ARCHIVED - 2000 - 2004 - Integrated Fisheries Management Plan - Marine Plants - Prince Edward Island (Inclusive)

Table of Contents

Introduction 3
1. OVERVIEW OF THE FISHERY 4
1.1 Participants 4
1.2 Location of the Fishery 4
1.3 Timeframe of Fishery 5
1.4 Landings/Value/Markets 5
1.5 Consultative Process 6
1.6 Management Styles 7
2. STOCK STATUS 8
2.1 Biology, Environment, Habitat 8
2.2. Species Interactions 8
2.3 Assessment 8
2.4 Research 8
2.5 Prospects for 2000 9
3. LONG-TERM OBJECTIVES FOR THE FISHERY 10
4. GENERAL MANAGEMENT OBJECTIVES 11
4.1 Conservation/Sustainability 11
4.2 International Considerations 11
4.3 Domestic Considerations 11
5. Current Management Issues 12

6. Management Measures for 2000 13
6.1 Fishing Seasons 13
6.2 Control and Monitoring of Fishing Activities 13
6.3 Quota Allocations 13
6.4 Other Relevant Elements 13
a) Licensing 13
b) Key Legislation 13
7. Enforcement Issues and Strategies for 2000 14
7.1 Overview 14
7.2 Main Program Activities 14
7.3 Fishery Patrol Vessels 14
7.4 Air Surveillance 14
7.5 Enforcement Issues and Strategies 14
ANNEX I 15
Management Plan Evaluation Criteria 15
ANNEX II 16
Conservation & Protection Plan Evaluation Criteria 16
ANNEX III 17
Consultative Group 17
Terms of Reference for Prince Edward Island Working Groups 17
ANNEX IV 18
DFO Roles and Responsibilities 18
Resource Management 18
Science 18
Aboriginal Affairs 18
Conservation and Protection 18
Policy 18
Communications 18
ANNEX V 20

Introduction

This is a five-year plan for 2000-2004, which covers the marine plant fishery for Prince Edward Island.

Note: This plan is intended to operate in conjunction with an annual marine plants harvesting plan in which specific harvesting guidelines such as species, seasons, etc. may be adjusted according to conservation requirements.

Irish Moss - *Chondus crispus*

1. OVERVIEW OF THE FISHERY

The marine plant fishery in Prince Edward Island has been an important part of the fishery on the island since the Second World War. Originally the main species harvested was Irish moss (Chondrus cripus) but in recent years there has been a large increase in the amount of Furcellaria (Furcellaria lumbricalis) found in the moss beds and this has begun to be harvested as well. Furcellaria is known locally as wireweed or foo foo. Marine plants are harvested in two different ways. There is the vessel based fishery where licenced fishers tow drag rakes from a vessel through the beds and then haul the rakes aboard the vessel and remove the plants. The second method is the shore-based fishery and does not require a licence. Fishers harvest storm tossed moss (moss that has become detached from the beds) as it washes up on shore or is floating loose very close to shore in shallow water. They do this by using pitchforks and/or scoops. Also horses are used to pull basket shaped scoops through the shallow water to gather the loose floating moss as well.

1.1 Participants

There are 302 marine plant licences on Prince Edward Island. The vast majority of the licence holders reside in the western portion of Prince County. Because the is no licence required for the shore based fishery there are no accurate numbers in regards to participants in this fishery. Also the number of participants in the shore-based fishery varies from year to year depending on such things as price, demand from buyers and the availability of other employment.

There is no aboriginal participation in the marine plant fishery and there is no recreational fishery either.

On Prince Edward Island there are 4 registered processors for marine plants.

1.2 Location of the Fishery

The marine plant fishery on Prince Edward Island is divided into six different harvesting districts. The following is a description of these harvesting districts;

District 1. Waters adjacent to the west shore of Prince Edward Island between West Point, Prince County and North Point, Prince County.

District 2. Waters adjacent to the north shore of Prince Edward Island between North Point, Prince County and the Prince/Queens Counties boundary.

District 3. Waters adjacent to the north shore of Queens County, Prince Edward Island.

District 4. Waters adjacent to Kings County, Prince Edward Island.

District 5. Waters adjacent to the south shore of Queens County, Prince Edward Island.

District 6. Waters adjacent to the south shore of Prince County, Prince Edward Island between the Prince/Queens Counties boundary and West Point.

There are no marine plant licences for Districts 3 and 4 and approximately 90 % of the licences are for Districts 1 and 2. The vast majority of both the shore and vessel based fisheries occurs in Prince County from West Point around North Point to Kildare.

1.3 Timeframe of Fishery

The following is the fishing seasons for the licenced, vessel-based fishery in the harvesting districts;

District 1. Horsetail – June 9 to October 31, Irish moss – June 21 to October 31.

District 2. July 1 to October 31.

District 3. July 1 to October 31.

District 4. July 1 to October 31.

District 5. June 7 to October 31.

District 6. June 7 to October 31.

There is no vessel based harvesting in District 2 south of Malpeque Harbour Light, and all of Districts 3 and 4. The heaviest harvesting in the open Districts takes place during the first month of the season.

There is no season for the shore based harvesting, however the greatest activity is during the same time frame as the open season in a given area.

1.4 Landings/Value/Markets

SPECIES	YEAR	LANDINGS (kg.)	VALUE ($)
IRISH MOSS	1989	14,848,491	3,266,670
IRISH MOSS	1990	14,706,873	3,647,561
IRISH MOSS	1991	9,721,571	2,143,218
IRISH MOSS	1992	4,824,273	850,852
IRISH MOSS	1993	5,062,259	1,004,429
IRISH MOSS	1994	8,505,929	1,503,580

IRISH MOSS OTHER SEAWEEDS	1995	8,962,272 684,467	1,651,940 75,622
IRISH MOSS FURCELLARIA KELP OTHER SEAWEEDS	1996	5,036,041 636,108 1,262 2,467	938,483 114,331 807 381
IRISH MOSS FURCELLARIA	1997	6,985,495 1,166,655	1,267,147 189,752
IRISH MOSS FURCELLARIA OTHER SEAWEEDS	1998	5,104,997 534,227 90	940,955 100,016 50
IRISH MOSS FURCELLARIA	1999	6,209,665 178,152	1,143,845 37,851

*Note that 1999 is preliminary and subject to change.

1.5 Consultative Process

Consultations with clients are carried out in a number of ways using both formal and informal processes. The marine plant fishery is covered under the Prince Edward Island Marine Plants Advisory Committee. The PEI Marine Plants Committee is chaired by Dept. of Fisheries and Oceans and only meets as issues come up which needs industry feed-back (at least once per year). Representation is listed below:

Prince Edward Island Marine Plants Advisory Committee

1. Commercial marine plant fishers
2. Members of Aboriginal Communities
3. Provincial Fisheries
4. PEI Processors Association
5. DFO Resource Management, Conservation and Protection and Science Branch

1.6 Management Styles

The licenced commercial marine plant fishery on Prince Edward Island is managed by effort controls. The most significant of these are the following;

1. Seasons
2. Limiting the number of licences
3. Limiting the number of drag rakes
4. Area closures

2. STOCK STATUS

2.1 Biology, Environment, Habitat

Chondrus crispus is a perennial tufted red alga (Rhodophyta, Gigartinacae) averaging 10 to 15 cm long a maturity. In the Gulf of St. Lawrence, *Chrondus* is a subtidal plant growing predominately on sandstone ledges from 1 to 12 m deep comprising about 70% to 90% of the algal biomass. *Chrondrus* fronds are upright and dichotomously branched and the plant is attached to the substrate by crustose holdfast. It grows to maturity in 2 to 3 years. Reproduction of *Chrondrus cripsus* involves an alteration of generations with a sexual (gametophytic) and an asexual (tetrasporophytic) phase. The gametophytic phase has separate male and female plants. After fertilization the carposporphyte is parasitic on the female plant. Carpospores give rise to free living tetrasporophytes that release traspores primarily in the spring and early summer. Release of carpospores peaks in mid-summer and early fall. Recruitment to the harvest is not dependent on spore production since shoots arise vegetatively from the long-lived encrusting holdfast. Harvesting with drag selects for the larger mature fronds, protecting the pre-recruits from mortality. However, some types of harvesting gear and high levels of effort can result in cumulative holdfast loss.

2.2. Species Interactions

Chrondrus crispus is the dominant algae in the marine plant community on areas of sand stone ledges and cobble. Ephemeral species of red and green seaweed can become seasonally abundant in *Chondrus* beds competing for space and resources. Encrusting coraline algae stabilize the substrate and act as settlement sites for *Chrondrus. Furcellaria lumbricalis* can become dominant in the same environment recruiting by both vegetative and sexual reproduction.

The fronds of marine plants increased the complexity and diversity of benthic environment. The abundance of meso-invertebrates is significantly higher on marine plants than substrate without vegetation. Although herbivores are present they rarely impact the survival of *Chrondrus* and normally feed on epipghtic species.

2.3 Assessment

Assessments of *Chondrus* resource are made prior to or during the harvesting season using direct sampling by divers of .25 m-2 quadrats either on transects or in one hectare grids. Harvest per hour and the composition of the harvest is monitored by sea samples and port sampling. Surveys by raking vessels using standard rakes, tow time and towing procedures are used to assess abundance or distribution of marine plants.

2.4 Research

Research has focused on the population dynamics of *Chrondrus crispus* and its competitor *Furcellaria fastigata.* Relative abundance, reproductive strategies, productivity and survivorship data contribute to our knowledge of the relationship between these species. A second line of research developed on mariculture of *Chondrus* in the basins and estuaries of Prince Edward Island. Culture techniques, optimal growout strategies and site selection are priorities.

2.5 Prospects for 2000

The *Chondrus* resource in MPHA 1, the most important harvesting area will continue to be mixed with *Furcellaria.* The early season Furcelleria harvest is needed to maintain the quality of the *Chrondrus* harvest from these beds. The landings will continue to be at a historically low level due to weak demand and the presence of other seaweed species affecting quality. There is a significant latent effort that depending on success in other fisheries, abundance of Chondrus and demand for Chrondrus can quickly harvest any resource surplus.

3. LONG-TERM OBJECTIVES FOR THE FISHERY

Long term objectives for the Prince Edward Island marine plants fishery include the following:

- To ensure the conservation of marine plant stocks;
- To ensure basic needs of aboriginal peoples for food, social and ceremonial purposes are met as a priority after conservation requirements through the development of AFS agreements;
- Match fishing effort with available resources in the commercial fishery;
- Improve scientific information base on marine plants;
- Improve statistical data collection on marine plant landings and fishing effort.

4. GENERAL MANAGEMENT OBJECTIVES

4.1 Conservation/Sustainability

The management objectives for the marine plants fishery on Prince Edward Island are as follows:

- To promote and ensure the conservation and protection of marine plants and their habitat;
- To ensure optimal use by commercial interests both now and for the future generations;
- To improve data collection on fishing effort and landings.

4.2 International Considerations

There are no international considerations in this fishery as it is fished by a Canadian fleet within Canadian waters.

4.3 Domestic Considerations

1. Aboriginal Fishery

   To work together to ensure that aboriginal communities have first access to the marine plants fishery after conservation requirements are met. Prince Edward Island hosts two Aboriginal First Nations; Lennox Island First Nation on Lennox Island and Abegweit First Nation located in Rocky Point, Scotchfort and Morell Rear and one Aboriginal umbrella organization the Native Council of PEI located in Charlottetown.
2. Recreational Fishery

   There are no recreational fishery considerations involved.
3. Commercial

   The following are the objectives for commercial fisheries:
   - To optimize the use of a limited resource while achieving profitability and sustainability;
   - Ensure fishing effort is evenly distributed;
   - Maintain the cap on the number of licences and reduce through attrition;
   - Improve data collection on fishing effort and landings throughout the area.
4. Exploratory/Experimental

   There is a experimental marine plants fishery on Prince Edward Island this involves the scientific investigation of a specific strain of Irish Moss from the Basin Head estuary.

5. Current Management Issues

1. **Issue: Poor Statistical Information Base**
   There is a poor statistical information base on the location of fishing effort on Prince Edward Island. This is compounded by the fact that fishers often mix marine plants together from different districts before they are sold.
   Approach:
   Improve reporting procedures and educate fishers and buyers about the importance of accurately recording the location of landings.

2. **Issue: Aboriginal Access to the Commercial Fishery**
   The aboriginal community does not have any commercial marine plant licences.
   Approach:
   Utilize existing programs under the Aboriginal Fisheries Strategy to obtain commercial licences for the aboriginal community.

3. **Issue: Scientific Research on Prince Edward Island Marine Plants**
   There has been a program of focused research on the Furcellaria question for 4 to 5 years. This work help establish a separate furcellaria season. The main problem has been the lack of DFO resources to follow up on this research. The work has been provincially funded since DFO abandoned Miminegash.
   Approach:
   Work with the Marine Plants Advisory Committee to seek out avenues to obtain funding and other means to increase the amount and level of research conducted on marine plants.

4. **Issue: Lack of Markets for Marine Plants**
   Some years there is insufficient market demand for the marine plant harvest. There is increased competition from other countries in the marketplace and furcellaria is a relatively new plant to be marketed.
   Approach:
   Work with members of the Marine Plants Advisory Committee to develop new markets for the marine Plants harvested on Prince Edward Island.

6. Management Measures for 2000

6.1 Fishing Seasons

The following is the fishing seasons for the licenced, vessel-based fishery in the harvesting districts;

District 1. Horsetail - June 9 to October 31, Irish moss - June 21 to October 31.
District 2. July 1 to October 31.
District 3. July 1 to October 31.
District 4. July 1 to October 31.
District 5. June 7 to October 31.
District 6. June 7 to October 31.

The shore based fishery for marine plants that have broken off and washed up on shore is open all year round.

6.2 Control and Monitoring of Fishing Activities

The fishery is controlled and monitored by fishery officers in program vessels with aircraft and through dock/waterside checks. Checks are done to ensure compliance of license conditions and all other applicable regulations.

6.3 Quota Allocations

There is no quota assigned to the plants fishery as it is managed by effort controls (i.e. season, #of licences, etc.)

6.4 Other Relevant Elements

a) Licensing

All individuals participating in the commercial marine plants fishery must be registered as commercial fishers. Commercial marine plants fishing licences must be renewed on an annual basis. Vessels used in this fishery must be registered in the name of the licence holder. Licences all limited to a maximum of four drag rakes.

b) Key Legislation

Fisheries Act, Atlantic Fishery Regulations, Fishery (General) Regulations and the Aboriginal Communal Fishing Licences Regulations.

7. Enforcement Issues and Strategies for 2000

7.1 Overview

The Conservation and Protection Branch is responsible for patrolling areas where Irish Moss is harvested.

The commercial fishery is a limited entry fishery done from vessel using drags.

A large non-commercial harvest is done by individuals along the shores with horses and drags; along the shorelines. There is no licence requirement for this fishery

7.2 Main Program Activities

The main program activities involve fishery officers patrolling areas where Irish Moss is fished. Activities include, licence checks, gear checks, seasonal closures and vessel registration number checks.

7.3 Fishery Patrol Vessels

Fishery officers conduct patrols using small vessels, ATV's, motor vehicles and on foot to check compliance of the above program activities.

7.4 Air Surveillance

Air surveillance is conducted occasionally to ensure compliance of the fishery regulations.

7.5 Enforcement Issues and Strategies

ISSUES	STRATEGIES
• Season restrictions • Licence restrictions • Gear restrictions • VRN requirements • Fisher registration requirements	• Aircraft and program vessel patrols • At sea and dock/waterside checks • At sea and dock/waterside checks • Dock/waterside, aircraft and program vessel patrols • Dock/waterside checks

ANNEX I

Management Plan Evaluation Criteria

- Feedback from industry
- Timeliness of decision making
- Communications to industry
- Inter-governmental relations
- Food fishery requirements met
- In-season adjustment
- Overall adherence to plans

ANNEX II

Conservation & Protection Plan Evaluation Criteria

- Number of licence checks
- Number of dock/waterside checks
- Number at sea boardings
- Number of air patrols and hours
- Number of species inspections
- Number of gear checks
- Number of compliants
- Number of investigations
- Number of warnings
- Number of violations
- Number of prosecutions
- Number of seizures
- Number of fishery officer patrols/hours
- Feed back from industry

ANNEX III

Consultative Group

Terms of Reference for Prince Edward Island Working Groups

- To provide a format for input into management policies by users of resource and Federal and Provincial Government agencies;
- To review and advise DFO fishery managers on policies and concerns related to the fishery resource;
- To promote better management of the fisheries resource in inland and coastal waters of Prince Edward Island;
- To represent Prince Edward Island area fisheries, provide advice and make recommendations to advisory committees at the Regional, Inter-regional and National levels through active representative membership on those committees;
- To improve communications between users and government agencies;
- Working groups will act as advisory bodies to DFO fishery managers with recommendations delivered by consensus rather than by vote.

ANNEX IV

DFO Roles and Responsibilities

Resource Management

- Takes the lead in bringing the various DFO sectors and elements of the management plan together to develop the management options;
- Responsible for consultations with industry and provinces;
- Responsible for managing pre, in, post-season processes;
- Responsible for drafting the Integrated Fisheries Management Plan.

Science

- Provides the stock and fishery assessment on an annual basis;
- Indicates any conservation concerns;
- Provides advice on the appropriateness of management options to address conservation concerns;
- Specifies what, if any, data requirements they need to have to facilitate in-season adjustments and post-season evaluations;
- Advises of research projects required for proper assessment of the stock.

Aboriginal Affairs

- Ensures legal obligations or policies are addressed;
- Negotiates and approves fisheries agreements with aboriginal groups.

Conservation and Protection

- Identifies enforcement problems to be addressed in the development of the management plan;
- Suggests specific enforcement measures to address enforcement issues;
- Develops proposed enforcement plans and carries them out.

Policy

- Provides input on international obligations or concerns;
- Responsible for making regulatory changes required in support of management plan.

Communications

- Provides advice on developing appropriate strategies for communicating management plan.

Departmental Contacts

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ANNEX V

Press Release