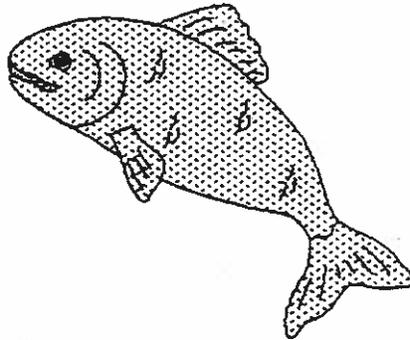
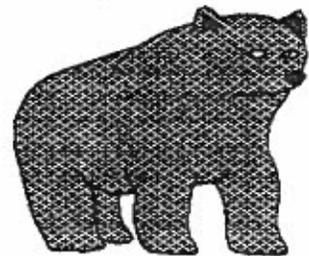
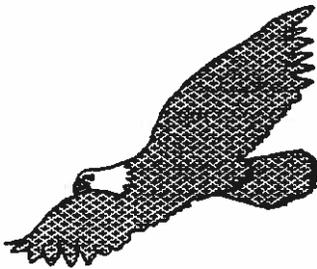


ST MARYS RIVER RAP



STAGE 2 REPORT FLORA AND FAUNA TASK TEAM



ST. MARYS RIVER R.A.P.
FLORA & FAUNA TASK TEAM

STAGE 2 REPORT

INTRODUCTION

This report is the result of a facilitated process that took place over the period December 1992 to May 1994.

A public meeting was held at the Ramada Inn, Sault Ste. Marie, Ontario, in December 1992. This meeting under the auspices of the ST. MARYS RIVER RAP was facilitated by a team from the South West Training Centre led by John Barnfield.

The results of this meeting were 10 major objectives. These objectives were then classified under 4 headings:

Point Source Pollution
Clean Up & Restoration
Flora & Fauna
Monitoring Reporting & Education

The report of this meeting is Appendix 1.

In March of 1993 a public meeting was held at the Sault College of Applied Arts & Technology and at this meeting task teams were formed to develop plans to meet the ten objectives.

Two facilitators from Sault Ste. Marie were appointed to work with these teams to develop action plans.

The facilitator for the Flora & Fauna team was Derek W. Brisland.

The Flora & Fauna task team consisted of the following persons:

Peter Burtch	Ministry of Natural Resources	Canada
Doug Geiling	Dept. of Fisheries & Oceans	Canada
Sue Greenwood	Ministry of Natural Resources	Canada
Don Hughes	Ministry of Natural Resources	Canada
Amy Owen	Inter-Tribal Fisheries	U.S.A.

Flora & Fauna Task Team - cont'd

Roger Hack	D.N.R.	U.S.A.
Cary Gustafson	D.N.R.	U.S.A.

objective was achieved.

A preliminary action plan contained the following elements:

Evaluation of the lamprey problem;

Compile and evaluate current rules and regulations for habitat protection;

Identify elements of a monitoring programme;

Develop options for protection and rehabilitation;

Identify funding sources and options;

Identify the various Biozones & Geozones in the Area of Concern.

Over the next months the task team in sub-groups completed the following tasks:

A series of detailed maps were developed dividing the St. Mary's River AOC into 12 geozones. Natural characteristics and human influence were mapped on each geozone, and digitized in Lansing. These maps proved to be pivotal in the team's work. The dedication and work of Mr. Harry Graham is gratefully acknowledged.

The effect of lamprey was investigated with invited speakers on the subject.

A letter of support for continued funding of the bi-national lamprey control programme was issued.

A detailed list of existing monitoring programmes was compiled. Gaps in the programmes were identified and recommendations made by the agency representatives. An overall monitoring plan for the RAP was designed.

A method for establishing habitat ranking was developed.

A compendium of existing legislation and regulation in the Province of Ontario and the State of Michigan was compiled and evaluated by a task group under the direction of Peter Burtch and Roger Hack. A list of recommendations to improve the implementation of existing legislation was produced for consideration.

A letter was sent to the City of Sault Ste. Marie, Ontario recommending the incorporation of the Sault Ste. Marie Region Conservation Authority Shoreline Management Plan into the updated Official Plan. This letter has been acknowledged with a promise to review.

A number of proposals for the remediation of rapids fish habitat were examined, refined and were placed in priority by a team led by Doug Geiling.

St Marys River Remedial Action Plan

FLORA AND FAUNA INTER-AGENCY MONITORING PLAN draft: April, 1994

PREAMBLE

A need for a master monitoring plan for the St. Marys River Area of Concern (AOC) was identified by Remedial Action Plan (RAP) participants. This monitoring plan will be developed for the purpose of determining if the goals and objectives developed by RAP participants are being achieved (Appendix I). The master monitoring plan will include sub-plans from the Flora and Fauna, Point Source, and Clean up and Restoration Task Teams. Because the majority of the master plan will be flora and fauna related, the Flora and Fauna monitoring plan will be designed to provide an overall framework for the master monitoring plan, with Point Source and Clean up and Restoration sub-plans "fitting" in the master plan.

The Flora and Fauna monitoring plan was written to provide a picture of the health of Flora and Fauna in the entire St. Marys River ecosystem. This holistic approach will replace the piecing together of monitoring plans of many jurisdictions (Appendix II), which had resulted in duplication of efforts, non-comparable data, large "data gaps" (Appendix III) and a less than optimal use of funds. This plan calls for a broad based core plan that will determine if the flora and fauna objective determined by RAP participants is being met:

The quantity and quality of habitat capable of supporting a diverse and abundant population of flora and fauna of the St. Marys River AOC will be maintained or improved.

RECOMMENDED CORE PLAN

For the purpose of breaking the system down into manageable geographic units, Geozone regions of the river were delineated (see section on Geozone development). In order to manage data from the monitoring plan (and to compare to existing data) a Geographic Information System (GIS) will be used to overlay data upon Geozones entered into the system. Each overlay will consist of major components of the flora and fauna monitoring plan (eg. human influence, natural features). In addition, data from the Point Source and Clean up and Restoration sub-plans can be used as overlays in conjunction with or to compare with flora and fauna overlays. The integration of all data further promotes a holistic approach for determining the ecological status of the St. Marys River.

All plan components (including point source and clean up and restoration) will fall under two basic headings, Habitat and Biotic. The components of each heading will be used to create overlays. Within each component features will be listed to represent different aspects of the component. For example: The Human Influence component falls under the Habitat heading, and contains the features shoreline use and watershed/land use. The monitoring work needed to provide the data for each feature may be accomplished by one or more groups or agencies, but of utmost importance must be coordinated through the overall plan with all other monitoring work being done. Sampling protocol, design and methods must be coordinated to fit the data into the GIS (by Geozone) and to avoid duplication of effort or plan gaps. Following is an outline of the plan:

HEADING	COMPONENT	FEATURE
Habitat	Human Influence	shoreline use watershed/land use dredge spoils deposit winter navigation water quality sediment quality flow alterations
	Natural Features	wetlands spawning habitat coastal wetmeadow coastal geo. features
Biotic	Economic Importance	commercial fish subsistence fish sport fish aesthetics (tourism) hunting
	Ecological Importance	wetland functions benthic organisms plankton community predator species prey species
	Threatened/Rare Sp.	sturgeon lake herring grey wolf eagles & osprey

APPENDIX I

Flora and Fauna Goals and Indicators*

GOALS

1. Existing fish and wildlife habitat...shall be retained and protected from contamination or development.
2. There shall be no further loss of critical fish and wildlife habitat..critical habitat..shall be created, enhanced, or restored where practical.
3. Migratory and indigenous fish and wildlife habitat..protected including wetlands, nesting sites, and other..sensitive areas.
4. Deformities and reproductive problems shall be no greater than rates at unimpaired control sites.
5. Benthic communities will be diverse and appropriate for the physical characteristics of the area.
6. Phytoplankton and zooplankton community structure shall not ..diverge from unimpaired control sites...
7. To attain a healthy, diverse and self-sustaining fish and wildlife community.
8. Safe water for benthos and wildlife.
9. The incidence of fish tumors and other deformities shall not exceed..background rates.
10. Dredging - re: fish and wildlife habitat.

INDICATORS

- Health of fish populations
- Elimination of fish advisories
- Reduced contaminants in flora and fauna
- Fewer defects
- Increased population of native flora and fauna
- Resurgent benthic community (eg. insects, snails)
- No net loss of wetlands
- Maintenance of water quality standards
- Decrease in undesirable non-indigenous sp.
- Prevent introduction of undesirable exotic sp.
- Improved hunting, fishing success

* Developed by St. Marys River RAP participants at a workshop held in December, 1993.

FISH COMMUNITY

1. Reduce defects, reproductive problems (compare to control)
 - none
2. Eliminate advisories, reduce contaminants levels
 - native fish contaminant trends: MDNR
 - sportfish contaminants: OMOE
3. Sustain populations
 - sportfish creel/CAN-AM Derby: OMNR (not recent)
 - creel survey/gill net survey: MDNR (not recent)
 - bait & commercial fish harvest: OMNR
 - fish spawning: USFWS, NOAA, MDNR, USCG, COE, local, NFRC, universities)
4. Sustain diversity
 - none

WILDLIFE COMMUNITY

1. Reduce defects, reproductive problems (compare to control)
 - Newcastle's disease in cormorants: CWS, OMNR
2. Eliminate advisories, reduce contaminants
 - contaminants in eagles: OMNR, Michigan State University, USFWS
3. Sustain populations
 - cormorant, bald eagle, osprey, waterfowl: MDNR
 - Ontario forest bird monitoring: CWS
 - osprey survey: OMNR
4. Sustain diversity
 - none

NON-INDIGENOUS NUISANCE SPECIES

1. Decrease in populations
 - purple loosestrife inventory/education: OMNR (education ongoing)
 - sea lamprey ammocoete abundance: Canadian Department of Fisheries and Oceans (DFO), USFWS, Great Lakes Fishery Commission (GLFC)
 - sea lamprey adult assessment, trapping: DFO, USFWS
 - sea lamprey mark recapture: DFO, USFWS, Inter-Tribal Fisheries and Assessment Program (ITFAP)
 - sea lamprey flyovers, habitat identification: DFO, USFWS
 - model of river flow for chem treatment: GLFC (Lake Huron Technical Committee)
2. Prevention of introductions, spread
 - check for vegetation such as loosestrife: CA, others
 - check for zebra mussels, river ruffe: OMNR

WETLANDS: Wetland change detection should be monitored at all levels within the watershed. If the intent of monitoring up and down-bound channels is to measure the effect of navigation, it should be stated that way. The easiest measure of wetland habitat losses is those wetlands above the ordinary high water line. If changes are monitored, impact can be predicted on areas below high water line (except those due to shipping).

UPLANDS: Upland habitat change may be monitored by measuring gains and losses from a baseline (from one of the flights in hand). Examples: changes in farming, changes in forest type (conversion of spruce/balsam to tamarack, loss of oak stands, changes in age of stands), changes in migratory corridors.

FUTURE HUMAN DEVELOPMENT: To attain measurable goal must develop plan that incorporates and anticipates future human development. Protection must be provided to those areas that have the highest values and that will provide long term habitat needs.

MONITORING BY MUNICIPALITIES: Monitoring by municipalities on both sides of the river is absent.

DATA BASE: Many single projects have been done over years by Lake Superior State University and others, but no data base exists to retrieve flora and fauna related information (causes duplication, loss of data, inability to compare existing data, etc.)

BIOTIC

Development of Diversity Measures: Models from the US Forest Service may be useful. May be helpful to list the habitats (with amount for each) and track gains and losses through video. Habitat change can be monitored (with species diversity assumed to have changed). Species no longer present can be listed and used as indicators. Rather than develop diversity measures it may be better to use measures such as Hexagenids (pollution intolerant species) recolonizing previously contaminated areas. For fish community diversity, it is more important to monitor events such as the displacement of yellow perch by river ruffe (diversity indices may mask such events). It is also recommended that the RAP contact Lake Superior State University, Algoma University, and Sault College for a long term commitment to monitor and collect changes in biodiversity. In addition, the Lake Superior Binational Program should have contact with the RAP to avoid duplication.

Wildlife Monitoring: MDNR (Lansing) has methods for monitoring community structure and species diversity. There is a need for contaminant monitoring of local waterfowl and shore birds, mink otter, and muskrats. US Fish and Wildlife Service should be contacted for monitoring deformed bills on colonial birds. Information on song birds from breeding surveys conducted by birding groups could be collected (Michigan Audobon may have information). MDNR (Wildlife Division) has grants for surveying small mammals and reptiles. For example, studies can be funded through the Non-game Program to be done by LSSU students.

Benthic Community: The benthic community is an excellent indicator of sediment contamination because: 1) it is easy to sample; 2) numerous background surveys exist (1967, -68, -73, -74, -75, -83, -85); 3) the community is relatively sessile and indicative of local conditions; and 4) it provides a potential source of contaminants to fish. Monitoring should be carried out every 5 years, with taxa abundance, sediment concentration of persistent toxic contaminants (PTC), and concentration of PTC in dominant invertebrate taxa measured.

Phytoplankton and Zooplankton: Too spatially and temporally variable to make good subjects for monitoring.

Fish: Fish population abundances within fairly narrow confidence intervals should be estimated every 3 to 5 years for a wide range of species. If this is not possible, Catch per Unit Effort (CUE) sampling is an alternative. The simplest CUE option is the coordination (Canadian and US) of indexed gill net sampling efforts once every 3 to 5 years. Each geozone would be sampled once spring, summer, and fall. Minnow traps could be used in addition. Creel surveys on a river wide basis during each gill-netting year are recommended.

DRAFT: For editing, rewriting, inclusion in Stage 2 Document

HABITAT PRIORITIES

Geozone Maps

The Flora and Fauna task team has partitioned the St. Mary's River into areas called geozones. Each of the 12 geozones is unique from those on either side as a result of different shoreline features, level of industrial or urban development or river characteristics such as rapids, channels and lakes. These geozones have been identified on base maps (Appendix ?). Each geozone is delineated by water depth; 0-6 feet, 6-24 feet, and greater than 24 feet. In addition, features such as tributaries and islands are identified on the base map.

Within each of these geozones the significant habitats (biozones) that support St. Mary's River flora and fauna have been identified and located on natural feature, biologically sensitive, and human influence overlays for the 'geozone' base maps (Appendix ?). Biozones are quantified by surface area, kilometres of shoreline or number of occurrences. Examples contained in the human influence overlay include: urban, recreation, industrial and dredge spoils. Natural features include: wetlands, sand and gravel beaches, rapids and erosion areas. The biologically sensitive overlay includes: environmental areas and critical habitat.

RANKING:

Biozones are ranked based on their importance to the maintenance of the watershed (AOC) in addition to their contribution to the natural functioning of the ecosystem. Monitoring systems and protection priorities can be established to guide efforts to achieve and sustain remediation. These are key components of the Flora and Fauna task team's mandate to ensure no loss of existing habitat and promote the restoration/rehabilitation of degraded ones.

Each geozone has been ranked in order of priority for protection within the AOC. Ranking was done numerically with values assigned to each biozone within a geozone based on parameters such as surface area (wetlands, open water), kilometres (beaches), islands (kilometre shoreline), river mouths (number present) and sensitive area representation. Sensitive area definition as it relates to flora and fauna consists of any one of the following:

- 1/ Supports a critical part of a life process of a resident or migratory species.
- 2/ Biotic communities poorly or singly represented in AOC or Great Lakes Basin.
- 3/ May involve a locally or regionally threatened or endangered species.

SENSITIVE AREA DATA SHEET

Location: Geozone_____

Lat Long_____

Physical features test - Island (name)

-

Major species associated

How meets the definition

Number of other in Geozone

Protection needs

Geozone Sum Final

RANKING RESULTS			
GEOZONE	TOTAL SCORE	3 SIGN. HAB	SA SCORE
SUPERIOR	118.31	0-6, Rm, S&G B	90
U.B. Neebish Ch.	79.66	S&G B, Is., Rm	75
Munuscong Lk.	73.3	WL, Rm, Is	60
Rapids	70.76	rapids, Is.	30
Pine Island	68.95	Is. S&G B, 6-24	60
Industrial	61	Rm, WL, S&G B	55
DB Neebish Ch.	57.25	Is., Rm, 0-6	55
Lk. George	57.1	Rm, 0-6, WL	45
Lk. Nicolet	56.5	Rm, Is., 0-6	50
N. Channel	45.95	Rm, S&G B, Is.	35
St. Joseph Is.	31.72	Rm, 6-24, WL	30
Urban	21.6	s., Rm, all open wate	15

Option 2 Summary

- o biozone is rank by the summation of the parameter totals (example shown, Rank = 9)
- o ranking is done for present state and ranked values are compared. The difference between pristine and present state represents impairment/ degree of change.
- o comparison can be made between biozones and over time within biozones.

FLORA AND FAUNA TASK TEAM

HABITAT OPTIONS DOCUMENT

(DRAFT)

Where to go from here:

The Options document was drafted to provide a starting point for discussion of potential habitat remediation projects in the St. Marys River AOC. It was not intended as a stand-alone section for the Stage II RAP Report. The following steps are still required before this document can be used to prioritize habitat remediation projects for implementation:

1. Locate and describe the remediation sites to be considered for each option.
2. Develop detailed conceptual designs for each potential remediation site. For example, when considering extension of the remnant St. Marys Rapids it will be necessary to define the location(s), surface area(s), and volume(s) for the addition of rock rubble. Hydrologic factors must be considered to ensure that new materials will stay where placed and will not result in the loss of habitat adjacent to the project site through erosion or other forces. Note: There may be more than one way of approaching a project at the same site. A detailed conceptual design should be generated for each method which seems practical.
3. Develop cost estimates for each design. Where relevant, develop cost estimates assuming 1) donation of materials (eg. dredge spoils), and 2) purchase of all required materials.
4. Rank the options based on biological, economic, and political merits combined.
5. Define potential funding sources for each project.
6. Develop an implementation schedule.

Maps should also be included showing the locations of all potential remedial projects.

Justification for Remediation - St. Marys RAP Process

1. From the St. Marys River RAP Top Eight Objectives:

Objective FF1

The quantity and quality of the habitat capable of supporting a diverse and abundant population of flora and fauna of the St. Marys River AOC will be maintained or improved.

For Example:

- Preventing the introduction of undesirable exotic species.
- Eliminating culturally induced eutrophication.
- Maintaining or increasing sustainable yields of the existing fish and wildlife communities.
- No loss of critical habitat including wetlands and spawning grounds.
- Restoration of habitat where possible.

2. From the St. Marys River RAP Stage One Report:

Impairments of Beneficial Uses

2.1 Degradation of fish and wildlife populations: The fish fauna of the St. Marys River are considered diverse and healthy. Habitat alteration primarily at the Rapids have reduced fish populations. Concerns that native fish populations are declining need further assessment. Large populations of sea lamprey are contributing to the mortality of large migratory fish such as salmon. 1986 through 1990 records indicate 40 - 60 lamprey wounds for every 100 salmon taken.

2.2 Loss of fish and wildlife habitat: Significant loss of fish and wildlife habitat have occurred as a result of shoreline alteration, industrialization, urbanization, and shipping activities particularly in the St. Marys Rapids.

In summary, we have the responsibility to restore/rehabilitate habitat as a means to increase fish population abundances in the St. Marys River. The Rapids area has been emphasized as one of the major areas of habitat loss in the AOC, thus warranting RAP investigation into potential remedial actions for rapids and associated wetlands habitat.

done.

Description/Discussion of Options

A) Protection of Remnant St. Marys Rapids Habitat

In the Rapids area the demand for water quantity has been prioritized as follows (IJC 1978):

1. Shipping (lock operation);
2. Protection of the Rapids fishery;
3. Other approved uses (includes hydroelectric power generation).

It may be that these priorities were drafted as an interim response to the concern of intermittent dewatering of the Rapids area, pending remedial works in the Rapids. Therefore, the construction of the berm in 1985 may have negated the special priority given to the Rapids fishery, relegating this issue to the same rank as 'Other approved uses'. While the berm may be largely effective, it has been observed that intermittent dewatering of portions of the Rapids still occurs. Intermittent dewatering of portions of the Rapids could therefore reduce productive capacity, yet quantitative data to support this notion are lacking. The ability of the RAP Team to maximize the productive capacity of the remnant portion of the Rapids may hinge on its ability to quantify the extent of dewatering which still occurs and its likely impact on resident and foraging biota. Equally important will be our ability to define the minimum number of gate openings (and their possible combinations) required to prevent dewatering and enable the full productive capacity of the remnant Rapids to be realized. Without these data the RAP Team may be unable to reinstate (or reinforce) protection of the Rapids fishery as a priority item second only to shipping.

Methods:

A.1) Water Quantity

In cooperation with stakeholder agencies run an iterative series of gate openings, measuring the areas dewatered under each gate or gate combination used. This can be approached in two ways: Start with the current minimum number of gate openings and increase this number a half gate at a time until the entire Rapids area is watered, or start with 4 gates as were prescribed as the minimum before berm construction and decrease the number of openings by a half gate at a time. In either case it should be recognized that the position of the open gate(s) along the compensating works may be as important as the number of gates open. Thus, before adding to or decreasing the number of gate openings a number of gate combinations should also be tested. The methodology for determining the area dewatered under each set of test parameters should be discussed with USACOE engineers

A.4) Note

The focus of the above studies should be to determine the minimum water quantity required to maximize the productive capacity of the remnant Rapids. However, it must be recognized that it may not be possible to get everything we would like in terms of water quantity. It will be important that the data gathered above can be used to identify those periods over the course of a year when complete watering of the Rapids is least critical.

B) Physical Enhancement of Remnant St. Marys Rapids Habitat

The construction in 1985 of a berm represents the first attempt at enhancing the remnant Rapids habitat. The berm was built to maintain a minimum level of flow along the southern shore of Whitefish Island - an area believed to contain some of the best fish spawning habitat in the Rapids as well as highly productive benthic invertebrate habitat. It may also be possible to enhance the quality of the substrate in the Rapids, as well as extend the Rapids downstream by increasing the quantity of substrate.

Prior to suggesting any remedial actions for the enhancement of Rapids substrate a number of issues require attention. A detailed map of Rapids substrate needs to be generated, along with an identification of areas likely to become dewatered under differing water supply scenarios. The fish species assemblage we are targeting needs definition in order to guide substrate composition and placement strategies. Knowledge of hydrologic conditions at potential substrate addition sites will be required to ensure added materials are not washed away.

It may be possible to increase the area of the Rapids by the placement of clean rock and rock rubble at the base of the existing Rapids. This extension could be achieved iteratively and at little expense to the RAP team by requiring those parties involved in future blasting/dredging in the St. Marys to transport and place their clean rock materials at the base of the Rapids as a compensatory environmental measure. This option would require the political support of those agencies which control environmental regulations (ex. Fisheries Act - Canada) on both sides of the border.

C) Creation of New Rapids Areas in the River

An alternative to enhancing/enlarging the remnant Rapids would be to augment rapids elsewhere. One potential spot to do this would be at the head of Sugar Island near the historic site of the Little Rapids. It is possible that there are other areas in the St. Marys or its tributaries which have the hydrologic and physical characteristics required to support rapids regeneration.

E) Creation of Wetlands in Association with Existing Rapids

One logical site to investigate the possibility of wetland creation is off of the downstream edge of Whitefish Island. From a fishery perspective, this setting offers the advantage of being immediately adjacent to the remnant St Marys Rapids, facilitating the connection between the two habitat types. This project would involve the deposition of suitable fill in the area between Whitefish Island and the channel leading to the former Canadian navigation lock. Placement of boulders and rock rubble as a buffer against the fast current of the rapids would provide physical protection for the site. A number of small channels between the Rapids and new wetland should be left in this rock buffer zone, and be positioned to direct drifting larval fish into the wetland area. Prior to implementation, a hydrologic engineering study would be recommended to confirm site suitability, propose design options, and prescribe measures for success.

The goal of this project would be to create aquatic habitat mainly for fish and their food organisms (zooplankton, invertebrates, prey fish). More holistic wild life habitat targets are not considered primary here because of the isolation from other wild life habitats and the physiography of Whitefish Island -- shallow soil overlying extensive shelf rock. However, opportunity will exist to create waterfowl nesting sites, protected from man and potential predators, within the new wetland area.

Logistically, work in the river on this project and on rapids extension could be planned to make cost effective use of equipment, personnel and materials resulting from unrelated projects in the St. Marys River (e.g., clean rock rubble from dredge spoils). The site has a fairly high profile in the local community, enhancing the potential for recruitment of local stakeholder groups and broad based community involvement.

F) Creation of New Wetlands/Rapids Complexes

F.1) Fort Creek Mouth Area

An opportunity may exist to create a simulated rapids area in the Great Lakes Power tailrace just upstream from Fort Creek in Sault Ste. Marie, Ontario. Clean rock fill could be added to deflect most of the existing current away from the mouth of Fort Creek while the remainder of the flow would be directed over the top of the structure. Early consultation with the Sault Ste. Marie Conservation Authority regarding plans for flood management could facilitate incorporation of wetland features for the river mouth area into any engineering designs. Recent developments in "natural" channel design may be practical in this waterway. Pike spawning habitat could be a focus for a wetland at the stream mouth. Habitat for small mammals, birds, herptiles, etc. could be included depending on the constraints of the site and flood

- the use of hatcheries and controlling the exploitation of target species, and
- 3) the historical losses of rapids habitat can be shown to not limit a return to historical abundances of native species.

Remedial Options - Discussion Points

A) Protection of remnant St. Marys Rapids Habitat

Pros:

- might aid our ability to protect the remnant habitat as well as maximize its potential for productivity
- affords us with an after the fact opportunity to assess the efficacy of the berm
- cost effective
- involves active stakeholder participation

Cons:

- methods will not yield quantifiable fish population data
- RAP Team may not have the clout to negotiate increased discharges over the Rapids even with quality data
- requires a substantial field effort, including some weekend work during angling blitzes
- dependant upon volunteers
- efforts may be confounded by the presence of the border in the middle of the Rapids, necessitating the participation of two different countries

B) Physical Enhancement of Remnant St. Marys Rapids Habitat

Pros:

- potential to restore an historically productive area
- power companies may be convinced to shoulder some of the costs
- could reduce dependence on hatcheries
- could increase reproductive success of native species (eg. sturgeon)

Cons:

- difficult physical setting to work in, therefore work in the remnant Rapids would likely be very costly
- requires substantial investigative work just to determine if work in the remnant Rapids is feasible or even desirable

C) Creation of New Rapids Area in the River

Pros:

- may be possible to recreate Little Rapids area
- can try to select areas which would be relatively easy to work in thereby reducing costs

waterfowl species

Cons:

- the biological benefits of associating wetlands with rapids are only assumed, not certain
- varying hydrologic conditions may lead to the erosion of some of the new wetlands, increasing downstream sedimentation
- likely expensive, especially if surplus or dredged materials can not be acquired cheaply from other river works
- there is no guarantee a complex will benefit the species targeted

G) **Enhance Habitat and Water Quality in Tributary Watersheds**

Pros:

- improve water quality entering the St. Marys by reducing sediment load as well as filtering urban and agricultural runoff
- could be used as a smaller scale test site for the creation of rapids/wetlands complexes before attempting this type of development in the larger St. Marys River environment
- could improve the production of anadromous fish in the system

Cons:

- efforts expended in small tributaries may not make a perceptible difference to the St. Marys River even if they are locally successful
- spring freshets may make wetland development impractical

H) **Do Nothing**

Pros:

- no capital outlays in addition to hatchery infrastructure

Cons:

- doesn't address concerns expressed in the Stage 1 Report
- will necessitate financial support of hatcheries into the indefinite future; if support is discontinued there is a potential loss in desirable fish species and the related economic benefit.
- unrealized economic gains from improved habitat quality and production.

Funding opportunities for St Marys RAP: Flora & Fauna group

Introduction

This document actually has potential application beyond that indicated in the title, both within the St Marys River Remedial Action Plan and in other RAPs, as well as in other environmental initiatives. Its completeness is similarly open-ended, as additional opportunities undoubtedly exist. The dynamic nature of various support programs means that each year some expire while others are introduced, and even those which continue may have altered terms of reference or other conditions. Hence, this document should be viewed as a guide which may already be outdated, and efforts should be sustained to learn of new and evolving opportunities for support.

The bulk of the text here is a catalog of programs, with varying amounts of information on requirements, limitations, and other characteristics of each. Consistency of presentation is difficult to achieve because of the diversity of the programs themselves, and of the communication materials describing them.

Besides conventional funding programs, this report also suggests potential sources of community-based support which is more likely to be in the form of in-kind services, volunteer labour, and the like.

It is likely that over the long term of implementing the St Marys River RAP, a continually shifting blend of both formal funding support and ad hoc arrangements with local community groups will yield the greatest success in terms of effective action and community awareness. Pursuing and sustaining such a blend will require a high level of activity in developing a support strategy, submitting funding requests, negotiating local participation, responding to changes in opportunities, etc. The more time that an individual or team can devote to the recruitment and nurturing of support, the better the prospects for return. Also, by associating that activity with the overall RAP (i.e., non-habitat cleanup and restoration), the greater the potential for linkages with other implementation actions. The result would be enhanced efficiency in bringing resources to bear on the needs of the RAP.

FUNDING PROGRAMS:

Great Lakes Protection Fund (U.S.)

Mission: Identify, demonstrate and promote regional action to enhance the health of the Great Lakes ecosystem. Priority applicants are non-profit agencies, but individuals and proprietary entities may apply if a clear public benefit can be demonstrated and if financial benefits accrue to the public good. The Fund seeks to leverage financial support from other sources; challenge grants may be issued to encourage supplemental contributions.

Besides complying with the mission statement above, all projects must demonstrate

applicability to the following criteria:

- relevance to the GLWQA and the Great Lakes Toxic Substances Control Agreement;
- regional applicability (preferably emphasizing basin-wide collaboration);
- links to direct action (re improving water quality or reducing exposures to toxic contaminants);
- supplemental and non-duplicative (will not duplicate or finance existing federal, state, provincial or regional commitments to the Great Lakes).

Annual grant cycle involves call for proposals in spring, letters of intent due early summer, full proposals called mid-summer and due early fall. Award letters issued in December.

The Fund also occasionally provides:

Travel Funds - to organizations for individuals or groups to attend meetings, conferences, etc. that show relevance to Great Lakes policy development and the Fund's mission. Range \$100 to \$2000. Submit request by letter (not Fax) at least 3 weeks before event for which travel funds needed.

Planning Grants - to assist organizations in developing full proposals, e.g., to test feasibility of new ideas or methods, or to strengthen collaborative efforts in the basin. May be initiated anytime with a 2-page letter or phone call to the Fund. Typically \$20,000 range, but have been as low as \$6,000.

USACOE (through Water Resources Development Act):

Section 22 of WRDA 1974

Support to States and Tribes in their comprehensive planning for development, utilization and conservation of water and related land resources. Activities include water conservation, water quality, erosion, and methodology to evaluate a wetland or other resources. Cost-sharing 50-50. Annual funding up to \$6 million Corps-wide, annual support to each State \leq \$300,000. FY 1994 appropriation \$2.9 million.

Section 1135 of WRDA 1986 (as amended 1988, 1990, 1992)

For modifications of existing Corps project structures and/or operation to restore environmental quality, consistent with project's authorized purpose. (Have included restoration of coastal wetlands.) Cost-sharing 75% Federal, 25% non-Federal; operation and maintenance costs are non-Federal. Non-Federal sponsors may include private interests and non-profit environmental groups as well as government agencies. Annual funding up to \$25 million Corps-wide; FY 1994 appropriation is \$8 million. No single project > \$5 million without Congressional Authorization.

Section 312 of WRDA 1990

Environmental dredging program, for removal of contaminated sediments outside the boundaries of Federal navigation channels as part of the operation and maintenance on a navigation project. Costs shared 50-50 for incremental dredging costs; disposal of

environmental issues. Limited to projects that require federal assistance for one year or less. Applications deadlines twice yearly (June 1 and December 1); applications for ≤ \$20,000 may be submitted anytime.

Community Planning Fund

Up to \$25,000 available to facilitate participation of environmental stakeholders at the community level in multi-sectoral decision-making processes related to sustainable development and leading to environmental citizenship action plans. Applications anytime.

Canadian Wildlife Service (Environmental Conservation)

The (former) CWS is an interested and willing participant in RAPs, but with limited financial resources to commit. Partnership projects may be considered, with CWS offering expert advice, program design assistance, etc.

Shell Canada Environmental Fund

Ducks Unlimited

Possible programs for land retirement/inactivity around wetlands to promote waterfowl production. Contact local DU reps for information on possible cooperative arrangements. See Eastern Habitat Joint Venture for broader based support program.

Eastern Habitat Joint Venture

One of 14 partnerships established to implement the North American Waterfowl Management Plan. Leveraged funding from Canadian and U.S. sources (from the North American Wetlands Conservation Council and the National Fish and Wildlife Foundation). Funds flow through three NGO organizations -- Ducks Unlimited, Habitat Canada, Nature Conservancy. OMNR is one partner in the EHJV, and there are three sources of MNR funding for EHJV:

- (i) Capital Fund, of \$250,000 for bilateral protocols with Habitat Canada for the operation of Landowner Resource Centres and Landowner Contact staff, and with The Nature Conservancy of Canada for wetland acquisition;
- (ii) Provincial Operations Branch budget;
- (iii) Operations Division budget of \$195,000 for aiding districts/teams or others in the delivery of EHJV approved projects.

Projects must contribute to improvement of waterfowl populations.

Eight strategies for implementation:

- securement (acquisition, agreement, co-management, tax incentives, etc.)
- enhancement of wetland productivity
- restoration of degraded wetlands
- stewardship initiatives
- wetland creation
- land use regulation
- communication and education

Sault Ste Marie Conservation Authority
In-kind support, engineering services

Ontario Ministry of Agriculture, Food and Rural Affairs

Michigan DNR
Land Trust Funds

Coastal Management Programme Grants

U.S. Soil Conservation Service

Wildlife Habitat Canada

(See Eastern Habitat Joint Venture.)

Laidlaw Foundation

Fish America Foundation

....other Foundations

Canadian Nature Conservancy

Michigan United Conservation Clubs (MUCC)

Trout Unlimited

Muskies Canada

LOCALLY-BASED SUPPORT (generally non-financial):

Forest Stewardship Program

Land and Water Conservation Fund

Migratory Bird Conservation Fund

National Coastal Wetlands Conservation Grants

National Estuarine Research Reserve System(?)

National Water Quality Assessment Program

National Water Resources Research Program

National Wild and Scenic Rivers Program(?)

Nonpoint Source Pollution Management Grants

North American Wetlands Conservation Fund (see E. Habitat Joint Venture?)

Partners for Wildlife - Private Land Initiative

Plant Materials for Conservation

Resource Conservation and Development Program (RC&D)

River Basin Surveys and Investigations

Rivers, Trails and Conservation Programs

Soil and Water Conservation

State Revolving Loan Fund

Stewardship Incentive Program

Water Bank Program

Water Data Program

Water Quality Incentive Projects

Water Research Institute Program

REVISED STATEMENT

SUPPORT STATEMENT FOR SEA LAMPREY CONTROL WITHIN AOC OF THE ST. MARY'S RIVER R.A.P.

The Flora and Fauna Task Team of the St. Mary's RAP supports the Great Lakes Fisheries Commission (GLFC) in its goal of working towards an integrated management approach for sea lamprey control on the St. Mary's River and the Great Lakes.

The Task Team recognizes that the St. Mary's River is the single largest contributor of sea lamprey to the Great Lakes and as such has direct impact on the implementation and achievement of Lake Trout Rehabilitation Plans, Lake Fishery Management Plans, State of the Lake Reports and Fish Community Objectives developed by other GLFC environmental agencies, for Lakes Michigan, Huron and Superior.

Achievement of specific RAP goals and correction of identified impairments to beneficial use such as water quality and sediment contamination will improve larval sea lamprey survival and make a further contribution to the sea lamprey numbers in Lake Huron. Fish populations using the St. Mary's River and Lake Huron will suffer unless substantial gains are made in sea lamprey control in the Area of Concern (AOC).

The GLFC's need for funding, based on program needs rather than anticipated revenues available, must be taken seriously by governments. The St. Mary's River has been identified by the GLFC as a technical, ecological and social challenge beyond existing resources. Without effective control, the St. Mary's River will contribute to the potential loss of a multi billion dollar Great



THE CORPORATION OF THE CITY OF SAULT STE. MARIE

ENGINEERING & PLANNING DEPARTMENT
PLANNING DIVISION

1994 03 09

Mr. Harry Graham
1184 Queen Street East
Sault Ste. Marie, Ontario
P6A 2E5

Dear Mr. Graham:

SUBJECT: CITY OF SAULT STE. MARIE OFFICIAL PLAN

Thank you for your letter of January 20th, 1994 requesting on behalf of the Flora and Fauna Task Group of the St. Mary's River Remedial Action Plan, incorporation of the Sault Ste. Marie Regional Conservation Authority Shoreline Management Plan into the new Official Plan.

I am generally familiar with the Shoreline Management Plan and the issues it attempts to address. However, I must note that some of the methods it proposes to regulate shoreline land use, are controversial and do not have public acceptance.

I will be reviewing the Sault Ste. Marie Regional Conservation Authority Shoreline Management Plan in detail as we draft the new Official Plan and certainly agree that the issues it raises must be addressed by the new Official Plan.

Your support for sound shoreline management is appreciated.

Yours truly,

JOHN M. BAIN
PLANNING DIRECTOR

JMB:jh

- c. R. Yanni, Sault Ste. Marie Regional Conservation Authority
- B. Collins, St. Mary's River RAP Co-ordinator
- D. Bean, Ministry of Natural Resources

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