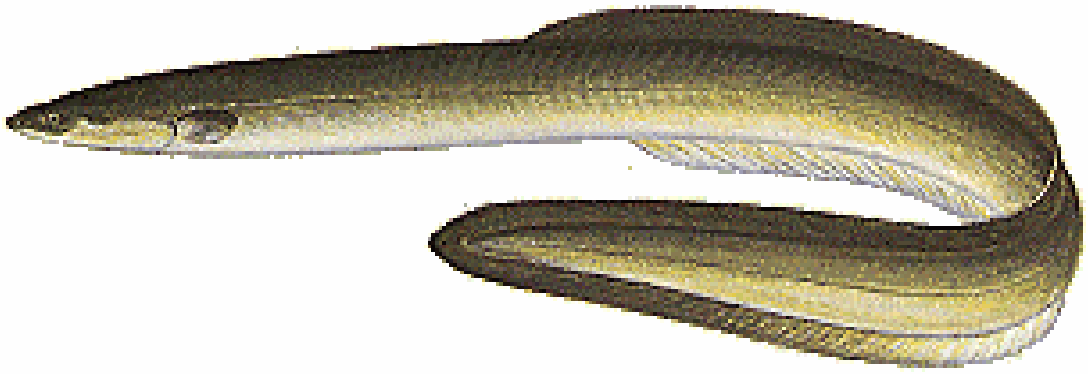
# INTEGRATED EEL FISHERY MANAGEMENT PLAN

## EASTERN NEW BRUNSWICK AREA
## GULF REGION



**2001 - 2006**

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# GLOSSARY

**Coastal fisher:** Designates a fisher who is not a member of a core enterprise and who holds at least one key non-vessel-based commercial fishing licence. In the Eastern New Brunswick Area, key non-vessel-based commercial licences are for the following species: clams (bar clams, bay quahogs and soft-shell clams), eel, gaspereau, oyster and smelt.

**Core enterprise:** Means a fishing unit composed of a fisher (head of enterprise), one or more registered vessel(s) and the licences he holds, and which has been designated as such in 1996 under the following criteria:
For Bonafide fishers: who have Bonafide fisher status and hold a key fishing licence (snow crab, Category A lobster, groundfish (all gear other than handline), scallop, tuna or herring).
For non-Bonafide fishers: who hold two key fishing licences (shrimp, snow crab, Category A lobster and ITQ groundfish only) or who hold one key fishing licence, have fished for a full season and have made landings with a value of at least $25,000 under their own licences, for two years between 1993, 1994 and 1995.

**Ecosystem:** Basic ecological unit formed by the natural environment and the organisms, animals and plants that live there.

**Integrated Fisheries Management Plans:** aimed at improving conservation and sustainable use of fisheries resources. Plans incorporate conservation, management and scientific requirements for a fishery and also spell out the process and implementation of resource management, conservation and protection measures. The process provides the basis for a more integrated approach between DFO sectors as well as for a more meaningful participation of all stakeholders. Integrated Fisheries Management Plans in effect set the stage for co-management arrangements by ensuring transparency, establishing overall allocations between sectors and fleets, providing relevant contextual information and ensuring that clients and stakeholders are consulted on the overall goals and strategies for the management of each fishery.

**Watershed:** Geographic concept designating a territory whose land is drained by any one body of water, such as a bay (Caraquet Bay watershed) or a river (Aboujagane River watershed), and which includes groundwater, surface water and wetlands.

# INTEGRATED EEL FISHERY MANAGEMENT PLAN
# Eastern New Brunswick Area
# 2001-2006

## INTRODUCTION

This five-year management plan covers the commercial eel (*Anguilla rostrata*) fishery in the Eastern New Brunswick Area within statistical districts 63 to 80 (Appendix 1) and covers the period of 2001 to 2006 inclusive. Its objectives are sustainable development, integrated management and a prudent and ecosystem-based approach in the spirit of the *Oceans Act*.

This plan is designed for joint implementation with an annual update in which specific harvesting-related management measures—in particular, fishing area, seasons and catch limits—may be adjusted to suit conservation imperatives.

### 1. OVERVIEW OF THE FISHERY

Commercial fisheries for eels have existed in Canada since colonial times. During that era, eel fisheries were pursued most actively by the Acadians of New Brunswick and the French of Quebec, who pickled large quantities of eels for home consumption and export.

The eel fishery consists of two categories: a commercial fishery and a recreational fishery. Historically, until the early 1960s, the fishery was conducted without licences, using eel spears on the ice, torches in open waters, and eel pots. A policy on a limited access fishery was introduced in 1978. Since then, the fishery has enjoyed increasing popularity. There have also been fluctuations in landings as well as changes in fishing gear and management measures.

Landings on the Atlantic coast between 1990 and 1998 totalled 6,436 t, with a value of $34.4 million. On average for the 1990-98 period, the Eastern New Brunswick Area accounted for 12% of total landings in Atlantic Canada and 46% of landings in the province of New Brunswick.

***Table 1: Atlantic landings, 1990-1998***

| | N.B. | | N.S.* | | P.E.I. | | Quebec | | Nfld. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **t** | **000$** | **t** | **000$** | **t** | **000$** | **t** | **000$** | **t** | **000$** |
| 1990 | 240 | 791 | 26 | 85 | 124 | 390 | 416 | 2051 | 147 | 556 |
| 1991 | 218 | 717 | 74 | 234 | 129 | 436 | 425 | 2247 | 134 | 564 |
| 1992 | 179 | 634 | 118 | 469 | 54 | 182 | 312 | 1648 | 90 | 390 |
| 1993 | 204 | 728 | 159 | 657 | 74 | 246 | 311 | 1372 | 116 | 485 |
| 1994 | 199 | 724 | 142 | 549 | 46 | 220 | 251 | 1284 | 114 | 483 |
| 1995 | 174 | 903 | 134 | 1441 | 34 | 203 | 202 | 1331 | 87 | 431 |
| 1996 | 151 | 915 | 83 | 1545 | 36 | 224 | 186 | 1399 | 95 | 581 |
| 1997 | 147 | 1159 | 81 | 2130 | 44 | 241 | 112 | 735 | 72 | 446 |
| 1998 | 137 | 607 | 90 | 718 | 40 | 178 | 158 | 702 | 71 | 407 |

* Nova Scotia landings include elvers or glass eels that have a much higher value than eels of commercial size.

***Table 2: Eastern N.B. Area landings, compared to Atlantic and New Brunswick landings***

| | **Eastern N.B. Area** | | **% of Atlantic landings** | **% of N.B. landings** |
|---|---|---|---|---|
| | **T** | **000$** | | |
| 1990 | 149 | 500 | 16% | 62% |
| 1991 | 130 | 469 | 14% | 60% |
| 1992 | 120 | 444 | 16% | 67% |
| 1993 | 88 | 336 | 11% | 44% |
| 1994 | 68 | 282 | 9% | 35% |
| 1995 | 60 | 266 | 10% | 35% |
| 1996 | 49 | 245 | 9% | 33% |
| 1997 | 36 | 201 | 8% | 25% |
| 1998 | 49 | 271 | 10% | 36% |

## 1.1 Participants

In 2000, there were 176 licence holders in the Eastern N.B. Area using the following gear: 1,365 trap nets, 665 fyke nets, 35 weirs, 2 box nets and 7,925 longline hooks. Thirty-nine per cent (39%) of the licence holders were coastal fishers and almost 84% of them had more than one other fishing licence. Table 3 shows the number of fishers, the type of licence and the amount of fishing gear by statistical district, while tables 4, 5 and 6 provide a profile of coastal licence holders by statistical district. A map and description of the statistical districts can be found in Appendix 1.

***Table 3: Number of fishers, type of licence and amount of fishing gear by statistical district in Eastern New Brunswick***

| STATISTICAL DISTRICT | TOTAL LICENCES | COASTAL | CORE | TRAP NET | FYKE NET | LONGLINE # hooks | WEIR | BOX NET |
|---|---|---|---|---|---|---|---|---|
| 63 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 4 | 4 | 0 | 18 | 0 | 0 | 0 | 0 |
| 66 | 7 | 3 | 4 | 9 | 24 | 0 | 0 | 0 |
| 67 | 13 | 9 | 4 | 23 | 400 | 0 | 0 | 0 |
| 68 | 18 | 9 | 9 | 505 | 33 | 100 | 0 | 0 |
| 70 | 46 | 10 | 36 | 430 | 0 | 0 | 0 | 0 |
| 71 | 10 | 7 | 3 | 19 | 152 | 0 | 0 | 0 |
| 73 | 9 | 5 | 4 | 72 | 18 | 0 | 0 | 0 |
| 75 | 17 | 4 | 13 | 80 | 0 | 1800 | 0 | 0 |
| 76 | 21 | 8 | 13 | 108 | 26 | 6025 | 4 | 0 |
| 77 | 23 | 6 | 17 | 84 | 12 | 0 | 31 | 2 |
| 78 | 4 | 2 | 2 | 11 | 0 | 0 | 0 | 0 |
| 80 | 3 | 1 | 2 | 4 | 0 | 0 | 0 | 0 |
| **TOTAL** | **176** | **68** | **108** | **1365** | **665** | **7925** | **35** | **2** |

*Table 4: Profile of coastal licence holders by statistical district*

| Statistical District | Licence | | Statistical District | Licence | |
|---|---|---|---|---|---|
| | Eel only | Eel and other licences | | Eel only | Eel and other licences |
| 63 | 0 | 0 | 71 | 0 | 7 |
| 64 | 0 | 0 | 73 | 0 | 5 |
| 65 | 0 | 4 | 75 | 3 | 1 |
| 66 | 1 | 2 | 76 | 1 | 7 |
| 67 | 1 | 8 | 77 | 0 | 6 |
| 68 | 1 | 8 | 78 | 1 | 1 |
| 70 | 3 | 7 | 80 | 0 | 1 |

*Table 5: Number of licences other than eel held by coastal fishers*

| Eel licence only | Eel and 1 other licence | Eel and 2 other licences | Eel and 3 other licences | Eel and 4 other licences | Eel and 5 other licences | Eel and 6 other licences | Total |
|---|---|---|---|---|---|---|---|
| 11 | 25 | 13 | 11 | 3 | 2 | 3 | 68 |

***Table 6: Amount of gear held by coastal fisher, by statistical district (longline licences not included)***

| # gear | Statistical district | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **65** | **66** | **67** | **68** | **70** | **71** | **73** | **75** | **76** | **77** | **78** | **80** | **Total** |
| **1** | 2 | | 1 | | 1 | 1 | | | | 3 | 1 | 1 | **10** |
| **2** | 1 | 2 | 1 | | 1 | 2 | 1 | | | | | | **8** |
| **3** | | | | | 1 | | | | | | 1 | | **2** |
| **4** | | | | | | 1 | | | | 1 | | | **2** |
| **5** | | | | 1 | | | 1 | | | | | | **2** |
| **6** | | 1 | | | 2 | | | | | | | | **3** |
| **7** | | | | | 2 | | | | 2 | 1 | | | **5** |
| **8** | | | | 1 | 1 | | | 1 | | | | | **3** |
| **10** | | | 1 | 1 | 1 | 1 | 1 | | | | | | **5** |
| **12** | | | 1 | 1 | | 1 | | | 2 | | | | **5** |
| **14** | 1 | | | | 1 | | | 1 | | | | | **3** |
| **20** | | | | 1 | | 1 | 1 | | | | | | **3** |
| **21** | | | | | | | 1 | | | | | | **1** |
| **22** | | | 1 | | | | | | | | | | **1** |
| **24** | | | | | | | | | | 1 | | | **1** |
| **37** | | | | 1 | | | | | | | | | **1** |
| **40** | | | | 1 | | | | | | | | | **1** |
| **43** | | | | 1 | | | | | | | | | **1** |
| **50** | | | 1 | | | | | | | | | | **1** |
| **62** | | | 1 | | | | | | | | | | **1** |
| **75** | | | 1 | | | | | | | | | | **1** |
| **119** | | | 1 | | | | | | | | | | **1** |
| **150** | | | | 1 | | | | | | | | | **1** |
| **Total** | **4** | **3** | **9** | **9** | **10** | **7** | **5** | **2** | **4** | **6** | **2** | **1** | **62** |

In summary, for the 68 coastal eel fishers in the Eastern New Brunswick Area, 11 coastal eel fishers only hold this licence and the remaining 57 hold at least one other licence.

The 176 licences issued in 2000 represent a decrease of 45 licences since 1987.

***Table 7: Number of licences issued from 1987 to 2000***

| Year | Number of licences | Year | Number of licences |
|---|---|---|---|
| 1987 | 221 | 1994 | 205 |
| 1988 | 217 | 1995 | 200 |
| 1989 | 215 | 1996 | 190 |
| 1990 | 216 | 1997 | 187 |
| 1991 | 205 | 1998 | 186 |
| 1992 | 201 | 1999 | 184 |
| 1993 | 194 | 2000 | 176 |

Aboriginal fishery

The First Nations hold 5 licences: 4 for the Big Cove First Nation and 1 for the Indian Island First Nation. Two of these licences were bought back from commercial fishers and three come from the DFO reserve.

### 1.2 Location of the fishery

Not much eel fishing is done in the estuaries and mouths of bays and rivers. The fishery is mainly conducted in watercourses below the head of the tide. Table 8 shows the potential commercial fishing effort by ecosystem. As some licences authorize setting gear in two different ecosystems, numbers for fishers and gear are different from the numbers for licence holders and gear in Table 3.

## *Table 8: Potential commercial fishing effort by ecosystem*

| Ecosystem | # licences | # gear |
|---|---|---|
| - Eel River | 1 | 2 trap nets |
| - Pokesudie Island | 1 | 1 trap net |
| - Waters off Pokesudie Island | 1 | 2 fyke nets |
| - Pokesudie Island, east coast | 1 | 1 trap net |
| - Pokesudie Island, small channel | 1 | 2 trap nets |
| - Saint-Simon Bay, below the wharf | 1 | 14 trap nets |
| - Pokemouche River, above the Landry Office River bridge | 8 | 382 fyke nets |
| | | 5 trap nets |
| - Pokemouche River, above the railway bridge at Inkerman to the bridge over the Pokemouche River at Landry Office | 1 | 12 fyke nets |
| - Miscou Island Bay | 4 | 22 fyke nets |
| | 2 | 7 trap nets |
| - Miscou Island Bay, excluding Miscou Harbour | 1 | 2 trap nets |
| - Lamèque Island Bay | 1 | 2 fyke nets |
| - Shippagan Harbour | 1 | 1 fyke nets |
| - Lamèque Island Bay, excluding Miscou Harbour | 1 | 18 trap nets |
| - Little Tracadie River | 2 | 21 fyke nets |
| - Big Tracadie River | 14 | 383 trap nets |
| | | 20 fyke nets |
| | | 100 hooks |
| - Little and Big Tracadie River | 1 | 75 trap nets |
| - Little Tracadie River, including Tracadie Bay | 1 | 5 trap nets |
| - Tabusintac Bay and River | 3 | 126 trap nets |
| - Tabusintac River | 4 | 123 trap nets |
| - Tabusintac Bay | 5 | 29 trap nets |
| - Tabusintac Bay and Portage River | 2 | 20 trap nets |
| - Portage River | 1 | 2 trap nets |
| - Neguac Bay | 26 | 151 trap nets |
| - Neguac and Miramichi bays | 2 | 7 trap nets |
| | | 2 fyke nets |
| - Miramichi Bay | 8 | 50 trap nets |
| - Miramichi River | 5 | 68 fyke nets |
| - Miramichi Bay and River | 3 | 48 trap nets |
| - Miramichi, Napan, Northwest and Southwest Miramichi rivers | 1 | 80 fyke nets |
| - Black River and Napan Bay | 1 | 20 fyke nets |
| - Miramichi Bay and Black River | 1 | 13 trap nets |
| - Miramichi Bay and Eel River | 1 | 20 trap nets |
| - Bay du Vin River | 3 | 17 trap nets |
| - French River | 2 | 11 trap nets |
| - Black River | 1 | 21 trap nets |
| - Kouchibouguac River, within the park boundaries | 4 | 1100 hooks |
| | 6 | 38 trap nets |
| - Kouchibouguac River and Kouchibouguac Bay, within the park boundaries | 2 | 24 trap nets |
| - Northumberland Strait, off Kent County | 2 | 3 trap nets |
| | 1 | 4 weirs |
| - Kouchibouguacis River, Kent County, inside and outside the park boundaries, to bridge on route 134 | 1 | 400 hooks |
| - Kouchibouguacis River, Kent County, inside and outside the park boundaries | 1 | 300 hooks |
| | | 2 trap nets |
| - Kouchibouguacis River, outside of the park boundaries | 1 | 2 trap nets |
| - Kouchibouguac River | 1 | 1 trap net |
| - Richibouctou Bay and River | 1 | 500 hooks |
| - Richibouctou River | 9 | 79 trap nets |
| | 1 | 7 fyke nets |
| | 2 | 1100 hooks |
| - Richibouctou Harbour, outside the park boundaries | 1 | 850 hooks |
| - Richibouctou River, outside the park boundaries | 4 | 2875 hooks |
| - Richibouctou and St-Charles rivers, outside the park boundaries | 1 | 700 hooks |
| - Bouctouche Bay | 2 | 18 fyke nets |
| | 1 | 1 trap net |
| | 1 | 2 weirs |
| - Bouctouche River | 2 | 9 trap nets |
| - Bouctouche River, above the bridge on Route 11 | 1 | 20 trap nets |
| - Bouctouche and Cocagne bays | 1 | 3 weirs |

| Ecosystem | # licences | # gear |
|---|---|---|
| | 1 | 7 weirs |
| - Northumberland Strait, Kent County, including Bouctouche Bay | 1 | 4 weirs |
| - Cocagne River | 1 | 4 weirs |
| | 1 | 24 trap nets |
| - Cocagne River, above the Route 11 bridge | 2 | 6 trap nets |
| - Cocagne Bay | 3 | 11 weirs |
| | 1 | 5 fyke nets |
| | 3 | 7 trap nets |
| | 1 | 2 box nets |
| - Saint-Charles River (Aldouane River) | 1 | 2 trap nets |
| - Shediac Bay and River | 1 | 4 fyke nets |
| | | 31 trap nets |
| - Shediac Bay | 4 | 22 trap nets |
| - Aboujagane River | 1 | 4 trap nets |
| - Shemogue Harbour | 2 | 2 trap nets |
| - Little Shemogue Harbour | 1 | 2 trap nets |
| - Northumberland Strait, along Westmorland County | 2 | 3 trap nets |
| **No conditions** | 1 | 8 trap nets |
| | 1 | 4 fyke nets |

## 1.3 Fishing seasons and minimum length

The eel fishing seasons and minimum length are established under the *Maritime Provinces Fisheries Regulations* and are varied by order as required. The minimum length is specified in Section 6 of this document.

***Table 9: Close times under the Maritime Provinces Fisheries Regulations***

| Item | Column I<br>Waters | Column II<br>Method | Column III<br>Yearly Close Times | Column IV<br>Minimum Length |
|---|---|---|---|---|
| 3. | Inland waters of New Brunswick | (1) Eel traps<br>(2) Eel pots<br>(3) Spears | (1) Jan. 1 to Dec. 31<br>(2) Dec. 30 to Dec. 31<br>(3) Jan. 1 to Dec. 31 | 20 cm |
| 4. | Tidal waters of the Tabusintac River | (1) Eel traps<br>(2) Eel pots<br>(3) Spears | (1) Dec. 31 to July 31<br>(2) Dec. 1 to July 31<br>(3) Sept. 1 to Nov. 15 | 20 cm |
| 5. | Tidal waters of New Brunswick not set out in item 4 | 1) Eel traps<br>(2) Eel pots<br>(3) Spears | (1) Dec. 30 to Dec. 31<br>(2) Dec. 30 to Dec. 31<br>(3) Sept. 1 to Nov. 15 | 20 cm |

## 1.4 Fishing methods

Regulations allow eels to be caught using different types of fishing gear including fishing lines, eel pots, dip nets, longlines, set lines or spears and eel traps. Eel traps

include fyke nets and eel weirs. Eastern New Brunswick area fishers mainly use fyke nets (Appendix 2), which are also known as hoop nets, even though licences sometimes identify other types of gear.

The fyke net consists of a series of hoops covered with netting and attached to one or two leaders that guide the fish into the mouth of the net and its funnel-shaped throats, which prevent the fish from escaping. Some fyke nets have a square hoop at the mouth to which it is easier to attach leaders. On others, the leaders are attached directly to the first hoop. Fyke nets are used mostly in the spring and summer, but also in the fall. They are set in shallow water and often on muddy bottoms. The size of the net depends on the season and the location fished. In the spring, when there is more water in the rivers, the largest fyke nets with openings up to 4 to 5 feet high are used. They are about 15 feet long. The fyke net is set against the current to catch eels that are moving downstream. Small fyke nets can be up to 7 feet long with a mouth measuring 18 to 26 inches. They are mostly used in summer, in the streams where the eels come to feed.

The longline is only used by 14 fishers. Its use involves a significant quantity of incidental catches, including trout. Licences where the longline is specified as gear cannot be replaced and longline fishing is prohibited on the Miramichi River inside a line extending from Oyster River to Point au Carr.

Eel pots, generally made of wooden laths or metal wire, are often homemade and of varied design. According to checks made, it would seem that this type of gear is no longer used in the Eastern New Brunswick Area.

The eel trap resembles a smelt or gaspereau trap. The box net, which is larger than a fyke net, consists of a leader with enclosure of netting held in place by posts and lines.

Recreational fishing is done using various types of fish spears on the ice during the day and with the help of torches at night. The two-pronged or single-pronged spears serve to catch different sizes of eels, but can only be used in limpid waters.

The multi-pronged spear is used to fish muddy bottoms, catching eels indiscriminately.

Torch fishing, an artisanal fishery, is highly dependent on the weather. Although traditionally, the fishing was done with a real torch, the lights used now are operated by generators and are much more effective.

### 1.5 Landings, value and market

Until 1960, no licence was required for fishing and landings were poor. Landings increased with the introduction of fyke nets in the late 1960s, foreign demand in the early 1970s and the elimination of a minimum size in 1968. Since then, there has been a slight increase in landings as a result of increased fishing effort and overfishing of small eels. Recent increases in landings between 1988 and 1992 can be explained by increased fishing effort and by the fact that there is demand for eels of all sizes even if a minimum size should be observed.

Annual eel catches have been quite variable in all provinces but, in recent years, the total Canadian harvest has averaged slightly more 1,000 t worth about $1.1 million. Changing market conditions and variations in eel abundance have influenced landings.

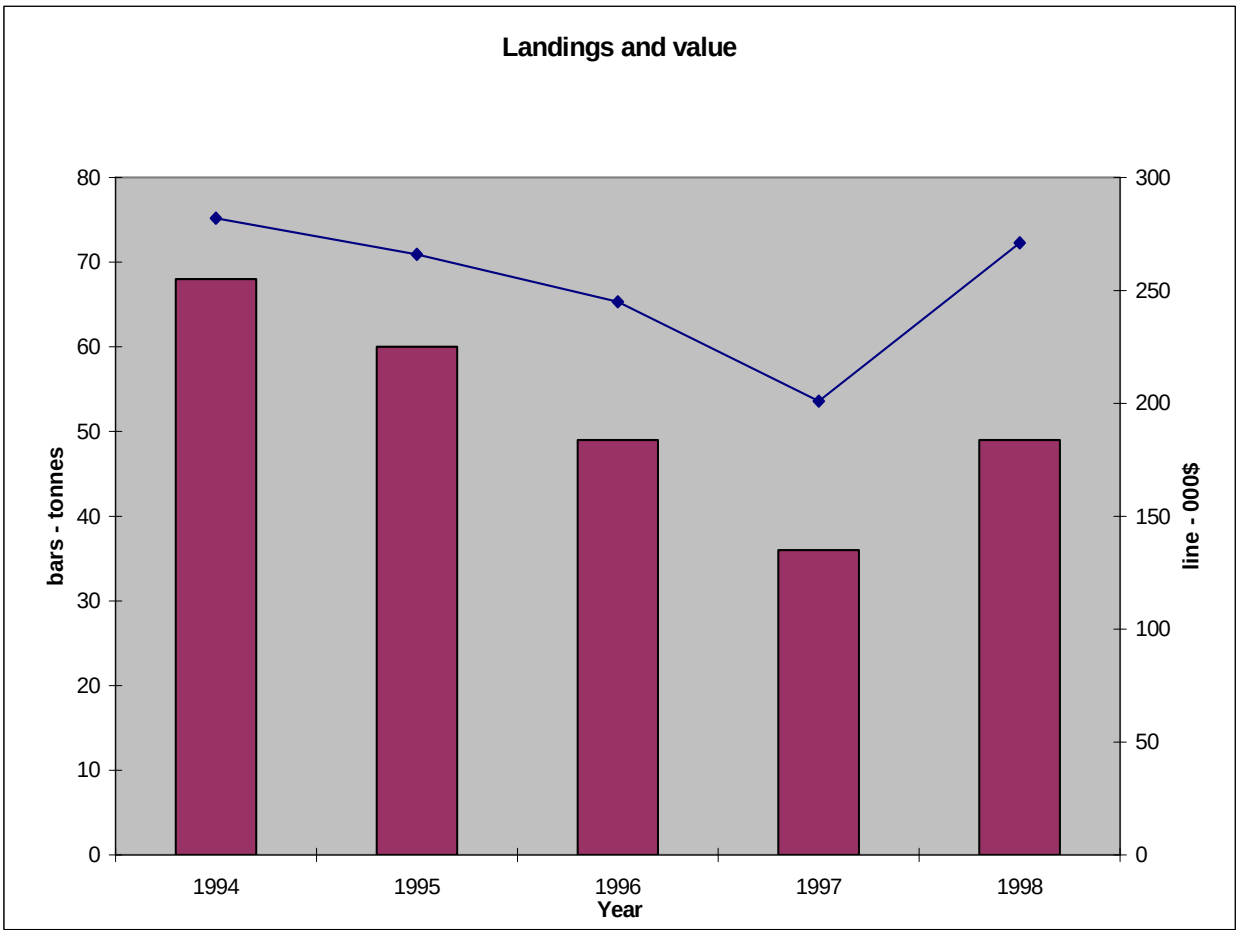
Since the early 1980s when the price paid per pound was less than a $1.00, prices have climbed significantly, with Eastern New Brunswick fishers getting, on average, $1.53/lb in 1990 and $2.51 in 1998.

Most of the harvest is exported to Western Europe, although regional domestic markets catering to several ethnic groups have become important in recent years. Live eels are preferred to frozen eels for the export market; silver eels are preferred to yellow eels because of their larger size and higher fat content, which results in a better smoked product. The demand for live eels and their high value permit the use of air freight to ship them to export markets. At their destination, local processors prepare the eels according to their requirements. Large quantities are smoked, other are jellied and marinated. Tanned eel skins have also been used in high quality leather products.

There are no reliable statistics on commercial and recreational landings. The introduction of a logbook in 2001 should help to ascertain the size of the commercial fishery. Data on the recreational fishery are hard to obtain, and logbooks cannot be made mandatory unless recreational licences are issued, which is not yet the case.

Table 10 provides an overview of reported commercial landings and landed value for recent years. The data are only an indication of the size of this fishery. Data for the 1999 and 2000 seasons are preliminary and have not been included in the table.

***Table 6: Landings and landed value (Eastern N.B. Area)***




In 1999, only about forty fishers declared catches. A look at the statistical landing data for these 40 fishers indicates that only 7 fishers recorded landings of over 3000 lb, 15 had landings between 500 and 3000 lb and 8 fishers had less than 100 lb in landings. In general, fishers say that the fishery has been a bit better in recent years and that there seems to be greater numbers of small eels. Recreational fishers also point to a significant increase in catches, something that has not been seen in the last twenty years.

***Table 11: Landings and landed value by statistical district***

| STAT. | t | $ | t | $ | T | $ | t | $ | t | $ |
|---|---|---|---|---|---|---|---|---|---|---|
| DIST. | | (000) | | (000) | | (000) | | (000) | | (000) |
| | 1994 | 1994 | 1995 | 1995 | 1996 | 1996 | 1997 | 1997 | 1998 | 1998 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 0 | 0 | 0 | 2 | 1 | 7 | 1 | 7 | 1 | 3 |
| 66 | 0 | 1 | 2 | 10 | 1 | 7 | 0 | 0 | 3 | 15 |
| 67 | 8 | 36 | 5 | 17 | 7 | 33 | 11 | 56 | 10 | 49 |
| 68 | 9 | 40 | 12 | 50 | 11 | 55 | 5 | 25 | 8 | 45 |
| 70 | 6 | 25 | 4 | 18 | 5 | 26 | 4 | 21 | 6 | 32 |
| 71 | 7 | 32 | 4 | 22 | 3 | 15 | 2 | 11 | 1 | 8 |
| 73 | 0 | 0 | 1 | 3 | 1 | 4 | 1 | 6 | 2 | 13 |
| 75 | 14 | 55 | 6 | 26 | 3 | 15 | 2 | 16 | 2 | 13 |
| 76 | 21 | 83 | 24 | 107 | 14 | 72 | 6 | 37 | 12 | 72 |
| 77 | 2 | 6 | 2 | 10 | 3 | 11 | 3 | 16 | 3 | 16 |
| 78 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 6 | 1 | 5 |
| 80 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 68 | 282 | 60 | 266 | 49 | 245 | 36 | 201 | 49 | 271 |

## 1.6 Advisory process

The Eel Fishery Advisory Committee is made up representatives from the various ecosystems, that is, two members per statistical district (not all are members of the Maritimes Fishermen's Union), two representatives of the recreational fishers in northeastern N.B. and two from southeastern N.B., two members of the Maritimes Fishermen's Union, one representative of the New Brunswick Department of Agriculture, Fisheries and Aquaculture, one representative of each of the Aboriginal communities holding a communal licence for commercial eel fishing, and officials from various DFO branches.

After consultation with users in the respective areas, the representatives, appointed by their peers or by fishers' organizations such as the Maritime Fishermen's Union to sit on the Eel Fishery Advisory Committee, inform the committee of the status of the fishery in their area, provide recommendations for the management of the fishery and propose changes to the regulations and policy. They tell the Department of any existing problems and conflicts requiring action by the Department. They provide a link between all the fishers and users of the resource, the various watershed management committees and the federal and provincial governments. To

reflect this broad base, the recommendations made to the Department are reached through consensus, rather than by vote.

The committee usually meets every spring in April or May.

In addition, fishers and representatives on the advisory committee attend science workshops on the eel fishery, which are held periodically by the Science Branch.

The list of committee members is in Appendix 3.

### 1.7 Type of management

Currently, in the Eastern New Brunswick Area, the fishery is managed by means of a limited number of licences, seasons and weekly close times, minimum size, the amount and location of fishing gear, restrictions on the recreational fishery such as seasons and minimum size, and the Commercial Fisheries Licensing Policy for the Gulf Region (Appendix 4).

Given concerns over the drop in eel landings from the St. Lawrence, the Province of Quebec organized a workshop in January 1997 for the purpose of adopting a common eel stock conservation and management strategy.

The workshop brought together government officials responsible for eel management in Quebec and Ontario, observers from the provinces of New Brunswick, Prince Edward Island and Newfoundland as well as Science and Management staff from the four Atlantic regions and Ottawa. Further to this workshop, a technical report on fisheries and aquatic sciences in Canada and an action plan for managing and conserving the American eel were developed.

The participants recognized the necessity of implementing a common approach to eel management and conservation across North America. However, given the decentralization of American fisheries administration, they also acknowledged that the development of a joint Canada/United States approach would be a difficult process, especially if, in addition, a distinct eel conservation treaty had to be negotiated. It was proposed that American authorities be approached through the usual bilateral channels in order to determine the most appropriate way to proceed to develop conservation and management plans.

It was also proposed that the mandate of the North Atlantic Salmon Conservation Organization (NASCO) be broadened to include eel management, instead of developing an entirely new agreement. The International Centre for Ocean Development (ICOD), which provides scientific advice to NASCO, already has a scientific working group on eels. Given the similarities between the European eel (*Anguilla anguilla*) and the American eel (*Anguilla rostrata*) and the need to adopt a species management plan for the entire continent, it would appear to be a good idea to have NASCO take on eel management.

## 2. STOCK STATUS REPORT

### 2.1 Biology, environment and habitat (taken from *Underwater World – The American Eel*, published by the DFO Communications Branch)

The American eel (*Anguilla rostrata*) is elongate and serpentine, with a single continuous dorsal fin extending posteriorly from a point about one third of the body length behind the head and around to the vent. Immature adult eels (yellow eels) may range in colour from yellowish to greenish or olive-brown, with the backs darker than the belly. Sexually maturing eels (silver eels) acquire during their seaward reproductive migrations a metallic sheen, bronze or black on the back and silvery below. Eels can also alter their coloration in response to changes in illumination and background. The skin is thick and tough and may secrete copious amounts of slimy mucous, which acts as a protective cover. Unlike the well-developed scales of most other fishes, eel scales are rudimentary and embedded deeply within the skin. The scales develop only after the eel has spent about three years in freshwater.

American eels occur in the estuaries and coastal fresh waters of North America from their northern limit in the Hamilton Inlet-Lake Melville Estuary of Labrador, south of Newfoundland and the Gulf of St. Lawrence along the Atlantic coast of Canada and the United States to the Gulf of Mexico, Panama and the West Indies. Their distribution extends into the Great Lakes and up the Mississippi River. Small populations exist in southwestern Greenland and eels have occasionally been found off the northern coast of South America.

Eels are classed as catadromous fishes, which means that on attaining sexual maturity, adult eels migrate downstream to the sea where ultimately they spawn. Sexual maturation in eels seems more related to size than to age. Size at maturation varies geographically and according to sex, with male eels typically smaller than females.

The spawning migration occurs between August and December. Downstream movement is most active at night and during the first few hours after sunset. Peak migration activity usually occurs during September and October during the last quarter of the moon and is enhanced by dark, stormy nights and rising water levels.

Yellow eels may also be found migrating seaward in autumn but they are believed to be moving to overwintering sites within the river or estuary. American eels spawn in the western part of the Sargasso Sea, with peak spawning periods occurring between January and March. Larger females spawn more eggs than do smaller females. No mature adult has ever been caught in the Sargasso Sea and eel spawning behaviour is unknown. It is presumed that the adults die after spawning.

After hatching, most of the transparent, willow-leaf-shaped larvae (termed a leptocephalus) drift northward with the Gulf Stream, perhaps assisted by swimming activity, until they are eventually distributed along the North American coast. A year or more may be taken to reach Canadian waters. On the way, the larvae undergo metamorphosis that involves a change to typical eel shape. The glass eel, as it is now termed because of its transparent form, begins to actively move towards shore. By the time it reaches the estuaries of coastal streams it has become more or less pigmented. Fully pigmented eels are called elvers and are a small version of the adult eel.

The time of arrival varies geographically and the duration of the run may be only a few days or as long as a month. Peak arrival may occur during spring tides at night. There is no evidence that elvers home to any particular stream and good reason to believe that they do not. Thus, because eel larvae are passively carried along the coast of North America by prevailing currents and glass eels display limited locomotor abilities, it is unlikely that an elver would find and enter the river from which its parents came. It is also unlikely that both parents would have come from the same river.

Elvers may penetrate rivers for many miles inland, depending upon the gradient of the river and the obstructions encountered, but a proportion remains in estuarine and coastal areas. Eels may remain in fresh water from 5 to 10 years. Large female eels may exceed 1,000 mm in length and weigh over 1 kg, but males seldom exceed 600 mm in length.

The major movement occurs in autumn when silver eels migrate to sea and yellow eels travel to overwintering sites if their summer habitat is unsuitable. Yellow eels that moved downstream to the estuary in the spring now return to the river. Eels may return each summer to the same area within the river and eels transported up

to 100 km away from their home waters have successfully found their way back.

Yellow eels are generally active at night, retiring to burrows in muddy bottoms or to other cover during daylight. Bright moonlight will inhibit their nighttime activity. Temperature influences the degree of seasonal activity and eels become noticeably less active when the water temperature drops below 11 °C in autumn. During winter, eels hibernate in the bottom mud.

### 2.2 Interaction between species (taken from *Underwater World – The American Eel*, published by the DFO Communications Branch)

Eels are voracious carnivores and consume a variety of fishes and invertebrates such as insects, crayfish, snails and worms. An acute sense of smell may assist in the location of food, which is preferred fresh rather than decayed. Eels will, however, feed on recently dead fish caught in nets. Young salmon and trout may be included amongst the small fish preyed upon, but since eels tend to avoid the cool, rapid flowing waters favoured by the salmonids, they are not likely to be a significant threat. One study concluded that about 10 per cent of the eels examined had consumed fish while 90 per cent contained mostly insects. Eels may, of course, fall prey to other predators. The large numbers of small eels are particularly vulnerable.

### 2.3 Stock Assessment

Ideally, fisheries are regulated by management plans, based on the scientific assessment of each fish stock or group of stocks. Unfortunately, the scientific data needed to prepare sound stock assessments is lacking for eel stocks in Atlantic Canada. Nor does the region have the data needed for a preliminary assessment of stock movements.

### 2.4 Research

A list of scientific and technical publications can be found in Appendix 6.

The logbook program (Appendix 7) will be mandatory in 2001 for eel fishers in the Eastern New Brunswick Area. Daily catches and fishing effort will be recorded in the logbooks, and the data used to calculate catches per unit of effort (CPUE).

Once enough data has been accumulated, stock movements could be determined based on changes in CPUE. CPUE data will also allow comparisons of relative abundance by fishing area and type of habitat. Eel samples from control areas will be measured, and the length structure will be used to infer the number of individuals for each age group in the population. This will provide an approximate idea of the impact of the fishing effort on the population.

### 2.5 Prospects for the 2001 Season

There are no forecasts regarding eel abundance in New Brunswick rivers.

## 3. LONG-TERM MANAGEMENT OBJECTIVES

Long-term management objectives for the eel fishery in the Eastern New Brunswick Area are defined as follows:

- with regard to Science
  - identify trends with respect to population levels
  - assess the proportion of eels harvested

- with regard to Statistics
  - mandatory use of logbooks in 2001 will provide better information on landings and fishing effort

- with regard to Fisheries Management
  - rationalize the fishing effort by optimizing the number of licences, amount of gear, seasons, etc.
  - maintain an inventory of commercial fishing gear
  - maintain an inventory of the locations of commercial fishing gear by ecosystem
  - participate in international management efforts
  - propose changes to regulations to provide better control of the recreational fishery (daily catch limits, seasons, gear permitted, number of licences, location of the fishery)
  - specify the types of fishing gear and gear locations in the licence conditions

- with regard to Conservation and Protection
  - quantify the activities of fishery officers

- with regard to Habitat Management
  - seek to identify instances of disruption, alteration and destruction of eel habitat;
  - classify and release to watershed management committees with the number of cases of damaged habitat, referred projects, permits and restored habitats
  - consider eel habitat when assessing referred system projects
  - promote environmental stewardship

- with regard to the Oceans Group
  - foster the development of integrated resource management mechanisms, i.e. an ongoing, transparent decision-making process developed by the parties concerned so as to integrate the planning and implementation of activities and policies affecting the oceans of Canada
  - direct and co-ordinate, with the assistance of concerned groups, the establishment of Marine Protected Areas (MPAs) so as to grant certain ecosystems special protection for the reasons outlined in the *Oceans Act*
  - develop and introduce, in consultation with the groups concerned, Marine Environmental Quality (MEQ) criteria for estuaries and coastal waters

- with regard to Aboriginal Fisheries
  - continue to allow Aboriginal groups who request it justified access to the eel fishery for food, social and ceremonial purposes, after ensuring that resource conservation and protection measures are in place
  - facilitate access by Aboriginal groups to the commercial eel fishery in the context of negotiated agreements
  - incorporate in the plan, after consultation with the stakeholders, the management measures following from the Supreme Court decision in the Marshall case

## 4. CONSERVATION-BASED MANAGEMENT MEASURES AND HARVESTING PLANS

### 4.1 Conservation and sustainable fishing

- Promote and ensure the conservation and protection of the species while optimizing fishing effort.
- Assess and modify non-selective fishing gear
- Gather timely and precise data, essential to stock assessment, through mandatory logbooks.
- Promote the guiding principle of *no net loss* of habitat production capacity.

### 4.2 Commercial fishery

- Minimize incidental catches of striped bass, salmon (black and young salmon), flounder, shad, smelt, lamprey, eel, white sucker and trout by making sure all non-targeted species are returned immediately to the water, by establishing specifications for fishing gear, and taking part in fishing gear selectivity trials.
- Maintain the fishing effort by limiting licences, the amount and location of fishing gear.

### 4.3 Aboriginal fishery

- Allow Aboriginal groups who request it justified access to the eel fishery for food, social and ceremonial purposes, after ensuring that resource conservation and protection measures are in place.
- As part of the Department's general strategy to increase Aboriginal participation in commercial fisheries, commercial eel licences, preferably obtained under a voluntary withdrawal program, are retained and will be re-issued to Aboriginal groups. The management measures following from the Marshall case will be incorporated in the plan, after consultation with the stakeholders.

### 4.4 Exploratory Fishery

In the Eastern New Brunswick Area, only one exploratory fishing permit for elvers was issued for the Miramichi River upon consultation with and support from the fishers of this river. The purpose of this fishery was to obtain more information on this species and assess the impact of such a fishery on the eel fishery. As the elver fishery was not conclusive, the licence has not been issued since 1999.

### 4.5 Recreational fishery

There is a significant recreational fishery for eels using spears on the ice and torches in open waters in the Eastern New Brunswick Area. The proposed change to the current regulations will mean the issuing of licences and conditions regarding management measures such as daily catch limits, gear and location, and the intensity of the lights used in the torch fishery.

### 4.6 Aquaculture

Only one aquaculture operation exists in the Eastern New Brunswick area and close to 100 t of eel are put on the market annually.

### 4.7 International fishery

Given the characteristics of its life cycle, the eel comprises a single unique population, which reproduces exclusively in the Sargasso Sea before migrating to our waters. A management plan should therefore be drawn up for the continent as a whole.

### 4.8 Eel habitat

Identify eel habitat to minimize the negative impact on this resource.

# 5. CURRENT MANAGEMENT PROBLEMS

## 5.1 Reporting of landings

Issue:
Reporting of all actual landings is very important for the Science Branch and the managers in order to manage the fishery based on actual fishing effort. Landing reports are still not complete. In addition, no fishers have participated in the voluntary index fishers program since 1997.

Approach:
A logbook will be mandatory, starting with the 2001 fishing season. A condition of the licence will be to return the logbook by no later than December 1 of each year. Catches are to be reported where they are caught.

## 5.2 Bycatch (trout, striped bass, salmon, groundfish)

Issue:
The commercial eel fishery may result in bycatch, and in certain rivers that have been stocked with trout, the eel fishery is being blamed for the poor returns of trout. Decreasing the amount of gear fished, shortening the season and prohibiting fishing in some areas where catches other than eel are likely are the means being suggested to control the fishery.

Approach:
DFO, in cooperation with the New Brunswick Department of Agriculture, Fisheries and Aquaculture, intends to undertake studies of fishing gear selectivity to reduce bycatch in the eel fishery. For this reason, the licensing policy has prohibited replacement licences being issued for current longline licences since 1997.

### 5.3 Disappearance of eelgrass

Issue:
The presence of eelgrass is a significant factor in the eel fishery. According to fishers, if there is no eelgrass, there are no eels. Eelgrass seems to be disappearing in some places and spreading in others. Apparently, a study was done in the past on Northumberland Strait eelgrass, which is a food source for eels.

Approach:
Attempts will be made to locate the study, which will be abridged and distributed at a subsequent meeting of the advisory committee.

### 5.4 Increased fishing effort in the spear fishery and illegal commercial sales by recreational fishers

Issue:
The increase in eel prices has led to greater fishing effort in the spear fishery. Some fishers sell their catches commercially.

Approach:
A change to the regulations will allow daily catch limits to be established for the recreational eel fishery, and DFO is looking into the possibility of issuing licences for this fishery. Added to the season set for this activity, these measures will provide better control over the spear fishery. Commercial sales are prohibited in the recreational fishery. If a daily limit is set, monitoring will have to be done to see whether small speared eels are being discarded in favour of larger ones.

### 5.5 Habitat and drop in eel abundance

Issue:
There is a downward trend in catches for all of the Maritimes and the St. Lawrence River. The factors that may explain this trend include the fact that the Gulf Stream has moved a bit farther south in recent years, an increase in fishing activity, the deterioration and destruction of eel habitat by human activities as well as the changes in habitat caused by fluctuating beaver populations.

Approach:
In recent years, eel fishery managers with the provincial governments concerned and the federal government have been working to establish a North American approach to managing this fishery and are now seeking to obtain American involvement (see section 1.7). This approach and the implementation of regulations with regard to habitat protection should lead to better conservation of this species and its habitat.

### 5.6 Leaders

Issue:
Only leader length is regulated as follows: *"One-third of the width of any river or stream and not less than two-thirds of the width of the main channel at low tide in every tidal stream shall be always left open, and no kind of net or other fishing apparatus, logs or any material of any kind shall be used or placed therein."* There are no regulations regarding the height, number, placement and mesh size of leaders used in the eel fishery, and this could result in increased fishing effort and incidental catches.

Approach:
The height, number, placement and mesh size of leaders can be restricted by conditions of licence. DFO intends to establish a maximum height with the help of the advisory committee, and gear selectivity studies could assist in establishing mesh size. Variations in the heights of the tide and current strength could, however, make uniform enforcement of the licence conditions difficult. DFO will continue to monitor these situations and might consider different licence conditions, depending on the location of the fishery.

### 5.7 Gear Placement

Issue:
Some fishers double, triple or quadruple gear by connecting the traps together and very few eels manage, as a consequence, to escape. In a survey of fishery officers, DFO noted many gear modifications, such as two traps with three leaders, four traps with five leaders, two traps with one leader between them and a series of fyke nets connected together.

Approach:
The *Maritime Provinces Fisheries Regulations* stipulate that, unless otherwise indicated, it is prohibited to fish with or to set gear in a 200-metre radius of gear that has already been set. Fishers are required to comply with these regulations, unless other provisions have been made and are included in the licence conditions. Each piece of gear must bear a valid tag, except in cases on the Pokemouche River, where fishers, in the past, used two nets with an opening not exceeding 45 cm, connected to a leader of not more than 15 m; in these cases only, one tag can be used on both pieces of gear, but this grandfather clause will no longer be valid once these licences are replaced.

### 5.8 Limit on the amount of fishing gear in use

Issue:
Contrary to the smelt fishery, there is no limit on the amount of eel fishing gear when a replacement licence is issued. In Prince Edward Island, a limit of thirty-five (35) units has been set.

Approach:
DFO recommends that a limit be imposed on the amount of gear that can be listed on a licence when a replacement licence is issued. This limit will be set in consultation with the fishers on each river. In the meanwhile, a freeze has been imposed on the number of units that may be added to any other eel licence, pending the results of the consultations.

### 5.9 Seasons

Issue:
According to the regulations and except for the tidal waters of the Tabusintac River where the commercial eel fishery is only authorized from August 1 to November 30, there is no close time in other tidal waters for the commercial fishery. The season for the recreational spear fishery in all tidal waters is from November 16 to August 31. In inland waters, any fishing with spears and traps is prohibited, while it is authorized year-round with eel pots. For several years now, the matter of setting a season has been discussed at advisory committee meetings. At the March 2000 meeting, local fishers recommended that the Pokemouche River be closed to eel fishing from June 1 to July 15 and that the Kouchibouguac, Saint-Louis and Richibouctou rivers be closed to the eel fishery from July 1 to August 1.

Approach:
Except for the Tabusintac River, which is closed from August 1 to November 30, the close time for all the tidal waters in the Eastern New Brunswick Area will be from November 1 to March 31.

### 5.10 Minimum Size

Issue:
The *Maritime Provinces Fisheries Regulations* sets minimum size for eels at 20 cm (about 8 inches). In the Eastern New Brunswick Area, the minimum size is varied by order and for a number of years now has been set at 38.1 cm (about 15 inches). Advisory committee members have proposed a minimum size of 46 cm (about 18 inches). In Gulf Nova Scotia, a minimum length of 46 cm (about 18 inches) was adopted in 1996 and was increased to 50 cm (about 20 inches) in 1997. Prince Edward Island set a minimum size of 55.8 cm (about 22 inches) in 1999.

Approach
In 2001, the minimum size will be 46 cm for the Eastern New Brunswick Area. The size will gradually be increased to 50 cm in the coming years.

### 5.11 Daily limit in the recreational fishery

Issue:
There is no daily limit in the recreational fishery. The price being paid for eels encourages recreational fishers to increase their fishing effort.

Approach:
Recreational fishers will have to submit recommendations on a reasonable and enforceable daily limit to DFO. An application to amend the regulations has been submitted, in order that a daily limit may be set.

### 5.12 Elver fishery

Issue:
Eastern New Brunswick Area fishers have concerns about the exploratory elver fishery on the Miramichi River. Though Miramichi fishers support this fishery, conducting exploratory fishing in a river with a commercial eel fishery is not

common practice. In the Maritimes Region, the policy on the exploratory elver fishery prohibits exploratory fishing in rivers with commercial fisheries.

Approach:
DFO biologists responsible for eel in the Eastern New Brunswick Area have always supported a limited and supervised exploratory fishery in the hopes of obtaining more information on the species and evaluating the impact of such a fishery on the commercial eel fishery. To date, the exploratory elver fishery on the Miramichi River has been largely unsuccessful. The licence holder has not participated in the fishery since 1999 and his licence has not been issued. DFO does not plan on issuing any such licences for the area in 2001.

### 5.13 Demands of the committee to defend sport fishing rights

Issue:
A committee to preserve the traditional torch fishery was formed in 1997. The committee asked DFO to support the following recommendations: no closing date, no catch limit, a minimum size of 18 inches, no fishing limit within 200 metres of traps for torch fishers, requirement that commercial fishers sort the fish immediately after harvesting and a maximum height for leaders at low tide to reduce bycatch.

Approach:
The committee's recommendations will be forwarded to the eel fishery advisory committee for discussion.

### 5.14 Licence conditions

Issue:
Some commercial fishers would like to fish in areas other than those indicated on their licences.

Approach:
DFO will not allow the transfer of gear from one river to another. DFO is ready to examine requests to transfer gear from the upper reaches of a river to the lower reaches of the same river, since the incidence of bycatch decreases as the fishing effort is moved towards the mouth of the rivers.

### 5. 15 Torch fishery

Issue:
The use of powerful lights increases the fishing effort. In Prince Edward Island, the strength of the lights is limited to 3,400 lumens.

Approach:
DFO intends to limit the strength of lights used in the torch fishery in the Eastern New Brunswick Area similarly to what has been done in P.E.I. If there is a daily catch limit, the need to restrict the strength of the lights will be discussed again.

### 5.16 Names or terms for gear

Issue:
Many fishers, fishery officers and managers use different terms to designate a single type of fishing gear. This results in many names being used to identify the same type of fishing gear. All kinds of terms are used in the licence conditions: pot, trap, fyke net, weir, dip net, longline, line, spear and set line. Despite the fact that gear differs in terms of fishing efficiency, fishers may use a different type of gear from the one indicated in the licence conditions. The performance of each type of gear has not really been established but should be in order to calculate potential fishing effort.

Approach:
An inventory of terms used has been done and the licence conditions will have to refer the type of gear used in the fishery. Changes to the regulations and/or licence conditions dealing with the description of gear will be made if required.

## 6. DETAILED MANAGEMENT MEASURES FOR 2001

### 6.1 Tagging and identification of gear

All gear must be identified and bear a tag whose number will be listed on the licence.

### 6.2 Bycatch

No bycatch is allowed.

### 6.3 Licences, gear and location of gear

The number of licences and amount of gear are limited. Changes in the location of gear will be authorized by DFO only in cases where the gear is moved from an upstream area to a downstream area of the same river.

### 6.4 Minimum size

The minimum size is set at 46 cm.

### 6.5 Season

Except for the Tabusintac River (closure from August 1 to November 30), the commercial fishery in tidal waters is closed from November 1 to March 31. The recreational spear fishery is closed from September 1 to November 15.

### 6.6 Replacement licences in the longline fishery

No longline replacement licences may be issued. Licences will be cancelled when not renewed or upon the death of the holder. (See Table 3 for the number of these licences and their locations.)

### 6.7 Limit on the amount of gear per licence

A freeze has been imposed on the amount of gear that may be added to any other licence, pending the results of a review of the situation by the advisory committee and any subsequent decision by DFO as to how to proceed in regard to the amount of gear to be listed on eel fishing licences.

## 6.8 Commercial eel fishing licences issued for the waters of Kouchibouguac National Park

With the creation of Kouchibouguac National Park in 1969, all commercial fishing activities within park boundaries were abolished and the fishers compensated. In the fall of 1979, pressure was brought to bear to reinstate fishing within the park and, in 1980, the Minister responsible for Parks Canada granted the right to fish for smelt, eel and gaspereau under certain conditions. Licences were issued to commercial fishers with a home port at Cap St- Louis and Loggiecroft (within park boundaries) and to commercial fishers who had held licences in 1967, 1968 or 1969. The commercial fishery will be phased out gradually when there are no more fishers eligible for replacement licences.

## 6.9 Logbook

The logbook will be mandatory in 2001 and should be returned to the Department by no later than December 1 of each year. A copy of the logbook can be found in Appendix 7.

## 7. CONSERVATION AND PROTECTION PROGRAM AND STRATEGIES FOR 2001

The Conservation and Protection Branch will ensure compliance with the management plan for 2001, by carrying out all the activities necessary to enforce the regulations and the management plan, such as:

- monitoring incidental catches
- monitoring tags and identification on fishing gear
- ensuring that the minimum eel size is observed
- ensuring that the specified distance between gear is adhered to
- ensuring that the fishing seasons are adhered to
- ensuring compliance with licence conditions

## 8. INDUSTRY RESPONSIBILITIES

Fishers are showing more and more interest in how to manage the eel fishery and are interested in evaluating and proposing new management procedures. Associations of commercial and recreational fishers should play a greater role in the management of this fishery. They should form a group to deal with eel conservation and management, thus becoming a partner in co-management. The group would hold consultations, with meetings chaired by the industry, and DFO would address management issues directly with this group.

In addition, to support the principles of the *Oceans Act*, the partners involved in the group would have to represent coastal communities, the fishing industry, non-government organizations, environmental groups, the Aboriginal peoples, the provincial governments, federal departments, and the academic community, in short, all potential users of this resource and its habitat.

## 9. DFO ROLES AND RESPONSIBILITIES

- Fisheries Management
  - direct and consolidate consultations with the various divisions of DFO in order to develop management options
  - responsible for consultations with the Industry and the governments
  - responsible for management before, during and after the season
  - responsible for licensing

- Habitat Management
  - evaluate potential impacts on habitat of project referrals and major projects
  - assist local groups with watercourse rehabilitation
  - assist watershed management committees and Industry with best practices and guidelines for fish habitat protection
  - offer advice on fish passage

- Science – Diadromous Fish
  - define biological reference points for diadromous fish in the southern Gulf
  - assess the exploitation rates of selective fisheries with respect to the points of reference
  - conduct research into species biology, population dynamics and ecological associations with population numbers and sustainability
  - provide advice on the appropriateness of possible management measures in order to address conservation concerns
  - accurately define the data needed to make adjustments during the fishing season and to do the post-season assessments.

- Science – Other
  - provide opinions on water quality
  - provide opinions on contaminants
  - help determine causes of fish mortality
  - provide opinions during evaluation of major projects
  - provide information on the location of essential habitats

- Aboriginal Affairs
  - ensure follow-up for DFO's relations with Aboriginal peoples; food, social and ceremonial fisheries; commercial communal fisheries; and DFO consultations, policies and programs

- has trustee responsibility to respect treaty decisions rendered by the courts

- Conservation and Protection
  - ensure follow-up, control and monitoring of regulatory programs that require fishery officers to be deployed on land, sea and air
  - the division's activities aim to comply with legislative policies, plans and programs related to conservation and protection of the fisheries resources of Canada
  - responsible for initiating applications to change regulations that are necessary to support DFO management plans and programs

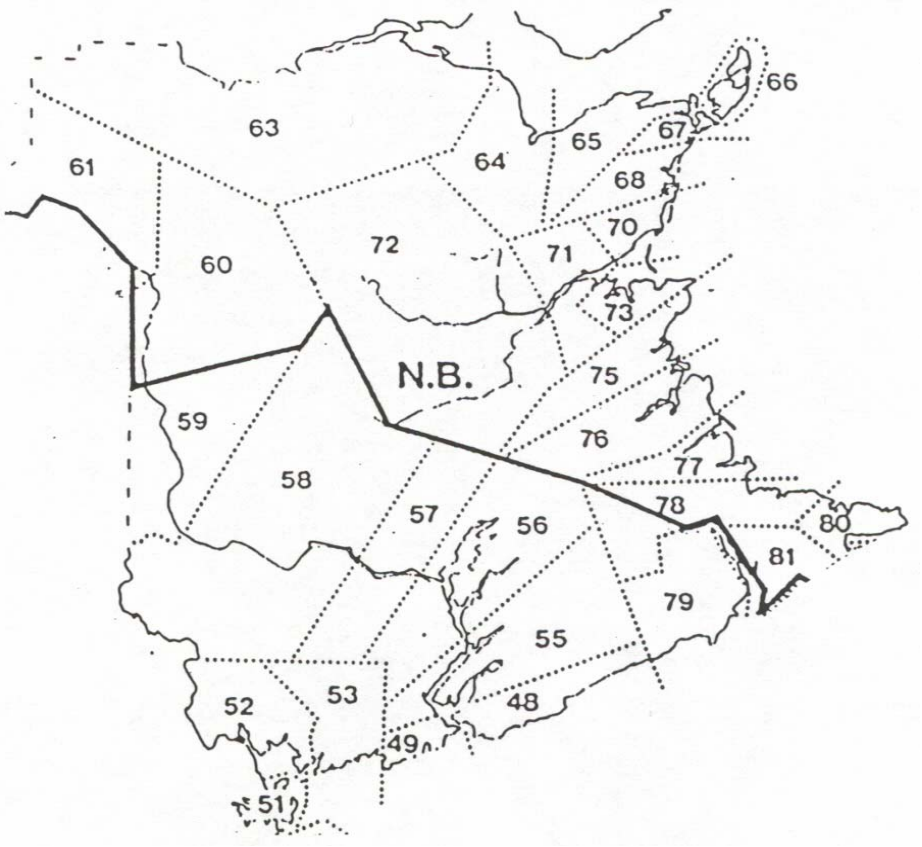
- Oceans
  - encourage the development and implementation of an Oceans Strategy that will allow Canada to give shape to its vision of management of estuarine, coastal and marine ecosystems. This strategy must ensure the sanitation, safety and prosperity of the oceans for the benefit of the Canadians of today and tomorrow.

This strategy encourages application of the guiding principles of the *Oceans Act*, namely:
- conservation, which under an ecosystem-based approach is of fundamental importance for safeguarding the biological diversity and productivity of the marine environment
- prevention, that is, erring on the side of caution when fishing, so as to protect these resources and preserve the marine environment
- sustainable development, that is, development that meets the needs of the present without compromising the ability of future generations to meet their own needs

This strategy will be implemented in collaboration with the other federal departments and agencies, provincial and territorial governments, Aboriginal organizations, coastal communities and other stakeholders.

- Communications
  - provide advice on communication strategies for management plans

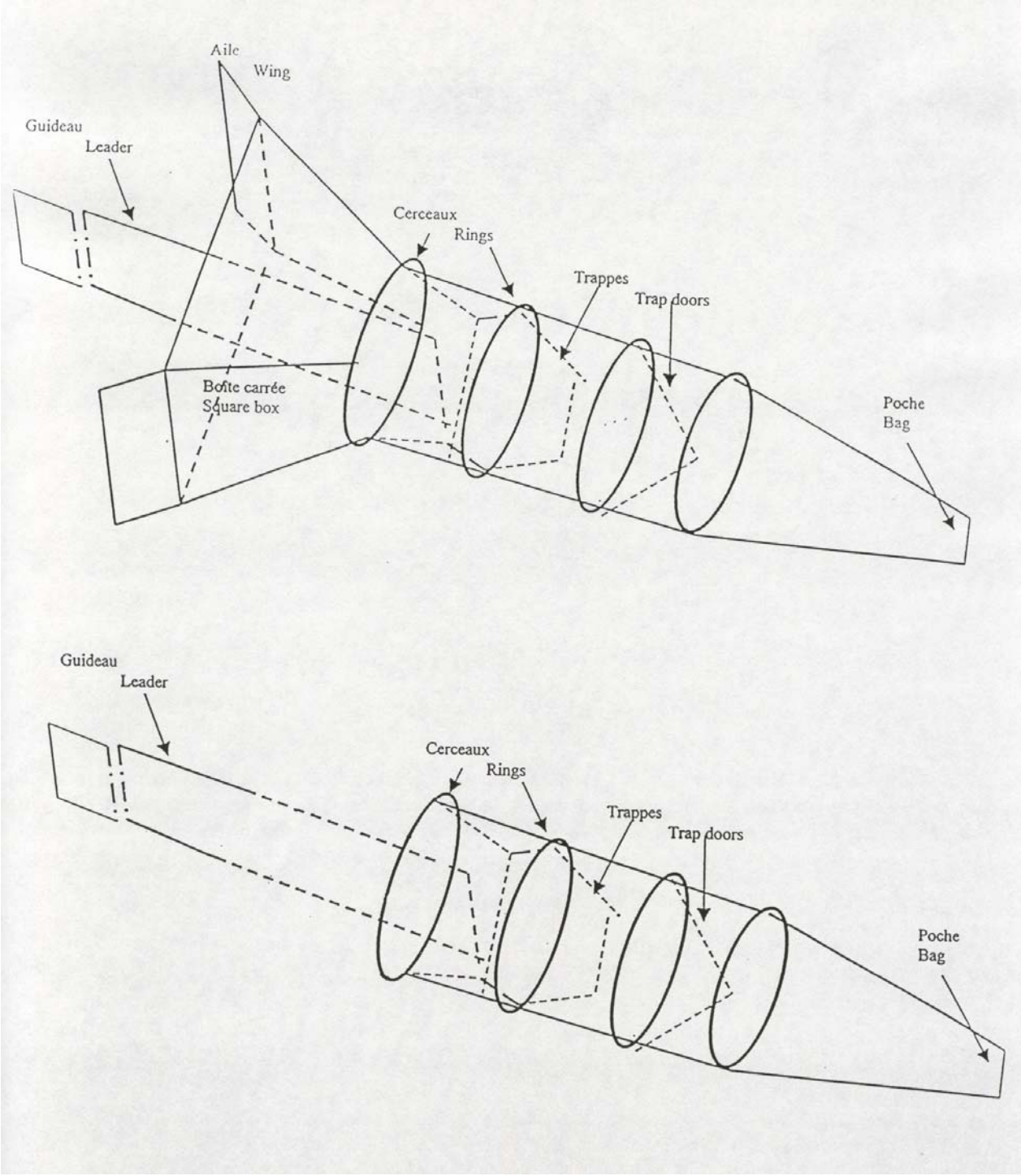
## APPENDIX 1 – MAP AND DESCRIPTION OF STATISTICAL DISTRICTS




63 – Restigouche County
64 – Restigouche County line to Bass River (incl.)
65 – Bass River (excl.) to Pokesudie Island (incl.)
66 – Lamèque Island and Miscou Island
67 – Shippagan to Pokemouche Gully (incl.)
68 – Pokemouche Gully (excl.) to Northumberland County line
70 – Northumberland County line to Grand Dune Island
71 – from Grand Dune Island to Morrisey Bridge on the north side of the Miramichi River and Morrisey Bridge to Point au Carr (excl.) on the south side
73 – Point au Carr (excl.) to Kent County line
75 – Kent County line to the south side of the St. Louis River (incl.)
76 – south side of St. Louis River (excl.) to Chockpish River
77 – south side of Chockpish River to Westmorland County line
78 – Westmorland County line to Bas Cap Pelé (incl.)
80 – Bas Cap Pelé (excl.) to N.B./N.S. border

## APPENDIX 2 – FISHING GEAR

## FYKE NET



## APPENDIX 3
## EASTERN NEW BRUNSWICK EEL FISHERY ADVISORY COMMITTEE MEMBERS

**Réginald Comeau**
MFU - Tracadie -Sheila

**Edmond Drysdale**
MFU – Shediac

**Joseph LaBelle**
NB Fish Packers' Association - Moncton

**Chief**
Big Cove First Nation
Big Cove

**Chief**
Bouctouche First Nation
Bouctouche

**Chief**
Burnt Church First Nation
Lagaceville

**Chief**
Eel Ground First Nation
Eel Ground

**Chief**
Eel River Bar First Nation
Dalhousie

**Chief**
Indian Island First Nation
Rexton

**Chief**
Pabineau First Nation
Bathurst

**Chief**
Red Bank First Nation
Red Bank

**Gerald Beck**
Rexton

**NB Aboriginal Peoples Council**

**Albert Babineau**
Richibouctou Village

**Irénée Comeau**
Tracadie-Sheila
Spear - Tracadie-Sheila

**Arthur Doucette**
Richibouctou
Kouchibouguac River

**Arcade Fontaine**
Richibouctou
Longline - St. Louis River and Bay

**Norman Jacob**
Cap Pelé
Shemogue River

**Gérald LeBouthillier**
Tracadie-Sheila
Traps- Sheila, Tracadie and Tabusintac rivers

**Léopold Maillet**
Bouctouche
Bouctouche River

**Roger Power**
Six Roads
Traps – Pokemouche River

**Earl Rivers**
Pokemouche
Traps – Pokemouche River

**Kenneth Sweezey**
Chatham
Traps – Miramichi River

**Neil Thibodeau**
Brantville
Traps – Tabusintac River and Bay

**Daryl Trevors**
Miramichi

**France Vautour**
St. Louis-de-Kent
Traps - St. Louis River and Bay

**Norbert Vienneau**
Tracadie-Sheila
Spear - Grande Tracadie River

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**Chief, Fisheries Management**
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DFO - Moncton

**Jean Gauvin**
CFIA – Shediac

**Almas Chiasson**
CFIA– Shippagan

DFO Advisors : Resource Management
Statistics
Licensing
Habitat

## APPENDIX 4 – LICENSING POLICY FOR THE COMMERCIAL EEL FISHERY IN THE GULF REGION

The following is a summary of the licensing policy for the commercial eel fishery in the Eastern New Brunswick Area.

- No new commercial eel fishing licence may be issued.

- Replacement licences may be issued:
  For transfers from coastal and core fishers to other coastal and core fishers and new entrants (all licences must be replaced).

- To qualify as a new entrant and obtain a replacement licence for eel fishing, it is necessary:
  1 – to have fished commercially for at least five weeks in each of the two previous years;
  2 – to be registered as a commercial fisher for each of the last two years;
  3 – to be recognized as a commercial fisher in one's community;

- When a replacement licence is issued, the conditions of the replacement licence will be the same as the conditions of the replaced licence.

- A licence holder cannot have the licence validated for a river other than the one indicated on the licence.

- When a replacement licence is issued, it must contain the same amount of gear as the licence it replaces, so that the fishing effort does not increase.

- Replacement licences for the longline fishery cannot be issued. Licences will be cancelled when current licences are not renewed or upon the death of the licence holder.

- Licences for fishing within the Kouchibouguac National Park are issued with certain conditions. They are issued to commercial fishers with a home port at Cap St- Louis and Loggiecroft (within park boundaries) and to commercial fishers who had held licences in 1967, 1968 or 1969. The commercial fishery will be phased out gradually when there are no more fishers eligible for replacement licences.

- In 2001, a freeze has been imposed on the amount of gear that may be added to any other licence, pending the results of a review of the situation by the advisory committee and any subsequent decision by DFO as to how to proceed in regard to the amount of gear to be listed on an eel fishing licence.

## APPENDIX 5 – REGULATIONS GOVERNING THE EEL FISHERY IN THE EASTERN NEW BRUNSWICK AREA

The following articles are taken from various provincial and federal regulations and are subject to change without notice.

The Department of Fisheries and Oceans assumes no responsibility for the accuracy or reliability of any reproduction of federal legislative documents that are in this plan's appendix. These documents are prepared only for the convenience of the reader and have no official sanction. For the purpose of interpreting and applying the law, the reader must consult:

a) the Acts as passed by Parliament which are published in the "Assented to" Acts service, Part III of the Canada Gazette and the annual Statutes of Canada; and

b) the regulations as registered by the Clerk of the Privy Council and published in Part II of the Canada Gazette.

- No person shall fish for or catch and retain any fish unless the following conditions are met: the person is authorized to do so under the authority of a licence issued to that end; the person holds a fisher's registration card; and, where a vessel is used in fishing, a vessel registration card has been issued in respect of that vessel. (Sect. 4(1), *Maritime Provinces Fishery Regulations*)

- Every holder of a licence or fisher's registration card shall carry it at all times when engaged in any activity to which it relates and shall produce it on the demand of a fishery officer or fishery guardian. (Sect. 11, *Fishery (General) Regulations*)

- The operator of a vessel in respect of which a vessel registration card has been issued shall have the vessel registration card and the licence authorizing the use of the vessel on board the vessel whenever the vessel is engaged as a fishing vessel and shall produce them on the demand of a fishery officer or fishery guardian. (Sect. 12, *Fishery (General) Regulations*)

- No person shall operate or cause to be operated a registered vessel on which the vessel registration number is not painted or securely affixed as required. (Sect. 26, *Fishery (General) Regulations*)

- No person carrying out any activity under the authority of a licence shall contravene or fail to comply with any condition of the licence. (Sect. 22 (7), *Fishery (General) Regulations*)

- No person shall set, operate or leave unattended in the water any fishing gear unless the gear is marked with the name of the person who owns the gear. The name (in full) must be affixed to a tag, float or buoy attached to the gear, and be legible and readily visible at all times without the necessity of raising the gear from the water. (Sect. 27, *Fishery (General) Regulations*)

- The person's name must appear in solid block capital letters in Roman letters, without ornamentation; not less than 75 mm in height; and in a colour that contrasts with their background. (Sect. 27(4), *Fishery (General) Regulations*)

- No person shall leave fishing gear unattended in the water for more than 72 consecutive hours. (Sect. 27, *Maritime Provinces Fishery Regulations*)

- One-third of the width of any river or stream and not less than two-thirds of the width of the main channel at low tide in every tidal stream shall be always left open, and no kind of net or other fishing apparatus, logs or any material of any kind shall be used or placed therein. (Sect. 26 (1), *Fisheries Act*)

- Except as otherwise provided as a condition of a licence, no person shall fish with or set any fishing gear, other than angling gear, a dip net, a minnow trap or a spear, within 200 m of any fishing gear previously set. (Sect. 26(e), *Maritime Provinces Fishery Regulations*)

- No person shall fish for eels except by angling or with an eel pot, eel trap, dip net, longline, set line or spear. (Sect. 36, *Maritime Provinces Fishery Regulations*)

- Every person who catches a fish incidentally shall forthwith return it to the place from which it was taken; and where it is alive, in a manner that causes it the least harm. (Sect. 33 (2), *Fishery (General) Regulations*)

- No one shall erect, use or maintain n any of the Canadian Fisheries waters, whether subject to any exclusive right of fishery or not, any net, weir or other device that unduly obstructs the passage of fish. (Sect. 29(1), *Fisheries Act*)

- Seines, nets or other fishing apparatus shall not be set or used in such manner or in such place as to obstruct the navigation of boats and vessels and no boats or vessels shall destroy or wantonly injure in any way seines, nets or other fishing apparatus lawfully set.(Sect. 24, *Fisheries Act*)

## APPENDIX 6 – SCIENTIFIC AND TECHNICAL PUBLICATIONS


Anon, 2000. Report of the EIFAC/ICES Working Group on eels, ICES CM 2001/ACFM:03

DFO. 1996. Eel fisheries in the Maritimes (*Anguilla rostrata*). DFO Atlantic Fisheries Stock Status Report 96/14. 4 pp.

Jessop, B.M. 1998. The management of, and fishery for, American eel elvers in the Maritime Provinces, Canada. Bull. Fr. Pêche Piscic. 349:103-116.

Jessop, B.M. 1998. Geographic and seasonal variation in biological characteristics of American eel elvers in the Bay of Fundy area and on the Atlantic coast of Nova Scotia. Can. J. Zool. 76:2172-2185.

Locke, A., Claytor, R., LeBlanc, C., Chaput, G. 1995. Status of American eels, Anguilla rostrata, in the Gulf Region. DFO Atlantic Fisheries Res. Doc. 95/79.

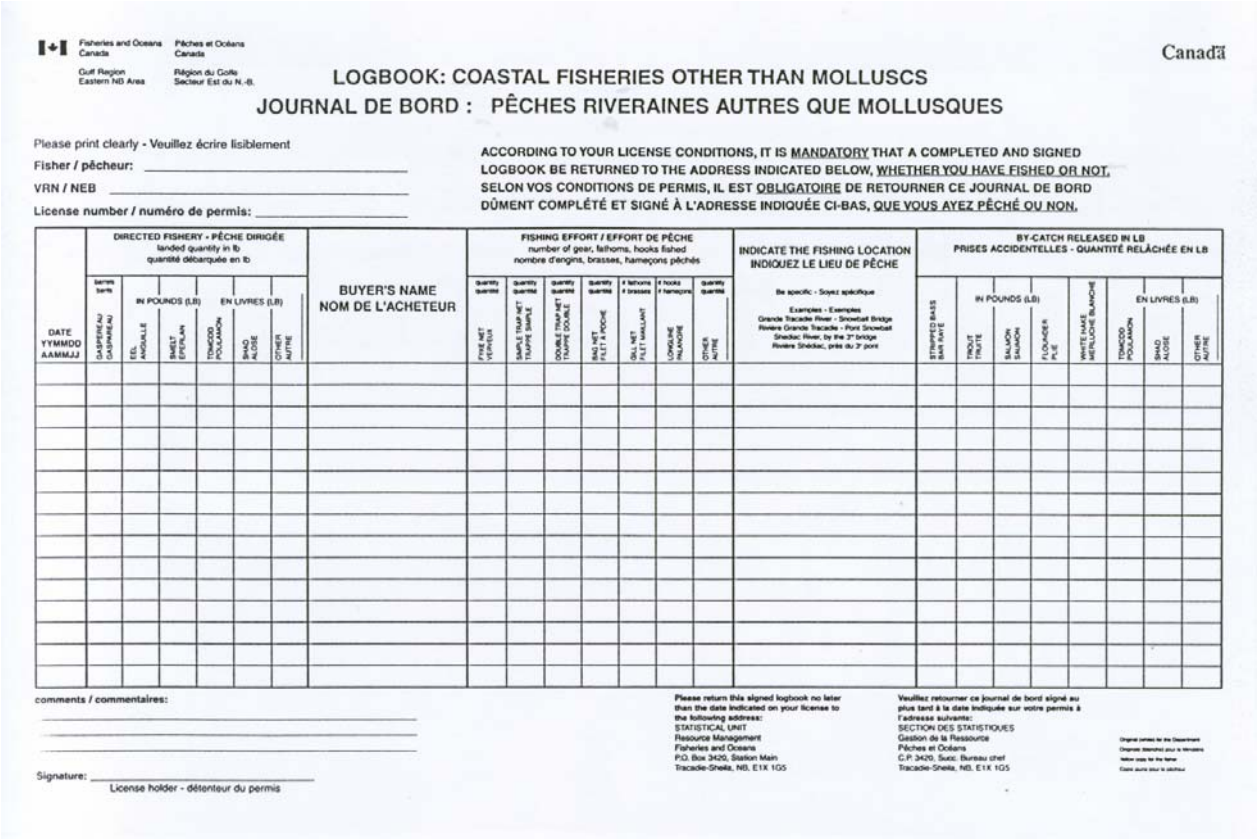
Peterson, R.H. (Ed.). 1997. The American eel in eastern Canada: stock status and management strategies. Proceedings of eel workshop, January 13-14, 1997, Quebec City, QC. Can. Tech. Rep. Fish. Aquat. Sci. No. 2196. 174 pp. This volume includes the following papers (among others):

Paulin, L: Eel fisheries in the Gulf fisheries sector, Maritimes Region. Pp. 25-33.

Chaput, G., A. Locke, and D. Cairns: Status of Americal eel (Anguilla rostrata) from the southern Gulf of St. Lawrence. Pp. 69-93.

Jessop, B.M.: American eel elvers and their fishery in the Scotia-Fundy area of Atlantic Canada: an overview. Pp. 134-143.

# APPENDIX 7 – LOGBOOK



Fisheries and Oceans Canada / Pêches et Océans Canada
Gulf Region Eastern NB Area / Région du Golfe Secteur Est du N.-B.

Canada

## LOGBOOK: COASTAL FISHERIES OTHER THAN MOLLUSCS
## JOURNAL DE BORD : PÊCHES RIVERAINES AUTRES QUE MOLLUSQUES

Please print clearly - Veuillez écrire lisiblement

Fisher / pêcheur: _____

VRN / NEB _____

License number / numéro de permis: _____

ACCORDING TO YOUR LICENSE CONDITIONS, IT IS MANDATORY THAT A COMPLETED AND SIGNED LOGBOOK BE RETURNED TO THE ADDRESS INDICATED BELOW, WHETHER YOU HAVE FISHED OR NOT.
SELON VOS CONDITIONS DE PERMIS, IL EST OBLIGATOIRE DE RETOURNER CE JOURNAL DE BORD DÛMENT COMPLÉTÉ ET SIGNÉ À L'ADRESSE INDIQUÉE CI-BAS, QUE VOUS AYEZ PÊCHÉ OU NON.

| DATE YYMMDD AAMMJJ | DIRECTED FISHERY - PÊCHE DIRIGÉE landed quantity in lb / quantité débarquée en lb | | | | | | BUYER'S NAME NOM DE L'ACHETEUR | FISHING EFFORT / EFFORT DE PÊCHE number of gear, fathoms, hooks fished / nombre d'engins, brasses, hameçons pêchés | | | | | | | INDICATE THE FISHING LOCATION INDIQUEZ LE LIEU DE PÊCHE | BY-CATCH RELEASED IN LB PRISES ACCIDENTELLES - QUANTITÉ RELÂCHÉE EN LB | | | | | | | |
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| | barrels barils | IN POUNDS (LB) | | EN LIVRES (LB) | | | | quantity quantité | quantity quantité | quantity quantité | quantity quantité | # fathoms # brasses | # hooks # hameçons | quantity quantité | Be specific - Soyez spécifique Examples - Exemples Grande Tracadie River - Snowball Bridge Rivière Grande Tracadie - Pont Snowball Shediac River, by the 3rd bridge Rivière Shédiac, près du 3e pont | IN POUNDS (LB) | | | | EN LIVRES (LB) | | | |
| | GASPEREAU GASPAREAU | EEL ANGUILLE | SMELT EPERLAN | TOMCOD POULAMON | SHAD ALOSE | OTHER AUTRE | | FYKE NET VERVEUX | SIMPLE TRAP NET TRAPPE SIMPLE | DOUBLE TRAP NET TRAPPE DOUBLE | BAG NET FILET À POCHE | GILL NET FILET MAILLANT | LONGLINE PALANGRE | OTHER AUTRE | | STRIPED BASS BAR RAYÉ | TROUT TRUITE | SALMON SAUMON | FLOUNDER PLIE | WHITE HAKE MERLUCHE BLANCHE | TOMCOD POULAMON | SHAD ALOSE | OTHER AUTRE |
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comments / commentaires:

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Signature: _____
License holder - détenteur du permis

Please return this signed logbook no later than the date indicated on your license to the following address:
STATISTICAL UNIT
Resource Management
Fisheries and Oceans
P.O. Box 3420, Station Main
Tracadie-Sheila, NB, E1X 1G5

Veuillez retourner ce journal de bord signé au plus tard à la date indiquée sur votre permis à l'adresse suivante:
SECTION DES STATISTIQUES
Gestion de la Ressource
Pêches et Océans
C.P. 3420, Succ. Bureau chef
Tracadie-Sheila, NB, E1X 1G5

## APPENDIX 8- MANAGEMENT PLAN EVALUATION CRITERIA

The criteria in evaluating the management plan are:

1. actual landing data for the commercial fishery
2. reduction of incidental catches
3. harvesting level maintained
4. inventory of gear locations maintained by ecosystem
5. industry feedback
6. prompt decision making
7. communications with the industry
8. intergovernmental relations
9. level of acceptance and compliance with regard to management plan

## APPENDIX 9 - CONSERVATION AND PROTECTION PLAN EVALUATION CRITERIA

The conservation and protection plan evaluation criteria are to quantify the activities of fishery officers in the following areas:

1. Number of vessel inspections at wharf/landing site

2. Number of boardings of vessels at sea

3. number of inspections of fishing gear at sea

4. number of fishing gear inspections at wharf/landing site

5. number of patrols of closed fishing areas

6. number of verifications performed at dockside or at the water's edge

7. number of violations

8. number of warnings

9. number of investigations

10. number of surveillance activities

11. number of patrols by vessel/number of hours at sea

12. number of joint patrols

13. number of hours of intervention by fishery officers

14. Cost in wages, overtime, operations and maintenance

## APPENDIX 10 – NOTICE TO FISHERS

## TERMS OF THE 2001-2006 MANAGEMENT PLAN FOR THE EEL FISHERY EASTERN NEW BRUNSWICK AREA

**TRACADIE-SHEILA** – The Department of Fisheries and Oceans today released the integrated management plan for the eel fishery in the Eastern New Brunswick Area. This five-year management plan covers the eel fishery in the coastal and inland waters of New Brunswick for the period of 2001 to 2006. It is to be implemented jointly with the annual update, in which certain harvesting-related management measures such as areas, fishing seasons and catch limits may be adjusted on the basis of conservation standards.

The integrated management plan has an ecosystem-based approach, in accordance with the new *Oceans Act*. The plan lists sixteen issues relevant to the management of this resource. A freeze has been imposed on the amount of gear that may be added to any eel licence, pending the results of consultations that will be undertaken with the stakeholders. The minimum size is set at 46 cm and the fishery in all tidal waters of the Eastern NB Area will be closed from November 1 to March 31, except for the Tabusintac River, which will be closed from August 1 to November 30. The recreational spear fishery will be closed from September 1 to November 15. In addition, a logbook will henceforth be mandatory for this fishery, and this should ensure better management, as the statistical data collected will be more complete.

In the Eastern NB Area, there are 176 holders of commercial eel licences, who use various types of gear, such as traps, fyke nets, weirs and longlines. According to reported statistics, in the past five years, commercial fishers landed almost 262 metric tons of eel, with a landed value of about $1,265,000.

Eel fishers and their representatives, as well as other stakeholders, sit on the Eel Fishery Advisory Committee for the Eastern NB Area. The integrated management plan released today is the product of the committee's discussions.

**- 30 -**

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The Eel, Chapman-Hall, Tesch, F.-W., 1977.

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Eel Fishery Advisory Committee, Eastern New Brunswick Area.