
(continued)	Low flow Low D.O.	Remove sediments at Shadyside Park

Progress

During 1990, the Clinton River Inter-County Drainage Board (ICDB) reached agreement on a new apportionment of costs and drainage district tax levy to finance continued operation and maintenance of the Clinton River Spillway. This drainage district was established following a large flood on the Clinton in 1947. The drainage district was the entire Clinton River Watershed. The Board then served as the local sponsoring agency for the Corps of Engineers construction of the Spillway in the early 1950's. Since the original apportionment of costs among the local/county/state governments was established in 1950 significant land use changes have occured which affect the determination of benefits from flood relief and contributions of flow to the river. The initial levy financed construction costs and maintenance costs until several years ago.

The 1990 levy will finance 10 years of maintenance work including removal of the accumulated sediments at the spillway weir. Laboratory analysis for the ICDB found the sediments to be not so contaminated as to require disposal in the Confined Disposal Facility. This means considerable cost savings for the dredging. This area has been dredged twice before following ten-year intervals of sediment accumulation.

Impaired Use	Problem	Recommendation
Clinton River ecosystem	Disjointed watershed approach	Establish a watershed funded clearinghouse for studies, information, and issues

Progress

In 1987, a Michigan Great Lakes and Water Resources Planning Commission presented "Water Resources for the Future: Michigan's Action Plan". This plan recognized the fragmented governmental scheme with water management responsiblities distributed among a myriad of agencies at the federal, state, regional, county, local levels and in the private sector. The plan also recognized that water flows freely from one political jurisdiction into another, so that water problems can result in one locality from actions in another, demanding solutions involving many jurisdictions in the watershed.

The plan called for water management organized on the basis of the state's major watersheds or river basins. Many of the issues now coming to the forefront especially require a watershed approach - control of nonpoint sources, stormwater management, combined sewer overflows, groundwater protection, waste load allocations, water-based recreation. Some "lead organization" is needed to actively facilitate coordination among the many agencies operating in a river basin, view comprehensively theinteractions among programs, and undertake information and education efforts to build the necessary understanding and political will for improved river management. Specifically, it was suggested that Michigan's enabling laws for a river basin "organization" be reviewed and possibly revised.

The Michigan Clean Water Strategy adopted in 1989 further focused on watershed management with the recommendation that "existing legislation should be amended or new legislation passed to strengthen the authority of watershed organizations". Beginning in January of this year, the Office of Water Resources convened an implementation team to draft appropriate enabling legislation. It is expected that draft legislation will be ready for introduction early in the 1991-92 session of the legislature.

Global Great Lakes Progress

"Think globally...act locally"

The Great Lakes Water Quality Agreement between the United States and Canada is based on two guiding principles which are revolutionary solutions to water quality problems:

- the ecosystem approach
- virtual elimination and zero discharge of persistent toxic substances

The **ecosystem** is defined as "the interacting components of air, land, water and living organisms including humans within the drainage basin". Political boundaries are meaningless in this approach.

Very small quantities of **persistent toxic substances** can have significant adverse effects. In quantities so low that they cannot be measured in the water, they are stored in the fatty tissue of fish and can **bioconcentrate** to levels one million times higher than in the water. When wildlife or humans eat the fish the toxic substances can further **biomagnify** up the food chain.

Thus, discharge permits which impose nondetectable limits on toxics and which are based on avoiding harmful concentrations at the point of discharge do not adequately control the toxic effects in the Great Lakes. The need to avoid all contamination from persistent toxic substances is especially critical in the Great Lakes because of the long period of time water stays in the lakes before being flushed out.

An IJC Committee which reviewed the Clinton River RAP observed "the RAP cites most of the ecosystem components, but does not tie them together in a comprehensive manner". Overcoming the disjointed approach remains as a challange for all interested in advancing the Clinton River Remedial Action Planning and concerned for the Clinton River ecosystem health.

A number of citizen organizations around the Great Lakes are forming a Zero Discharge Alliance to work towards ending the use, production, and, thus, the disposal of persistent and bio-accumulative toxic substances.

The International Joint Commission is beginning public discussion on turning "zero discharge" from rhetoric to reality.

This year, Governor Blanchard issued an Executive Order directing all state government agencies to manage water pollution control programs with the goal of virtual elimination of persistent toxic pollutants. The order

requires the DNR to administer the discharge permit program so that all permits for sources in a watershed are reviewed together. The order also calls for establishment of air toxic rules to reduce loadings to the Great Lakes. And it requires each state agency to conduct programs so as to accomplish Michigan's responsibilities in implementing Remedial Aciton Plans.

The Congress is considering a Great Lakes Critical Programs Act which codifies features of the Great Lakes Water Quality Agreement with Canada, set deadlines for Remedial Action Plans, and increases funds for the EPA Great Lakes Program.

Summary

The Clinton River Remedial Action Plan(1988) includes 23 recommendations. Of these, six are for specified actions and 14 call for investigations to provide information for further decision-making.

Six specified actions:	**Status**
• Upgrading of Mt Clemens and Armada WWTP's	Completed
• Sediments removal at Shadyside Park (spillway)	Completed
• 307 contaminated sites and superfund actions	Expanded
• Dredging by Corps of Engineers	Authorized for 1991, hopefully funded
• Storm drains investigations for illegal hook-ups	No action
• Reduce combined sewer overflows to Red Run	To be reviewed with NPDES permit re-issuance
Fourteen Investigations:	
• Four PCB's sampling efforts	Funded and undertaken by MDNR
• Analysis of spillway weir effects and design of an adjustable weir	Congress has authorized and funded COE work
• Nine other Clinton River studies	Yet to be initiated

Includes fish community study, fish contamination study, sediment bioassays for toxicity, macroinvertibrates survey, sediments investigation (sources/transport/loading), dissolved oxygen analyses (low flow caged fish study, 24-hour water chemistry sampling, waste load allocation), organic contaminants analyses.

Three Programs:	
• Nonpoint sources and erosion control	Underway
• Air quality monitoring	Underway
• Watershed funded clearing-house	Legislation being drafted

Clinton River RAP #3

The Remedial Action Plan 1993

The Clinton River RAP #1 newsletter provided a brief history of the Areas of Concern and the Remedial Action Plan programs, as well as a summary of the 1988 RAP. The Clinton River RAP #2 detailed progress that had been made in implementing the recommendations of the RAP. In this edition of the Clinton River RAP newsletter, the current status of the 14 beneficial use impairments will be presented, along with the new look and focus of the PAC, and a look at upcoming work on the RAP.

While RAP in our jargon stands for Remedial Action Plan, it can also stand for our ultimate goal: **Restore And Protect.**

What are RAPs and where do they come from?

This brief description of the RAP program should help de-mystify some of the commonly used jargon, and describe the AOC and RAP participants. Acronyms tend to abound in governmental activities and programs. Newcomers or outsiders to these processes can quickly become awash in an incomprehensible sea of alphabet soup.

The International Joint Commission (**IJC**) was established by the Boundary Waters Treaty of 1909, which specified the rights and obligations of the United States and Canada in regards to the lakes and rivers on their common boarder. The U.S. and Canada have designated 43 of the most heavily polluted areas in the Great Lakes basin as Areas of Concern (**AOCs**). The Clinton River is one of the 43 designated AOCs. Under terms of the 1978 Great Lakes Water Quality Agreement (**GLWQA**), as amended in 1987, each of these AOCs must have a Remedial Action Plan (**RAP**) prepared and implemented. A RAP is essentially a site-specific plan to restore and protect beneficial uses in the AOC (the GLWQA lists 14 potential impairments to beneficial uses).

The U.S. Environmental Protection

(Continued on page 2)

Clinton River PAC reorganized

The Clinton River Public Advisory Committee (PAC) was reorganized recently to begin the next phase of work on the RAP. There are now 27 PAC members representing 15 broad interest groups *(see the accompanying table on page 3 for details)*. Representatives are appointed to the PAC by the director of the Michigan Department of Natural Resources. Each member is responsible for ensuring that the views of their interest group are represented in the RAP process. Relaying information among the RAP participants, their interest group, and the general public is a second responsibility of each member.

The reorganization was made to ensure input from as many user groups in the watershed as possible while maintaining a small core group to make discussions and action easier. The PAC has been charged by the MDNR to provide local input to all facets of development and implementation of the RAP, and to take the lead in RAP-related public education and information.

Two subcommittees have been formed under the PAC. One will develop goals and a mission statement for the PAC. The second will work with public

(Continued on page 3)

DNR

Michigan Department of Natural Resources
Surface Water Quality Division

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What is a RAP

(Continued from page 1)

Agency (**EPA**) has designated the Michigan Department of Natural Resources (**MDNR** or **DNR**) as the lead agency for the Clinton River RAP and all other Michigan RAPs. The Surface Water Quality Division (**SWQD**) of the MDNR has accepted responsibility for overseeing the RAP process.

RAP participants include a Public Advisory Committee (**PAC**), which is made up of members of the general public, local governments, and local interest groups, and a **RAP Team** (a panel of federal and state experts, and the PAC officers). The article "PAC Reorganized" beginning on page one contains further details on the PAC, its makeup, and its charge.

The Michigan Statewide Public Advisory Council (**SPAC**) was established to provide the MDNR with a broad public perspective, and as a forum for discussion of AOC program, policies, priorities, public involvement activities, and technical issues relevant to the 14 AOCs. Each of the 14 Michigan AOCs is represented on the SPAC.

Clinton River facts

*The Clinton River Drainage Basin includes about 760 square miles, and portions of four Michigan counties.

*The Clinton River flows approximately 80 miles from its head waters northwest of Pontiac to its mouth at Lake St. Clair near Mt. Clemens.

*The Clinton River flows through 26 townships, 25 cities and 9 villages.

A new look for RAPs?

An annual citizens' conference on Great Lakes AOCs has been held for the past three years. The 1993 Citizens' Conference, sponsored jointly by the SPAC and the MDNR, focused on means to improve the efficiency and effectiveness of the RAP process. Discussions between the SPAC and the MDNR since the conference have lead to the formulation of several specific proposals along these lines. The RAP process has been criticized, focusing on documentation rather than action. Changes proposed by the MDNR and the SPAC will focus on actions and achieving short term goals rather than on a rigid format for a lengthy and complex document.

Regardless of form or format, the goal of the next Clinton River RAP remains the restoration and protection of beneficial uses in the Area of Concern.

Corps completes dredging

The U.S.Army Corps of Engineers has completed dredging of the federal navigation channel in the lower Clinton River. The navigation channel extends from Lake St. Clair upstream about eight river miles to the city of Mt. Clemens. Approximately 99,000 cubic yards of material were removed from this stretch of the river and placed in the Confined Disposal Facility (CDF) near Moores Bend. Placement in the CDF is required due to the contaminant level of the sediments (heavy metals, PCBs, and oil and grease are the parameters of concern). Restrictions on dredging activities is one of the 14 potential impairments to beneficial uses that RAPs must address. For more details see "Beneficial uses" (page 7).

PAC reorganized

(Continued from page 1)

involvement and education issues and programs. Additional subcommittees on financing and institutional frameworks have been discussed as future needs.

A RAP Team has also been formed to facilitate work on the next phase of the RAP. The RAP Team is composed primarily of state and federal experts who will ultimately review the RAP for technical merit and ensure that the recommendations of the RAP are consistent with state and federal programs and policies. The RAP Team will supply the PAC with technical information and serve as a conduit to the state and federal data bases, reports, and pertinent publications.

The actual RAP document will be written by work groups formed jointly by the PAC and the RAP Team. The work groups will have members from both the PAC and the RAP Team, as well as outside experts and interested members of the general public. This process will ensure the maximum opportunity for public input. The number of drafts or revisions of the RAP should be minimal since all groups are involved from the start, and major changes late in the development of the RAP will, therefore, be avoided.

Three work groups have been formed: Point Source-Nonpoint Source, Contaminated Sediments, and Habitat (Loss or Degradation). Each of the work group topics represents a factor that is the cause of

(Continued on page 4)

	USER GROUP	No. Members New PAC	Former PAC
1.	Citizens at Large:	5	7
2.	Environmental Groups:	2	5
3.	Recreational Groups:	1	2
4.	Sportsperson Groups:	1	
5.	Labor Groups:	2	
6.	Business:	2	4 (Business & Tourism)
7.	Industry	2	
8.	Agriculture:	1	2
9.	Waste Water Treatment:	1	
10.	Drain Commissioners:	2	
11.	Planning/Zoning:	1	
12.	Governmental:	4	8
13.	Public Health:	1	2
14.	Education (K-12):	1	2 (Combined)
15.	Education (Higher):	1	
			1 Communications Officer
	TOTALS	27	33

PAC reorganized

(Continued from page 3)

impairment of one or more of the beneficial uses of the Clinton River. The opportunity remains to create new work group topics, or to subdivide current topics into separate work groups if needed.

Participation in the work groups is unlimited. Interest is the only requirement, and all who are interested are invited to become involved in the RAP process through the work groups. A thorough understanding of the issues or a technical background, while helpful, is not required. Many of those already involved are not formally trained. We will all be learning as we go. Background information on the work group topics will be provided through short papers and presentations at upcoming PAC meetings. These meetings are open to the public. Anyone interested in serving on a work group is encouraged to attend these PAC meetings.

For more information on the RAP process or to volunteer for a work group contact:

Robert Sweet
MDNR Surface Water Quality Div.
P.O. Box 30273
Lansing, MI 48909
(517) 335-4182

Bill Smith (PAC Chairperson)
49 Breitmeyer
Mt. Clemens, MI 48043
(313) 468-4028

You may also use the reply page at the back of the newsletter to request information or to become involved in the RAP process.

Exotics-vs-Natives...the battle for habitat

A recent article in the Journal of Great Lakes Research[1] chronicled the introduction of exotic or foreign aquatic organisms to the Great Lakes basin. The authors point out that of the 139 species established in the basin since the early 1800s, shipping activities and unintentional releases account for over half of the introductions. Almost one-third of the species introductions have occurred within the past 30 years, and nearly 10 percent of all introduced species have caused substantial ecological or economic impacts to the resources of the Great Lakes.

As a tributary of the Great Lakes, the Clinton River is not immune from the impact of these invaders. The Clinton contains many well-known (the common carp and chinook salmon) or highly visible (purple loosestrife) exotic species, as well as several that are inconspicuous. Introduced species compete with native species for food and habitat, or prey directly on the native species. Lacking natural controls such as diseases and predators, the introduced species can quickly multiply and overwhelm an ecosystem.

Zebra mussels are one of the newly introduced species in the Great Lakes, arriving most likely in the ballast water of a trans-Atlantic ship. Bill Smith, president of both the Friends of the Clinton River and the PAC, recently reported to the Statewide Public Advisory Council (SPAC) that zebra mussels have been found eight and a half miles upstream of the natural mouth of the

(Continued on page 5)

[1]Mills, E.L., J.H. Leach, J.T. Carlton, and C.L. Secor. 1993. Exotic species in the Great Lakes: A history of biotic crises and anthropogenic introductions. Journal of Great Lakes Research 19(1):1-54.

Exotic Species...

(Continued from page 4)

Clinton. The Oakland Press has reported that zebra mussel larvae have been found in one of the head water lakes of the Clinton River. This is especially alarming because the Clinton is also home to several species of fresh water clams, or mussels, that are rare or endangered. Zebra mussels have been implicated in the reduction of native mussel populations in the Detroit River. Some experts are predicting the elimination of all native mussel species in the Detroit River within the next year. Zebra mussels are also suspected of causing the drastic reduction in young walleyes in Lake St. Clair. Zebra mussels will quickly become a nuisance in the downriver area by fouling surfaces and clogging water intakes.

Boaters may unintentionally spread zebra mussels from the Great Lakes to inland or upriver areas. The larvae, or veligers, can be transported in bilges, live wells, or any trapped water. Adults may be attached to aquatic plants which often hang on trailers during launching and loading. This may also spread Eurasian milfoil, an exotic nuisance plant that is spreading quickly. Boaters can help slow the spread of zebra mussels and milfoil through precautions such as draining and disinfecting boats and trailers when moving between waterbodies, and by using extra care when transporting bait fish from one waterbody to another. Contact your Michigan Sea Grant Extension Agent for more information on what you can do to help. In the Clinton River area contact:

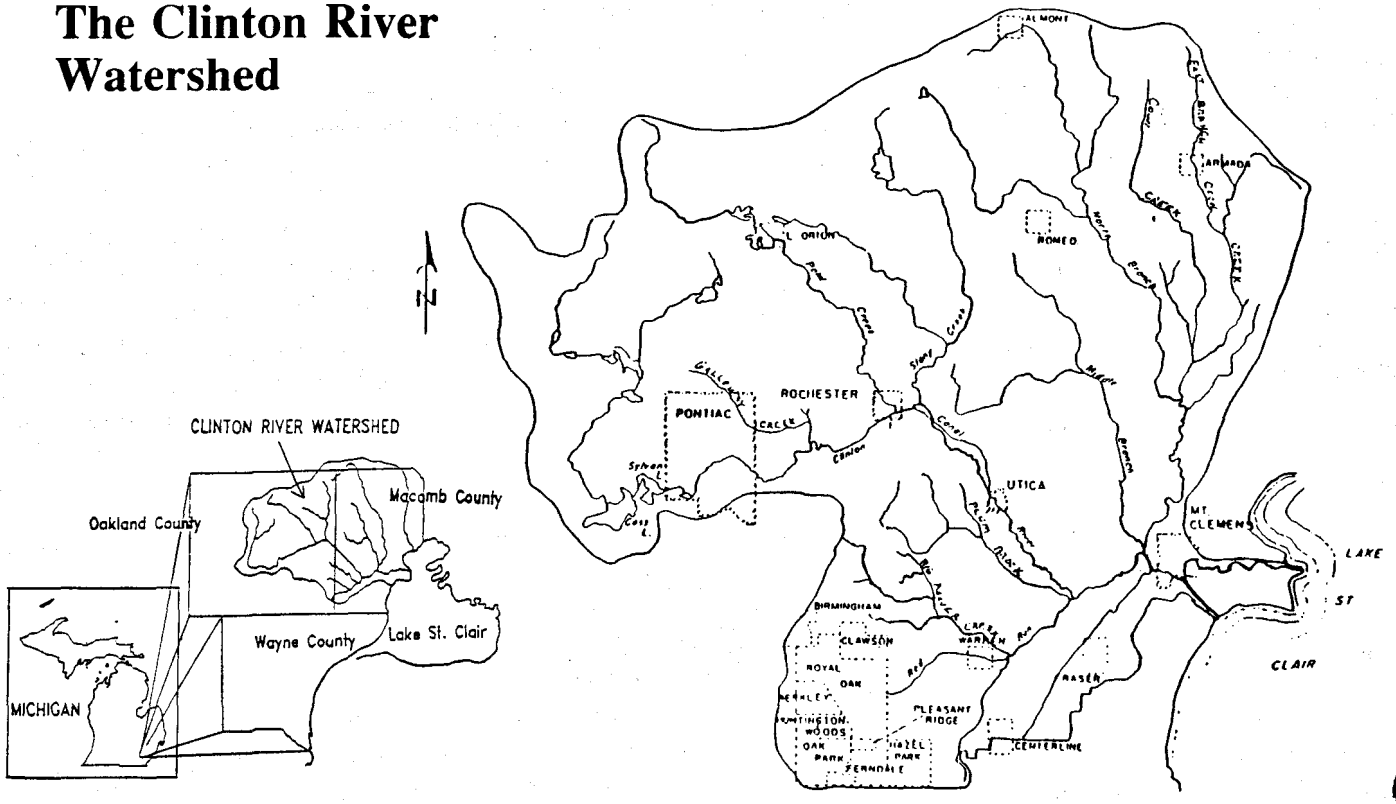
Steve Stewart, Michigan Sea Grant
21885 Dunham Rd.
Mt. Clemens, MI 48043

Sea lamprey are another well known exotic species. Sea lamprey are primitive eel-like fish with specialized sucker mouths. The adults feed by attaching to fish, rasping a hole with their bony tongue and gorging on the blood and tissue. While large healthy fish are able to withstand an occasional attack, the attacks are usually fatal to small or weakened fish. Sea lamprey predation and over-fishing have been cited as the two main causes of the collapse or extinction of several fish populations in the upper Great Lakes.

Sea lamprey populations have been somewhat controlled for many years with chemical treatments. Lamprey, like salmon, spawn in swift gravel-bottom streams. The larval lamprey burrow into the stream bottom were they remain for four to five years feeding on organic material. It is this larval stage that is most susceptible to chemical treatment. TFM, a chemical that is deadly to larval lamprey but harmless to most other species, is applied to known spawning streams every four years. This control strategy was effective for many years. However, the number of sea lamprey in the Great Lakes has increased in recent years. One of the causes of this increase is, ironically, improved water quality. Streams such as the Clinton River which in the past were too polluted for the sea lamprey are now available as lamprey spawning streams. Sea lamprey larvae were found during a recent fish survey of the Clinton.

Even as the need for expanded chemical treatments and sea lamprey research increases, the budget for these activities has been shrinking. Federal budget reductions may deal yet another blow to the ailing sport fishery of the Great Lakes.

The Clinton River Watershed



The CRWC and PAC support

The Clinton River Watershed Council (CRWC) was established in 1971 under the Michigan Local River Management Act. The CRWC has been widely recognized for its efforts on the Clinton River, and has served as the model for similar organizations throughout Michigan.

The CRWC has been a strong supporter of the RAP program and was actively involved in the development of the 1988 Clinton River RAP. The CRWC received grants from MDNR/EPA for the organization and support of a RAP Public Advisory Committee (PAC) in 1989 and for support of this PAC in 1993.

The 1993 grant also contained funding for public outreach and education projects. The CRWC will also prepare four issue papers for the PAC as part of this grant. The PAC selected the topics of these papers at the June meeting. The topics are, Contaminated Sediments, Point and Nonpoint Sources, Habitat, and Public Involvement. Presentations of these issues will be made to the PAC at upcoming meetings by guest speakers. These meetings are open to the public, and all who are interested are encouraged to attend. A schedule of the presentations and speakers is not yet available.

Nongame wildlife needs your help

Besides the rare and endangered mussels mentioned in a previous article, the Clinton River is home to several other species of concern as well as many other nongame species. Nongame species are those that are neither hunted, trapped, or fished. Nongame wildlife includes common species from song birds to salamanders as well as rare species such as eagles and loons. The nongame species usually account for 80 percent or more of the species in a given area.

Money from the sale of hunting and fishing licenses and a tax on hunting and fishing gear is used to purchase, enhance, and protect habitat for game species. These projects also benefit nongame species, but direct funding for nongame animals is very limited.

One way you can support nongame wildlife and unique habitats is through contributions to the Nongame Wildlife Fund on your Michigan income tax form, or send your check made payable to "Nongame Wildlife Fund" to:

MDNR/Natural Heritage Program
Wildlife Division
P.O.Box 30028
Lansing, Michigan 48909

Money from this fund is used for the protection and restoration of habitat, research, and public information and education.

Beneficial uses and the Clinton River

The 1987 amendments to the GLWQA contain 14 potential impairments to beneficial uses with which to judge the conditions in an AOC. These use impairments and a short definition of each are shown in the first two columns in the table on pages 8 and 9. The potential impairments to beneficial uses are somewhat vague and open to interpretation. For instance, if there are no beaches in the AOC can the use impairment "Beach Closings" exist? Or, are high bacteria concentrations in the water sufficient reason to list this as a use impairment? This must be decided point by point for each AOC, but must remain consistent with the listing guidelines (column two of the table).

The original Clinton River RAP was substantially completed prior to the authorization of the 1987 amendments. Therefore, it did not delineate problems in terms of these 14 use impairments. The PAC and RAP Team will soon be deciding definitions and the status of the 14 beneficial use impairments specific to the Clinton River AOC. The following table summarizes information from the 1988 RAP and other sources, and will be the starting point for our discussions. Blank spaces in the table denote either the lack of information or areas where opinions significantly differ. This table is not all-inclusive. It was developed primarily from information in the RAP files in Lansing. If you have additional information or a differing opinion, please use the reply page at the end of this newsletter.

Current Status of the Impaired uses of the Clinton River

Use Impairment	Listing guideline	Status	Reference	Cause/Source
Restrictions on Fish and Wildlife Consumption	When contaminant levels in fish or wildlife populations exceed currents standards, objectives, or guidelines, or public health advisories are in effect for human consumption of fish or wildlife. Contaminant levels must be due to input from the watershed.	Impaired. Public Health fish consumption advisory in effect for all carp caught downstream of Yates dam.	1993 Michigan Fishing Guide	Cause: PCBs Suspected source: Nonpoint Sources
Tainting of Fish and Wildlife Flavor	When ambient water quality standards, objectives, or guidelines, for the anthropogenic substance(s) known to cause tainting, are being exceeded or survey results have identified tainting of fish or wildlife flavor.	Not impaired.	Non-scientific Angler survey 1993. Two of 68 respondents reported off flavor. Both also fished other locations and did not specify that these fish came from the Clinton River.	
Degraded Fish and Wildlife Populations	When management programs have identified degraded fish or wildlife populations due to a cause within the watershed, or when bioassays confirm significant toxicity from water column or sediment contaminants.	Warm water fishery judged impaired.	Joint Fisheries/RAP workshop on habitat in AOCs, Fish. Tech. Report, and draft Fisheries Management Plan (1989).	Urbanization/Land use Impoundment Point Sources Nonpoint Sources
Fish Tumors or other Deformities	When the incidence rates of fish tumors or other deformities exceed the rates at unimpacted control sites or when surveys confirm the presence of neoplastic or prenoplastic tumors in bullheads or suckers.	Not impaired.	Popular literature contains several reports of tumors on walleye and northern pike.	Reports of tumors are due to Lymphosistys a common viral disease of both fish and not due to contamination.
Bird or Animal Deformities or Reproductive Problems	When surveys confirm the presence of deformities or reproductive problems in sentinel wildlife.		Literature review found no studies of deformities or reproductive problems in Clinton River basin.	
Degradation of Benthos	When the benthic macroinvertebrate community structure significantly diverges from unimpacted control sites or when sediment toxicity is significantly higher than controls.	Several sites have been surveyed. Benthos quality ranges from excellent to poor, generally being better in the upper reaches of the watershed. Impaired.	Strayer (1980), and several SWQD Reports.	Cause: Sedimentation, and low oxygen levels. Source: Point-Nonpoint Sources

Current Status of the Impaired Uses of the Clinton River (continued)				
Use Impairment	**Listing Guideline**	**Status**	**Reference**	**Cause/Source**
Restrictions on Dredging Activities	When there are restrictions on Dredging or Disposal due to contaminant levels in the sediments.	Sediments from navigation channel require confined disposal. Impaired.	EPA Dredged Materials Disposal Guidelines exceeded.	Cause: PCBs, Heavy Metals, and Oil and Grease Source: Point-Nonpoint Sources
Eutrophication or Undesirable Algae	When there are persistent water quality problems attributed to cultural eutrophication.			
Restrictions on Drinking Water Consumption or Taste and Odor Problems	When treated drinking water: 1) exceeds standards, objectives, or guidelines for disease organisms, hazardous/toxic chemicals, or radioactive substances, 2) taste and odor problems are present, 3) treatment required for raw water is beyond the standard treatment for the Great Lakes area.			
Beach Closings	When waters commonly used for full or partial body contact recreation exceed the standards, objectives, or guidelines for such use.	No beach closings since 1983. Combined Sewer Overflows reported in 1992.	1992 305(b) report, County Health Department records.	
Degradation of Aesthetics	When any substance in water produces a persistent objectionable deposit, color, turbidity, or odor.		No documented reports of aesthetic impacts from poor water quality, 1988 RAP.	
Added Cost to Agriculture or Industry	When additional treatment is required prior to use.	Due to Natural Causes (TDSs) not remediable.	1988 RAP	
Degradation of Plankton Populations	When populations significantly differ from unimpacted control sites.	Current status unknown, but expect some recovery from degraded levels last reported.	Biological Survey of the Clinton River Pontiac to Mouth. MDNR 1973.	
Loss of Fish and Wildlife Habitat	When fish and wildlife management goals have not been meet as a result of loss of habitat due to perturbation of the physical, chemical, or biological integrity.	Habitat limited by low Dissolved Oxygen levels, sedimentation, loss of wetlands, and high gradient areas and migration routes impacted by dams.	Fisheries/RAP Workshop Habitat in AOCs, Fisheries Tech. Report, and draft Fisheries Management Plan	Urbanization/Land use Impoundment Point sources Nonpoint Sources
Other	Please use the reply page at the back of this newsletter to inform us of any additional use impairments of the Clinton River.			

RAP recommendations 1988-1993: 5 years of progress

The 1988 RAP contained a list of 23 recommended actions. The recommendations included remedial actions, research or data needs, and one institutional arrangement. Many of the recommendations have been completed, and work has begun on most of those remaining. Details of this progress is chronicled in the Clinton River RAP #1, and #2 newsletters, and RAP progress reports. Copies are available from the RAP Coordinator or the Clinton River Watershed Council (use the reply page at the back to request information).

The condition of the Clinton River has improved drastically over the last 30 years. The Clinton was known as a dead river in the early 60s, a fish survey found no fish downstream of Pontiac. Today the Clinton has good runs of both walleye and salmon. Those involved in the changes have every right to be proud of their accomplishments. But in spite of these improvements, much remains to be done.

In the five years since the 1988 RAP, technologies have changed, and improving conditions have led to new opportunities. These changes, coupled with a focus on the Clinton River RAP at the state level, give us a good opportunity to take a step back to re-evaluate not only where we are and where we've been but also where we would like to be going. This evaluation process is the next step in the RAP process.

Get the most out of the Clinton River RAP through involvement. Share your vision of the Clinton River of the future. Voice your concerns at PAC meetings. Be involved with a work group.

Clinton permits up for review

The major National Pollution Discharge Elimination System (NPDES) permits in the Clinton River basin will be reviewed and reissued in fiscal year 1996. These permits are required of any facility that discharges to surface waters. The permit contains quantity and quality parameters for the effluent, as well as a monitoring regime, that the discharger must adhere to. The permits, required by federal and state law, are issued by the state.

This will mean increased field activities for the summer of 1994 in preparation for permit applications. Although a schedule of times and locations is not yet available, the MDNR is planning several surveys on the Clinton and its tributaries.

Clinton River history

The Clinton-Kalamazoo Canal, in 1837, was the first public works project authorized by the Michigan legislature. The project was to provide a waterway for transportation between Lake St. Clair and Lake Michigan. The waterway would have crossed 216 miles of dry land between Mt. Clemens in the east and the port city of Singapore on the shore of Lake Michigan. Twelve miles of the canal, between Mt. Clemens and Rochester, were completed over a four-year period. The state treasury then went into bankruptcy and halted construction activities. The advent of the rail-road era ended all further support for the canal. Portions of the canal still exist between Rochester and Utica and are visible in the Rochester Utica Recreation Area.

NAME_____

ADDRESS_____
STREET ADDRESS APT NUMBER

_____
CITY STATE ZIP CODE

TELEPHONE (Day)_____ (Evening)_____

1.) ____ Please add my name to the RAP mailing list

2.) Please send me the following information:

3.) I am interested in serving on the following work group:
____ Point Source/Nonpoint Source
____ Contaminated Sediments
____ Habitat

4.) I feel I am representative of the following interest groups:

5.) I am interested in the Clinton River because:

6.) Comments and Concerns:

Return to: Robert Sweet
Surface Water Quality Div.
Michigan Dept. of Nat. Res.
P.O. Box 30273
Lansing, Michigan 48909

DRAFT

Clinton River Remedial Action Plan (RAP)

Principles (Precepts) for RAP Planning

At a Clinton River Public Advisory Committee Goals and Objectives Subcommittee meeting 9/14/93 a set of Toronto RAP principles was reviewed for their relevance to the Clinton RAP. These notes reflect that discussion.

1. **Water is a basic necessity of life and should be conserved. Its quality should be protected and restored.**

   This recognizes the importance of water to our continued existence on earth. Efficient, non-wasteful use of water, can mean less strain on the environment and the taxpayer's pocketbook.

   This suggests that headwaters areas where the water is still clean should be protected. It also suggests that waters in the lower reaches should be cleaned up.

   Accepted.

2. **The river and watershed must be planned and managed using an ecosystem approach. Ecosystem means using a comprehensive and systematic consideration of interacting components of air, land, water and living organisms, including humans.**

   The implications of this are far reaching. For example, it suggests that solutions which simply transfer a problem from one place to another, or from medium (water) to another (air or land) would not be acceptable. This also suggests that before selecting an remedial action we may need a fairly sophisticated understanding of the efects of that action. It also means not only looking at the effects on the natural environment but also social and economic impacts.

   "Must" may not apply everywhere; perhaps "should" is better.

3. **The RAP goals form the basis for RAP action.**

   This ties the adopted RAP goals to any actions which may be proposed.
   Will any particular action help meet a RAP goal or goals?
   Will the overall package of actions- the RAP Plan- meet the goals?

   Accepted.

4. **Environmental decision-making and the selection of remedial actions should be coordinated and involve the participation of all stakeholders. Stakeholders include all perspectives: all levels of government, the private sector, non-governmental organizations, conservation groups and agencies, community groups and individuals.**

   This suggests that those persons who have a stake- who will be affected by a decision- should be involved in the making of that decision. The RAP process respects this principle by including all sectors in the committees and at key decision points opening up for formal consultation of the general public.

   Accepted (emphatically).

5. **We are all polluters and must be part of the solution.**

   Principles 5, 6, 7 are related as they deal with individuals.
   This recognizes that all of us who live and work in the watershed have impacts on the Clinton River and the Great Lakes. Through the amount of water we use, the products we buy and perhaps pour down the sink, the fertilizers and pesticides used on our lawns, through our day-to-day living we contribute to stress on the ecosystem.

   Agreed.

6. **Public awareness and education, including access to information, are important to the sucess of the RAP.**

   Taking responsibility for our actions requires information. This includes educational programs that make us aware of the impacts of our lifestyle and the opportunities for individual action.

   Accepted (critical)

7. **Both voluntary action and legislation should be considered as a means of implementing remedial actions.**

   This means also accepting that government legislation alone cannot fix the myriad of problems in our Area of Concern. Citizens, through voluntary actions, need to become involved.

   Accepted. Suggest adding "remedial **and preventive**" actions.

8. **Source control shall be an objective and take priority over end-of-pipe solutions.**

   End-of-pipe solutions can remove pollutants from effluents but may have residues of metals and persistent organic chemicals that are then landfilled or incinerated; thus surface waters may be protected at the expense of air, soil, or groundwater

   Control-at-source usually means reducing or eliminating the use of a toxic material at the source (substituting a non-toxic chemical, using a closed-loop system with no discharges, etc.). This is often termed "Pollution Prevention".

   Addition: We are not trying to banish end-of-pipe solutions. There are circumstances where these are the most efficient and effective solutions.

9. **Neither dilution nor dispersion should be considered satisfactory substitutes to reducing pollution.**

   The local impacts of a discharge pipe can be reduced for example by extending a pipe further into a lake or adding dillution water. The concentrations are reduced but the pollutants are only dispersed making it "somebody else's problem. Because the Great Lakes have such long residence time they act as a sink for persistent substances. For the lakes, it is the loadings that count not the concentration at the point of discharge. With today's discharge permits, dillution still counts; it is easier to get a permit to discharge into a larger stream. In looking at the river we focus on concentrations and short term impacts; in looking at the lakes we focus on loadings and long term impacts.

   Agreed.

10. **There should be zero discharge of persistent toxic chemicals.**

    This principle implies that the RAP should be working towards the goal of zero discharge. To test progress towards this goal we can test whether a particular action will reduce the loading of persistent toxic chemicals into the environment.

    It was acknowledged that this goal may not be achievable; but it serves to set the direction for actions...hence the term "should" not "must".

11. **The RAP should encourage and review research that supports RAP principles, but research must not be used as an excuse for inaction.**

    Given our inability to totally comprehend ecological systems, we must act when we know enough and not wait for perfect knowledge. This has been called "The Precautionary Principle".

    Agreed

12. Implementation consistent with RAP goals and principles should proceed along with development of the RAP.

Where people agree that an action is a good one, implementation should not be held up until the entire Remedial Action Plan is finalized.

Agreed

13. In addition to remediation, the RAP must include and encourage preservation, conservation, rehabilitation, and prevention.

To deal with the entire spectrum of problems facing the river and its watershed, the RAP must go beyond mere remediation of existing problems. The RAP should anticipate and prevent new problems from arising. And it must consider how to prevent problems from recurring. There is no point to cleaning up bottom sediments if we continue to pour pollutants into the river. This principle recognizes the need to rehabilitate (restore to health) degraded wetlands, fisheries, creeks, and the river. The preservation of important natural areas, and the conservation of natural resources are included.

Agreed.

14. The RAP goals and applicable actions should be integrated into land use planning and construction approvals.

This reflects the crucial need to bring together land use and environmental planning to ensure that implementation occurs. How can we make sure that the RAP plan will be followed and not just sit on a shelf? Integration of the RAP and land use planning will also help to prevent future problems from occuring.

Agreed. Add to this principle that local communities should be encouraged to plan in terms of watersheds and the river basin.

15. A RAP implementation action should be led and coordinated by the appropriate and clearly defined and mandated party.

This recognizes the need to ensure that implementation occurs. Implementation of the Plan will require the coordinated efforts of many government and non-government bodies. To ensure accountability, one designated party must be given the responsibility to carry out each of the planned actions. Some parties may be more appropriate to carry out particular tasks than others.

"Mandated" means that the designated lead agency must have adequate legal authority to implement the action.

Agreed. But beyond this provision for a responsible party for each action, there is a need for "someone" to be responsible for the overall RAP.

16. An integrated and coordinated program of environmental monitoring and reporting of progress is essential in developing, implementing, evaluating, and revising the RAP.

Monitoring allows us to evaluate the effectiveness of remedial actions, to measure if progress is being made and determine if goals are being reached. Reporting to the public assures accountability to taxpayers and other parties.

Agreed.

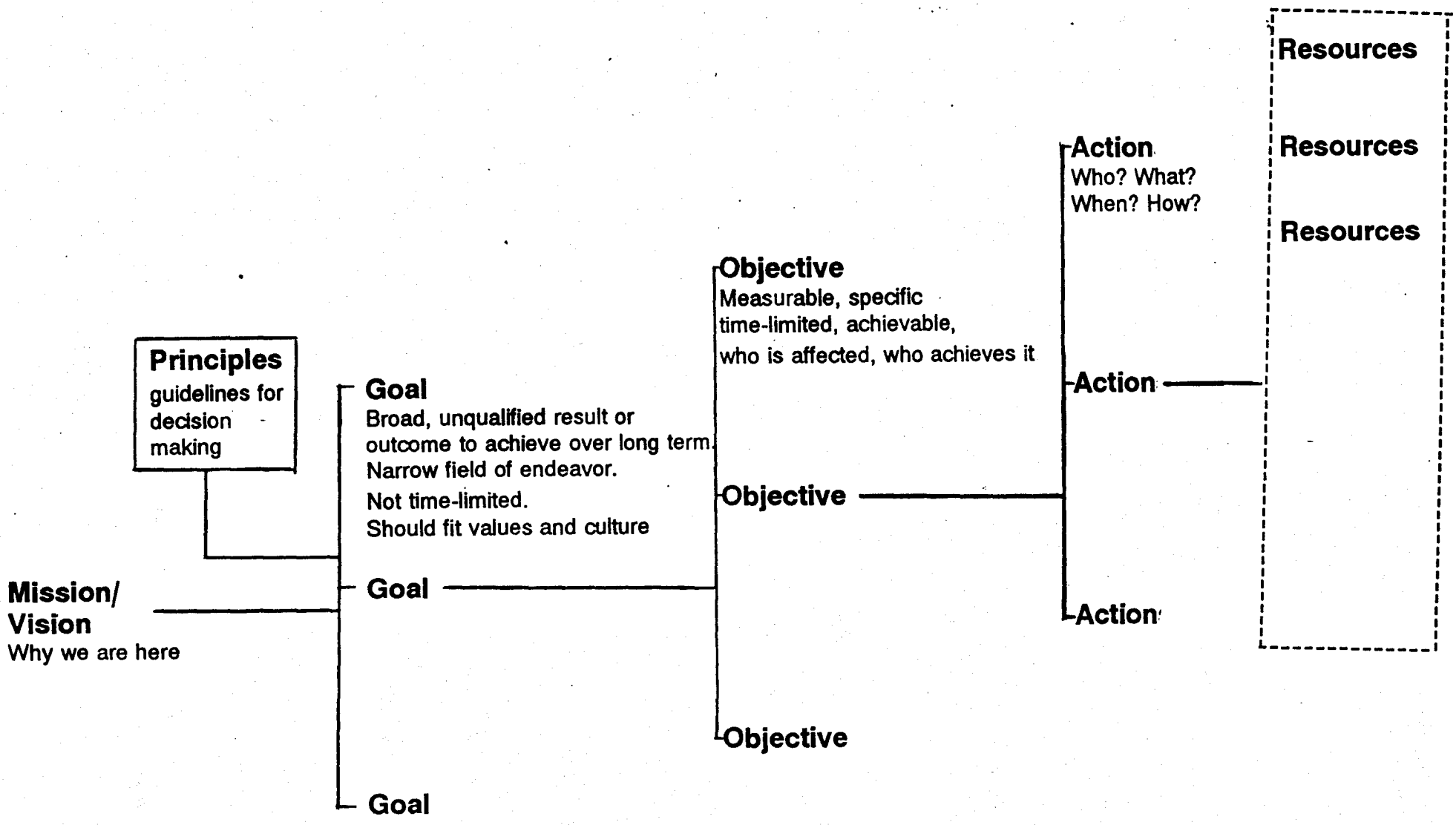
Several additional principles were suggested:

- o Actions taken to maximize the beneficial uses of a water resource should consider the cost in relation to the benefits achieved.
- o We should take advantage of the investment in pollution control (improved water quality) and provide for recreational use of the "fishable/swimmable" waters.

- Watershed-based planning provides the opportunity for cross-jurisdictional decision-making amoung the local communities in the watershed and the opportunity for a cooperative and effective partnership between the federal, state, and local levels of government. The RAP planning should have an on-going institutional home at the watershed level.

The committee discovered that discussion of these principles served to reveal educational needs.

Planning Framework[1]



[1] Florence Green & Associates