Fisheries and Oceans Canada
Pêches et Océans Canada

# Annual Report to Parliament

on the

Habitat Management and
Environmental Science Directorate

for the period of

## April 1, 1998 to March 31, 1999

Administration and

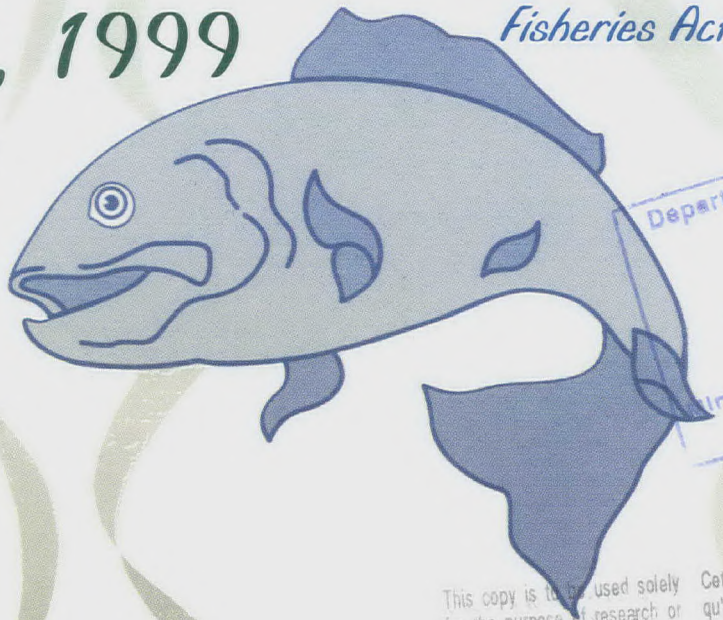
Enforcement of the

Fish Habitat Protection

and Pollution Prevention

Provisions of the

Fisheries Act







Canada

# ADMINISTRATION AND ENFORCEMENT OF THE FISH HABITAT PROTECTION AND POLLUTION PREVENTION PROVISIONS OF THE *FISHERIES ACT*

## ANNUAL REPORT 1998-1999

**Published by:**

Communications Directorate
Fisheries and Oceans Canada
Ottawa, Ontario
K1A 0E6

DFO/6132

Internet site: http://www.dfo-mpo.gc.ca/publication_e.htm#oceans



Cat. No. 1-57/1999
ISBN 0-0662-65230-4

Printed on recycled paper

Minister of
Fisheries and Oceans

Ministre des
Pêches et des Océans

Ottawa, Canada K1A 0E6

Her Excellency
The Right Honourable Adrienne Clarkson
Governor General of Canada
Rideau Hall
Ottawa, Ontario
K1A 0A1

FEB 22 2001
FEV

May it please Your Excellency:

Pursuant to section 42.1 of the *Fisheries Act*, I hereby submit to Your Excellency and the Parliament of Canada, the Annual Report on the administration and enforcement of the habitat protection and pollution prevention provisions of the *Fisheries Act* for the fiscal year ended March 31, 1999.

Yours sincerely,

Herb Dhaliwal

The Honourable Herb Dhaliwal, P.C., M.P.

Encl.

Canada

# TABLE OF CONTENTS

# Part 1 Introduction to the Report

Section 42.1 of the *Fisheries Act*[1] requires that the Minister of Fisheries and Oceans provide to Parliament a report on the administration and enforcement of the habitat management and pollution prevention provisions of the *Fisheries Act* as soon as possible at the end of each fiscal year. This document constitutes the report for the fiscal year 1998-99.

Part 1 provides background on the scope and objectives of the fish habitat management policies and program of the Department of Fisheries and Oceans (the Department).

Part 2 reviews regional initiatives in attaining the goals of the *Policy for the Management of Fish Habitat*, established in 1986. Its organisation reflects the eight strategies, which have been established within the Policy to advance the Department's efforts in the sustainable management of Canada's fish habitat resources:

1. Protection and Compliance
2. Integrated Resource Planning
3. Scientific Research
4. Public Consultation
5. Public Information and Education
6. Co-operative Action
7. Habitat Improvement
8. Habitat Monitoring

## 1.1 Mandate under the *Fisheries Act*

The federal government fulfils its constitutional responsibilities for "seacoast and inland fisheries" through the *Fisheries Act* which contains provisions allowing the federal government to make decisions for the conservation and protection of fish and fish habitat supporting Canadian commercial, recreational and Aboriginal fisheries.

The *Fisheries Act* defines fish habitat as "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes".

[1] See <http://canada.justice.gc.ca/en/laws/F-14/>.

The fish habitat protection and pollution prevention provisions of the *Fisheries Act* (see Annex I) are the Department's main tools for conserving and protecting fish habitat. Despite their prohibitive nature, these provisions do provide mechanisms to allow development projects to occur while providing for the protection of fish and fish habitat. The key provisions are sections 35 and 36.

Section 35 prohibits any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat, unless authorised by the Minister of Fisheries and Oceans.

> (1) No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.

> (2) No person contravenes subsection (1) by causing the alteration, disruption or destruction of fish habitat by any means or under any conditions authorised by the Minister or under regulations made by the Governor in Council under this Act." s.35, *Fisheries Act.*

Section 36 prohibits the deposit of deleterious substances into waters frequented by fish, unless authorised by regulation under the *Fisheries Act* or other federal regulation. This section also provides the authority through regulations to designate substances as "deleterious," to set limits for their discharge, and to designate those who can make site-specific authorisations and the conditions under which these authorisations may be granted. Regulations to authorise certain deposits for specific industries have been established pursuant to section 36 (e.g., pulp and paper, metal mining effluents). The administration of the pollution prevention provisions of the *Fisheries Act* is the responsibility of Environment Canada.

> (3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water." s.36, *Fisheries Act.*

Other provisions of the *Fisheries Act* authorise the Minister to appoint inspectors and analysts; describe inspectors' powers, which include entry, search, and the direction of preventive, corrective or cleanup measures; describe offences and punishment; and determine liability when a deleterious substance has been deposited.

The provinces and territories, and increasingly, First Nations, are important players in the conservation and protection of fisheries and fish habitat under their own environmental, land and water use planning and other resource related legislation. Through the application of their legislation and policies for the assessment and approval of development proposals, for example, in the areas of agriculture, urban development, forestry, mining, and energy generation, their agencies are important partners in conserving habitat resources. Municipal governments, industry, non-governmental organisations and individual Canadians also are important partners in these efforts.

## 1.2 Policy for the Management of Fish Habitat

The *Policy for the Management of Fish Habitat*[2] provides policy direction for interpreting the broad powers for fish habitat protection and pollution prevention mandated in the *Fisheries Act* in a manner consistent with the concepts of sustainable development and ecosystem management. The overall objective of the Policy is to achieve a "net gain in the natural productive capacity of habitats for the nation's fisheries resources" with three supporting goals to achieve the objective (conservation of current productive capacity, restoration of damaged habitats, and development of fish habitat). When reviewing a developer's plans which could have impacts on fish habitat, the Department implements the conservation goal using the "no net loss" guiding principle so that unavoidable losses as a result of the project are balanced by restored and/or newly created or enhanced fish habitat. Any authorisation issued under section 35 would contain conditions obligating the developer to achieve the required balance. If unacceptable losses of fish habitat (for example where a species at risk is involved and fish habitat technology is unproven) cannot be prevented, the Policy calls for an authorisation not to be issued.

The Policy emphasises the importance of integrated planning to ensure that fish habitat plans are implemented with sufficient knowledge of current and future demands of other natural resource users. It recognizes that other sectors of the economy make legitimate demands on water resources, and promotes integrated planning as an approach to ensure the protection of fish habitat while providing for other uses.

Since the Habitat Policy was introduced in 1986, a number of directives and guidelines related to habitat protection provisions of the *Fisheries Act* have been issued to provide additional guidance to Departmental staff and project proponents. These are the "Directive on the Issuance of section 35(2) Authorizations," the "Habitat Conservation and Protection Guidelines" and the "Decision Framework for the Determination and Authorisation of Harmful Alteration, Disruption or Destruction of Fish Habitat.[3]

[2] The full text of the Policy for the Management of Fish Habitat can be found at <http://www.dfo-mpo.gc.ca/habitat/Policy/english/index_e.htm>.

[3] For the text of these documents, see <http://www.dfo-mpo.gc.ca/habitat/Law_Reg/english/index_e.htm>, <http://www.dfo-mpo.gc.ca/habitat/c&pguide/english/index_e.htm> and <http://www.dfo-mpo.gc.ca/habitat/HADD/english/index_e.htm>, respectively.

## 1.3 Habitat Management Program

The Department's Habitat Management Program is responsible for the administration of the habitat protection provisions of the *Fisheries Act* through the application of the Habitat Policy's eight strategies. Day-to-day delivery of the Program including the review and assessment of projects and, where required, the issuance of authorisations for projects that threaten to alter, destroy or disturb fish habitat is carried out by staff in the Department's five regional offices (Pacific, Central and Arctic, Laurentian, Maritimes and Newfoundland). This also includes compliance monitoring and enforcement by Fishery Officers assigned by the Conservation and Protection Program.

National Headquarters Habitat Management Program staff provide national policy direction and strategic advice and liaison with other departmental sectors, federal departments and national industry and non-governmental organisations.

The *Canadian Environmental Assessment Act* (CEAA[4]) requires that federal authorities take into account the broader environmental impacts of many of their regulatory decisions. A decision to issue an authorisation under section 35 of the *Fisheries Act* is one such "trigger" for environmental assessments under CEAA. The Program is responsible for conducting environmental assessments required by the CEAA prior to making a decisions under section 35 and also, under an administrative arrangement within the Department, prior to the issuance of permits under section 5 of the *Navigable Water Protection Act* (NWPA).

Habitat decision-making authority under the *Fisheries Act* is the exclusive responsibility of the Minister of Fisheries and Oceans. However, beginning in the 1890s in Ontario and Quebec and in the 1930s in the Prairie Provinces, the federal government assigned administrative responsibility for the management of the fishery to many of the provincial governments within their boundaries. While decision making under the Act for habitat matters was not transferred, the actual delivery of the program is shared with other federal departments and provincial governments. The arrangements vary from province to province with the federal government generally being more involved in coastal areas with significant commercial fisheries and anadromous fish populations.

The Department's Habitat Management Program is responsible for the application of the habitat provisions under the *Fisheries Act* in Newfoundland and Prince Edward Island, where it directly manages all freshwater and marine fish, fish habitat and fisheries. In Nova Scotia and New Brunswick, it manages marine and some freshwater fisheries such as anadromous Atlantic salmon, while the provinces manage certain freshwater species. These provincial governments collaborate with the Department by referring development projects for review and assessment.

[4] For the text of this Act, see<http://canada.justice.gc.ca/en/laws/C-15.2/>.

In Quebec, the Department manages the fisheries in marine waters, while the Province of Quebec manages fishing for anadromous, catadromous and freshwater species.

In British Columbia and the Yukon, the Department manages marine and anadromous fisheries and associated habitats and the province/territory manages the remaining inland fisheries. In the Northwest Territories, the Department directly manages all freshwater and marine fisheries and associated habitats.

As well, day-to-day administration of the fisheries management provisions of the *Fisheries Act* has been assigned according to various agreements, orders in council, and regulations made pursuant to the Act in the Prairie provinces (Manitoba, Saskatchewan, Alberta) Ontario, Quebec and British Columbia.

The administration of the pollution prevention provisions of the *Fisheries Act* was assigned to Environment Canada in 1978. For its part, Environment Canada has entered into co-operative agreements with a number of provinces with respect to the administration and enforcement of section 36 and/or its regulations. The Department continues to provide advice to Environment Canada on fish and fish habitat as part of day-to-day delivery and in any legislative or regulatory initiatives related to section 36.

The Habitat Management Program also provides technical expertise and advice to a range of groups regarding the fish habitat protection provisions of the *Fisheries Act* and with respect to the protection, conservation, restoration and development of fish habitats. These include private citizens, First Nations, provincial, territorial and municipal governments, other federal departments, industry associations and a broad range of local, regional, national and international environmental, conservation and community-based non-governmental organisations.

The conservation and protection of fish habitat requires a foundation of credible, relevant and up-to-date knowledge. Without such knowledge, sound and balanced decisions on conservation, protection and sustainable utilisation of resources cannot be made. The Department's Environmental Science Branch provides scientific support for habitat management decisions through a program of research directed towards understanding of the capacity of aquatic ecosystems to sustain the production of fish and the ecosystem impacts of human-induced changes, such as physical disruption to habitat.

In keeping with the Government of Canada's efforts to improve the quality of services and to better inform the public about what they can expect in terms of services from their Government, new service standards have been drafted for the Habitat Management and Environmental Science Program. These standards provide concrete indicators against which the program's responses to project proponents and others can be measured, including:

- responding to requests for project review and referrals for impacts to fish habitat – requests for advice;
- issuing *Fisheries Act* approvals and authorisations;
- conducting environmental assessments, providing specialist advice and information, and participating in environmental assessments;
- participating in fish habitat conservation and protection initiatives;
- participating in habitat restoration and improvement;
- involvement in environmental emergency response (including fish kills);
- enforcement support; and
- responding to public inquiries and information requests.

A summary of the standards is attached as Annex II.

## 1.4 The Challenges Ahead

A key facet of the Department's mission is to assure safe, healthy, productive waters and aquatic ecosystems, for the benefit of present and future generations, by maintaining the highest possible standards of service to Canadians in the areas of marine safety and environmental protection, scientific excellence and conservation and sustainable resource use.

Within this context, this report identifies specific challenges faced by the Habitat Management Program and the Program's responses to them, to protect fish habitat from the ever-increasing pressures of human activity. Current major challenges for the Program – all against a backdrop of fiscal restraint include:

- filling gaps in scientific knowledge;
- responding to increased public expectations that the federal government take a more active role in environmental protection;
- meeting new legislated responsibilities;
- initiating a conservation and protection presence in Ontario to compensate for the withdrawal of the province from an Interim Referral Process Agreement; and
- meeting increased demands for information from the public.

It is expected that performance reporting will play a major role in determining the effectiveness of the Department's efforts in protecting and conserving fish habitat.

# Part 2 Habitat Program Delivery: 1998-99

Part 2 of this report highlights regional activities undertaken during the fiscal year (FY) 1998-99 under each of the Habitat Policy's eight strategies in support of fish habitat that sustains commercial, recreational and Aboriginal fisheries in Canada's fresh and marine waters.

Note: Many of the initiatives which are reported incorporate more than one strategy and in such cases, the initiative is reported once in detail for each region rather than being repeated as a regional initiative under each relevant strategy.

## 2.1 Protection and Compliance

**Strategy 1. Protection and Compliance:** Protect fish habitats by administering the *Fisheries Act* and incorporating fish habitat protection requirements into land and water use activities and projects.

The procedural steps for implementing the "no net loss" guiding principle, summarised in Annex III, are followed as an integral part of this strategy to deal with proposed works and undertakings that could affect fish and fish habitat.

The Protection and Compliance Strategy is accomplished primarily through two key functions:

- administering the Fish Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*;
- enforcing the Fish Habitat Protection and Pollution Provisions of the *Fisheries Act*.

### 2.1.1 Administering the Fish Habitat Protection Provisions

The administration of Fish Habitat Protection Provisions of the *Fisheries Act* involves the review of a proponent's plans for works or activities that might have an impact on fish habitat. These works can range in size and complexity from the installation of a culvert for a road crossing to the development of a large mine. To conduct these reviews and provide advice in a timely manner, the Department must commit considerable resources.

In the parlance of the Department, these project reviews are known as "referrals," as they are usually proposals for works and activities that are voluntarily referred to the Department directly by proponents or by other government agencies through collaborative arrangements and agreements. Habitat Program staff review the project plans and advise proponents of any potential impacts and of requirements to avoid harm to fish habitat. Table 1 summarises the scope of the referral activity experienced by the Department in the FY 1998-99.

**TABLE 1**
**Summary of Habitat Referrals: 1998-99**

| Region | Roads | Forestry | Instream Works | Shoreline Works | Mining | Land Use | Other* | Total |
|---|---|---|---|---|---|---|---|---|
| Pacific | 496 | 717 | 795 | 580 | 559 | 626 | 314 | 4087 |
| Central & Arctic | 570 | 9 | 1046 | 752 | 117 | 115 | 451 | 3060 |
| Laurentian | 32 | 1 | 11 | 83 | 2 | 1 | 78 | 208 |
| Maritimes | 474 | 20 | 547 | 423 | 8 | 62 | 260 | 1794 |
| Newfoundland | 355 | 118 | 217 | 195 | 49 | 448 | 136 | 1518 |
| **Total** | **1927** | **865** | **2616** | **2033** | **735** | **1252** | **1239** | **10667** |

*The "other" category includes project referrals related to: Aquaculture; Deleterious Substances; Hazardous Materials; Ocean Management; Ocean Dumping; Oil & Gas; Power Projects; Railways; Research; Seismic Activities; Offshore Shipping and Water Management.

As illustrated in Table 1, there were 10,667 referrals during the 1998-99 fiscal year. The table was compiled using the National Habitat Referral Tracking System (HRTS[5]), a tool developed by the Department to assist Regional Habitat Program staff in tracking referrals and providing information to Regional and National Managers.

Table 2 displays the authorisations and advice provided by the Department during the FY 1998-99.

**TABLE 2**
**Authorizations and Advice Reported: 1998-99[6]**

| Region | Authorised | Advice Provided to Proponent or Others | Total |
|---|---|---|---|
| **Pacific** | 51 | 1996 | 2047 |
| **Central & Arctic** | 301 | 1870 | 2171 |
| **Laurentian** | 4 | 131 | 135 |
| **Maritimes** | 41 | 1185 | 1226 |
| **Newfoundland** | 4 | 849 | 853 |
| **Total** | **401** | **6031** | **6432** |

[5] HRTS is also used to track CEAA environmental assessments, for registering those assessments triggered as a result of the Department's regulatory decisions under the fish habitat protection provisions of the *Fisheries Act*, the *Navigable Waters Protection Act* (NWPA) and the *National Energy Board Act* (*NEBA*) on the Federal Environmental Assessment Index and for maintaining the List of Records/Public Registry.

[6] The Decision table is based on information captured by HRTS which was subsequently reviewed by each regional office. Note that more than one authorization can be issued for a referral, for instance, both a section 35(2) authorisation and a section 32 authorisation will be counted as separate authorizations.

More than 400 authorisations were issued under sections 32 (7%) and 35 (93%) of the *Fisheries Act* and advice was provided with respect to 6,031 referrals. Advice is provided when the Department, having reviewed a project, has determined that the project, as proposed or with suitable modifications, is unlikely to result in the harmful alteration, disruption or destruction of fish habitat and therefore can proceed without an authorisation. Advice may be provided by means of letters to proponents, recommendations of mitigation measures to permitting agencies, advice to provincial or territorial agencies, or specialist advice to other federal authorities.

### 2.1.2 Major Projects

Certain sections of the *Fisheries Act*, particularly section 35(2), trigger the need for an environmental assessment under the *Canadian Environmental Assessment Act* (CEAA). In projects where the Department is a responsible authority, it is required to consider environmental issues which may be considerably broader than those associated with the habitat protection provisions of the *Fisheries Act*. While the vast majority of these reviews involve screenings, larger projects may be subject to comprehensive studies or panel reviews as provided for by CEAA. Table 3 is a list of major projects for which the Department conducted or participated in a review in FY 1998-99.

**TABLE 3**
**Major Projects**

### Pacific Region

- B.C. Fast Ferries – Pacificats
- Tulsequah Chief Project
- Kemess South Gold-Copper Project
- Skytrain Extension Project
- Prosperity Gold – Copper Project
- Columbia Basin Hydro-electric Initiatives

### Central & Arctic Region

Northwest Territories
- Diavik Diamond Mine

Alberta
- Project Millennium Oil Sands Development
- Little Bow - Highwood Water Management Project
- Cheviot Coal Mine Development Project

Saskatchewan
- Box Gold Mine – Goldfields Project

Manitoba
- Lower Churchill River Water Level Enhancement Project

Ontario
- Matachewan Mine
- Aquarius Mine
- Musselwhite Mine
- Highway 407, Toronto
- Highway 417, Markham
- Redhill Creek Expressway
- Twin Falls Generation Station
- Long Sault Rapids Hydro-electric Facility

### Laurentian Region

- Dredging-St. Lawrence River
- Expansion of the Port of Sept-Îles
- Sainte-Marguerite-3 Hydro Development
- Reconstruction of the Grand-Mère Hydro-electric Facility
- Gazoduc TQM-PNGTS Gas Pipeline
- Dredging-Lachine Canal
- Construction of the Champlain Bridge
- Cap à la Roche

### Maritimes Region

- Sable Island Natural Gas Project
- Fredericton-Moncton Highway Project
- Petitcodiac River Causeway Gates

### Newfoundland Region

- Voisey's Bay Mine/Mill Project
- Trans Labrador Highway (Phase II)
- Rose Blanche Hydro-electric Development
- Terra Nova Offshore Petroleum Development
- Newfoundland Oil Transhipment Terminal

### 2.1.3 Administration of the Pollution Prevention Provisions

The Minister of Fisheries and Oceans is legally responsible to Parliament for all sections of the *Fisheries Act*. However, for sections 36 to 42, Environment Canada administers those aspects dealing with the control of pollutants affecting fish.

During 1998-99, Environment Canada carried out 414 inspections with respect to the deposit of deleterious substances as described under section 36(3). The following is based on Environment Canada's *Canadian Environmental Protection Act* Annual Report for the period of April 1998 to March 1999.[7]

**Canada-Alberta Agreement**

The Canada-Alberta Administrative Agreement for the Control of Deposits of Deleterious Substances Under the *Fisheries Act* was signed on June 1, 1994, on behalf of Canada by the Minister of Fisheries and Oceans and the Minister of the Environment and on behalf of Alberta by the Minister of Environment. The agreement entered into force on September 1, 1994. The Agreement established the terms and conditions for the co-operative administration of section 36(3) and the related provisions of the *Fisheries Act*, the regulations under the *Fisheries Act* and the *Alberta Environmental Protection and Enhancement Act*.

The administration and implementation of the agreement is the responsibility of a joint federal-provincial committee. The committee membership includes representatives from Environment Canada, Fisheries and Oceans and Alberta Environment (AENV).

The agreement identifies the following areas of co-operation: spill reporting, inspections, investigations, enforcement training, information sharing and pulp and paper effluent regulations.

- The agreement provides for a "one-window" approach where the province receives all spill reports and maintains a 24-hour spills reporting line. Environment Canada is notified of all incidents that occur on federal lands, works or undertakings; or when a spill crosses provincial borders.

- During 1998, AENV reported 123 incidents to Environment Canada -87 relating to the *Fisheries Act*, and 18 concerning releases on federal lands, works or undertakings. In the spirit of the one window reporting mechanism, there were an additional 18 incidents not related to the *Fisheries Act* Agreement in which AENV forwarded information to Environment Canada, because of a potential federal interest, such as PCB spills on lands under provincial jurisdiction.

[7] For more details, visit the following web site: <http://www.ec.gc.ca/ceparegistry/>.

- During 1998 there were no joint inspections carried out under the *Fisheries Act.*

- Where there is an alleged contravention of both the federal and provincial legislation, the agreement provides for identification of a lead agency and the exchange of relevant information for the investigation. Environment Canada remains abreast of AENV investigations but does not get directly involved unless assistance is required by AENV or if AENV cannot continue the investigation under the *Fisheries Act.* In 1998, there was one instance where Environment Canada became more actively involved because of repeated fish kills at a power generating facility.

- There was no formal training provided during this time period; however, there were several meetings organised to promote the transfer of information and expertise.

- The agreement establishes the principles for sharing of scientific, technical and legal information. Information sharing to date has focused on the provision of compliance and environmental effects monitoring (EEM) information as required under the Pulp and Paper Effluent Regulations.

- The agreement identifies the roles and responsibilities of the Regional Authorisation Officer (RAO), reporting procedures for non-regulated releases of deleterious substances, requirements for information sharing, administrative procedures for implementation of the EEM program and a mechanism for disagreement resolution. There are seven direct discharge and one indirect discharge mills within Alberta affected by the Agreement. The seven direct discharge mills are: Weyerhaueser (Grande Prairie), Daishowa (Peace River), Weldwood (Hinton) and Alberta Pacific (Boyle) which are kraft mills; Millar Western (Whitecourt) and Slave Lake Pulp (Slave Lake) which are chemi-thermomechanical mills and Alberta Newsprint Co. (Whitecourt) which is a thermomechanical mill. Emco Building Products Limited (Edmonton) is the indirect discharge mill whose effluent is sent to an off-site treatment facility (the Goldbar sewage treatment plant) for further treatment. All eight mills are subject to the EEM provisions of the Pulp and Paper Effluent Regulations.

- From April 1, 1998, to March 31, 1999, all direct discharge mills continued to operate with Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) values well below federal requirements. (Slave Lake pulp mill reported one high TSS discharge (6,867 kg) on January 30, 1999 that exceeded Alberta Environment limit of 5,000 kg/day. The discharge, however, was within federal TSS limit of 9,025 kg/day.) Slave Lake pulp mill and Weldwood pulp each had two failures of the daphnia magna toxicity test. When this occurs, mills must immediately conduct an acute lethality test utilising rainbow trout. There were no violations of the acute lethality toxicity provisions using rainbow trout. An effluent is considered as acutely lethal when at 100% concentration, it kills 50% of the rainbow trout in a 96 hour period.

The agreement continues to provide a mechanism for the two governments to co-operate on the implementation of the pollution provisions of the *Fisheries Act*. From the experience gained to date, there may be an opportunity for the development of future annexes. These opportunities will be investigated by the Management Committee. The effect of the agreement has been to eliminate duplicate reporting and inspection requirements while maintaining the same level of environmental protection. The co-operation established between the inspection and investigation officers in both levels of government has improved communication and allowed for co-operative work in other enforcement programs.

**Canada-Saskatchewan Agreement**

On September 15, 1994, the federal Minister of the Environment and Fisheries and Oceans and the Saskatchewan Minister of Environment and Resource Management signed the "Canada-Saskatchewan Administrative Agreement for the Control of Deposits of Deleterious Substances under the *Fisheries Act*". The agreement harmonised federal and provincial regulatory requirements and provides a "single window" for industry for the enforcement and compliance of federal and provincial regulations.

The agreement identifies the following areas of co-operation: spill reporting, compliance promotion, inspections and investigations, information sharing, and pulp and paper effluent regulations. In addition, the agreement describes the administrative structure in delivering the terms of the agreement and a dispute resolution mechanism.

- The agreement provides for "one-window" spill reporting and defines the response mechanism in order to avoid duplication. It also outlines how each party will keep the other informed of releases that may be of interest to the other party. Saskatchewan Environment and Resource Management (SERM) maintains a 24-hour, seven-day-a-week environmental spill response number to receive reports of unauthorised releases or spills in the province. Environment Canada is informed of releases that enter or could potentially enter waters frequented by fish. In FY 1998-99, there were 301 spills reported to SERM. Of those, nine were spills into water that may be considered fish bearing waters. Eight of these spills were dealt with by the province and one was handled by the Atomic Energy Control Board. Organisational changes within SERM resulted in the responsibility for spill response being handled from the district offices. This has led to a certain amount of confusion. During this transition some spills that should have been reported to Environment Canada were not (e.g., a 1.5 million gallon raw sewage spill on July 29, 1998, by the City of Moose Jaw into the Moose Jaw River). On October 21 and 22, 1998, the eight Conservation Officers from the Saskatchewan Spill Control Centre were given spill reporting training related to the Administrative Agreement. This training was to ensure that the provincial officials are aware of when they should contact Environment Canada.

- This agreement facilitates co-operation and co-ordination of enforcement efforts of both parties related to section 36 of the *Fisheries Act* and its regulations and the provincial *Environmental Management and Protection Act* (EMPA). There were numerous exchanges

of information between Environment Canada and SERM about apparent violations of provincial regulations that were also apparent violations of the *Fisheries Act*. SERM was the lead on all investigations but two. Environment Canada, with the assistance of SERM, investigated a service station in the La Ronge area. The service station had a leaking underground storage tank that severely contaminated the soil surrounding the service station and threatened a nearby river. The investigation concluded with the petroleum company cleaning up the site and receiving a warning letter. The Atomic Energy Control Board (AECB) was the lead investigator on an August 14, 1998, spill of approximately 5,000 cubic metres of treated effluent from the Key Lake uranium mine. The company cleaned up the spill to the AECB's satisfaction.

- The agreement provides for the sharing of information between the parties for the purpose of the administration and enforcement of alleged violations related to section 36 of the *Fisheries Act* and its regulations and the provincial EMPA. There have been no formal requests for information by either party.

- The agreement identifies the reporting procedures for regulated and non-regulated releases of deleterious substances, requirements for information sharing, administrative procedures for implementation of the environmental effects monitoring program and a mechanism for disagreement resolution. In addition, it allows for assigning the roles and responsibilities of the Regional Authorisation Officer (RAO) to a provincial official. There is only one mill in Saskatchewan, the Weyerhaeuser mill at Prince Albert, which is regulated by the Pulp and Paper Mill Effluent Regulations. The requirements of the federal regulations are incorporated into the provincial permit and inspections are normally done by provincial inspectors. In FY 1998-99, SERM conducted eight inspections, and no violations were identified. All monthly monitoring data and yearly reporting requirements under the federal regulations were reported to the province and copied to Environment Canada. The rate of compliance continued to be high and has not changed since the signing of the agreement. Several meetings and conference calls between Environment Canada, SERM, Fisheries and Oceans, and Weyerhaeuser were held in FY 1998-99 to discuss the Environmental Effects Monitoring (EEM) study. Weyerhaeuser submitted the study design for Cycle 2 EEM to the EEM Technical Advisory Panel for approval in September 1998 and conducted their fieldwork in September/October 1998. The Cycle 2 EEM interpretative report is due on April 1, 2000.

**Canada-Quebec Agreement**

Environment Canada signed an Administrative Agreement with the Government of Quebec for the application in Quebec of the federal pulp and paper mill regulations (in effect from December 16, 1997 to March 31, 2000).

This agreement deals with regulations under the *Canadian Environmental Protection Act* (CEPA) and the *Fisheries Act* and creates a "one-window" approach to administer regulations affecting 62 pulp and paper mills in Quebec. The CEPA federal regulations covered by the Agreement and affecting seven mills are the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* and the *Pulp and Paper Mill Defoamer and Wood Chip Regulations*. The *Fisheries Act Regulations* covered are the *Pulp and Paper Effluent Regulations*.

In FY 1998-99, Environment Canada reviewed 1,008 monthly reports from the mills, produced monthly reports on compliance, discussed problematic mills with Quebec and took appropriate action in conformity with its enforcement and compliance policy. Two investigations by federal government representatives were ongoing during the year.

### 2.1.4 Enforcement and Convictions

The Department prefers to prevent damage to habitat and avoid losses to the fisheries resources through compliance with the habitat provisions of the *Fisheries Act*, rather than to take court action against offenders after damage has occurred. However, when voluntary compliance fails, and the *Fisheries Act* is contravened such that habitats supporting fisheries resources are harmfully altered, disrupted, destroyed or where deleterious substances are deposited into fisheries waters, enforcement action may be taken.

Table 4 is a summary of the convictions under the habitat provisions of the *Fisheries Act* reported by various agencies during the 1998-99 fiscal year.

**TABLE 4**
**Convictions Reported under the Fisheries Act: 1998-99**

| **Area\Section of *Fisheries Act*** | 35(1) | 36(1) | 36(3) | 37(1) | 37(2) | 37(3) | 38(4) | 38(5) | 38(6) | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|
| Newfoundland | 1 | | | | | | | | | **1** |
| New Brunswick | 7 | | | | | | | | | **7** |
| Prince Edward Island | 2 | | | | | | | | | **2** |
| Nova Scotia | 2 | | 1 | | | | | | | **3** |
| Quebec | 0 | | | | | | | | | **0** |
| Ontario | 1 | | | | | | | | | **1** |
| Manitoba | 0 | | | | | | | | | **0** |
| Saskatchewan | 0 | | | | | | | | | **0** |
| Alberta | 0 | | | | | | | | | **0** |
| Northwest Territories | 0 | | | | | | | | | **0** |
| British Columbia | 21 | | 13[8] | 4 | | | | 1 | 2 | **41** |
| Yukon | 1 | | 0 | | | | | | | **1** |
| **Total** | **35** | | **14** | **4** | | | | **1** | **2** | **56** |

The statistics for British Columbia do not reflect all habitat enforcement activities for FY 1998-99, but rather only those convictions reported during the fiscal year as a result of a court judgement. For this fiscal year, Pacific Region reported $614,324 in fines of which $506,799 was directed to restoring the damaged fish habitat or fisheries resource. In addition to these fines, there were five court orders to restore the damaged habitat at the expense of the offender. (These figures are subject to change due to reporting delays and the court appeals process.)

In Pacific Region in FY 1998-99, habitat enforcement capabilities were improved through continuation of the regional staff-training program. The Region implemented an integrated habitat enforcement training program to ensure minimum standards of enforcement skills for both Habitat Management staff and Fishery Officers undertaking habitat management duties and investigations. In addition, a pocket field guide was developed to assist in collecting samples of suspected deleterious substances during an investigation. The Region also continued production of its *Habitat Enforcement Bulletin*, with three issues in FY 1998-99. This periodic bulletin serves to inform enforcement staff of case law developments, resource

[8] Statistics for British Columbia include all convictions reported as of June 8, 1999, and consolidate all convictions by the Department, Environment Canada, and the B.C. Ministry of Environment Lands and Parks.

material, and the use of enforcement powers and tools. In January of 1999, the Region launched its public habitat enforcement web site.[9]

Scotia-Fundy Enforcement staff reported ten habitat related incidents in FY 1998-99. All of these cases involved harmful alteration pursuant to section 35(1) of the *Fisheries Act*. Two of these cases resulted in convictions, while warnings were issued for six others. In one of the two remaining cases, restorative work was carried out in lieu of charges while in the other, the persons responsible for the damage were never identified.

The New Brunswick portion of the Gulf Region reported six convictions under section 35(1) and six pending charges. The Prince Edward Island portion of the Gulf reported two convictions and one pending. The Gulf area of Nova Scotia had one conviction and one charge pending.

Environment Canada reported one charge laid under section 36(3) of the *Fisheries Act*. The pollution incident (a gasoline spill of approximately 1,000 litres) in December 1998 occurred near the wharf in Cripple Creek, Cape Sable Island, Shelburne County. It is suspected that the spill occurred as a result of a cracked fuel filter on an above-ground storage tank used for fuelling fishing boats. Gasoline entered the nearby harbour and contaminated lobsters being held in lobster cages. It was reported that some lobsters were killed, others contaminated. A fine of $8,000 was levied against the company to be paid within six months to the Environmental Damages Fund.

With respect to information concerning enforcement, convictions under sections 40 and 79.2(i) of the *Fisheries Act* as it pertains to Sections 35(1) and 36(3) for the FY 1998-99 include a violation in Eastern Newfoundland. The Newfoundland Department of Works, Services and Transportation (DWST) was fined $500 (pursuant to section 40(2)(b) of the *Fisheries Act*) and $6,500 (pursuant to section 79.2 (i) of the *Fisheries Act*), which was directed towards development of habitat protection training and education initiatives for DWST employees.

Recognising the need for improved co-ordination among enforcement agencies within the province, talks were initiated to discuss enforcement protocols, process and issues.

[9] See <http://www-heb.pac.dfo-mpo.gc.ca/english/habitat_policy/index.htm>.

### 2.1.5 Regional Activities

## Pacific Region

#### Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments

A guidance document was developed outlining the potential impacts to fish and fish habitat when treated wood products are installed in aquatic environments. Commonly used heavy-duty wood preservatives were reviewed in conjunction with alternatives to treated wood. The guidelines provided information to assist Departmental officials in the review of projects involving the use of treated wood to ensure the protection of fishery resources and promote regional consistency on such issues. Publication is expected in 1999.

#### Submission to the Commission on Environmental Co-operation (North American Free Trade Agreement, NAFTA)

In April 1997, the Sierra Legal Defence Fund made a submission under Article 14 of the *North American Agreement on Environmental Co-operation* (NAAEC) alleging that the Government of Canada is failing to enforce its environmental law effectively. Specifically, the submission asserts that Canada fails to enforce section 35(1) of the *Fisheries Act* and fails to utilise its powers pursuant to section 119.06 of the *National Energy Board Act* to protect fish and fish habitat from damage caused by hydroelectric power generation in British Columbia by B.C. Hydro, a provincial Crown corporation.

In this circumstance, Canada submitted to the Commission on Environmental Co-operation (CEC) that it is enforcing its environmental laws, and is in full compliance with its obligations under the NAAEC. The Department, representing Canada for the allegations related to the *Fisheries Act*, did an extensive review of the circumstances and actions at all B.C. Hydro facilities. Legal proceedings were underway at two of the facilities, and the Province, B.C. Hydro and the Department developed guidelines during FY 1997-98 for the provincial Water Use Planning process. This planning process will initially focus on all B.C. Hydro facilities over the next five years to address outstanding fisheries issues. Further, the enforcement methods utilised by Canada in B.C. recognise both the integrated and complex nature of the B.C. Hydro system and of related fish and fish habitat issues. Canada has determined that a range of compliance activities, from voluntary compliance and compliance agreements to legal and judicial sanctions, are the most productive in terms of providing for the long-term protection of the environment with respect to fish and fish habitat. Given the extensive submission to the CEC by Canada, the government recommended that the development of a factual record would not, in this instance, significantly further the objectives of the NAAEC, and was not warranted. During FY 1998-99, Department staff prepared extensive responses to additional information required by the Commission and Expert Panel.

### Submission to the Commission on Environmental Co-operation under NAFTA on B.C. Mines

In July 1998, the Sierra Club of B.C., the Taku Wilderness Association and the Environmental Mining Council of B.C. made a submission under Article 14 of the *North American Agreement on Environmental Co-operation* (NAAEC) alleging that the Government of Canada failed to enforce its environmental law effectively. Specifically, the submission asserted that Canada failed to enforce section 36(3) of the *Fisheries Act* against mining companies that deposit deleterious substances in waters frequented by fish. Three mines were identified in the submission: The Tulsequah Chief Mine in the Taku River valley near the B.C.-Alaska border; the Mount Washington Mine on Vancouver Island; and the Britannia Mine, north of Vancouver. The Mount Washington, Britannia Mines and Tulsequah Chief Mines are closed. However, the B.C. government had issued a project approval certificate to re-open the Tulsequah Chief Mine.

### Greater Vancouver Regional District (GVRD) Waste Management

The Department participated in the review of the Stage 2 Liquid Waste Management Plan (LWMP) of the GVRD. This is co-ordinated through the Environmental Assessments Task Group which is also responsible for evaluating the environmental effects of stormwater discharges in the Lower Mainland of B.C., investigating effluent toxicity sources at the Annacis and Lulu treatment plants, reviewing a proposed discharge ranking measure for LWMP discharges, and tracking combined sewer overflow monitoring programs.

### B.C. Fast Ferries – Pacificats

Significant public concern about the aquatic environment arose during the initial sea trials of this new class of B.C. ferry. In recognition of possible effects on fish and fish habitat, the Department initiated regulatory consultations with the B.C. Ferry Corporation to ensure fish and fish habitat would be adequately protected.

### Tulsequah Chief Project

The Tulsequah Chief Project involves re-opening a poly-metalic mine on the banks of the Tulsequah River and construction of mine infrastructure and a 160 km access road from Atlin. Subsequent to the Department and the B.C. provincial government reaching conclusions in their joint environmental assessment of the proposed project early in 1998, Canada and B.C. have been holding bilateral meetings to resolve issues considered outstanding by the U.S. Despite progress being made in responding to U.S. technical issues, the U.S. continues to advocate reference to the International Joint Commission. Development of a Fish and Fish Habitat Mitigation and Compensation Plan and *Fisheries Act* authorisation and *Navigable Waters Protection Act* approvals are on hold pending the outcome of the bilateral discussions.

**Kemess South Gold-Copper Project**

The Department completed an investigation related to potential violations of the *Fisheries Act* at the Kemess South Mine, owned by Royal Oak Mines Inc. Following the 16-month investigation, a court brief was submitted to the Department of Justice. Charges are pending.

As part of the *Fisheries Act* authorisation issued for this mine project, a comprehensive fish habitat compensation plan was developed and agreed to by the proponent. However, when a substantial portion of the plan was not implemented, the Department made attempts to work with the company to ensure that the compensation works were completed. These attempts were unsuccessful. The company was put on notice that it was in default of the compensation agreement and advised that the issue was being transferred to the Fishery Officers for investigation and further action.

Late in the winter of 1998, it was determined that the tailings dam construction at the mine site was not proceeding at a rate that could handle the expected spring freshet flows, and that there was a high risk that toxic tailings water would be released into the Kemess Creek system. The Department advised the mine company and the Ministry of Energy and Mines (MEM) that an Inspector's Direction would be issued unless the Department was given a guarantee that measures were in place such that the tailings dam target height would be met on time. Following several meetings between the Department and MEM, assurances were provided and the construction targets were eventually met.

**SkyTrain Extension Project**

The provincial government proposed a 21 km extension to the Lower Mainland's SkyTrain system at an estimated cost of approximately 1.6 billion dollars. The Department declared itself a responsible authority for the review of the project under CEAA. The SkyTrain extension was exempted from the *British Columbia Environmental Assessment Act* (BCEAA), making the federal review the subject of considerable media attention. The CEAA review is ongoing and the Department is currently waiting for information regarding impacts to fisheries resources and an analysis of potential cumulative effects. The Fraser River shoreline has become a critical issue as a 66-inch sewer line and a shoreline park have been proposed for the same location on the river. Talks between the Rapid Transit Project Office (RTPO) and most of the municipalities along the proposed route have ceased. Construction on the new extension has not commenced.

**Prosperity Gold – Copper Project (a.k.a. Fish Lake Project)**

The proposed open pit mine located in the Chilcotin, approximately 150 km south-east of Williams Lake, would require a *Fisheries Act* authorisation for the project to proceed, triggering a comprehensive study under CEAA. Over the 1998-99 period, Taseko Mines has been working to address the various requirements outlined in the Project Report Specifications document. The Department has participated in multi-agency committee meetings, including

several to assess alternative means of undertaking the project. While no details have been released, Taseko Mines has eliminated all but one of the mine development options as uneconomical. This leaves only the original option, which involves draining Fish Lake and filling it with waste rock – an option which the Department has previously rejected. Accordingly, the Department will continue to closely scrutinise any new information provided by Taseko Mines in the next stages of the environmental assessment.

### Columbia Basin Hydro-electric Initiatives

A significant aspect of fulfilling *Fisheries Act* habitat protection responsibilities in eastern B.C. includes review of proposed new and modifications to hydro-electric projects as well as day-to-day hydro-electric operations on the Columbia River and its tributaries. Proposals for two hydro facilities on tributaries and a modification to the Brilliant Dam on the Kootenay River near Castlegar were at various stages of review under CEAA during the 1998-99 fiscal year. *Fisheries Act* authorisations are required for these facilities.

The Department participated in a joint environmental assessment with B.C. of the Keenleyside Powerplant Project. The project entails a canal to bypass, and a 150-MW powerhouse downstream of, the existing Keenleyside Dam, near Castlegar on the Columbia River. After a lengthy environmental assessment harmonised with B.C., a conclusion was reached in 1998 that the project was not likely to cause significant adverse environmental effects. Regional staff worked with the proponent on a Fish and Fish Habitat Mitigation and Compensation Plan, which was completed, and a *Fisheries Act* authorisation was granted in March 1999.

## Central and Arctic Region

### Diavik Diamond Mine (Northwest Territories)

The Diavik Diamond Mine is approximately 300 km northeast of Yellowknife, on Lac de Gras, in the Barrenlands of NWT. Diavik will become the largest diamond mine in North America, and will have a major influence on the economy of the North and the rest of Canada. The Diavik Project, which will mine four kimberlite pipes below the surface of Lac de Gras using open pits, requires construction and operation techniques never before used in the industry. A comprehensive study was conducted for the project, as a result of the need for an authorisation under section 35(2) of the *Fisheries Act*. The Department was working on the final draft of the authorisation for the loss of several small lakes and habitat within Lac de Gras, as well as a section 32 authorisation for the use of explosives and a *Navigable Waters Protection Act* permit.

### Project Millennium Oil Sands Development (Alberta)

This project, proposed by Suncor Energy Inc., is one of several long-term large-scale surface extraction projects proposed in the Athabasca oil sands region of northeastern Alberta. The Department was the lead federal authority in a co-operative environmental review of the

proposal undertaken with the province of Alberta. A comprehensive study report was released in October 1998. Several multi-stakeholder initiatives were developed to address follow-up and monitoring requirements identified in the review.

**Little Bow – Highwood Water Management Project (Alberta)**

This project involves the diversion of part of the spring flow from the Highwood River to the Little Bow River, where a storage reservoir will be constructed. Water from the reservoir will be used for irrigation of croplands in south-central Alberta. The Department was the lead federal responsible authority in a joint federal-provincial environmental assessment. Panel hearings were held to address the potential environmental effects of the project. The panel report was issued in May 1998, and the federal government's response to the report was released in October 1998. The Department participated in a working group that was asked to re-examine the instream flow needs in the basin, and is a member of a technical working group established to address issues related to fish and fish habitat.

**Cheviot Coal Mine Development Project (Alberta)**

This project consists of an open pit coal mine, coal processing facilities and associated infrastructure, as well as the upgrading of road and rail access corridors. The Department was the federal responsible authority in a joint federal-provincial environmental assessment. Authorizations under section 35(2) of the *Fisheries Act* were issued in August and September of 1998 in conjunction with the road and rail access corridor and the preparation of the coal processing plant site. The Department participated with other federal and provincial agencies in initiatives addressing follow-up and monitoring programs.

**Box Gold Mine – Goldfields Project (Saskatchewan)**

This project is a proposed open pit mine located on the north shore of Lake Athabasca, approximately 25 km south of Uranium City. The project would involve the in-filling of Vic Lake (9.5 ha.) for tailings disposition. It requires an NWPA permit, and potentially permits under the *Fisheries Act* and the *Metal Mining Liquid Effluent Regulations.* A comprehensive study under CEAA was initiated. In January 1999, the Department began a co-operative environmental assessment with the province of Saskatchewan under the *Canada-Saskatchewan Agreement on Environmental Assessment Co-operation.*

**Lower Churchill River Water Level Enhancement Project (Manitoba)**

Manitoba Hydro proposed the construction of a rockfill weir across the lower Churchill River as part of a settlement package relating to the Churchill River Diversion in the mid-1970s. The project was expected to increase fish abundance and recreational opportunities near the community of Churchill. The Department was the lead federal authority in an environmental assessment conducted jointly with the provincial government. The assessment concluded that the project was not likely to cause significant adverse effects, taking into account mitigation

measures, and the Department issued an authorisation under section 35(2) of the *Fisheries Act*. The Department is also participating in a seven-year monitoring program to verify impact predictions and ensure compensation measures were successful.

**Matachewan Mine (Ontario)**

Royal Oak, owner of the Matachewan mine located near Matachewan, Ontario, submitted a draft copy of the comprehensive study to the Department for review in February 1997 and a draft fish habitat compensation plan in June 1998. Review and comments from other federal authorities and the Department continued during 1998 on these two plans. The company notified the Department in November 1998 that changes to the timing of the proposed commissioning of the mine were expected, and the file was put "on hold" pending revisions to the draft comprehensive study, the fish habitat compensation plan and finalisation of commissioning plans.

**Aquarius Mine (Ontario)**

The Aquarius mine project located near Timmins, Ontario, required a review under the *Comprehensive Study List Regulations* of CEAA. During FY 1998-99, a draft comprehensive study report was prepared by the proponent and forwarded to the Department and the Canadian Environmental Assessment Agency for review and comment.

**Musselwhite Mine (Ontario)**

The Musselwhite mine project, located in northwest Ontario approximately 100 km north of Pickle Lake on the Pipestone River system, was reviewed under the comprehensive study provisions of CEAA and approved in 1997. Monthly monitoring continues, as required under the *Fisheries Act* authorisation. First Nations raised concerns regarding potential organic contaminant releases from the mine site. Tailings pond release of effluent was delayed until after consultation with First Nations groups. The Canadian Environmental Assessment Agency and Health Canada were informed. Monthly reports continue to be submitted to the Department, and no significant environmental occurrences have been identified on the site since commissioning of the mine.

**Highways (Ontario)**

Major highway construction identified within southern Ontario included: Highway 407, a bypass route for the Greater Toronto Area located to the north of the city; and the Redhill Creek expressway located in the City of Hamilton. During the fiscal year the Department was involved in determining the scope of the projects and the scope of the assessment. Watercourse crossings were reviewed by the Ontario Ministry of Natural Resources and the Department for potential impacts to fish and fish habitat. Completed detailed plans for these projects have not yet been submitted to the Department, as design options are still being evaluated.

### Hydro-electric Projects (Ontario)

As part of fulfilling the Department's mandate under the habitat protection provisions of the *Fisheries Act*, new proposals and modifications to hydro-electric projects as well as day-to-day hydro-electric operations in the province are reviewed for potential impacts to fish and fish habitat. Proposals for facilities on northern Ontario rivers were in various stages of review during FY 1998-99.

The Twin Falls generating station, located at Twin Falls on the Kagiano River near Manitouwadge, Ontario, was authorised in July 1998 after review under CEAA. The Department was the lead responsible authority for the review, and conducted a screening assessment, taking into account public concern. The Department was involved in providing information in response to a request through the public access to information provisions of CEAA. This request for information led to a judicial review.

The Long Sault Rapids hydro-electric facility on the Abitibi River was authorised under the *Fisheries Act* in 1995. During FY 1998-99, there were a number of issues relating to the functionality of the fish habitat created downstream of the dam, adherence to conditions of the authorisation, and monitoring requirements. Discussions continued with the proponent and with the Ontario Ministry of Natural Resources.

## Laurentian Region

The Laurentian Region has continued for a second year with its efforts to improve the administration and enforcement of the fish habitat provisions of the *Fisheries Act*. As a result, the loss of fish habitat has been avoided in numerous cases through the implementation of impact mitigation measures. The Region issued its first authorisations and required that project proponents causing loss of fish habitat replace the lost habitat so as to comply with the principle of no net loss.

Authorizations and notices were produced under section 35 of the *Fisheries Act*. All authorisations were accompanied by a habitat compensation agreement negotiated with the project proponent. Among the compensation projects implemented, is one to restore free circulation in rivers with spawning potential for rainbow smelt, a priority species under the St. Lawrence Vision 2000 (SLV2000) Action Plan which is a federal-provincial program to protect the St. Lawrence River. Another plan involved the creation of a 5,000 $m^2$ fish habitat on the Côte de Beaupré flats, a greatly disturbed area of the St. Lawrence, as well as the restoration of a mud flat in that area. These compensation projects respect the principle of no net loss in productive capacity set out in the Department's *Fish Habitat Management Policy.* They are also the subject of a follow-up program aimed at checking the effectiveness of the compensatory measures.

Each of the authorisations issued under section 35(2) required that an environmental assessment under CEAA be conducted. A total of 107 environmental screenings and four

comprehensive studies have been completed. The largest projects that have been the subject of a CEAA review are the selective dredging of the shoals in the St. Lawrence River between Montreal and Cap à la Roche by the Port of Montreal, the expansion of the Port of Sept-Îles, the Sainte-Marguerite-3 hydro-electric development, and reconstruction of the Grand-Mère hydro-electric power station. Other major projects, begun in previous years, have also been the subject of action in the fiscal year. These included the construction of the TQM-PNGTS Gas Pipeline, the reopening of the Lachine Canal to navigation, and the rebuilding of the Champlain Bridge in Ottawa. Proactive work has also been done in connection with a number of projects, which will be officially referred to the Department later. These relate to, among other things, the projects to partially divert rivers, in order to optimise the Bersimis hydro-electric complex, and the Lower Churchill hydro-electric project.

Environmental follow-up programs are often required of proponents, under either the *Fisheries Act* or CEAA. Follow-up programs are aimed at verifying the effectiveness of mitigation measures and the accuracy of the impact forecasts. Some projects – for example, the capital dredging at the Port of Sept-Îles and the selective dredging of the shoals from Montreal to Cap à la Roche – have been the subject of major fish habitat monitoring programs.

The Department also provides advice on fish habitat protection in environmental emergencies. Some 150 accidental oil spills in the St. Lawrence are reported each year. Where required owing to the extent of the spill, notices of threatened habitats and species are given to the Regional Environmental Emergencies Team (REET) established to enable the Department to direct its interventions in the field in such a way as to protect the habitat and the fishery resources. If necessary, sampling is done to determine whether contamination of the environment of the resource occurred.

## Maritimes Region

The Maritimes Region was involved in a number of environmental assessments for larger scale development projects in FY 1998-99.

### Sable Island Natural Gas Project

The largest of these environmental assessments was related to the development of the Sable Island offshore gas reserves and the construction of supporting infrastructure. The overall project was subject to a public panel review as required by CEAA. The National Energy Board was the lead responsible authority for the environmental assessment. The Department was also a responsible authority. The construction included a 558 km pipeline 762 mm in diameter, extending from Country Harbour, Nova Scotia, to Saint Stephen, New Brunswick. The project included a total of approximately 350 watercourse crossings. Clearing of the right-of-way commenced in mid-November 1998. Construction was due to be completed in September 1999. Thirty-seven of the larger crossings were identified as requiring authorisations under the *Fisheries Act*, and were authorised by the Department subject to a number of terms and conditions.

The overall Sable project resulted in the construction of several smaller lateral pipelines, including the Halifax Lateral, the Saint John Lateral, and the Point Tupper-Liquids Line Lateral. The Department provided input on the scope of the assessments and reviewed the subsequent comprehensive study reports for the Saint John Lateral and Halifax Lateral projects.

**Highways**

Large-scale highway development projects in the Maritimes Region involve a number of work elements requiring detailed review and assessment. Included among these is the Fredericton-Moncton Highway Project, construction of which began in May 1998. The project requires the construction of 195 km of four-lane highway and involves an estimated 180 watercourse crossings. Five of the large watercourse crossings will be major bridge structures and require review and approval through NWPA. NWPA approvals and their supporting environmental assessments under CEAA were completed in FY 1998-99 for three locations. Construction of these large bridges was well underway for the Saint John and Jemseg Rivers, while work for the Swan Creek Lake crossing was deferred until late spring 1999. The *Fisheries Act*-NWPA review, approval and supporting CEAA assessments for the remaining two large bridges (North and Canaan Rivers) were deferred until FY 1999-00.

**Petitcodiac River**

The Maritimes Region conducted environmental assessments of the Petitcodiac Causeway Trial Gate Openings in 1998 and 1999. The Department was a co-proponent and provided funds for the 1999 experiment, asserting the Department as a responsible authority and triggering an environmental screening under CEAA. In preparation for these experiments, Maritimes Region had conducted a CEAA environmental screening for the placement of riprap bank protection on the Petitcodiac River in 1997.

**Compensation Agreements**

In keeping with the *Policy for the Management of Fish Habitat*, fish habitat compensation agreements were required as a condition of each of the *Fisheries Act* authorisations issued in support of the above projects. The Maritimes Region was involved in considerable negotiation with the Maritime & Northeast Pipeline Ltd. and the Maritime Road Development Corporation on fish habitat compensation agreements.

A compensation agreement was fulfilled (July 1998) in Souris, Prince Edward Island, for lobster habitat disrupted by dredging during the expansion of an existing ferry terminal. A review of existing artificial reefs in the Maritimes Region and consultation with local fishers provided innovative design and methodology for creating a new marine habitat. Four acres of reef were constructed which are currently included in a scientific study to evaluate the colonisation of constructed marine habitat.

# Newfoundland Region

## Environmental Assessments

The Newfoundland Region was involved in a wide variety of referrals ranging from small stream crossings to large mining and offshore petroleum developments. Many of these referrals required extensive environmental assessments and many have ongoing monitoring requirements. The Department had a key role as the lead responsible authority in the public panel review of the Voisey's Bay Mine/Mill project under CEAA. The environmental impact statement and technical reports were reviewed, Departmental position statements were prepared, presentations were made at panel hearings, and federal participation in the environmental assessment process was co-ordinated. The Newfoundland Region will have an ongoing role in follow-up related monitoring activities and continued co-ordination of federal departments.

The Newfoundland Region was also the lead responsible authority for the assessment of the Trans Labrador Highway (Phase II) (Red Bay to Cartwright) due to NWPA requirements. Interactions were undertaken with the proponent, other federal and provincial agencies, the public, and other stakeholders to ensure that *Fisheries Act*, NWPA and CEAA issues were addressed. With respect to the Rose Blanche hydro-electric development and the Terra Nova offshore petroleum development, the Department was a responsible authority under CEAA due to the requirements to issue a section 35(2) *Fisheries Act* authorisation. In the case of the Terra Nova project, the Department also participated in the panel review and provided presentations to the Panel. The Department also participated in the federal government response to the Panel recommendations as reflected in the Canada Newfoundland Offshore Petroleum Board Decision 97.02 Report. The region will have an ongoing follow-up role with respect to the *Fisheries Act* authorisation and in addressing the panel recommendations.

A joint federal-provincial assessment was completed for the Newfoundland Oil Transhipment Terminal at Whiffen Head, Placentia Bay, in the form of a comprehensive study under CEAA. As the lead responsible authority for the assessment, due to section 35(2) *Fisheries Act* and section 5(1) NWPA triggers, the Department has ongoing interactions with federal and provincial agencies regarding follow-up, including monitoring programs for the project.

## Compensation Agreements

The Newfoundland Region was successful in negotiating compensation agreements with Newfoundland Power for the Rose Blanche Hydro-electric Development (June 1998) and with the proponents of the Terra Nova Offshore Development Project (July 1998). Significant changes to the Terra Nova project led to the requirement for amendments to the Ocean Dumping Permit and, consequently, a revised compensation agreement based upon a completely different compensation option. Discussions continued with the proponents of the Voisey's Bay Mine/Mill Project concerning methodology for quantifying lake habitat loss (and

gain), evaluation of compensation options and the need for public consultation with the appropriate stakeholders.

The Region also was involved in ongoing compensation monitoring associated with the Star Lake hydro-electric development, the Nugget Pond Gold Mine and Mill, the Newfoundland Transhipment Terminal, and the Moose Pond Reservoir. In addition, negotiations were ongoing for the Doyles River culvert replacement and the Port au Port (Ronan) Barite Mine proposals.

## 2.2 Integrated Resource Planning

**Strategy 2. Integrated Resource Planning:** Participate in and encourage resource planning and management to incorporate fish habitat priorities into air, land and water use plans.

There is a growing body of experience and knowledge on the effective integration of resource sector objectives, including fisheries, involving co-operation and consultation among government agencies and natural resource users, non-governmental and local community organisations.

The Department works with a wide array of partners, including regional economic development boards, educational institutions, community groups and other government departments undertaking projects to improve land use practices, reduce pollution, and develop and restore fish habitats.

## Pacific Region

### Britannia Copper Mine, Howe Sound

In 1974, after more than 75 years of operation, the Britannia Beach Copper Mine near Squamish, B.C., was closed. Although the discharge of mine tailings to Howe Sound have ceased, acidic and metal-laden mine waters continue to be discharged into the sound.

In FY 1998-99, the region undertook the second year of a three-year study of the effects of the mine water discharges on the ecosystem of Howe Sound. The primary focus was to assess the impacts on the productive capacity of fish habitat in the nearshore fish habitats of the sound, with a focus on juvenile salmon. The results of the studies will be used in providing supporting rationale for mine site remediation and for use in designing post-treatment environmental effects monitoring studies.

Although the Britannia mine water discharges have been recognised as a major source of pollution for several years, the complexity of solutions and the uncertainty about liability has prevented earlier solutions. In June 1998, the Fraser Basin Council (FBC) initiated a multi-stakeholder group in an attempt to address the problem. This led to a proposal by the current landowners to collect contaminated mine waters and treat them before discharge at depth into

Howe Sound. Public consultations on the proposal will be conducted during FY 1999-00. The region will be active participants in the FBC-led sessions and in the development/review of the necessary provincial permits.

### Integrated Planning in British Columbia

During the Green Plan (1990-1997), the Department put significant effort into integrated land use planning with the B.C. Land Resources Management Plan (LRMP) process. In the past year, continued effort has gone into the Okanagan-Shuswap and Lillooet LRMPs and into the Central Coast Land and Coastal Resource Management Plan. The latter process is unique because it is the first attempt by the B.C. and federal governments to jointly develop an Integrated Coastal Zone Management Plan.

### Aquaculture

In 1998, the Province of British Columbia completed a Salmon Aquaculture Review (SAR). A decision is to be made by the Province on how it will implement the review's recommendations, including a possible lifting of the current B.C. moratorium on aquaculture developments. In anticipation of the lifting of the moratorium and possible new proposal applications, the Department initiated a review of the adequacy of existing internal guidelines for the siting and operation of aquaculture facilities.

### Information Management

In FY 1998-99, Pacific Region used funds obtained under the *Canada-B.C. Agreement on the Management of Salmon Fishery Issues* to make substantial progress on the Auditor General's December 1997 recommendation to "give the collection and management of information on Pacific salmon stocks and habitat a high priority to meet both the needs of resource managers in the field and any reporting requirements on the status of the resource."

### Fish and Fish Habitat Inventory

Pacific Region provided tools and support to community groups and partners collecting information on fish and fish habitat. A draft strategy for habitat inventory and a draft Resources Inventory Committee standard for collection of fish habitat inventory information in urban areas were prepared. Funds were also used to provide technical support to community groups collecting data, and to fund selected groups. Inventory will be utilised by several local governments in Official Community Plans (OCP), supporting local environmental bylaws and in response to new requirements under the provincial *Fish Protection Act* streamside directives. A draft methodology for foreshore mapping was created for OCPs and development referrals. Hydrographic charts were purchased and assessed for use in Coastal Zone Management. Several Sensitive Habitat Atlases were published, including Comox Strathcona Regional District, Squamish, Nanaimo and District of Saanich.

### Canada-British Columbia Data Warehouse

Efficiently sharing information between federal and provincial agencies is key to reducing duplication and cost. A proof-of-concept data warehouse, containing both federal and provincial data, with a link to the B.C. Fisheries data warehouse for data exchange was delivered March 31, 1999. The data warehouse permits sharing of data between the Department and B.C. Fisheries. In FY1999-00, the proof-of-concept will be evaluated and the data warehouse placed in production.

### Canada-British Columbia Fisheries Project Registry

Co-ordinating data collection is challenging, given the increasing number of groups collecting data and of agencies providing funds for data collection. Jointly funded by the Department and several provincial partners, the Fisheries Project Registry tracks fisheries resource-related projects undertaken throughout the region by various partners with funding from various agencies. The system was delivered to B.C. Fisheries for testing, and will be transferred to the Department where it will be placed in production.

### Streamkeepers Database

Governments are increasingly using community groups for collection of data on fish and fish habitat. The Department developed a database for local data entry of information collected by streamkeepers, using their methodology, and created a central repository to receive these data over the Internet for storage and distribution.

## Central and Arctic Region

### Saskatchewan

Habitat Management co-hosted a workshop on criteria and indicators for freshwater aquatic ecosystems. The goal of the workshop was to identify biological and chemical methodologies to assess the effects of forest activities on water quality and quantity and aquatic biota in the prairies and boreal region. The workshop brought together academia and government agencies from the Prairie Provinces, Ontario and the United States, and local representatives of First Nations, environmental organisations and the forest industry. A report of the workshop will be prepared.

### Ontario

The Department spent significant effort in establishing a forum, the Fish Habitat Advisory Group, for discussing fish habitat management issues with various levels of government. The mandate is to make recommendations to the participating agencies (the Department, Parks Canada, Ontario Ministry of Natural Resources, Conservation Ontario and Conservation

Authorities) on the implementation of section 35 of the *Fisheries Act* and the *Policy for the Management of Fish Habitat in Ontario.*

The Department initiated formal agreements with Conservation Authorities (CAs) in the province for the review of impacts to fish and fish habitat under section 35(2) of the *Fisheries Act*. By March 1999, 28 of 36 Conservation Authorities had entered into these formal agreements and further negotiations with CAs are continuing.

## Laurentian Region

The Laurentian Region has been making the shift toward integrated management of the marine environment since 1996, with, among other things, the start-up of a coastal zone integrated management pilot project on the Upper North Shore of the St. Lawrence. In FY 1998-99, this project led to the development of an integrated management plan for the zone, with identification of 130 actions to be implemented in the short, medium and long terms. In addition, the quality of the marine environment was assessed and the follow-up indicators were identified. Implementation of this project calls for the involvement of most of the managers and users in this region's coastal zone.

For its part, the St. Lawrence Vision 2000 (SLV2000) Action Plan provides a forum for integrated interdepartmental and intergovernmental planning. The Phase III objectives (1998-2003) for the various components have been developed and discussed by governmental and non-governmental partners.

In addition to the initiatives flowing form the SLV2000 Action Plan and *the Oceans Act*,[10] the Laurentian Region has a structure and method of operation that are conducive to integrated planning. The fish habitat management mandates flowing from the *Fisheries Act* and the Department's *Policy for Management of Fish Habitat*, and the initiatives implemented under the *Oceans Act*, including integrated management, marine protected areas and health of marine ecosystems, have been integrated into the programming of the Oceans Branch. This structure promotes synergy in activities and effective implementation of the various mandates.

Also, the analyses of development projects referred to the Department, conducted under the *Fisheries Act* or CEAA, often give rise to consultations with other sectors of the Department, other federal and provincial authorities, and non-governmental organisations. These expanded consultations make it possible to take into account the concerns of the parties involved from a perspective of integrated management of coastal environment activities and development.

[10] For the text of this Act, see <http://canada.justice.gc.ca/en/laws/O-2.4/>.

# Maritimes Region

### Petitcodiac Causeway

Since construction of the Petitcodiac River (New Brunswick) causeway and fishway in 1968, anadromous fish populations in the system have declined to the point where they are near extinction. Efforts to enhance fish passage at the causeway have failed. The Department viewed the situation as a habitat restoration opportunity through partnership between federal and provincial governments. A Memorandum of Understanding (MOU) was signed in December 1996 by the two levels of government for a gate-operating trial to identify a long-term solution to the problems linked to the causeway. The trial was scheduled for May-December 1998.

The Lake Petitcodiac Preservation Association (LAPPA) sought in March 1998 a judicial review regarding the need for an environmental assessment as well as interim relief. The hearing for the interim relief was held in early April 1998, and the Judge asked that the intervenors negotiate a solution or compromise. In that spirit, the Department and Environment Canada conducted a CEAA screening of the trial opening. The assessment was completed in mid-May 1998. The Judge dismissed LAPPA's applications for interim relief.

Pre-trial flushing to remove accumulated sediments upstream and downstream of the causeway began in May 1998. Due to the time lost during court proceedings and an early spring, conditions were inadequate to remove accumulated sediments and proceed with the trial in 1998. The MOU signatories postponed the trial to the spring of 1999, and baseline monitoring continued. LAPPA withdrew its request for a judicial review of the CEAA environmental assessment but later filed a petition with the Commissioner of Environment and Sustainable Development of the Auditor General's office, alleging that the federal government followed improper processes throughout this project. The Minister of Fisheries and Oceans defended the government's approach in his reply to LAPPA in December 1998. The MOU signatories concurrently undertook an update of the environmental assessment done in 1998, and released the 1999 screening report in March 1999, after a period of public consultation and input.

### Gagetown

The Department renewed a Local Service Agreement (LSA) with the Department of National Defence at Canadian Forces Base Gagetown. Through this initiative, the Department has been involved in both the planning and the implementation of habitat restoration, watercourse water quality monitoring, and mitigation of impacts from military training.

# Newfoundland Region

### Stream Crossing Inventory

The Newfoundland Region, in co-operation with the Western Newfoundland Model Forest, Centre for Forest & Environmental Studies (CFES), Corner Brook Pulp and Paper Ltd. and Abitibi Consolidated Inc., completed the second year of a stream crossing inventory and characterisation project. The goals of this project are to inventory and map stream crossings on resource access roads in aid of resource planning and environmental monitoring initiatives, to develop a Geographic Information System (GIS) database for use by partner agencies and to integrate this database with existing GIS databases for resource planning and monitoring purposes. This project evolved from an earlier co-operative project which designed and implemented forestry buffer zones in the model forest and documented the impact on fish and fish habitat. Newfoundland Region staff participated on the Management Committee of the Western Newfoundland Model Forest Inc., and continued joint buffer zone studies and documenting the location and impact of stream crossings on fish and fish habitat.

### Integrated Forest Ecosystem Management Plans

The Newfoundland Region participated, with other federal and provincial agencies as well as Aboriginal groups, in the development of integrated forest ecosystem management plans for various forestry management areas of Newfoundland and Labrador. These Five-Year Management Plans ensure that the Department is involved in the planning associated with forest harvesting activities and provide it with an opportunity to incorporate fish and fish habitat goals into the planning process.

### Marine Resources

The Newfoundland Region continued to work with a wide array of partners, including regional economic development boards, educational institutions, community groups, and other government agencies in documenting the location of marine resources and associated habitats. The Department also worked with conservation groups on determining the effectiveness of past habitat improvement activities.

## 2.3 Scientific Research

**Strategy 3. Scientific Research:** Conduct scientific research to provide the information and technology necessary for the conservation, restoration and development of fish habitat.

A better understanding of ecosystem function and dynamics is essential to ensuring healthy and productive freshwater and marine ecosystems and hence ensuring their conservation and protection. While environmental research has traditionally focused on priority issues, the enhanced focus on ecosystems is challenging the scientific community to integrate various disciplines into integrated, multidisciplinary initiatives.

At a time when public expectations for conservation are increasing, there is a growing gap in our ability to acquire and provide the scientific knowledge on ecosystems necessary to support decision making. With the conclusion of Green Plan funding in March 1997 and the federal government's Program Review, there has been a significant decrease in funding available for scientific research. The reduction in funding has necessitated a review of scientific programs within the department and a re-alignment of research activities directed towards responding to only the most pressing habitat issues. As a result, the Department's ability to provide scientific advice on a range of new and emerging habitat issues has been significantly reduced.

Funding for scientific research comes from various sources through joint project agreements with other branches of the Department, other government departments and industry.

The scientific research program in support of the Habitat Management Program focuses primarily on productive capacity of fish habitats and the ecosystem effects of physical and chemical alterations to habitat. For example, under the auspices of the United Nations Environment Programme (UNEP), Canada and 110 other maritime nations adopted a Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. Subsequently, Canada undertook the development of a National Programme of Action (NPA) in 1998 to coincide with the international Year of the Ocean. Canada's NPA focused on pollution prevention and integrated coastal zone management.

The initiative has been co-led by the Department and Environment Canada, and has been a collaborative effort of the federal, provincial and territorial governments.

## Pacific Region

### Dioxins/Furans

Crab sample collection and analysis were developed and managed for Victoria Harbour and Ocean Falls sites. With Environment Canada, the 1999 coastal pulp mill monitoring program and associated government audit sampling was designed for implementation. The associated data sets were submitted to Health Canada for a health hazard assessment.

### Pesticides

The Department reviewed the large-scale use of pesticides over or in aquatic habitats, including the aerial application of *Bacillus thuringiensis kurstaki* (Btk) for the control of gypsy moth over Burnaby Lake. Comments were also provided on the use of *Bacillus thuringiensis israelensis* for mosquito and black fly control. The extensive use of pesticides (fumigants) in wood pole preservation by B.C. Hydro also was investigated.

## Central and Arctic Region

In collaboration with the Great Lakes Laboratory for Fisheries and Aquatic Sciences, Fish Habitat Management in Ontario identified several priority needs to assist in the evaluation of potential impacts to fish and fish habitat. As part of that initiative, the defensible methods approach to assessing impacts of development on fish habitat continued to be refined.

The Department also provided pilot project funding in FY 1998-99 for an agricultural drain classification project. Under agreements with the Department, the Conservation Authorities have started the process of classifying agricultural drains in southwestern and southeastern Ontario.

## Laurentian Region

The following research projects are among those undertaken in the marine sciences field in the Laurentian Region on the impacts of human activities and climate changes on the environment and aquatic resources.[11]

### Bioremediation of Wetland Habitats

The St. Lawrence Seaway plays an important part in the transportation of Canada's energy resources. Several million tonnes of petroleum products are moved along it each year. The St. Lawrence suffers an average of 150 accidental oil spills a year. The risk of a major accident is therefore high, and this constitutes a potential danger for the wetlands along the shore. These wetlands are of major ecological and economic importance, as they are highly productive habitats and generally serve as breeding, feeding and resting areas for many species of fish and birds and other animal species.

The Department has undertaken research to develop effective and environmentally safe bioremediation technologies in order to clean up habitats damaged by oil spills. Bioremediation consists of using organisms in the environment (bacteria, plants) to stimulate biodegradation of hydrocarbons in areas where other methods are ineffective or are too damaging for the environment. In some situations, they can be an alternative to conventional remediation

[11] For information on the projects, see the Region's web site at: <http://www.qc.dfo-mpo.gc.ca/iml>.

techniques. Bioremediation has proven effective in marine environments, but testing still needs to be done in freshwater. The Department and various partners developed a project to protect the grass beds of the St. Lawrence in case of spills. The project consists of carrying out an *in situ* experiment involving bioremediation of the shoreline following a controlled oil spill. The site chosen for this experiment is in the St. Croix marsh along the St. Lawrence. The remediation technique used is known as phytoremediation and consists of using and fertilising native plants that make it possible to increase digestion of hydrocarbons.

*In situ* bioremediation is a technology that appears to have great potential for conversion of toxic compounds into non-toxic products, without further disturbing the local environment. If the experiment is conclusive, this technology could be used in the case of freshwater spills and thus help protect all the St. Lawrence grass beds and the wildlife that depend on them.

**Development of Indicators for Assessing Environmental Stress**

In Canada, management of ocean dumping is the responsibility of Environment Canada. Dredging activities through the coastal zone can result in the dumping of thousands of tonnes of sediment. This disturbing of the seabed can adversely affect the benthic (seabed) fauna. The Department is developing methods to improve disposal management, in order to reduce the impact of ocean dumping of dredging sediments.

A research project has been undertaken in Chaleur Bay to assess the impact on a macrobenthic community of the depositing of sediments from the dredging of a small harbour, such as that at L'Anse-à-Beaufils. The purpose of the study was to test a proposed benthic community stress indicator and, if necessary, improve it to make it more effective.

A second research project is under way to measure the impact of the Saguenay flooding in the summer on 1996 on the macrobenthic fauna. This research is aimed at, among other things, validating the model developed on the L'Anse-à-Beaufils dump site, once again from a perspective of finding effective and less costly follow-up methods.

**Impact of Contaminated Aquatic Sites on St. Lawrence Beluga**

In connection with the SLV2000 Action Plan, a multipartite committee made up of four federal and provincial departments, including the Department, was given the mandate to conduct research on the contaminated sites of the St. Lawrence likely to affect the beluga, an endangered species in the St. Lawrence River. This work was intended to make it possible to identify the aquatic sites likely to pose a threat to the beluga and the St. Lawrence ecosystem, and to propose actions aimed at protecting the threatened resources and uses. The results of this research tend to show that the relative contribution of the contaminated aquatic sites to the toxic load in the St. Lawrence system decreased in the decade from 1990 to 1999. This is the result of a significant decrease, since the early 1990s, in the toxic loads from several sources, including the Great Lakes, industrial and urban waste, and atmospheric transport over great

distances. The committee has concluded that additional studies would be necessary to demonstrate the actual threat posed by the contaminated sites.

## Maritimes Region

In the Maritimes Region, scientific research in support of the Department's Habitat Policy is directed primarily at marine waters. There are three provinces and three distinct marine ecozones in the Region (the Bay of Fundy/Gulf of Maine, the Scotian Shelf, and the southern Gulf of St. Lawrence). The range of scientific research that is undertaken is as wide and diverse in scope as the marine habitat itself. During the period under review there were three main areas of focus: the impacts of mobile fishing gear; environmental impacts of salmon sea-cage culture; and the fate, distribution and biological effects of contaminants in the coastal zone.

### Impacts of Mobile Fishing Gear

The dramatic global decline in groundfish stocks has renewed interest in the impacts of the fishing methods on the sustainability of the industry. Maritimes Region scientists have taken the leadership in a major initiative in collaboration with Newfoundland Region, private enterprise and the fishing industry itself. This multi-year initiative is using several innovative approaches to determine the impact of specific types of fishing gear on various bottom types. Experimental trawling and observations are being conducted on areas on the Grand Banks, Newfoundland, and Western and Banquereau Banks on the Scotian Shelf. The key to the innovative experimental design of sampling before and after trawling has been the development of new instruments for sampling the bottom substrate and biological communities and the application of new technology for the accurate location of experimental transects and stations. The results of this "work in progress" will be important in making decisions on potential restrictions to mobile fishing methods in order to insure the application of the Department's Habitat Policy.

### Environmental Impacts of Salmon Sea-Cage Culture

With the loss of traditional fishing as the major economic factor in many coastal communities, the development of aquaculture is seen as a potential means of economic diversification. Southwestern New Brunswick is the second largest producer of cultured salmon in Canada and has the highest concentration of aquaculture activity in Canada. This concentration carries the potential for negative impacts on the environment.

The Department's Environmental Sciences group has worked closely with Habitat Management to better understand the nature of changes that occur in the habitat in the vicinity of the sea cages and the impact of these changes on the productive capacity of that environment. This information is critical to the advice that the Department provides to provincial agencies that are responsible for the leasing and licensing of aquaculture facilities in Nova Scotia and New Brunswick. In addition, researchers are trying to determine the impact of these habitat changes on the cultured organisms.

### Fate, Distribution, and Biological Effects of Contaminants in the Coastal Zone

A large proportion of the population of the Maritime Provinces lives and works within a few kilometres of the coastline, and most of the agriculture industry of the region is concentrated in the watersheds of the major rivers. Therefore, the coastal zone is the direct recipient of the industrial and domestic wastes from the majority of the region's population. Much of this waste is untreated. Almost all of the sewage from the largest population and industrial centre goes into Halifax Harbour untreated. Sydney Harbour receives the waters of Muggah Creek which drains Canada's largest contaminated industrial site. Pulp and paper plants and metal mining operations discharge effluents into these coastal waters. During FY 1998-99, the offshore oil and gas industry accelerated activities on the Atlantic coast, with the Cohasset-Panuke site in production and the Sable Offshore Energy project coming on stream.

A major challenge is to understand the importance to marine organisms of changes in water quality resulting from the presence of complex mixtures of contaminants at low concentrations. Observations of physical impacts on fish are common in many inlets and harbours as are observations of modified functions at the organ and cellular level. Novel experimental approaches have detected the impact of low concentrations of contaminants on the ability of shellfish to ingest and assimilate food. The challenge remains to understand the impacts of these changes on populations, communities and ultimately marine ecosystems. The results of these investigations are being directly applied to the assessment of offshore and coastal zone projects.

A scientific report related to the Petitcodiac River was prepared. The study was carried out to develop a better understanding of the system prior to the proposed 1998 trial opening of gates in the causeway located at Moncton. This was based on data collected the previous year. The report was jointly funded by Environment Canada and the Department, and the Department also served as the scientific authority. An additional report was related to maintenance flows. A research contract was issued to produce a data report that analysed 53 hydrometric stations distributed through the Maritimes Region.

## Newfoundland Region

There has been a wide variety of basic and applied research undertaken in the Newfoundland Region in support of the Habitat Management Program, including studies related to the productive capacity of freshwater and marine fish habitats and the effects of human-induced physical and chemical alterations to habitat. One of the major purposes behind these research studies is to develop scientific knowledge necessary to support decision making.

### Instream Flow Models

A major challenge to the Department nationally is mitigation of harmful downstream impacts of diversion and/or regulation associated with hydro-electric development which normally requires "prescription" of an appropriate flow release to protect fish habitat. Habitat hydraulic modelling has arisen as a preferred "tool" for allocation of river flows; however, there is limited capability of methodologies currently in use. The Newfoundland Region, in partnership with other regions, academia, the utility sector, as well as international partners from Norway and Finland, is undertaking a major research initiative to improve the capability and acceptance of the science of habitat hydraulic modelling. The project is using innovative approaches (telemetry) to develop biological criteria to reflect temporal and spatial scales of habitat preference. These criteria are being used in habitat models that explicitly consider inter-dependence among habitat attributes, temporal elements, and that include a life history approach to the evaluation of flow-related effects. Studies are being undertaken over a variety of hydrological conditions, during various seasons (in particular the winter), and over the diurnal cycle. The collected information is compared to model predictions to validate and improve model capability.

The research is being integrated into a major study underway in Europe funded by the Norwegian Science Council on a five-year study on the effects of hydro-peaking on riverine systems (known as the EFFEKT Project). There will be an exchange of scientists and expertise between the two major research projects, including collaborative field studies, modelling support, and collaborative analyses and publication of results.

### Telemetry Studies of Juvenile Cod Habitat Use

Biological telemetry is a powerful technique that provides continuous and remote monitoring of individuals in their environment and has considerable potential as a tool in habitat research. Currently, the Newfoundland Region is working in partnership with one of Canada's major manufacturers of telemetry products, to test and develop a new acoustic telemetry system, the MAP_500 Acoustic Telemetry Receiver and associated firmware and software. The MAP_500 employs techniques that allow for high precision, continuous and simultaneous monitoring of animals.

The system is being used in a study of juvenile cod habitat use, on diel and seasonal scales, in an inshore coastal environment. The position of fish, as obtained with the MAP_500 system, are linked with habitat features and cod movement patterns through a Geographic Information System. This information will provide knowledge on the quality and usage of coastal habitats by juvenile cod that will permit informed decision making with respect to coastal developments, new fisheries (kelp and urchin harvesting), and other activities.

### Mercury in Fish Tissue from Hydro-electric Reservoirs

The region has been involved in co-operative research study, jointly with the Central and Arctic Region of the Department and the utilities in Newfoundland and Labrador and Manitoba, to

investigate the levels of mercury in fish flesh as related to reservoir creation and hydro-electric development. The major purpose of this work is to develop region-specific knowledge and, where possible, predictive models related to the evolution of increased mercury levels in fish. This will allow the Department to make predictions and decisions as to mercury problems related to future hydro-electric development as well as to evaluate the human health risks associated with mercury in fish tissue. Recent aspects of the research have focused on the effects of reservoir age and operation as well as atmospheric mercury deposition.

## 2.4 Public Consultation

**Strategy 4. Public Consultation:** Consult the public on major or controversial fish habitat issues and on the development of new policies and legislation for fish habitat management.

As illustrated in the many activities described throughout this report, public consultation is an operating principle of the Department. The *Policy for the Management of Fish Habitat* states:

> "Of the thousands of projects and activities examined by Fisheries and Oceans across Canada each year, few will constitute a sufficiently high risk to fisheries or be of such high public concern as to require any special process for public consultation, other than normal consultation with the proponent and any other interested parties. Where it is determined by the Minister that an issue requires formal public consultation, the Department's first preference will be to participate fully in the established review procedures of other federal departments or provincial governments, for example, Environment or Natural Resource agencies, provided the terms of reference for the review are satisfactory to the Minister. In cases where other established public review processes would not normally apply to a project, and the Minister of Fisheries and Oceans determines that one is required, the Minister may initiate such a process."

The projects listed in Table 3 are excellent examples of the Department's support for this policy of involvement in extensive consultations with the public in conducting environmental assessments under CEAA.

### Pacific Region

When the Minister of Fisheries and Oceans announced the Canada Fisheries Adjustment and Restructuring Program (CFAR) for the Pacific, a Habitat Conservation and Stewardship Program was included to empower public groups. In preparation for implementing this program, a large public workshop of 350 people and another 22 local meetings were held with public groups throughout the Pacific Region. More than 1,000 individuals and groups were consulted on the final design of this five-year program.

The Department also provided assistance to the Province of British Columbia and attended over 20 public meetings held to review the Streamside Directive and the Sensitive Streams provisions of the B.C. *Fish Protection Act.*

## Central and Arctic Region

The Department undertook a series of public consultation initiatives outlining the "New Revised Interim Fish Habitat Referral Process in Ontario". The need for the consultations arose from the withdrawal of the Ontario Ministry of Natural Resources from the Interim Referral Process and the need to expand the Department's review capabilities in Ontario.

A brochure, "A Protocol Detailing the Revised Interim Fish Habitat Referral Process in Ontario," was prepared to explain the review process to the public. The Department completed 11 information sessions across the province outlining the new review process. About 500 individuals participated in these information sessions.

To promote awareness of *Fisheries Act* requirements, the Revised Habitat Referral Process and the new working arrangements with Conservation Authorities were published in consultation with Parks Canada, Conservation Authorities, and the Ontario Ministry of Natural Resources.

## Laurentian Region

In connection with the application of the *Fisheries Act* and CEAA, the Department regularly conducted public consultations. Fishers' associations, environmental groups, representatives of SLV2000 action plan Priority Intervention Zones (ZIPs), Aboriginal communities, municipalities and ordinary citizens were invited to express their views on the environmental issues, mitigation measures, environmental follow-up, habitat compensation projects or any other subject of interest. Included among the projects that were the subject of public consultation during FY 1998-99 were: the harbour development in the Port of Sept-Îles; the aquaculture development projects in the Magdalen Islands; the Hydro-Ilnu mini hydro-electric power station; and the selective dredging of shoals by the Port of Montreal.

The objectives of the Habitat Management Program can, in many cases, also be accomplished through or in conjunction with other federal or provincial statutes. Implementation of the marine protected areas (MPAs) program under the *Oceans Act* is one such instance. This program also included public consultations in the Laurentian Region. Under this Act, the Department can create MPAs for various reasons, including protection of unique habitats or habitats of great value to commercial or threatened marine species. In 1998, the Laurentian Region conducted a far-reaching consultation of marine environment stakeholders to identify the sites of interest in Quebec and present the content of the policy respecting the Marine Protected Areas Program and of the National Framework for Establishing and Managing Marine Protected

Areas.[12] Coastal communities, regional governments, non-governmental organisations, academic institutions, fishing industry, federal and provincial organisations and Aboriginal groups had an opportunity to express their views on these subjects.

### Maritimes Region

The Petitcodiac River Trial Gate Opening Project included extensive consultation with the public and all stakeholders. Draft reports of environmental assessments for the project were made available for public comment. Open houses were held in 1998 and 1999 throughout key municipalities to explain the project and solicit further public input. Newspaper inserts, and separate meetings and presentations to municipal Councils and other major stakeholders, provided further background and technical detail. Meetings were held with groups opposing the project to help identify all issues and delineate areas of common ground.

### Newfoundland Region

Interactions were undertaken with proponents, other federal and provincial agencies, the public, and other stakeholders regarding a variety of projects to ensure that *Fisheries Act*, NWPA and CEAA issues were addressed.

## 2.5 Public Information and Education

**Strategy 5. Public Information and Education:** Promote public awareness in the conservation, restoration and development of fish habitat.

An informed public is essential for sound action in support of the conservation, restoration and development of fish habitat. To promote this objective, the Department produces a variety of information in co-operation with stakeholders for use by the media and the public, particularly in schools, and to sponsor conferences, seminars, workshops and symposia.

### Pacific Region

In B.C., program education co-ordinators and community advisors worked to get the habitat conservation message out to students of all ages. Using in-house developed and supported educational resources, young people are acquiring an understanding and appreciation of the fisheries resource that will provide immediate and lasting benefits. For example:

[12] For more information on these programs, see <http://www.oceansconservation.com/mpa/mpap.htm> and <http://www.oceansconservation.com/mpa/process.htm>, respectively.

- more than 700 schools used the Department's "Salmonids in the Classroom" curriculum and most of these had salmon incubators in their classrooms. The students learned first-hand about salmon biology and the habitat necessary to support healthy salmon populations;
- a new resource, entitled "Table Talk," introduced older students to the concept of consensus-based water and land-use planning and decision making. Through a complete role-play simulation, students learned about the complex nature of responsible land and water allocation.

The Department completed and published a strategic overview of streams in the Lower Fraser Valley. Key elements of a three-volume study were data and a map outlining a classification of the Wild, Threatened, Endangered and Lost streams of the Lower Fraser Valley.

The Habitat and Enhancement Branch participated in the Adam River's "Salute to the Sockeye." The Branch's involvement included displays and handouts, staff at the main tent to answer questions from the public on habitat and salmonid enhancement issues, and interpretative tours of the Department's ground water channel at the mouth of the Adams River.

The Department also revised and updated a 1984 manual, "Environmental Emergency Response Plan for Pollutant Spills, Fish Kills and Marine Mammal Incidents."

## Central and Arctic Region

Several public information initiatives were carried out to support the new Revised Interim Fish Habitat Referral Process in Ontario. In an effort to provide up-to-date information to clients and partners, a generic fact sheet of working around water entitled "Working Around Water: What You Need to Know about Fish Habitat" was published and distributed.[13]

Between January and March 1999, the Department published a series of advertisements and articles in local newspapers to confirm the federal government's commitment to the protection and conservation of fish habitat. These articles acknowledged the past successful venture with the Ontario government and the current partnership initiatives with the Conservation Authorities.

The Department also undertook several exhibits at public trade shows in support of the new referral process in the province.

[13] See <http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait/sheets-feuilles/01dfo_e.html>.

## Laurentian Region

The Region disseminated information to the public in various formats through a wide variety of media, such as briefing and promotional posters, travelling exhibits, interviews and information bulletins.[14]

## Maritimes Region

The Maritimes Region was active in FY 1998-99 in developing co-operative education programs. These included sedimentation control courses in association with the Centre for Water Resources Studies, participation in open house events and workshops. The Habitat Management Division also provides hands-on training in habitat restoration techniques to various community groups.

## Newfoundland Region

Regional guidelines and factsheets for the protection of freshwater fish habitat and a standard methods guide for freshwater fish and fish habitat surveys in rivers and streams were developed and publicly distributed for use.[15] Feedback on these guidelines has been very positive.

In Newfoundland and Labrador, staff also made numerous presentations on fish and fish habitat protection to various schools, post-secondary institutions and community organisations.

Considerable effort was directed at educating staff of the Provincial Department of Works, Services and Transportation and their construction contractors in developing and implementing fish and fish habitat protection plans in their construction practices. A training program was developed to outline specific mitigations that could be used as well as legislation requirements associated with the protection of fish and fish habitat in relation to road construction activities.

## 2.6 Co-operative Action

**Strategy 6. Co-operative Action:** Encourage and support involvement by government agencies, public interest groups and the private sector to conserve, restore and develop fish habitats.

[14] For more information on these initiatives, see <http://www.qc.dfo-mpo.gc.ca/iml>.

[15] For example: Gosse, M.M. et. al., *Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador*, March 1998; Sooley, D.R. et. al., *Standard Methods Guide for Freshwater Fish and Fish Habitat Surveys in Newfoundland and Labrador: Rivers and Streams*, March 1998.

Habitat management is the responsibility of all Canadians. The Department encourages community involvement in the development of management plans and stewardship, and in other co-operative arrangements with industry, non-governmental organisations and other government agencies, to raise the level of understanding and action around the complex relationship between the resource and its supporting habitats.

## Pacific Region

### Georgia Basin Ecosystem Initiative (GBEI)

The Department formalised a five-year action plan with Environment Canada to ensure the sustainability of the Georgia Basin Ecosystem. There is co-ordination between the two federal agencies and the B.C. Ministry of Environment, Lands and Parks to jointly plan and implement programs to improve air and water quality, conserve and protect habitat and species and support community environmental initiatives within the Georgia Basin. Existing Department mechanisms such as the Marine Protected Areas Working Group and Puget Sound/Georgia Basin International Task Force Working Groups will be used to continue, expand and develop programs which strive to improve the ecosystem health of this area.

### Ballast Water Management

The Department participated in the West Coast Regional Working Group on Ballast Water Management. This group is comprised of representatives from B.C.'s harbour commissions, the U.S. Coast Guard, the Canadian Coast Guard sector of the Department, the shipping industry, and Transport Canada. This group was formed to provide a forum for the exchange of expertise and information on ballast water and sediment management. The objective is to provide an international approach to ballast water exchange that recognizes the commercial and environmental uniqueness of western Canada and the Northwest coast of the United States. Further, the approach taken will promote ballast water policies that are effective, environmentally safe, practical and cost-effective, which give the safety of ships and their crews the utmost priority. Quarterly meetings focused on updates from the region on Pacific Marine Protected Areas and general discussions on management strategies. National guidelines for ballast water discharge also were reviewed. The Department co-sponsored a ballast forum with the California Sea Grant that coincided with a meeting of the coast-wide Pacific Ballast Working Group.

### Canada–British Columbia Agreement on the Management of Pacific Salmon Fishery Issues

In April 1997, the Prime Minister and the Premier of British Columbia signed the "Canada-British Columbia Agreement on the Management of Pacific Salmon Fishery Issues." Elements of this Agreement focus on improving the co-ordination and delivery of habitat protection, restoration, enforcement and data collection and management activities between the two levels of government for protecting the salmon resources in B.C. Preliminary discussion papers were

developed and a workshop was held with federal and provincial habitat management staff to discuss elements of a Fish Habitat Management Agreement that would lead towards increasing certainty, service efficiency and consistency in the delivery of habitat management in British Columbia.

**Water Use Planning in B.C.**

In response to increasing public concerns, the provincial government announced in November 1996 a policy to develop Water Use Plans (WUPs) as a condition of existing water licenses. The initial focus would be on B.C. Hydro and they would develop WUPs for each existing facility over a five-year period, in collaboration with agencies including the Department and stakeholders.

The Department worked with B.C. Hydro and the provincial government to develop procedural guidelines for WUPs (released in December 1998) and to develop the infrastructure for this program. By participating at all stages of a three-tiered management structure, the Department had an influence in directing the program focus to ensure that incremental benefits to fisheries are a high priority. Interim flow releases were agreed upon for several important fisheries streams in the province. These interim flows, which will have immediate benefits to fisheries resources, will remain in effect until WUPs have been developed and approved by the Provincial Comptroller of Water Rights.

**Campbell River Estuary Management Plan**

In co-operation with local government and industry, the Department began work on an Estuary Management Plan that includes restoration of degraded habitats, land designation (zoning) and relocation of some industry. Work continued throughout FY 1998-99 on the implementation of the plan and restoration of estuarine habitat.

**Umbrella Final Agreement (Yukon Land Claims)**

The Umbrella Final Agreement (UFA) defined new structures in the Yukon for resource management. The Yukon Salmon Committee is defined as the primary instrument for salmon and salmon habitat management in the Yukon. The UFA established a regime based on compulsory consultation with entities under the claim. A Development Assessment Process (DAP) mandated under the UFA will replace CEAA. DAP legislation is being negotiated between the federal government, the territorial government and the Council for Yukon First Nations.

**B.C. Agricultural Partnership Committee**

The Department is a member of the provincial Agricultural Council partnership committee that has been drawn together to address the conflicts between agriculture and the protection of the environment. Special emphasis has gone into the maintenance of ditches and channnelised

streams, riparian management, development of cranberry fields, and nutrient management. Additionally, the Department led the development and publishing of a recent publication: "Watershed Stewardship: A Guide for Agriculture."[16]

### *Fish Protection Act* Steering and Management Committees

B.C. has invited the Department to sit on committees established to implement provisions of the B.C. *Fish Protection Act*. Specific work groups include riparian protection in the urban environment, debris control, and sensitive stream designations.

### Black Creek Ranch Purchase

The Department, the Ministry of Environment, Lands and Parks (Habitat Conservation Trust Fund), the Land Conservancy, and the Quesnel Watershed Alliance jointly purchased about 300 hectares of land on the Horsefly River. This parcel contains some of the most productive sockeye spawning habitat on the Horsefly River. Restoration, research and public education activities are being planned, which will highlight the significant resource values in this area.

### Central Coast Land and Coastal Resource Management Plan

The Department has expended considerable resources over the past year working with the provincial government and stakeholders on this joint land and coastal resource planning exercise focused on the Central Coast of British Columbia. The Plan area spans two departmental areas and the Department's planning team includes Habitat Enhancement Branch staff from Coastal B.C. North, Coastal B.C. South, as well as regional headquarters. Overall co-ordination of the planning team is being carried out by the Department's Oceans Directorate. The land portion of the Plan is intended to be completed by January 2000.

### Cassiar-Iskut-Stikine Land and Resource Management Plan

The Department has participated in a provincially led agency and stakeholder planning exercise focusing on an important salmon-producing watershed in northwestern B.C. The goal of the Department's involvement has been to provide resource and technical information to the planning forum and to support the inclusion of appropriate fish and fish habitat management and protection measures in the Plan. The Plan is due to be completed in early 2000.

### Prince Rupert Harbour Foreshore Management Planning

Regional staff established and chaired a Prince Rupert Harbour Foreshore Planning Committee consisting of local agencies and stakeholders, which has a goal of producing a Foreshore Management Plan for the Harbour to "provide a harmonised and defensible balance of development and habitat conservation requirements." In 1999, the Committee commissioned a

[16] See <http://www.stewardshipcentre.org/code/main/cs_frset.htm>.

jointly funded report which outlined a Foreshore Habitat Classification system for the Harbour, based on inventory information, and proposed development criteria based on the habitat classification. The Committee is currently reviewing the Habitat Classification Report and will consider further integrated planning initiatives in the Prince Rupert Harbour area.

## Central and Arctic Region

### Watershed Management Plan

In co-operation with local communities, Conservation Authorities and the Ontario Ministry of Natural Resources, the Grand River Watershed Management Plan was completed and the Oshawa Creek Aquatic Resource Management Plan was initiated.

### Data Sharing

There was also recognition by natural resource managers in Ontario that there was a need for data sharing agreements to be established. Negotiations were initiated in early 1999 for the consideration of the province's "Natural Resources Valued Inventory System" for use as a common and shared database for fisheries agencies. A work group was formed to examine the implementation of this initiative and to advise on standards for data entry.

## Newfoundland Region

### Gander River Management

The Department co-operated with the Gander River Management Association in planning the restoration and maintenance of resource integrity relative to forestry activities along the watercourse. Co-operative efforts were undertaken with Ducks Unlimited and the Corduroy Brook Enhancement Association to address fish passage issues while developing waterfowl habitat. Departmental staff reviewed Interdepartmental Land Use Committee (ILUC) referrals to ensure fish and fish habitat issues were addressed.

### Co-operation with the Forest Sector

Collaboration continued with Corner Brook Pulp and Paper, Abitibi-Consolidated, and Newfoundland Forest Service on development of an inventory of stream crossings in western and central Newfoundland. These data will be used for planning by both government and industry. Collaboration also continued with a variety of partners under the Western Newfoundland Model Forest Inc. in determining the impact of forest harvesting and buffer zones on fish and fish habitat.

### Co-operation with the Provincial Government

Interactions continued with the Newfoundland Department of Environment and Labour (Water Resources Division) regarding implementation of instream flows approaches to ensure the management of the province's water and fisheries resources on a sustainable basis.

## 2.7 Habitat Improvement

**Strategy 7. Habitat Improvement:** Initiate projects and provide advice to other interested groups to restore and develop fish habitats, in support of the "net gain" objective.

In response to the loss of fish habitat as a result of human actions over the years, the Policy includes a "net gain" objective. This objective is to be met using funds of the Department and other federal departments to assist community and other conservation organisations to restore fish habitat by rehabilitating streams, eliminating or controlling exotic species, removing human-made barriers, and in co-operation with Environment Canada, requiring installation and operation of waste treatment technologies.

## Pacific Region

### The Habitat Restoration and Salmon Enhancement Program (HRSEP)

The HRSEP was established in FY 1996-97 to complement the Pacific Salmon Revitalisation Strategy. The main objective of the federally-funded program is to revitalise salmonid populations in British Columbia through habitat restoration, stock rebuilding, and resource and watershed stewardship. Other important goals are to develop and strengthen partnerships at the community level and (where feasible) train/employ displaced fishery workers. The projects are run by a variety of community groups and agencies.

The 1998-99 fiscal year was the third and final year of the initial HRSEP, with $10 million spent on more than 160 projects throughout British Columbia. Program results included: the enumeration of more than 10 million adult and juvenile salmon; the replanting of nearly 1,000,000 square metres of riparian area; the mapping of more than 400,000 linear metres of habitat; the restoration or creation of nearly 200,000 square metres of channel and estuarine habitat; making approximately 250 km of stream available to fish; and the construction of more than 20 km of streamside fencing. The program included public information and involvement through media releases, public presentations, and contacting thousands of landowners. A report was released summarising the results of the FY 1998-99 program.

### Community Advisors

Habitat and Enhancement Branch community advisors provided technical support to volunteer efforts throughout the Pacific Region and were involved in more than 50 habitat improvement projects during FY 1998-99. Enhancement organisations, in partnership with the Department and others, have restored, created and provided access to hundreds of kilometres of fish habitat.

There is a trend to focus more on habitat awareness and healthy watersheds as the most productive way to protect, restore and maintain strong salmon stocks. "Streamkeepers" and other public involvement groups have adopted many streams and provide community leadership in promotion of stewardship ethics. The number of individuals and organisations embracing the streamkeepers watershed approach to stream care continued to grow. Many of these groups were actively involved in land and water use planning processes to ensure fish and fish habitat are carefully considered when decision makers are assessing their options.

## Central and Arctic Region

The Fish Habitat Management Office provided advice to numerous consultants and proponents on habitat restoration initiatives as part of the Department's review under the habitat protection provisions of the *Fisheries Act.* Within the province of Ontario, community enhancement projects traditionally have been initiated by the Ontario Ministry of Natural Resources through its Community Fisheries Improvement Program. This program was based on the habitat restoration and salmon enhancement program from the Pacific Region.

## Laurentian Region

Two components of the SLV2000 Action Plan relate directly to improvement of fish habitat. They are the *community involvement* component, the objective of which is to guide and encourage the participation of non-governmental organisations in the achievement of the St. Lawrence rehabilitation objectives, and the *biodiversity* component (habitats and species), which brings together stakeholders in the resource management and environment fields in the federal and provincial governments.

Within these components, technical, scientific and financial support from the Department made possible the carrying out of various studies or intervention projects, such as the transplanting of eelgrass, a study of the impact of deep-sea diving and of fishing activity on the seabed, continuation of the work to rehabilitate the Bonaventure barachois (lagoon) in Chaleur Bay, a feasibility study on rehabilitation of the New Carlisle barachois, production of a guide to rehabilitation of the spartina marshes, and the establishment of artificial reefs in Cascapedia Bay and monitoring of their colonisation.

## Maritimes Region

Regional staff were involved in the planning and implementation of over 40 fish habitat and riparian zone restoration projects in FY 1998-99. Funding for these projects was obtained by the various First Nations, Community groups or Fish and Game Associations. The Department provided training and assistance in the design and placement of instream structures to improve fish habitat.

Departmental staff in Nova Scotia continued to work with 23 watershed management groups towards an integrated approach to ecosystem health. Several of these groups have evolved to a high level of integration with a wide array of partners including economic development boards, education institutions, recreational fishing associations, First Nations, and other federal, provincial and municipal government agencies. Installation of instream habitat improvement devices, water quality improvement, and riparian zone restoration involves continued co-ordination, training, and technical problem-solving and design assistance to these groups.

# 2.8 Habitat Monitoring

**Strategy 8. Habitat Monitoring:** Evaluate the effectiveness of decisions taken and techniques used to conserve, restore and develop fish habitats.

The Department undertakes studies to determine baseline conditions and the effects of change and to establish environmental trends as well as studies to determine the effectiveness of mitigation efforts. In this regard, CEAA requires follow-up programs be established for certain projects to measure the effectiveness of the mitigation measures implemented by the proponent. The Department includes these requirements as part of the Department's authorisations under s.35 of the *Fisheries Act*.

## Pacific Region

### Nechako Fisheries Conservation Program (NFCP)

A settlement agreement between the federal government, the provincial government and Alcan was signed in 1987 to resolve flow issues in the Nechako River and create the NFCP to ensure the conservation of salmon resources utilising the upper Fraser River. In FY 1998-99, 11 years of project activities were completed, including intensive surveys of Nechako chinook salmon, from spawning adults to emigrating juveniles, undertaken on an annual basis, as well as various biophysical surveys examining habitat quality and quantity. A review of the NFCP since 1987 was initiated in FY 1997-98, with a draft overview report prepared and reviewed at a scientific workshop in 1998. A final report summarising all project activities in the NFCP will be completed during FY 1999-00.

### Vancouver Island Highway Project

The Department completed the assessment of its ability to achieve no net loss of the productive capacity of habitat in the face of a large highway project which is being built to a freeway standard from Victoria to Campbell River. The project crosses more than 50 streams in its 200 km length.

## Central and Arctic Region

The Ontario regional staff participated in follow-up environmental effects and mitigation monitoring activities for past referral reviews. With additional staff, the Ontario area began assessing its ability to evaluate previous decisions taken with regard to achieving no net loss of the productivity of fish habitat.

## Maritimes Region

During FY 1998-99, habitat management staff participated in a number of follow-up activities including monitoring general compliance with the provisions of the *Fisheries Act*, provision of expert advice as required, and participation in several ongoing environmental effects programs for the Maritime Road Development Corporation, Fredericton–Moncton Highway Project and the Pipeline projects in Nova Scotia and New Brunswick.

## Newfoundland Region

### Moose Pond Diversion Project

The Moose Pond Diversion project, which is part of a hydro-electric project of Newfoundland Power, had a number of deficiencies that were reported in the proponent's Annual Report in November 1998. Site visits indicated that further work would be required to ensure that the fish channel would function as designed. Departmental staff continued to monitor the project and work with the proponent to correct these deficiencies.

### Other Monitoring Initiatives

Monitoring of the compensation work associated with the Nugget Pond Gold Mine/Mill project indicated that it was largely completed in the fall of 1998. Several site visits were conducted during the fall of 1998 to assess progress of the compensation work associated with the Rose Blanche Hydro-electric project. Through various meetings, workshops and teleconferences, staff provided advice on the original and revised compensation programs and monitoring plans associated with the Star Lake Hydro-electric project.

The Department received the first Annual Compensation Report for the Newfoundland Transhipment Facility and provided advice on the proponent's request for minor changes to the

monitoring schedule. To the extent possible, Newfoundland Region staff also participated in follow-up, environmental effects and mitigation monitoring activities for past referral reviews such as the Newfoundland Transhipment Facility.

**Proactive Tendering**

As a proactive approach to public tendering, field staff reviewed tender and/or contract documents prior to the tendering process to ensure that fish and fish habitat concerns were addressed in the documents.

## ANNEX I
## HABITAT PROTECTION AND POLLUTION PREVENTION PROVISIONS OF THE *FISHERIES ACT*

| Section | Intent |
|---|---|
| 20 | The Minister may require fishways to be constructed. |
| 21 | The Minister may authorise payment, order construction or removal or require fish stops or diverters for fishways. |
| 22 | The Minister may require sufficient flow of water for the safety of fish and flooding of spawning grounds as well as free passage of fish during construction. |
| 26 | Prohibits obstruction of fish passage through channels, rivers and streams. Also, the Minister may authorise devices to prevent the escape of fish. |
| 27 | Prohibits the damage or obstruction of fishways, the impediment of fish to fishways and nearby fishing. |
| 28 | Prohibits the use of explosives to hunt or kill fish. |
| 30 | The Minister may require fish guards or screens to prevent the entrainment of fish at any water diversion or intake. |
| 32 | Prohibits the destruction of fish by any means other than fishing. |
| 34 | Definitions used throughout sections 35 to 42. |
| 35 | Prohibits works or undertakings that may result in harmful alteration, disruption or destruction of fish habitat, unless authorised by the Minister or under regulations. |
| 36 | Prohibits the deposit of deleterious substances into waters frequented by fish, unless authorised under regulations. |
| 37 | The Minister may request plans and specifications for works or undertakings that might affect fish or fish habitat. The Minister may, by regulations or with Governor-in-Council approval, make orders to restrict or close works or undertakings that may harmfully alter fish habitat or lead to the deposit of deleterious substances. |
| 38 | Gives the Minister the authority to appoint inspectors and analysts and describes inspectors' powers, including entry, search and the power to direct preventive, corrective or cleanup measures. Provides for regulations that require reporting of abnormal deposits of a deleterious substance or substances that occur in contravention of the general prohibition, regulations or site-specific authorisations. |
| 40 | Sets out penalties in case of a contravention of: sections 35 or 36; failing to provide information or to undertake a project in compliance with s.37; or failing to make a report or to otherwise comply with s.38. |
| 42 | Those causing the deposit of deleterious substances in waters frequented by fish are liable for costs incurred by Her Majesty. Also, the Minister shall prepare an annual report on administration and enforcement of the fish habitat protection and pollution prevention provisions of the *Fisheries Act* as well as a statistical summary of convictions under s.40. |

## ANNEX II
## HABITAT MANAGEMENT SERVICE STANDARDS

| SERVICE | STANDARD |
|---|---|
| Responding to requests for review and referrals | • Notified of the results within 30 days in 75 percent of cases for which adequate project and fish habitat information accompany the request or referral;<br>OR<br>• Notified of the major issues involved. |
| Issuance of *Fisheries Act* approvals and authorisations | • Timeframes will be discussed with proponents.<br>• Cannot be issued until an environmental assessment is conducted. |
| CEAA involvement, including conducting environmental assessments, providing specialist advice and information, inputting data into the Public Registry, and participation in environmental assessments (Provincial/Territorial/First Nations) | • Notified of the potential need for any *Fisheries Act* authorisation which could trigger an environmental assessment within 30 days in 75 percent of cases.<br>• Environmental assessment information (both new and updated) will be forwarded to the Canadian Environmental Assessment Agency on a monthly basis for input into the FEAI.<br>• Requests for copies of listings of environmental assessment records will be provided within 10 working days, for 60 percent of requests and within 15 working days for 80 percent of requests. |
| Participation in initiatives for the protection and conservation of fish habitat | • Habitat Management will consult with the various interested stakeholder groups during guideline development.<br>• National and Regional guidelines will be published and will be widely available through the appropriate regional and national Habitat Management offices. |
| Participation in habitat restoration and improvement | • Endeavour to provide requested information on habitat restoration and improvement in 15 working days in 80 percent of cases. |
| Involvement in environmental emergency response (including fish kills) | • Priority to investigations and assistance related to environmental emergencies. |
| Enforcement including:<br>Expert witness and<br>Court orders | • Priority to requests for assistance by Enforcement personnel.<br>• Assist with evidence collection, compilation and data interpretation.<br>• Will provide details on remedial measures as requested for court orders. Follow-up will be conducted following court instructions. |
| Responding to ministerial inquiries | • Inquiries made to the Minister will generally be provided within 20 working days. |
| Responding to public inquiries | Telephone Enquiries:<br>• Routine calls on the first call.<br>• Telephone and voice-mail within 2 working days.<br>• Complex issues within 5 working days to advise of the response.<br>Correspondence:<br>• Receive a reply within 15 days.<br>• Some exceptions will apply. |
| Responding to general information requests | • All requests addressed within 5 working days, by providing requested material or by identifying the conditions under which the material may be obtained. |

## ANNEX III
## PROCEDURAL STEPS TO ACHIEVE "NO NET LOSS"