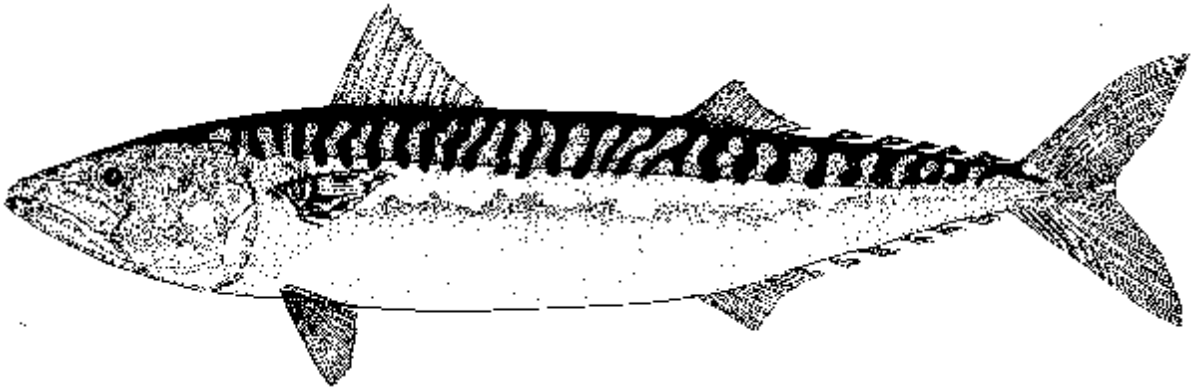

INTEGRATED FISHERIES MANAGEMENT PLAN ATLANTIC MACKEREL 2002-2006



Fisheries and Oceans
Canada

Fisheries
Management

Pêches et Océans
Canada

Gestion
des pêches

Canada

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1. INTRODUCTION

This plan is designed to govern the harvesting of Atlantic mackerel during the period 2002-2006.

Since 1994, recorded mackerel landings from Canadian waters have dropped to below 20,000t annually. Nova Scotia and Newfoundland are the Atlantic provinces with the highest mean landings. On a smaller geographic scale, landings may fluctuate significantly from one year to the next. The fluctuations are due to great variability in seasonal migration patterns, although fishing grounds usually remain the same.

The most commonly used types of gear for Atlantic mackerel in Canada are gillnets and handlines. Gillnets are used mostly in spring and handlines in fall. Traps, which are used chiefly in the spring in Nova Scotia, are also important. As well, fall catches by purse seiners on the west coast of Newfoundland are significant. The success of this fishery is strongly dependent on environmental conditions, including water temperature and prevailing winds.

Sources of uncertainty lie with bait and recreational catches, which are not included in the Department of Fisheries and Ocean's official statistics, as well as the fact that all fishing areas are not always covered systematically by the commercial sampling program. **In this regard, this Plan introduces improved collection of fisheries landings data through mandatory logbook submissions.**

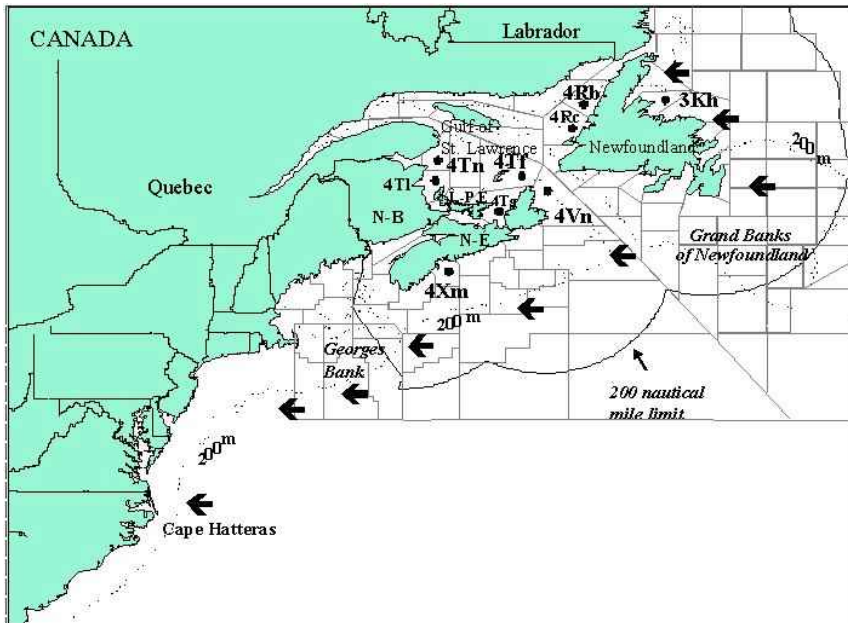
Annual reviews of the available scientific information may lead to changes in the Total Allowable Catches (TAC) over the period of this plan. The Minister of Fisheries and Oceans may change any provision of this plan, as the need arises, consistent with all applicable legislation.

2. BIOLOGICAL SYNOPSIS

The Atlantic mackerel (*Scomber scombrus* L.) is a member of the large family Scombridae, which is widely distributed throughout tropical and temperate waters around the world. Scombridae have slender, laterally compressed bodies, making them strong swimmers. They can travel long distances in tight schools, which can sometimes be very large. Scombridae also include a large number of species, of which the best known are tunas. Of the three species in the genus *Scomber*, the Atlantic mackerel has the most northerly distribution. The Atlantic mackerel also differs from the other two species in the genus *Scomber* in that it does not have a swim bladder, forcing it to swim continually in order to breathe.

In the northwest Atlantic, the spatial distribution of the Atlantic mackerel extends from Cape Hatteras, off North Carolina, to the Gulf of St. Lawrence and the east coast of Newfoundland (Figure 1). Within this region there are also two separate spawning areas, located respectively along the New Jersey coast and in the southern Gulf of St. Lawrence (Northwest Atlantic Fisheries Organization Division 4T).

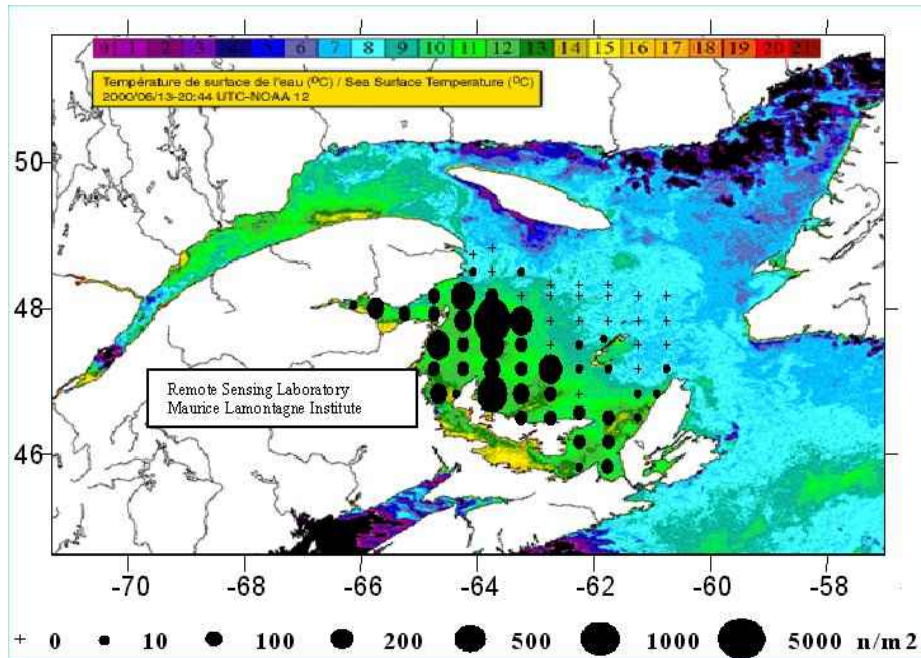
Figure 1 - Distribution of Atlantic Mackerel



Distribution of the Atlantic mackerel in the Northwest Atlantic and main fishing areas in Canadian waters.

In the southern Gulf of St. Lawrence, spawning generally takes place in June and early July. The highest concentrations of eggs generally are found in the area west of the Magdalen Islands (Figure 2). During spawning, surface water temperatures are also highest in this area.

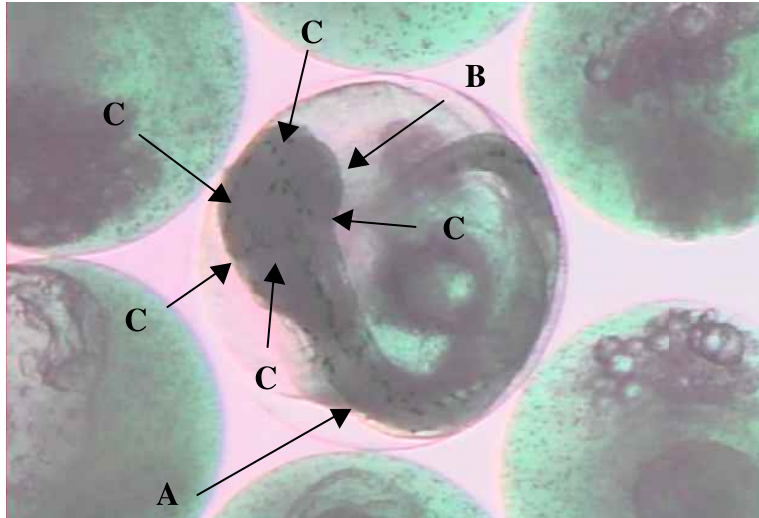
Figure 2 - Distribution of Mackerel Eggs



Distribution of mackerel eggs (number per square metre) for the first pass of the abundance survey conducted in June 2000 in the southern Gulf of St. Lawrence (the shades are associated with the surface water temperatures as measured by satellite).

The Atlantic mackerel are considered multiple spawners because each female spawns several times during the spawning season, and the spawning is asynchronous, meaning that it can occur at any time during the day or night. Freshly spawned eggs (Figure 3) range from 1.09 mm to 1.36 mm in diameter and the larvae measure about 3 mm long upon hatching. The larvae become juveniles around 50 mm in length and begin to form schools, which migrate toward coastal areas. 250X

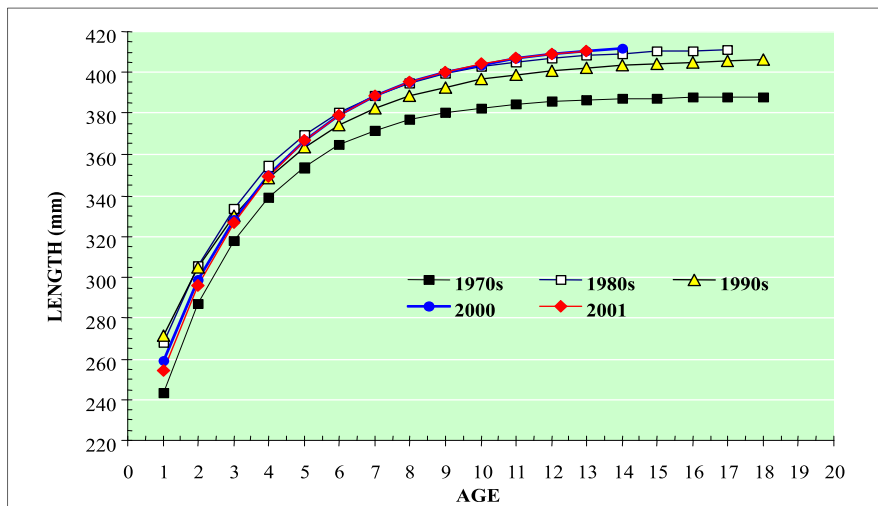
Figure 3 – Photograph of Mackerel Egg Sample



Photograph of a mackerel egg sampled in the southern Gulf of St. Lawrence. The body (A) and the head (B) of the embryo are clearly visible, as is the crown of pigments (C), which is one of the most important characteristics for identifying mackerel eggs.

Mackerel is a fast-growing species, measuring approximately 255 mm by the end of the second year (age 1+) (Figure 4). Most growth occurs during the first few years, with females growing more rapidly after the age of four. Growth rates may also vary from year to year and from one year-class to another. In fact, fish from the dominant year-classes grow more slowly. The species feeds primarily on plankton, and the adult diet includes small fish and squid.

Figure 4 – Length at Age



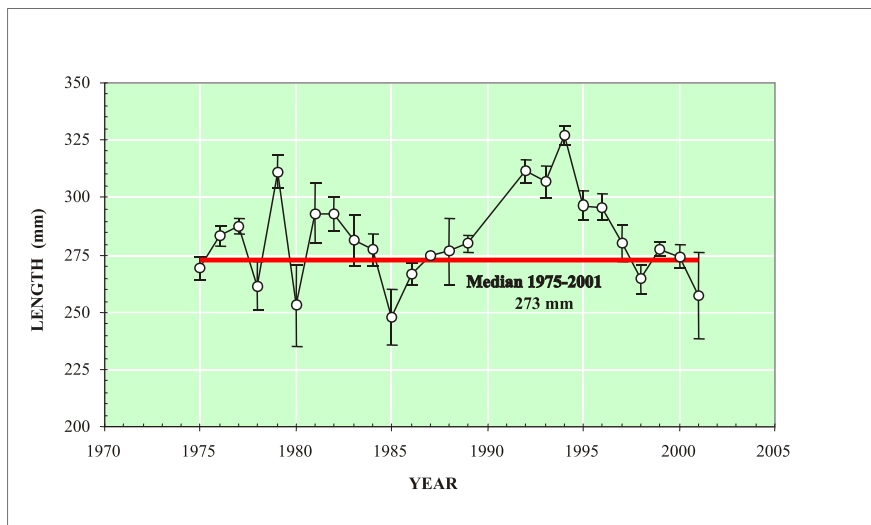
Mean Length (mm) at age in mackerel sampled in Canadian coastal waters since the early 1970s.

The mackerel's condition is at its lowest in spring, while the highest values are seen in fall. The annual variations in the mackerel's condition during spawning are similar to the fluctuations in water temperature of the Cold Intermediate Layer (CIL). Over the years, this similarity has been observed in different age groups and in all the year-classes that have dominated commercial catches.

The mackerel's fat content is also lowest in spring. During spawning, it is about 5%. Once the spawning period is over, the fat content gradually rises during the summer, to 20% or more by the fall. Fat content varies from year to year and also depending on the size of the fish.

In comparison with other species, mackerel reach sexual maturity quickly, with 50% of mackerel being mature at a length of approximately 273 mm. However, there are annual variations in this length (Figure 5). All mackerel reach maturity by the time they are about 340 mm long, and nearly half of two-year-old mackerel and all mackerel aged four and over are mature.

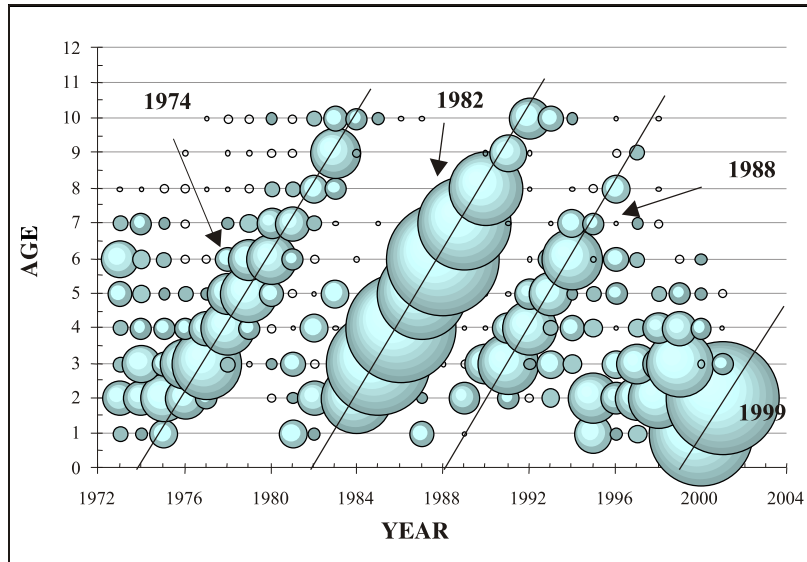
Figure 5 – Median Length at Maturity



Median length at maturity calculated from a macroscopic examination of the gonads from commercial samples collected since 1975 in Canadian coastal waters.

The demographic structure of the mackerel population is characterized by the periodic arrival of a dominant year-class. Some of these classes are so large that they dominate all commercial catches for several years (Figure 6). Examining annual length frequency distributions can also easily follow these year-classes. Research is still under way in an effort to better understand why some year-classes are larger than others.

Figure 6 – Canadian Catches at Age



Canadian catches at age (%) for mackerel during the 1973-2001 period (the year-classes that dominated the fishery for several years are indicated; age group 10 represents all fish aged 10 or over).

3. OVERVIEW OF THE FISHERY

Very little is known about early mackerel fishing methods. However, when the Europeans arrived in Canada, a number of First Nations were already fishing for mackerel using gillnets, which they set at night and hauled in the morning. The ends of the nets were sometimes attached to two moving vessels. This type of drift gillnet fishing was even observed by Jacques Cartier in Gaspé Bay as early as 1534! The first settlers also made use of gillnets and beach seines. In the 1800s, handlines, weirs and traps were used. The first traps likely consisted of modified beach seines. They had no bottom and were used only near the shore, in depths of no more than about ten fathoms. In the 1960s, traps with bottoms were used, which enabled the fishermen to explore new fishing grounds. Finally, with the technological developments of the 1900s, trawls and purse seines began to be used in the mackerel fishery.

Today, the main gear used in the mackerel fishery are traps and gillnets in Nova Scotia, gillnets, handlines and purse seines in the Gulf of St. Lawrence and handlines and purse seines on the both coasts of Newfoundland. They are used near the shore and generally at the same locations.

3.1 PARTICIPANTS

Table 1 below gives an overview of the number of participants who held an Atlantic mackerel fishing licence in 2001 by gear type and by Department of Fisheries and Oceans (DFO) Region.

Table 1 – Atlantic Mackerel Fishing Licences in 2001

REGION	NUMBER OF LICENCES IN 2001 BY GEAR TYPE								TOTAL
	Mackerel Weirs	Handline	Gillnet	Trapnet	Mobile seiners <65'	Mobile seiners >65'	Bait Licences	Recreational	
Quebec		30	720*	8	23	nil	1,077	Nil	1,858
Newfoundland		←	1,642**	→	279	5	2,613	Nil	4,539
Gulf		2,900	2,564	20	306	3	1,564	Nil	7,357
Maritimes	47		1,780	205	45		1,122	Nil	3,199
									16,953

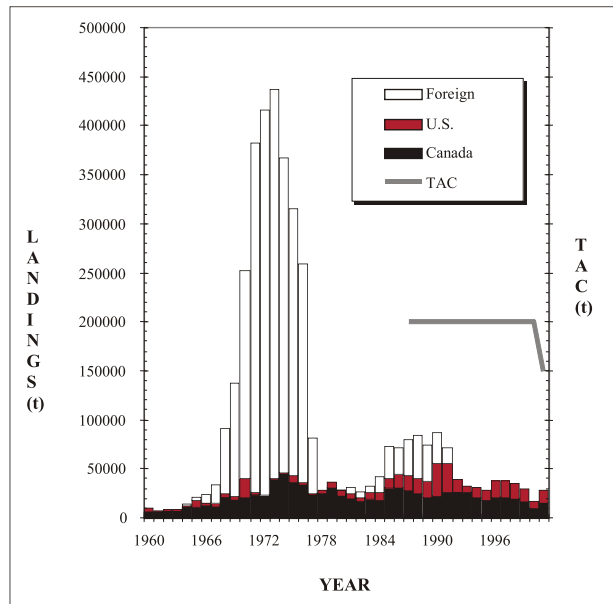
* Are also authorized to use handlines.
 ** No breakdown for fixed gear licences.

3.2 LOCATION OF THE FISHERY

The Northwest Atlantic mackerel fishery was characterized by a period of very intensive activity from the mid-1960s to the introduction of the 200 nautical mile economic exclusion zone in 1977. During that period, foreign vessels fishing primarily in the Georges Bank and Scotian Shelf region (Figure 1) took annual landings of several hundred thousand tonnes (Figure 7).

A second period of intensive fishing occurred in U.S. waters in the 1980s under agreements between the United States and Russia. During that period, mackerel catches totalled close to 100,000t per year.

Figure 7 - Annual Mackerel Landings and TAC for the Northwest Atlantic



In Canadian waters, Nova Scotia and Newfoundland account for the largest share of mackerel landings, with annual averages of 6,397t and 4,133t, respectively, for the period 1990 to 2000 (Table 2). They are followed by Prince Edward Island, Quebec and New Brunswick, with average annual landings of 3,909t, 3,596t and 1,950t, respectively.

Table 2 – Annual Mackerel Landings by Province since 1990

PROVINCE	YEAR							AVERAGE	
	1995	1996	1997	1998	1999	2000	2001*	(1995-2000)	(1990-2000)
Nova Scotia	6,681	5,517	5,669	4,562	4,797	2,710	2,707	4,989	6,397
New Brunswick	2,206	2,683	1,990	1,682	1,373	223	394	1,693	1,950
Prince Edward Island	2,518	4,017	6,693	6,784	3,842	1,459	1,660	4,219	3,909
Quebec	3,382	4,317	5,769	4,066	5,104	1,711	2,892	4,058	3,596
Newfoundland	2,862	3,830	1,188	2,149	1,445	3,734	7,647	2,535	4,133
Undetermined	0	0	0	91	0	0	0	15	8
TOTAL	17,650	20,364	21,309	19,334	16,561	9,837	15,301	17,509	19,993

* Preliminary data

The majority of landings are from the southern Gulf of St. Lawrence, more specifically NAFO division 4T (Figure 1), where average annual landings total 9,460t. Significant mackerel landings are also taken in divisions 4R, 4X and 4V, with annual averages of 3,625t, 3,524t, and 1,223t, respectively.

The main subdivisions or unit areas are 4TI, on the east coast of New Brunswick, and 4Tf, in the Magdalen Islands (Figure 1). Landings in these subdivisions average 3,759t and 3,224t per year, respectively. Area 4Xm near Halifax, Nova Scotia, has landings of 2,986t, followed by unit areas 4Rb and 4Rc on the west coast of Newfoundland, and subdivision 4Vn at the entrance of the Gulf of St. Lawrence, with average annual landings of 1,173t, 1,493t and 1,323t respectively.

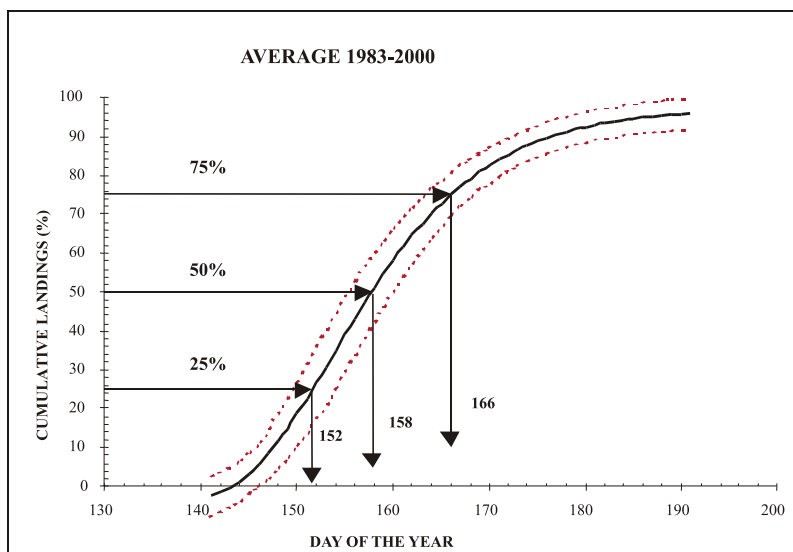
A map of Mackerel Fishing Areas is attached at Annex VIII.

3.3 TIMEFRAME OF THE FISHERY

In Nova Scotia, the gillnet and trap fisheries for mackerel take place primarily in June and July, as does the gillnet fishery in the Gulf of St. Lawrence. Most nets are fixed, except for a drift fishery in Chaleurs Bay and in the part of the Gulf between New Brunswick, Prince Edward Island and the Magdalen Islands. In late summer and fall, commercial mackerel fishermen carry out a handline fishery in the Gulf of St. Lawrence and Nova Scotia and a purse seine fishery on the west and east coasts of Newfoundland and in Cape Breton. The mackerel handline fishery (with feather lures) expanded substantially in the mid-1980s, as did the purse seine fishery on the west coast of Newfoundland. In the 1970s and 1980s, fishermen from Prince Edward Island engaged in a purse seine fishery. However, since the mid-1990s, they have increasingly turned to a spring drift gillnet fishery. Fishermen from the Gaspé region have recently begun a fall handline fishery.

Mackerel generally arrives in southwestern Nova Scotia in May. It arrives in Cape Breton in early June with impressive regularity. As indicated in the catch data of an index fisherman from the area, the date of the start of migration in this region varies annually only by a few days. The dates corresponding to 25%, 50% (median) and 75% of landings are June 1 (day 152 of the year), June 7 (day 158 of the year) and June 15 (day 166 of the year) (Figure 8).

Figure 8 – Cumulative Mackerel Landings Recorded by an Index Fisherman in Cape Breton



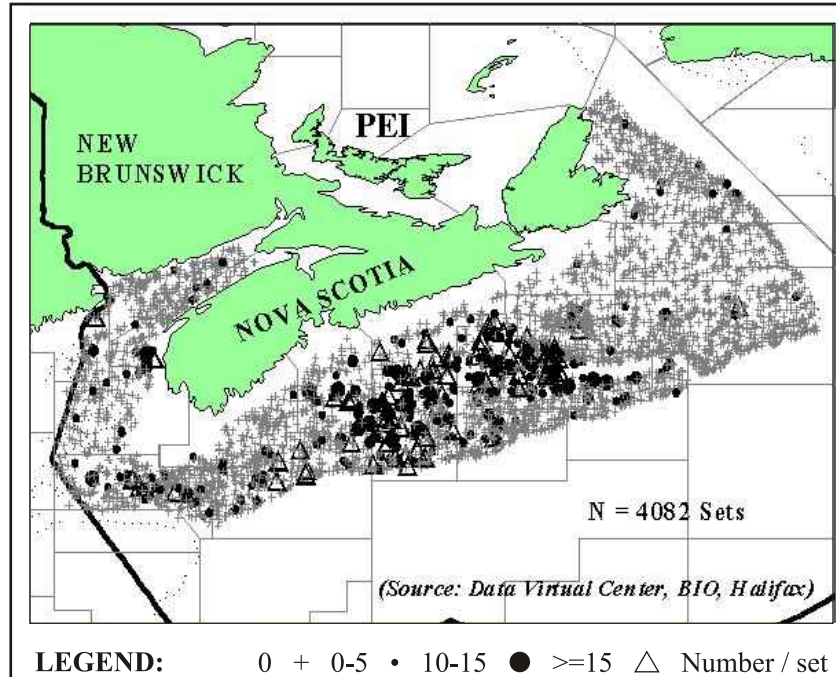
Cumulative mackerel landings (%) recorded by an index fisherman from Cape Breton, whose traps are located near the entrance of the Gulf of St. Lawrence.

According to the same data, the migration of mackerel to the Gulf of St. Lawrence is believed to be relatively fast. For 1980 and 1990, 50% of total landings were taken in just over 12 days. Spring mackerel migration generally ends in early July. At that point, immature mackerel are present in the immediate vicinity of Cape Breton and St. Margaret's Bay near Halifax. They may enter the Gulf of St. Lawrence, depending on temperature conditions.

Migration out of the Gulf of St. Lawrence begins in September and the fishery can continue into October and even early November. On the east coast of Newfoundland, small seiners can continue to catch mackerel until very late in the fall. These fish are generally from the Gulf of St. Lawrence, which they leave earlier in the season, i.e. in July and August, through the Strait of Belle Isle, if water temperature conditions are favourable. In the past, juvenile mackerel have been caught on Newfoundland's Grand Banks in July. The presence of these fish at that time of year is an indication that adults had spawned in that region. In addition, the latter likely came not from the Gulf of St. Lawrence but from the Scotian Shelf or the region between Cape Breton and Newfoundland.

Mackerel is taken as an incidental catch in other fisheries, such as the Gulf of St. Lawrence herring fishery or the groundfish fishery that once existed on the Scotian Shelf. It is also taken as an incidental catch in scientific trawl surveys on the Scotian Shelf (Figure 9).

Figure 9 - Summer Mackerel Catches in Groundfish Abundance Surveys



Summer mackerel catches (mean number per tow) in groundfish abundance surveys (for the 1979-2001 period).

3.4 LANDINGS/VALUE

In the late 1980s and early 1990s, landings of Atlantic mackerel averaged more than 21,000t annually. Since 1995, landings have dropped, averaging about 17,500t per year (Table 2). The overall value of the fishery has increased, from an annual average of \$7 million in the early 1990s, to about \$9 million since 1995.

3.5 CONSULTATIVE PROCESS

Throughout Atlantic Canada and Quebec, the Department of Fisheries and Oceans holds annual regional consultations on small pelagic fish issues, including mackerel issues. The Department solicits the opinions of industry on past regional management practices and on regional management measure recommendations for the coming season's fishery.

In the Gulf, Quebec and Newfoundland Regions, consultations take place in a forum known as the Small Pelagic Advisory Committee. In Newfoundland Region consultations occur also through a second advisory forum, the 4R Herring Co-Management Committee. In the Maritimes Region, the forum is the Mackerel Advisory Committee. Membership on these committees is attached under Annex V.

From time to time, these groups get together Atlantic-wide to address the multi-year Atlantic mackerel plan. Membership of the Atlantic-wide group is composed of members from each of the regional small pelagics groups.

Final approval and distribution of Atlantic-wide plans is undertaken by DFO-Ottawa.

3.6 MANAGEMENT STYLE

The Canadian Atlantic mackerel fishery is a competitive fishery. The TAC for 2002 has been set at 75,000t, a reduction of 25,000t from 100,000t, which had been the TAC since 1989. Catch levels for the following years will be established based on scientific advice. The new TAC does not present a constraint on mackerel catches Atlantic-wide, with catches in recent years averaging 23,000t annually. A decrease in reported catches has been observed since 1998 and preliminary figures for 2000 indicate landings in the order of 17,000t.

The TAC is shared 60% for traditional inshore fisheries and 40% for an exploratory mobile gear fishery. Mobile gear fishing activities are restricted to areas defined in Annexes I-IV.

3.7 LINKS WITH ACTIVITIES UNDER THE OCEANS' ACT AND OTHER PLANNING INITIATIVES

Linkages between this Plan and other activities and initiatives pursuant to the *Oceans Act* are under development. Such linkages may include the creation of offshore ocean management and marine protected areas. The *Species at Risk Act*, when enacted, may also have linkages.

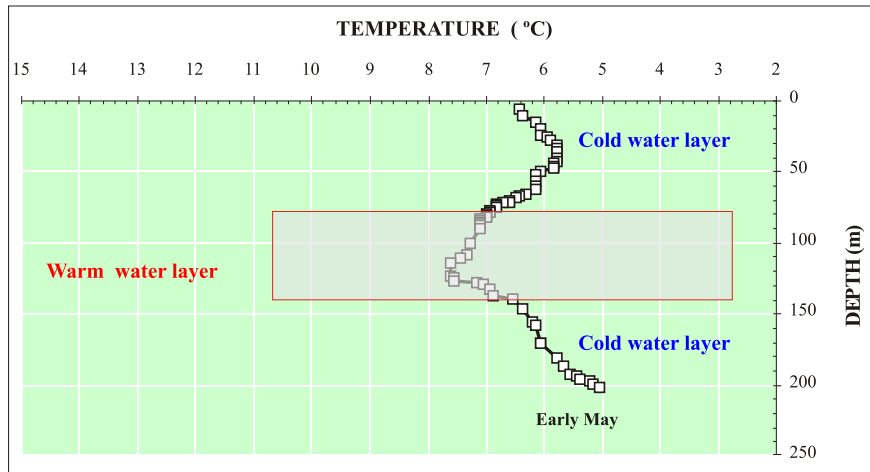
4. STOCK STATUS

4.1 BIOLOGY, ENVIRONMENT, HABITAT

Unlike other fish species, certain aspects of the biology of Atlantic mackerel have a profound impact on the success of the fishery. The first of these aspects involves the swim bladder, one of the functions of which is to enable fish to maintain hydrostatic equilibrium without necessarily having to move. Because the mackerel does not have a swim bladder, it must be in constant motion in order not to sink to the bottom or rise to the surface. Second, because the internal anatomy of the mouth of the Atlantic mackerel does not allow water to be actively circulated to the gills, the oxygenation of blood is achieved through the constant movement of the fish. As a result, the presence of mackerel near certain shores may be very brief. For that reason, the mackerel season is relatively short by comparison with that of more sedentary species. These two features of the biology of the Atlantic mackerel could also account for the long migrations this species undertakes each year.

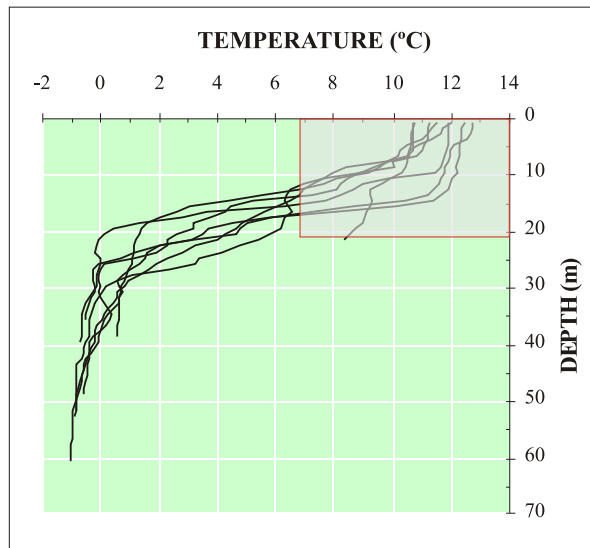
Tank experiments have shown that Atlantic mackerel prefers water temperatures of approximately 7°C or higher. Because a mackerel cannot maintain its body temperature, unlike tuna for example, its movements are highly influenced by water temperature conditions. These conditions affect not only the pattern and timing of annual migrations, but also the depth at which they take place, both on the Scotian Shelf (Figure 10) and in the Gulf of St. Lawrence (Figure 11).

Figure 10 - Typical Water Temperature Profile off the Scotian Shelf



Typical water temperature (°C) profile in the water column off the Scotian Shelf. At this location, in the early 1990s, the largest mackerel catches by foreign vessels were still taken at a depth of roughly 120 m, i.e., in a layer of water (grey quadrilateral) in which the temperature is higher than at the surface or at the bottom.

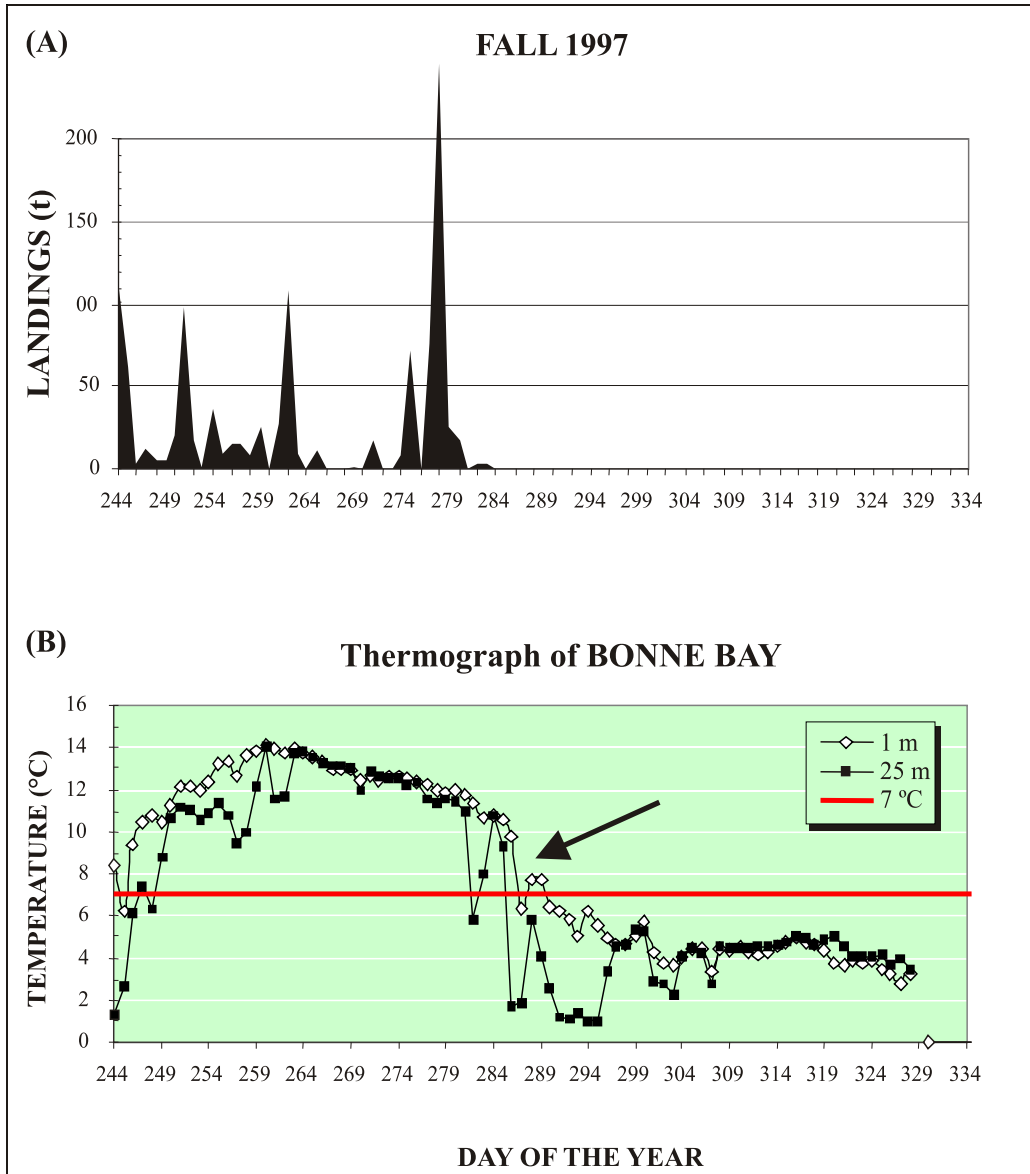
Figure 11 - Typical Water Temperature Profiles in Gulf of St. Lawrence (June)



Typical water temperature profiles in the Gulf of St. Lawrence measured during mackerel egg surveys (June). Given that mackerel prefers water temperatures above approximately 7°C, it should be present at the time of spawning in the upper 20 metres of water (the zone in which mackerel is present is indicated by the grey quadrilateral).

In inshore areas where fishing gear is used, the success of the mackerel fishery may also be tied to the prevailing winds. Depending on the direction and velocity of the prevailing winds, these areas are often characterized by cold-water upwellings to the surface. During such upwellings, catches may be less frequent or the arrival of mackerel into a specific region may be delayed or even prevented altogether. In some cases, these cold-water upwellings may signal the end of the fishing season (Figures 12A and 12B).

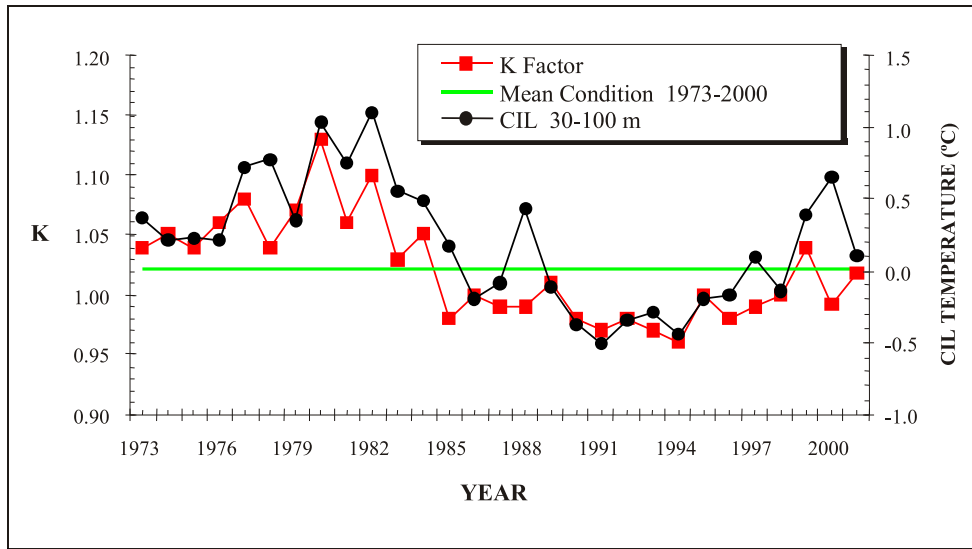
Figure 12 - (A) Atlantic Mackerel Landings on West Coast of Nfld. in the fall of 1997. (B) Water Temperatures Recorded at 1m and 25m.



Atlantic mackerel landings (t) on the west coast of Newfoundland in the fall of 1997 and water temperatures recorded at 1 m and 25 m (B) (the horizontal line represents the 7°C mark). The arrow indicates a rapid drop in water temperature associated with the presence of prevailing winds from the northeast. At the time of this drop, when water temperatures fell below 7-8°C, the fishing season ended.

In the Gulf of St. Lawrence, the late 1980s and 1990s were characterized by the cooling and expansion of the Cold Intermediate Layer or CIL. During this period, a decrease in the condition of mackerel was measured during June spawning (Figure 13).

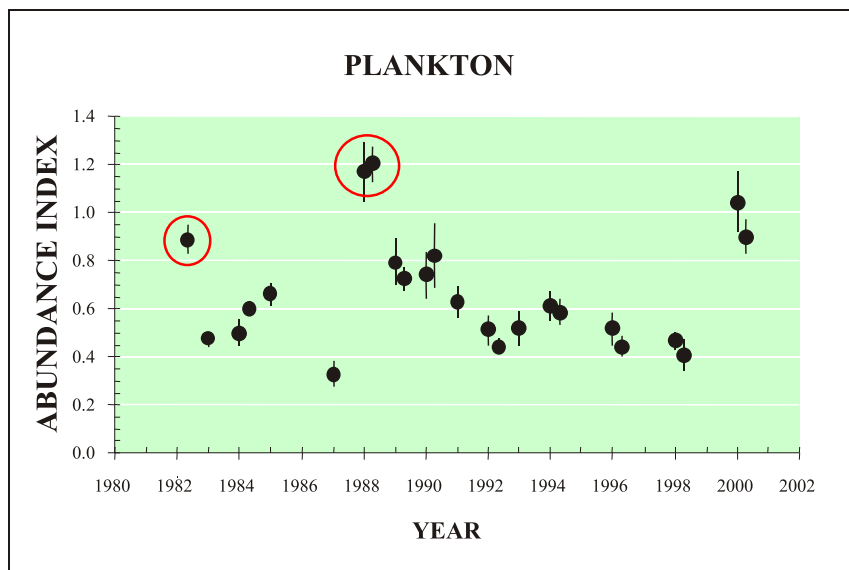
Figure 13 – Mean Condition Factor for Mackerel in June



Mean condition factor for mackerel in June and average temperature (°C) of the 30 to 100 m layer of the CIL.

A decline in the abundance of plankton collected in egg surveys was also measured during the same time period (Figure 14). The highest abundances were measured in 1982, 1988 and 2000. In 1982 and 1988, they were associated with dominant year classes.

Figure 14 - Abundance Index of Plankton



Abundance index of plankton sampled in egg surveys in the southern Gulf of St. Lawrence. The circles indicate years in which there were two dominant year classes. The importance of the 2000 year class will be verified in a few years when the fish comprising it are fully recruited into the fishery.

4.2 SPECIES INTERACTIONS

Atlantic mackerel is a key component of the marine ecosystem. It is the prey of a number of species of fish, birds and marine mammals, and is also a predator of many species at some point in their life cycle. Studies are currently under way to define the possible relationships between the main species of fish, including mackerel, and invertebrates of the Gulf of St. Lawrence.

4.3 ASSESSMENT

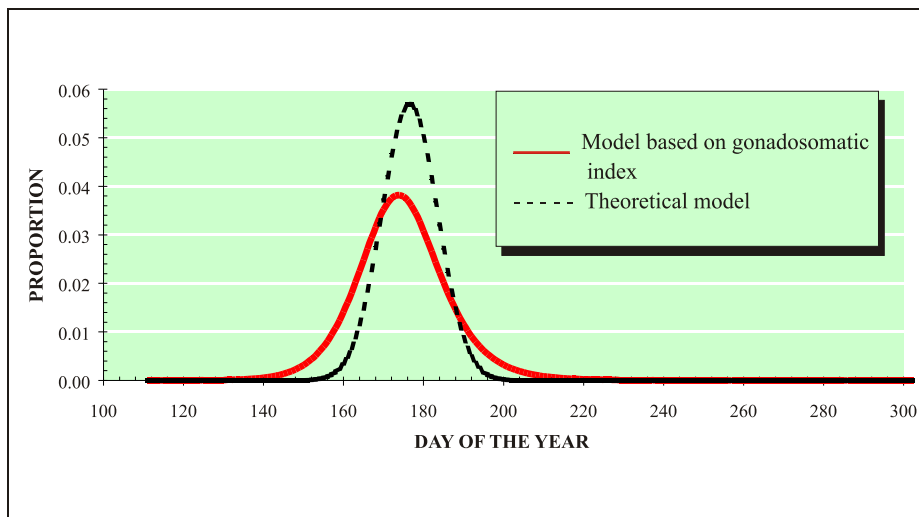
The abundance of mackerel spawning in the Gulf of St. Lawrence is currently estimated on the basis of egg survey data. Egg surveys are carried out every two years and consist in collecting samples at regularly distributed stations using plankton nets. At each station, an average number of eggs per unit area is calculated and extrapolated for the entire area sampled to obtain daily and annual egg productions. The figures are converted to reproductive biomass data, taking account of certain biological characteristics of the females.

4.3.1 Modification of the abundance index

Ongoing efforts are being made to improve mackerel biomass estimates. In recent years, changes have been made to the number of stations to be sampled in a survey, the egg and plankton sampling technique and the calculations of average egg densities for the entire area sampled. In addition, shortcomings associated with the theoretical model for calculating daily egg production and production for the entire spawning season were corrected in 1996 through the use of the Daily Fecundity Reduction Method (DFRM). Basic calculations associated with this method do not take account of the theoretical model describing spawning. In addition, this method does not require knowledge of total or annual egg production, the calculation of which is also based on the same theoretical model. However, the use of DFRM requires considerable resources, and the series currently comprises only three years.

In 2001, a new model describing daily egg production based on daily gonadosomatic index values was used. For each year in which a survey was conducted, a logistic curve was fitted to the index values and new annual models were constructed (Figure 15). In addition to these changes, new temperature data were used to calculate incubation duration, a variable used in the calculation of daily egg production.

Figure 15 - Daily Egg Proportion during Spawning

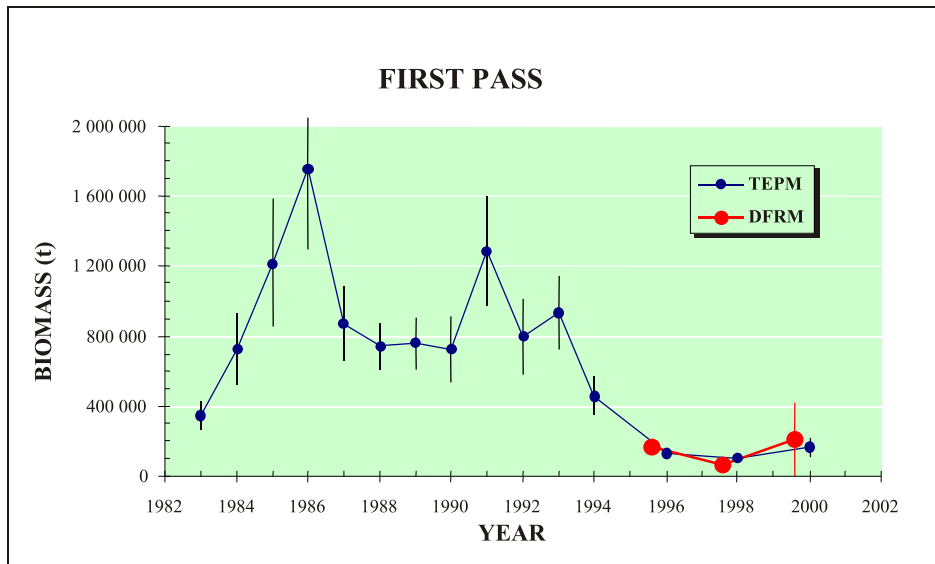


New model (solid line) now used to calculate daily egg proportion during the spawning season. A model is constructed each year a survey is conducted on the basis of gonadosomatic index values.

4.3.2 New biomass estimates

The new biomass estimates are different from those associated with the theoretical model but very similar to those calculated in 1996, 1998 and 2000 using the DFRM (Figure 16). These estimates much more closely describe the recruitment episodes that have occurred in the Gulf since 1982. In contrast, significant biomass differences still exist between certain years and cannot be easily explained by the current level of catches. Although mackerel reproductive biomass values are now well estimated using the egg index, their accuracy for the entire stock appears to be affected by one or more mechanisms other than the fishery. For example, the proportion of fish entering the Gulf of St. Lawrence to spawn could vary from year to year.

Figure 16 - Reproductive Biomass of Mackerel



Reproductive biomass (t) of mackerel calculated using two different approaches (TEPM: Total Egg Production Method; DFRM: Daily Fecundity Reduction Method).

The majority of fish in the 1999 year-class will be mature in 2002. The actual strength of this year-class may therefore be verified if larger egg concentrations are measured in the egg survey.

4.3.3 Analytical evaluation (Sequential Population Analysis)

In recent years, efforts have been made to determine a suitable formulation for SPA (Sequential Population Analysis). It is difficult to apply this method to mackerel because the abundance index is not disaggregated by age and because catch at age is underestimated, as are corresponding landings, since catches used as bait are not included in the official statistics.

4.4 RESEARCH

A number of research projects could be implemented to improve our knowledge of the biology of mackerel or simply to meet the requests or needs of industry. With the exception of regular activities associated with the assessment of stock abundance, the only other projects currently under way are those funded by industry on maturity at age, maturity at size and the distinction of U.S. and Canadian stocks based on genetics. The latter project is critical given that mackerel stocks straddle the Canada – U.S. border.

4.5 PROSPECTS FOR 2002-2006

Since the mid-1990s, the egg survey has indicated a reduction in mackerel abundance. This reduction has also been observed by fishermen, especially for larger specimens, who generally arrive first in the spring. This lack of mature specimens in the catch was also predicted, given the longevity of mackerel and the absence of a dominant year-class for several years.

To date, all indications would seem to suggest that the 1999 year-class will be a dominant year-class, which, in itself, is very good news. However, its actual strength will be measured in upcoming egg surveys and when it is fully recruited into the fishery. For now, this year-class has only been observed in non-selective gear, such as traps and purse seines.

In the last 25 years, the commercial Atlantic mackerel fishery in the northwest Atlantic has essentially shifted from a fleet of foreign trawlers to a fleet of smaller Canadian vessels fishing in inshore waters only. The methods for evaluating abundance and analyzing commercial data have also changed, such that the traditional image of an immense under-exploited stock has gradually been replaced by one of a stock that, albeit not necessarily in poor health, is based on the presence of dominant year classes. And when the latter are late to arrive, as was the case in the 1990s, the result is a significant decline in abundance and, consequently, a more prudent management approach. In this sense, the mandatory use of logbooks by all fishermen is a step in the right direction. However, once this system is in place, it will be important for all fishermen to properly complete their logbooks since effective monitoring of a stock requires the proper documentation of all catches.

4.6 REFERENCES

- Grégoire, F. 2000. (ed.). Atlantic mackerel (*Scomber scombrus* L.) of NAFO Subareas 2 to 6. Canadian Stock Assessment Secretariat Research Document 2000/021. 452 p.
- Grégoire, F., G. Morrier, C. Lévesque and J. Hudon. 2001. Status of the stock of Atlantic mackerel (*Scomber scombrus* L.) in NAFO Subareas 3 and 4 in 2000. Canadian Science Advisory Secretariat Research Document 2001/081. 129 p.
- DFO, 2002. Atlantic Mackerel of the Northwest Atlantic - Update (2001) DFO – Science. Stock Status Report B4-04 (2002).

4.7 INTERNET SITE

Canadian Science Advisory Secretariat:

<http://www.dfo-mpo.gc.ca/csas/>

5. CURRENT MANAGEMENT ISSUES

Catches of mackerel used as bait do not appear in the DFO's official statistics, which are based on processing plant purchase receipts. Recreational fishing, which is very popular in summer, is not counted either. As these activities are common in several parts of the Maritimes and Quebec, real mackerel catches may well be underestimated.

Due to the lack of strong recruitment in the last few years, maintaining a Canadian TAC of 100,000t was no longer considered to be advisable. As a result, the TAC was reduced to 75,000t in 2002.

6. LONG-TERM OBJECTIVES FOR THE FISHERY

1. Conservation of the resource for long-term sustainable utilization.
2. Co-management of the mackerel resource to ensure full participation by the stakeholders, developing partnerships where applicable. Stakeholders are defined as holders of either traditional or exploratory mackerel licences.
3. Priority access to the mackerel fishery will be provided to the inshore sector.
4. Protection of traditional inshore markets will continue.

7. SPECIFIC MANAGEMENT OBJECTIVES

7.1 CONSERVATION/SUSTAINABILITY

Conservation of the resource for long term sustainable utilization.

To improve the existing index fishery program using commercial mackerel fishermen to enhance scientific data collection and provide a greater industry/ science co-operative effort in the mackerel stock status evaluation process.

To improve fishery statistics, by the implementation of mandatory logbooks for most fishers including bait fishers. Small vessels (less than 35 ft.) in Newfoundland are excluded from this requirement, as their landings are sporadic. The logbooks will also help to determine where fish are, which would facilitate the study of relationships between mackerel distribution and certain environmental variables. The extent to which the objective of improving fishery statistics is achieved, will be assessed during the post-season analysis conducted each year of this plan.

7.2 INTERNATIONAL CONSIDERATIONS AND OBLIGATIONS

Two stocks of mackerel are found in the Northwest Atlantic and each has its own spawning areas.

The southern stock spawns in March and April along the New York/New Jersey coast while the northern stock spawns in June and July mainly in the Gulf of St. Lawrence.

Because of the transboundary nature of the stocks, it is conceivable that at some point in the future a joint (international) management plan would be considered.

7.3 DOMESTIC CONSIDERATIONS

(a) Aboriginal

It is the policy of the Department of Fisheries and Oceans to encourage Aboriginal participation and integration into coastal commercial fisheries.

There are currently 14 mackerel licences that are issued to Aboriginal groups in Atlantic Canada.

These licences were retired, then re-issued to Aboriginal groups through the DFO Allocation Transfer Program (ATP), a component of the Aboriginal Fisheries Strategy (AFS). In keeping with DFO's overall objective of resource conservation, the ATP facilitates the voluntary retirement of commercial licences and the issuance of licences to eligible Aboriginal groups and organizations in a manner that does not add to the existing fishing effort on the resource.

(b) Recreational Fishery

To allow access for recreational fishers subject to the availability of mackerel and by-catch considerations in other fisheries.

(c) Commercial

To maximize the access to mackerel and to maximize the value of the available quota, ensuring maximum utilization of available quota and maximum participation by various fleet sectors.

(d) Exploratory/Experimental

In addition to the traditional fishery, an exploratory fishery will be conducted by issuing exploratory mobile gear licences to current holders of existing herring mobile gear licences not already eligible for a mackerel mobile gear licence. In accordance with Annexes I-IV, exploratory licence holders may be required to sign a Memorandum of Agreement containing terms and conditions aimed at ensuring the protection of traditional inshore markets.

This provision and possible amendments to it will be discussed by stakeholders in consultations over the next couple of years. This approach is in line with allowing stakeholders to substantially increase their input to the management of the fishery while allowing the department to concentrate on its core conservation responsibility.

Exploratory fishing licences will only be issued to individuals using Canadian vessels.

8. MANAGEMENT MEASURES FOR 2002-2006

8.1 FISHING SEASONS

Fishing seasons are as defined in the Regional Management Measures, Annexes I-IV.

8.2 CONTROL AND MONITORING OF FISHING ACTIVITIES

The annual Total Allowable Catch (TAC) is adjusted in accordance with scientific recommendations and consultations with industry. For 2002 the TAC was reduced to 75,000t from the previous level of 100,000t. This was done in response to concerns that the spawning biomass of mackerel was at low levels and a TAC of 100,000t was considered unsustainable.

Fishermen conducting fishing activities are responsible for the completion and submission of mandatory logbooks including scientific data to assist in research on a continuing basis.

Fishing activities will be restricted to areas defined in Annexes I-IV.

8.3 QUOTA ALLOCATIONS

The present sharing arrangement for mobile gear at 60% for inshore and 40% for exploratory will be maintained.

Table 3 – Total Allowable Catch (2000)

Traditional inshore fisheries (existing mackerel fixed and mobile gear)	45,000t
Exploratory mobile gear fishery	30,000t
TOTAL ALLOWABLE CATCH (2002)	75,000t

8.4 OTHER RELEVANT ELEMENTS

a) Licensing

Specific licensing policies governing the issuance of commercial fishing licences for Atlantic Canada are contained in the *Commercial Fisheries Licensing Policy for Eastern Canada*.

Licensing provisions for mackerel fisheries are contained in the Regional Management Provisions, Annexes I-IV.

b) Key Legislation

- *Fisheries Act*
- *Fishery (General) Regulations*
- *Atlantic Fishery Regulations, 1985*
- *Oceans Act*

c) Conservation Harvesting Techniques and Selective Fishing Requirements

Fishers in all Regions are required to use a gill net less than 83 mm.

In the Newfoundland Region, the use of mobile gear (other than purse seine) may be authorized on a trial basis for existing purse seine licence holders who are core designated subject to submission and approval of a Conservation Harvesting Plan that addresses all conservation related aspects of the fishery. Industry-funded 100% at-sea observer coverage will be mandatory during any fishery approved on a trial basis.

Also in the Newfoundland Region, to reduce the potential for by-catch of other species (especially salmon), for trapnet leaders, a mesh size between 3½ and 7 inches and the use of monofilament netting material will be prohibited. When fishing in Mackerel Fishing Areas 12 to 14, both pelagic purse seine and fixed gear fishing gear may be on board a vessel only when there is an at-sea observer on board.

d) Safety at Sea

This Plan endeavours to ensure that its implementation will not result in unsafe situations for fishermen at sea. As of this writing, there are no known aspects of the Plan, which would make it inconsistent with relevant federal and provincial acts and regulations pertaining to health and safety at sea.

9. ENFORCEMENT MEASURES

9.1 OVERVIEW

Although the amount of enforcement effort dedicated to mackerel is relatively small, most fisheries for the species occur in close proximity to other activities for which the patrol frequency may be higher. The St. Margaret's Bay trapnet fishery is a good example of this as it occurs in an area that supports numerous other fisheries for which officers must conduct patrols.

9.1.1 Main Program Activities / Patrol Vessels / Air Surveillance

Approximately 500 officer hours were dedicated to mackerel in 2001. Over half of this was directed to the St. Margaret's Bay trapnet fishery and involved either small program vessel patrols or landings checks. Aerial surveillance of mackerel fisheries is mostly ancillary to patrols for other activities.

Table 4 – Violation Profile – Mackerel Fishery

VIOLATION TYPE	1997	1998	1999	2000	2001
Area/Time					2
Gear – Illegal/Used Illegally	3			1	
Registration/Licence		1			3
Reporting		4			

9.2 ENFORCEMENT ISSUES AND STRATEGIES

MACKEREL TRAPNET FISHERY ENFORCEMENT ISSUES

- By-catch of unauthorized species such as tuna or salmon
- Exceeding herring by-catch limits
- Gear not in compliance with licence schedule
- Hails of arrivals and departures
- Logbooks not completed or total species not recorded
- Retention of undersize mackerel
- Gear conflict with other traps
- Dockside checks
- Boardings from small program vessels
- Dockside Monitoring (Observers)
- Stakeouts
- Measurements from small program vessels
- Checks on the DFO's Catch and Effort Systems

MACKEREL GILLNET/HANDLINE FISHERY

- By-catch of unauthorized species such as salmon
- Exceeding herring by-catch limits
- Gear not complying with licence schedule
- Hails of arrivals and departures
- Logbooks not completed or total species not recorded
- Retention of undersize mackerel
- Fishing under guise of a recreational fishery
- Sale of fish by recreational fishers
- Fishing during closed season
- Fishing unauthorized monofilament gillnets
- Dockside checks
- Boardings from small program vessels
- Dockside Monitoring (Observers)
- Stakeouts
- Measurements from small program vessels
- Checks on the DFO's Catch and Effort Systems

MACKEREL PURSE SEINE FISHERY

- By-catch of unauthorized species such as salmon and tuna
- Exceeding herring by-catch limits
- Hails of arrivals and departures
- Logbooks not completed or total species not recorded
- Retention of undersize mackerel
- Fishing in closed areas
- Fishing too close to fixed gear
- Fishing during closed season
- Exceeding quota
- Dockside checks
- Boardings from small program and offshore patrol vessels

- Dockside Monitoring (Observers)
- Stakeouts
- Measurements from small program vessels
- Checks on the DFO's Catch and Effort Systems
- Air surveillance

10. FINANCIAL RESPONSIBILITIES

10.1 INDUSTRY AND/OR OTHER HARVESTERS

In this fishery, the industry cost shares under Joint Project Agreements (JPAs) between the Department of Fisheries and Oceans and the St. Margaret's Bay trapnet fishermen to determine a more realistic minimum size, and between the Department of Fisheries and Oceans and Seafreez Ltd. for the development and characterization of microsatellite DNA markers specific to the Atlantic Mackerel. The industry participants also pay for all costs associated with contracts for dockside observers. These costs are in addition to the licence fees that must be paid before a licence is issued.

10.2 FISHERIES AND OCEANS

In addition to normal operating costs associated with the routine monitoring of the landings, managing and surveillance of the fishery, consulting with the industry in public fora and reporting on the fishery by various means, the internal administration costs related to the dockside monitoring are borne by the Department, as are the costs associated with the planning, direction, analysis and reporting on the science program linked to the JPAs.

ANNEX I – Quebec Region Management Measures

A. Licensing

The Quebec Region mackerel fishery remains a limited entry fishery except for the issuance of fixed gear licences, which may be issued to any full-time fisher who holds a herring fixed gear licence for a vessel less than 15.2 m (50') in length. Handline licences may be issued to any inshore full-time fisher who holds another limited entry licence.

Quebec Region mackerel fishing vessels are restricted to the fishing areas indicated on their licence.

B. Herring By-catch

The only species, which may be retained as a by-catch in the mackerel fishery, is herring. For fishing areas where herring quotas are available, herring by-catch will be deducted from the fleet quota. When the herring fleet quotas have been reached, the maximum herring by-catch permitted is 10% by weight of the mackerel catch. If required, the by-catch limit can be varied by the DFO Regional Director General.

If discarding of herring is significant, consideration will be given to imposing more restrictive measures such as:

- variation of by-catch to 0%,
- temporary closure of mackerel fishery in the affected area,
- complete closure of the mackerel fishery for the remainder of the season,
- Increased levels of industry funded at-sea observer coverage.

C. Exploratory Purse Seine Fishery

Fishers who held mackerel exploratory purse seine licences in the previous year are eligible to renew the exploratory licence for the current year.

D. Seasons

The mackerel fishing season opens for all gear types on June 1. Should mackerel appear in an area prior to June 1, consideration will be given to opening the season earlier for that area. In areas where there is an absence of commercial quantities of mackerel or where there is a potential for a significant by-catch of other species, the opening date for the fishery may be delayed.

E. Recreational Fishery

A person may, without being registered or licensed and from a vessel that is not registered, engage in recreational fishing for mackerel with a handline or by angling.

F. Fishing Logbooks

All fishers must complete and submit a fishing logbook.

ANNEX II – Newfoundland Region Management Measures

A. Licensing

Fixed gear (gillnets, traps and bar seines)

- Mackerel fixed gear licences are available to fishers who held such a licence in the previous year.
- New fixed gear licences are available to core designated fishers.
- Fixed gear licences are valid only for the Mackerel Fishing Area of residency or the area historically fished.
- Hook and line may be permitted for fishers who can demonstrate having fished this gear type in the previous year's fishery.

Mobile gear (purse seine)

- Mackerel purse seine licences are available to fishers who held such a licence in the previous year.
- Mobile gear vessels in Mackerel Fishing Areas 1 to 11 are restricted to fishing these areas.
- Mobile gear vessels greater than 65' in Mackerel Fishing Areas 13 and 14 are permitted access to Mackerel Fishing Areas 12 to 16 inclusive.
- Mobile gear vessels less than 65' in Mackerel Fishing Areas 13 and 14 are permitted access to Mackerel Fishing Areas 12 to 14 inclusive.

Exploratory purse seine licences

- Exploratory purse seine licences are available to fishers who held such a licence in the previous year.
- Fishers who hold a pelagic purse seine licence for capelin and herring, and who are core designated are eligible to apply for an exploratory mackerel purse seine licence. The issuance of new exploratory purse seine licences will be subject to Regional consideration of impact on other established fisheries. New exploratory licences may be subject to a Memorandum of Agreement (MOA) between the licence holder, the buyer of the fish, and the Department of Fisheries and Oceans (DFO). The purpose of the MOA is to ensure that the principle of protecting traditional inshore markets for established mackerel fishers is adhered to. This does not apply to Mackerel Fishing Areas 12 – 14 as the exploratory fleet is established and will be capped at present levels.

Other Mobile Gear

- The use of mobile gear (other than purse seine) may be authorized on a trial basis for existing purse seine licence holders who are core designated subject to submission (to DFO) and approval of a Conservation Harvesting Plan (CHP) that addresses all conservation related aspects of the fishery. Industry-funded, 100% at-sea observer coverage will be mandatory during any fishery approved on a trial basis.

B. Fishing Seasons

In Newfoundland, the scheduled opening date for mackerel in all areas and for all gear types is August 1; however, consideration will be given to an earlier opening date in any area where mackerel appear prior to August 1. As well, in areas where there is an absence of commercial quantities or where there is a potential for a significant by-catch of other species the season may be delayed. Test fisheries may be authorized as a means of determining when the fishery should open.

C. Herring By-catch

The only species that may be retained as a by-catch in the Mackerel fishery is Herring. For fishing areas where purse seiners have an individual quota (IQ) for herring, herring by-catch will be deducted from the appropriate IQ. Where a herring IQ has been taken or the competitive herring fishery closed, the maximum herring by-catch permitted is 10% by weight of the mackerel catch. By-catch limits can be varied by the DFO Regional Director General.

If discarding of herring is significant, consideration will be given to imposing more restrictive measures such as:

- varying the allowable by-catch to 0%
- temporary closure of the mackerel fishery in the affected area
- complete closure of the mackerel fishery for the remainder of the season
- increased levels of industry funded at-sea observer coverage.

D. Fishing Gear

To reduce the potential for by-catch of other species (especially salmon), the use of trapnet leaders with a mesh size between 3½ and 7 inches will be prohibited. As well, the use of monofilament netting material in trapnet leaders will be prohibited.

When fishing in Mackerel Fishing Areas 12 to 14, fishers may have both pelagic purse seine and fixed gear fishing gear onboard their vessel only when there is an at-sea observer on board.

E. Fishing Logs

All fishers operating vessels greater than 35' in length must complete and submit a fishing log.

F. Dockside Monitoring & at-Sea Observer Coverage

The purse seine fishery is subject to industry funded at-sea observer coverage and 100% dockside monitoring.

G. Recreational Fishing

A person may, without a licence or vessel registration, participate in recreational fishing for Mackerel using hand line or angling gear.

H. Bait Licences

Bait licences for mackerel form part of a generic bait licence that includes herring and blackback (winter flounder) with the exception of those issued in western Newfoundland Mackerel Fishing Areas.

ANNEX III – Maritimes Region Management Measures

Fishing Seasons

The mackerel gillnet and bait fishery occurs from April to November throughout the Region; Mackerel Fishing Areas 17 to 21.

The weirs and trapnets operate from April to November each year. The trapnets are located in three areas – St. Margaret's Bay (West of Pennant Point to the Bacarro Line); Chedabucto Bay and Aspy Bay (East of Pennant Point); and the Bay of Fundy.

The less than 45 feet mobile mackerel licences operate twelve months of the year in Mackerel Fishing Areas 17, 18 and 19 (Cape Breton).

There are also mackerel experimental mobile licences issued each year to herring purse seiners. The total is approximately 28 each year.

Control and Monitoring of Fishing Activities

Mackerel gillnets

Mackerel gillnet licences are limited entry, vessel based, transferable, core eligible and governed by licence conditions. The licences are limited to designated set or drift gillnets as identified in their licence.

Licence holders are required to hail out to a dockside monitoring company prior to their first fishing trip and hail-in the last day of each month the total round weight of fish in pounds. They are also required to submit a log record of their fishing activities each month, whether any fish was caught or not.

Mackerel trapnets

Mackerel trapnets are a limited entry licence, transferable, non-vessel based, and governed by licence conditions. Each trapnet licence must have a corresponding site location. There can be more than one site allocated to the trap licence.

Licence holders are required to hail out to a dockside monitoring company prior to commencing fishing at the start of the season and hail-in each week the total round weight of fish. They are also required to submit a log record of their fishing activities each week.

Mackerel Handline Policy

Mackerel handline licences apply to Canadian Mackerel Fishing Areas 17-21 inclusive.

1. Mackerel handline licences are vessel based and are core eligible.
2. Mackerel handline licences are governed by owner/operator provisions.
3. New mackerel handline licences may only be issued to existing mackerel licence holders.
4. Mackerel handline licences are not splittable from other types of mackerel licences.
5. Mackerel handline licensed vessels may be replaced in accordance to the following:
 - Full-time and part-time fishers without other licences, to a maximum of 24'11" LOA, or the same LOA as the vessel being replaced, whichever is greater; and
 - Full-time fishers with other licences, 44'11" LOA, or the vessel replacement rules for the other licences, whichever is more restrictive.

Mackerel weirs

The mackerel weir licences are open-ended only to herring weir licence holders, non-transferrable, non-vessel based and governed by licence conditions.

Licence holders are required to hail out to a dockside monitoring company prior to commencing fishing at the start of the season and hail-in each week the total round weight of fish. They are also required to submit a log record of their fishing activities each week.

Mackerel Mobile Less than 45 feet

Mackerel mobile licences are limited entry licences, transferable, vessel based (purse seine), core eligible and governed by licence conditions. They are located in the Cape Breton area (Mackerel Fishing Areas 17, 18 and 19).

Licence holders are required to hail out to a dockside monitoring company prior to each fishing trip and hail-in when returning to port. They are also required to submit a log record of their fishing activities each fishing trip. They are subject to at-sea observer coverage. Each landing is monitored by a dockside observer.

Mackerel/herring bait (see Bait Licence Policy below)

The bait licences are open-ended. The licence holder is required to hold one of the following licences to qualify for bait licences:

- Groundfish – longline, handline, baited traps (cod);
- Shark;
- Swordfish longline;
- Tuna;
- Crab;
- Lobster;
- Hagfish;
- Whelk;
- Eel pots.

The licences are vessel based, non-transferable and not limited to core eligible.

Licence holders are required to hail out to a Dockside Monitoring Company prior to commencing the first fishing trip of the season and submit a log record of their fishing activities each month.

Mackerel Experimental Licences

Experimental licences are issued to herring purse seine licence holder each year. Fishers are required to sign a Memorandum of Agreement (MOA) with DFO containing terms and conditions to ensure the protection of traditional inshore markets. These are issued only when requested and when the MOA has been signed.

The licence holder is required to carry an at-sea observer at various times, hail out and in each trip, submit log records each trip and are observed by dockside monitors each trip.

December 3, 2001

MARITIMES HERRING/MACKEREL BAIT LICENCE POLICY

The revised bait licence policy will address all herring/mackerel bait licences issued in 2000 and later.

General

- Only fishers that hold a Maritimes specie licence that requires bait qualify for a bait licence;
- A bait licence must be renewed each year;
- Licence conditions for bait licences will state that the licence holder can only catch and retain herring and mackerel subject to the limits and restrictions stated in the regulations, licence conditions, variation orders, etc.;
- Bait licences will permit a maximum of 3 gill nets not to exceed 90 fathoms in total length (includes head rope length);
- The species will be stated in the bait licence and will be listed in the species code 202 – herring/mackerel – HEM;
- Any fish caught under any bait licence is for personal use and cannot be sold, bartered or traded;
- Persons holding the following licences qualify for bait licences:
 - Groundfish – longline, handline, baited traps (cod);
 - Shark;
 - Swordfish longline;
 - Tuna;
 - Crab;
 - Lobster;
 - Hagfish;
 - Whelk;
 - Eel pots.

Transferability

- Bait licences are not transferable;
- Bait licences are vessel based;
- Licence holders may retain their bait licence provided they still have a valid licence that requires bait;
- When a licence that requires bait is transferred, the new licence holder may apply for a bait licence. The existing bait licence (herring & mackerel) will not be re-issued.

ANNEX IV – Gulf Region Management Measures

A. Licensing

The mackerel fishery remains a limited entry fishery except for the issuance of fixed gear licences, which may be issued to any head of a core enterprise who holds a herring fixed gear licence for a vessel less than 15.2 m (50') LOA and handline licences, which may be issued to any head of a core enterprise.

Mackerel fishing with vessels less than 19.8 m (65 ft) will be restricted to Mackerel Fishing Area 16 while vessels greater than 19.8 m (65 ft) will be restricted to area 12, 13, 14, 15 and 16. The historical overlap privilege in area 17 is maintained.

B. Herring By-catch

The only species, which may be retained as a by-catch in the mackerel fishery, is herring. The by-catch by herring licence holders will be deducted from the herring quotas during open season. In all other cases and where individual herring quotas have been taken, the herring by-catch permitted is 10% by weight of the mackerel catch. If required, the by-catch limit can be varied by the DFO Regional Director General.

If discarding of herring is significant in the inshore or in the large seiner mackerel fishery, consideration will be given to imposing more restrictive measures such as:

- variation of by-catch to 0%,
- temporary closure of mackerel fishery in the affected area,
- complete closure of the mackerel fishery for the remainder of the season,
- increased levels of industry funded at-sea observer coverage.

C. Exploratory/Experimental Fishery

Fishers who held mackerel exploratory purse seine licences in the previous year are eligible to renew the exploratory licence for the current year. Also, mobile gear herring licence holders may be issued an exploratory mobile gear mackerel licence. Furthermore, some experimental licences may be issued to existing mackerel licence holders for the purpose of experimenting with new fixed gear.

Experimental licences issued to herring purse seine licence holders are required to sign a Memorandum of Agreement (MOA) with DFO containing terms and conditions to ensure the protection of traditional inshore markets. These are issued only when requested and when the MOA has been signed.

The mackerel fishery conducted under an exploratory/experimental licence other than with a purse seine requires DMP, some at-sea monitoring and a written evaluation of the project at the end of the fishery. An exploratory purse seine fishery requires DMP and other measures as needed to address the conservation concerns.

D. Seasons

The mackerel fishing season opens for all gear types on June 1. Should mackerel appear in an area prior to June 1, consideration will be given to opening the season earlier for that area. In areas where there is an absence of commercial quantities of mackerel or where there is a potential for a significant by-catch of other species, the opening date for the fishery may be delayed.

E. Recreational Fishery

A person may, without being registered or licensed and from a vessel that is not registered, engage in recreational fishing for mackerel with a hand-line or by angling.

ANNEX V – Committee Membership Lists

GULF SMALL PELAGIC ADVISORY COMMITTEE

<p>Fishermen's Associations</p> <p>Association des pêcheurs propriétaires des Î.-M. Association des senneurs du golfe Fédération du Hareng Golfe Nouvelle-Écosse Area 17 Inshore Fishers 4R Large Seiners Union des pêcheurs des Maritimes, baie des Chaleurs, N.B. Union des pêcheurs des Maritimes, Est, N.-B. 16C Union des pêcheurs des Maritimes, Est, N.-B. 16E PEI Fishermen's Association, Eastern PEI PEI Fishermen's Association, Western PEI Regroupement des pêcheurs professionnels - nord de la Gaspésie Regroupement des pêcheurs professionnels - sud de la Gaspésie</p> <p>Provincial Governments</p> <p>Ministère de l'Agriculture, des Pêches et de l'Alimentation du Québec New Brunswick Department of Agriculture, Fisheries & Aquaculture Newfoundland and Labrador Department of Fisheries & Aquaculture Nova Scotia Department of Agriculture and Fisheries Prince Edward Island Department of Fisheries, Aquaculture & Environment</p>	<p>Processors Associations</p> <p>Association québécoise de l'industrie de la pêche NB Fish Packers Association Seafood Producers Association of PEI Seafood Producers Association of Nova Scotia</p> <p>Aboriginal Groups</p> <p>Listuguj Mi'gmaq First Nation Council MAWIW Council The Native Council of PEI The New Brunswick Aboriginal Peoples Council The Netukulimkewe'l Commission The Nova Scotia MicMac Fish and Wildlife Commission The Union of New Brunswick Indians Gespeg First Nation Council Gesgapegiag First Nation Council</p> <p>Department of Fisheries & Oceans</p> <p>Director, Resource Management Division, Gulf Region</p>
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NEWFOUNDLAND SMALL PELAGICS ADVISORY COMMITTEE

<p>Industry</p> <p>2J, 3KL and 3Ps fishers Beothic Fish Processors Ltd. Fogo Island Co-op Society Ltd. Fish Food & Allied Workers</p> <p>Provincial Government</p> <p>Department of Fisheries & Aquaculture</p>	<p>Federal Government</p> <p>Resource Management Science Conservation & Protection Policy & Economics Canadian Coast Guard</p>
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4R HERRING CO-MANAGEMENT COMMITTEE

<p>Industry</p> <p>4R Large Seiner Representatives 4R Small Seiner Representatives Fixed Gear Representatives 4T Based Seiner Representative L'Association des Seineurs du Golfe Fish Food & Allied Workers Harbour Seafoods Inc. Allen's Fisheries James Doyle & Sons Ltd. 3T's Limited New Brunswick Fish Packers Association The Barry Group</p>	<p>Provincial Government</p> <p>Nfld. Dept. of Fish Food & Aquaculture N.B. Dept. of Fish, Food & Aquaculture (Fredericton) N.B. Dept. of Fish, Food & Aquaculture (Caraquet)</p> <p>Federal Government</p> <p>DFO – Quebec Science DFO – Nfld. Resource Management DFO – Gulf Fisheries Management DFO – Nfld. Conservation & Protection</p>
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ANNEX VI – Roles and Responsibilities and DFO Contacts

WITHIN DFO

Resource Management

- Coordinates the development of management options between DFO sectors and with stakeholders
- Coordinates consultations with resource users and other stakeholders
- Coordinates the pre/post season processes
- Drafts the IFMP document

Science

- Provides stock forecast for upcoming season
- Indicates conservation concerns
- Advises on appropriateness of management options with respect to conservation
- Specifies data requirements
- Advises on research projects required for proper stock assessments

Oceans

- Responsible for information Resource Management about initiatives under the Oceans Act (e.g. MPAs, ICZM) which might have implications for the plan

Conservation and Protection

- Identifies any potential enforcement problems to be addressed in plan
- Suggests specific enforcement measures
- Ensures that enforcement measures identified in the plan can be realized within existing resources
- Develops, carries out and evaluates enforcement plan

Finance

- Reviews IFMP, and in particular any JPAs, ensures that financial aspects of plan are in order

International

- With approval of other sectors, leads in international negotiations affecting fish stocks
- Provides input on international obligations/concerns

Policy

- Responsible for advising on regulatory and policy issues tied to the IFMP

Communications

- Assists in the posting of completed plans on internet
- Assists in the announcement of approved plans

Aboriginal Affairs

- Ensures that fiduciary obligations to First Nations are met
- Monitors impact of agreements on aboriginal fisheries
- Negotiates and approves agreements with aboriginal groups

Senior Management

- Approves management plans

OUTSIDE DFO

External Advisory Bodies (e.g. Small Pelagics Advisory Committees)

- Provide independent advice and recommendations as to conservation concerns and Total Allowable Catches

Fishery Clients (through advisory committees)

- Provide input as to the conservation objectives, how they might best be achieved, the enforceability of management measures and the socio-economic aspects and effects of proposed management measures
- Develop management proposals
- Identify the activities that can be assumed under a co-management approach
- Participate in the management of the fishery under co-management

Provinces/other regulatory agencies

- Level of involvement will vary between fisheries
- Responsible for licensing fish processing activities

DEPARTMENT OF FISHERIES & OCEANS CONTACTS

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News Release

April 3, 2002

FISHERIES AND OCEANS CANADA ANNOUNCES MACKEREL MANAGEMENT PLAN FOR 2002-2006

OTTAWA -- Fisheries and Oceans Canada (DFO) today announced a new multi-year mackerel management plan for Atlantic Canada and Quebec, which will be in effect from 2002-2006. The total allowable catch (TAC) for 2002 has been set at 75,000 tonnes. Catch levels for the following years will be established based on scientific advice.

The following management measures, which have been developed following discussion with industry and advice from DFO scientists, will remain in place for the duration of the multi-year plan:

- maintenance of the sharing arrangement at 60% for the traditional inshore fisheries and 40% for the exploratory mobile gear fishery;
- improved collection of fisheries landings data through logbook submissions; and
- maintenance of the minimum fish size at 25 cm for the present time, with the possibility of an increase in the future following further review by scientists and fishers.

Canadian catches have averaged around 23,000 tonnes since 1985. However, a decrease in reported catches has been observed since 1998. In 2001, preliminary figures indicate landings in the order of 17,000 tonnes.

The Canadian mackerel fishery is carried out primarily by inshore fishers using gillnets, handlines and trapnets throughout Atlantic Canada and Quebec. A small purse seine fishery also occurs in Nova Scotia and Newfoundland. The value of the 2001 fishery was approximately \$8 million.

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ANNEX VIII - Map of Mackerel Fishing Areas

