

**LONG TERM VISION FOR THE
HERRING AND MACKEREL
FISHERIES IN THE SOUTHERN
GULF OF ST. LAWRENCE:
SOCIO-ECONOMIC ASPECTS OF THE
HERRING AND MACKEREL FISHERIES**

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Long Term Vision for the Herring and Mackerel Fisheries in the southern Gulf of St. Lawrence: Socio-economic aspects of the herring and mackerel fisheries

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Mr. Jones,

The present is my report titled “Long Term Vision for the Herring and Mackerel Fisheries in the southern Gulf of St. Lawrence: Socio-economic aspects of the herring and mackerel fisheries”. I hope that the document will be useful in the upcoming discussions pertaining to the development of a long term vision for the sector.

Sincerely,

Pierre-Marcel Desjardins

INTRODUCTION

On March 17, 2005, the Honourable Geoff Regan, Minister of Fisheries and Oceans (DFO), and the Honourable Shawn Murphy, Parliamentary Secretary, announced an initiative to develop a long-term strategy for herring and mackerel fisheries in the southern Gulf of St. Lawrence. The present document focuses on the second of three elements presented in the terms of reference:

“Element 2 will examine the socio-economic aspects of the herring and mackerel fisheries including Fisheries Management objectives with a special focus on, but not limited to, improving the quality and value of the products, market diversity, and catches by all fleet sectors for areas where their licenses are valid. The socio-economical portion of the long-term vision will focus primarily on developing a more stable and long term approach to fisheries management through shared stewardship with industry in setting measurable objectives and identifying strategies towards improving quality, markets diversity, establishing socio-economic goals (such as increasing the overall value of these fisheries) and provide recommendation aimed at improving management of the fishery.” (Terms of Reference, see appendix B)

It was clearly stated at the beginning of the exercise that in our task, we were to consider the present quota allocations as given. We thus make the same assumptions found in the Surette report that: “... both fleets are entitled to fish herring in the southern Gulf of St. Lawrence as per the present allocation (76.83% / 23.17%)” and that “... elimination of a fleet is not an option...” (Surette, 2004, p.2).

The present document, through consultation with various groups and the analysis of relevant documents (a list of which is presented in our bibliography) and data, offers some elements which will hopefully contribute to the development of both the herring and mackerel fisheries in the southern Gulf of St. Lawrence. We will first present an overview of the industry that will be followed by a brief description of markets. We will then present a summary of the consultations and analysis. Please Note that for efficiency purposes, some consultations were undertaken by myself and others by Robert Johnston, on several occasions, we were both present. We then shared our notes. I also participated in some of the two-day sessions held in Moncton on April 19th

and 20th focusing on the more scientific issues. We will conclude with my recommendations.

A final point before concluding this introduction: we noticed that herring was often the focus of the discussions during our consultations, but most were rapid to add that most of the points raised were just as relevant for mackerel as they were for herring.

DESCRIPTION OF BOTH FISHERY SECTORS

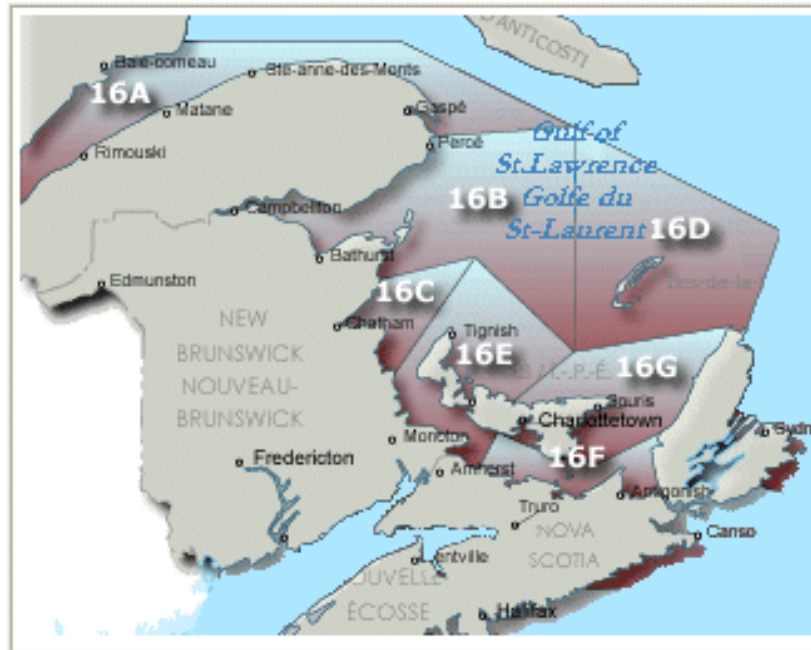
Herring, a brief description:

Atlantic herring, *Clupea harengus harengus*, are a pelagic species which forms schools during feeding and spawning periods (Department of Fisheries and Oceans, 2005b, 1). Herring in the southern Gulf of St. Lawrence has a spring spawning component and a fall spawning component. The largest spring spawning populations are in the Northumberland Strait and the Îles-de-la-Madeleine areas and the largest fall spawning population is in the Chaleur Bay. The stock area for the southern Gulf of St. Lawrence herring extends from the north shore of the Gaspé Peninsula to the northern tip of Cape Breton Island and includes the Îles-de-la-Madeleine.

The region's herring is harvested by an inshore gillnet fleet on spawning grounds and a purse seine fleet (vessels >65') in deeper waters. The number of commercial licences in the southern Gulf of St. Lawrence, by fishing area (see Map 1) is presented in Table 1. Table 2 presents the number of commercial licences in the area while Table 3 presents the number of plant workers associated to herring.

In 2004 (Department of Fisheries and Oceans, 2005b, 2), reported landings of the fall spawner component were 42,208 t against the fall spawner TAC of 73,000 t while reported landings of the spring spawner component were 8,414 t against a TAC of 13,500 t. In the region, only the fall spawner is fished for roe, the spring spawner having a low yield (IRZC, 2004, 5)

Map 1: Herring Fishing Areas



Source: <http://www.glf.dfo-mpo.gc.ca/fm-gp/maps-cartes/herring-hareng-e.html>

Historically, and especially since the mid-1980s, the provinces of Nova Scotia and of New Brunswick have been responsible for most herring landings in Canada (figure 1). On the other hand, British Columbia's landings of herring have generated much greater value (figure 3), as a result of their lucrative herring roe fishery. The impact of this can be observed in figure 5 where we present the historical evolution of prices.

Fishing Area	Total Number of Licences
16A : Île Verte	313
16B : Chaleur Bay	896
16C AND 16E : Escuminac and Western PEI	1 026
16D : Îles-de-la-Madeleine	329
16F : Pictou	392
16G : Fisherman's Bank	393
16A-16G and 17 : Large Herring Seiners	11

Table 2: Number of Active Licences by Area (2002), Herring, Gulf Region¹

Area	Number of Licences Issued	Active Licences	Percentage Active
Gulf New Brunswick	1 119	521	47%
Gulf Nova Scotia	405	156	39%
Prince Edward Island	851	346	41%
Total	2 375	1 023	43%

Source: Department of Fisheries and Oceans (2004), p.6

Table 3: Number of Plants and Plant Workers by Area in 2004, Herring, Gulf Region

Area	# of Plants	# of Employees
Gulf Nova Scotia	2	230
Gulf New Brunswick	36	2 781
Prince Edward Island	3	273
Total	41	3 284

Source: Department of Fisheries and Oceans (2004), p.17

Mackerel, a brief description:

Atlantic mackerel, *Scomber scombrus L.*, belong to the scombrids (Department of Fisheries and Oceans, 2004a, 1). It is found, in the Northwest Atlantic, from Cape Hatteras, North Carolina to the Gulf of St. Lawrence and the east coast of Newfoundland. This distribution area is characterized by the presence of two spawning stocks. First, in Canadian waters, mackerel spawn primarily in the southern Gulf of St. Lawrence in June and July. This spawning follows a long migration which begins in early spring on Georges Bank. Second, in U.S. waters, mackerel spawn in March and April, along the New Jersey coast.

In Eastern Canada, we have approximately 15,000 commercial fishers participating in the mackerel fishery. They fish principally inshore, using gillnets, jiggers, purse seines and traps. The number of licenses in the southern Gulf mackerel fishery is presented in Table 4, and the fishing area in Map 2. Finally, while management of the herring fishery

¹ Note that in Table 1, fishermen from Québec were included, which is not the case in Table 2.

could be described as being more local, mackerel management is more on an Atlantic (i.e. Eastern Canada) basis.

Map 2: Mackerel Fishing Areas



Source: <http://www.glf.dfo-mpo.gc.ca/fm-gp/maps-cartes/mackerel-maquereau-e.html>

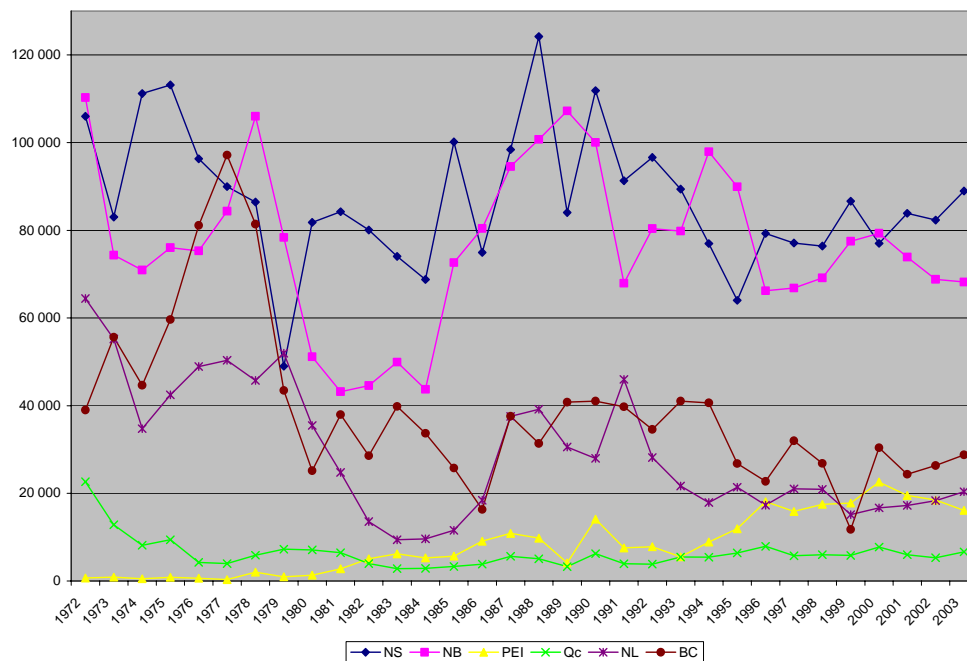
Table 4: Number of Commercial Licences by Area (2002) in the southern Gulf Mackerel fishery, Various Sectors	
Sectors	Number of Licences Issued
Gulf New Brunswick	1 179
Gulf Nova Scotia	636
Prince Edward Island	1 244
Quebec	767
Source: http://dfo-mpo.gc.ca/communic/statistics/commercial/licensing/	

Preliminary mackerel landings in Eastern Canada in 2004 totalled approximately 50,000 t. It is nevertheless considered that this figure does not reflect the true quantities landed because catches by recreational fishers and those made by bait fishermen, are not recorded. Furthermore, sales slips are used in the commercial inshore fishery (no self reporting) and it is believed that the total amounts are not reported by industry.

Actual mackerel landings could be closer to the TAC of 75,000 t than currently identified.” (Department of Fisheries and Oceans, 2005a, 8)

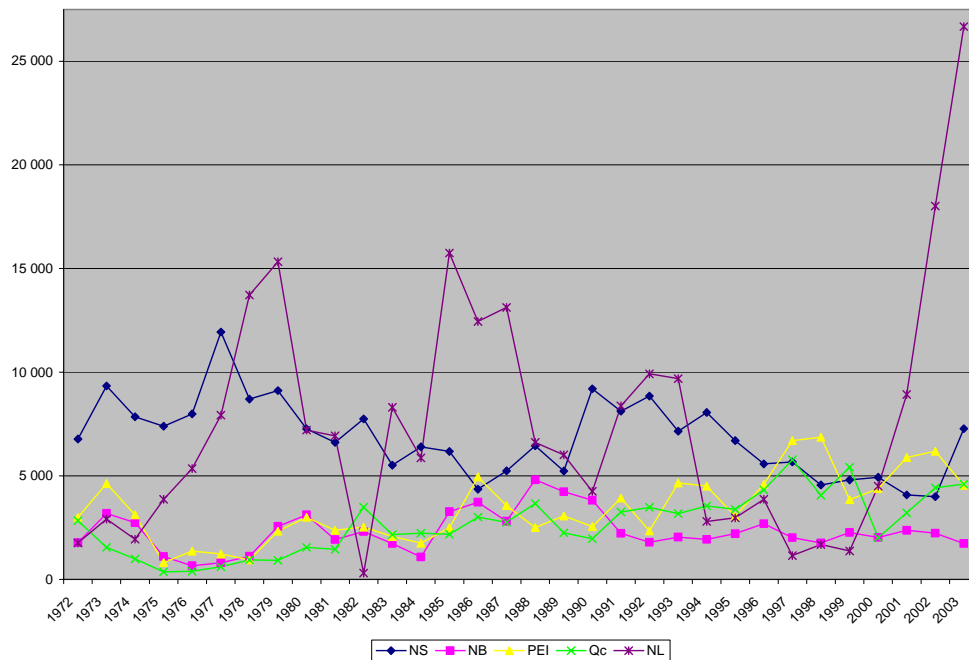
Historically, mackerel landings have fluctuated (figure 2). It is noteworthy to point out the significant increase in landings by Newfoundland and Labrador of late. The value of landings has also fluctuated and is considerably less, in absolute terms, than for herring (figure 4), although the price tends to be higher than that of herring (figure 6).

Figure 1: Evolution of Herring Landings, Volume (MT), Canadian Provinces, 1972-2003



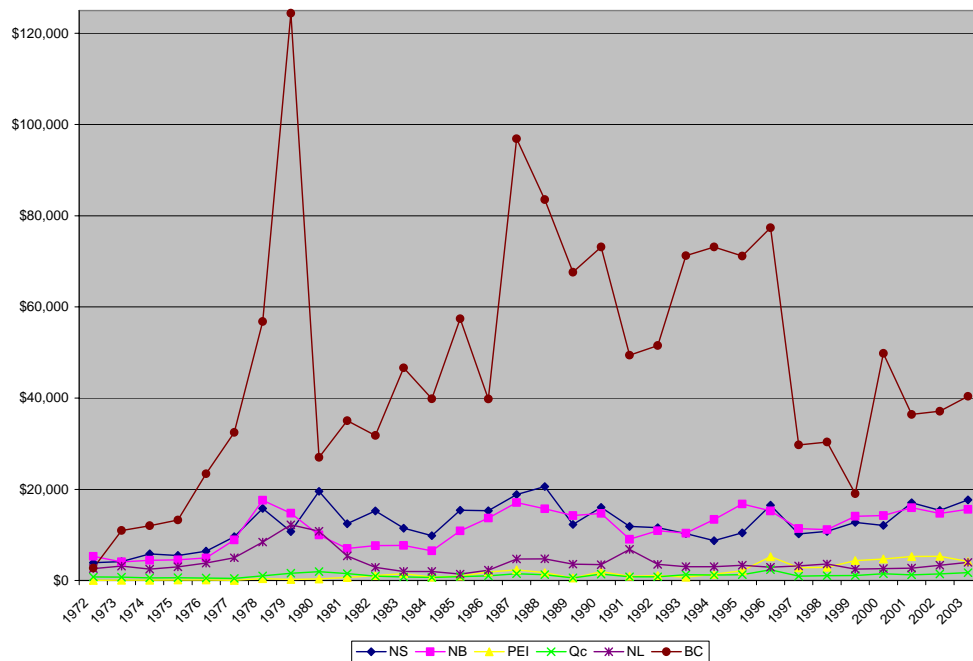
Source: www.dfo-mpo.gc.ca/communic/statistics/commercial/landings/index_f.htm

Figure 2: Evolution of Mackerel Landings (MT), Eastern Canadian Provinces, 1972-2003



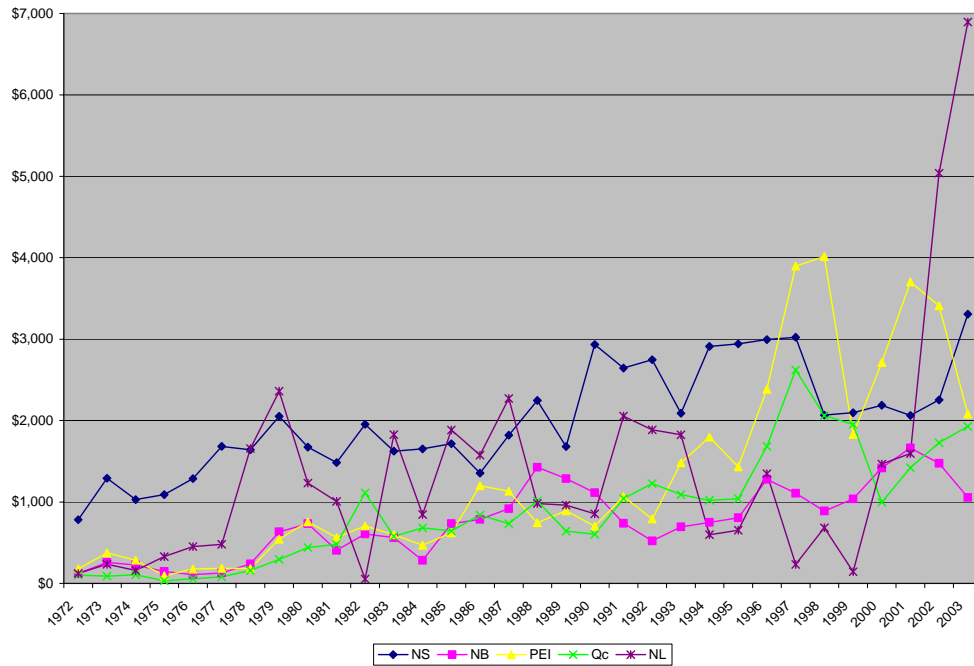
Source: www.dfo-mpo.gc.ca/communic/statistics/commercial/landings/index_f.htm

Figure 3: Evolution of Value of Herring Landings ('000\$), Canadian Provinces, 1972-2003



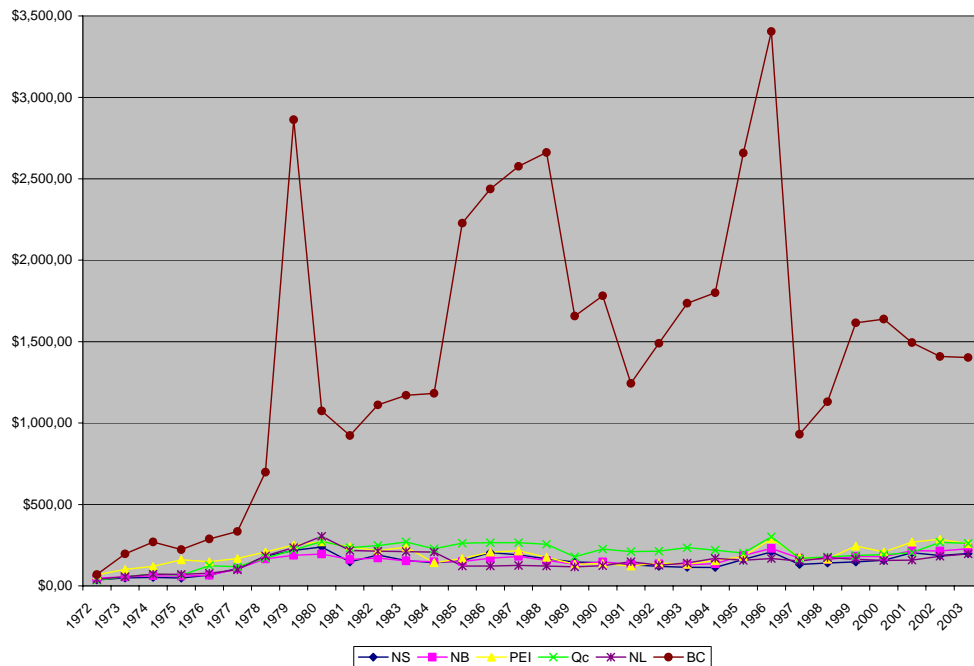
Source: www.dfo-mpo.gc.ca/communic/statistics/commercial/landings/index_f.htm

Figure 4: Evolution of Value of Mackerel Landings ('000\$), Eastern Canadian Provinces, 1972-2003



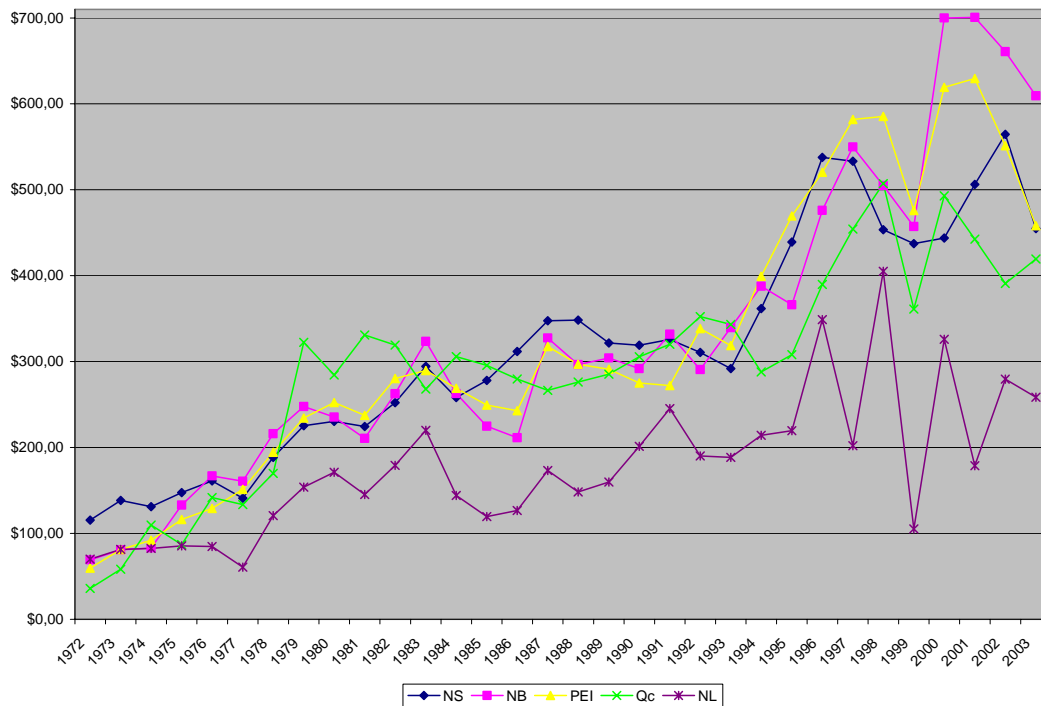
Source: www.dfo-mpo.gc.ca/communic/statistics/commercial/landings/index_f.htm

Figure 5: Evolution of Price (\$/MT), Herring Landings, Canadian Provinces, 1972-2003



Source: Author's calculations from Figures 1 and 3

Figure 6: Evolution of Price (\$/MT), Mackerel Landings, Eastern Canadian Provinces, 1972-2003



Source: Author's calculations from Figures 2 and 4

THE MARKETS

In this section focusing on markets, we will first present an overview of the southern Gulf region's exports, followed by a quantitative and then qualitative analysis of world markets. Before doing so, we need to highlight that our analysis is based on data and information available and is invariably incomplete. For example, we do not have specific information on domestic markets for human consumption or for bait. Furthermore, export data needs to be analysed carefully. For example, if a product is exported by a Toronto-based wholesaler, it may be identified as an Ontario export, even if the fish is from Atlantic Canada. Also, if the fish is first exported, for example, to the United States en route for a final destination in Europe, it may be identified as an export to the United States rather than to the final destination. We are also dependent on the definitions used. This being said, in spite of those caveats, the data does present a relatively adequate "overall" picture.

Eastern Canada's Herring and Mackerel Exports Markets

In appendix A, we present exports statistics for the following products and export markets (although we do not include data from all these markets for all these products, since on several occasions the values were negligible, or even zero):

- Products: (Categories as defined by Statistics Canada)
 - Herring (except livers or roes) – fresh or chilled (excluding fish fillets)
 - Herring (except livers or roes) – frozen (excluding fish fillets)
 - Smoked herring – including fillets
 - Herring, salted or in brine – not dried or smoked
 - Mackerel (except livers or roes) – fresh or chilled (excluding fish fillets)
 - Mackerel (except livers or roes) – frozen (excluding fish fillets)
 - Livers and roes – fresh or chilled
 - Livers and roes – frozen
 - Livers and roes – dried, smoked or in brine

- Markets:
 - All (foreign) destinations
 - United States
 - Japan
 - China
 - Western Europe
 - Eastern Europe
 - Haiti
 - Dominican Republic
 - Africa

If we concentrate on the values for the year 2004, we find that for Newfoundland and Labrador, the most important product – as measured by value of exports – is *mackerel*

(*except livers or roes*) – frozen (*excluding fish fillets*), with exports of over 32 million dollars. Follow *livers and roes – dried, smoked, salted or in brine* (9.3 million \$) and *herring (except livers or roes) – frozen (excluding fish fillets)* (3.6 million \$).

In the case of Prince Edward Island, we also have, as was the case for Newfoundland and Labrador, *mackerel (except livers or roes) – frozen (excluding fish fillets)* in first place with nearly 1 million dollars. Follow *livers and roes – frozen* (581 thousand \$) and *mackerel (except livers and roes) – fresh or chilled (excluding fish fillets)* (312 thousand \$).

For Nova Scotia, *livers and roes – frozen* is first with exports valued at over 12 million dollars, followed by *mackerel (except livers or roes) – frozen (excluding fish fillets)* (nearly 6 million \$) and *smoked herring – including fillets* (3 million \$).

This latest category of *smoked herring – including fillets* leads New Brunswick's exports with a value of more than 15 million dollars in 2004. Follow *livers and roes – frozen* (6 million \$) and *livers and roes – dried, smoked, salted or in brine* (1.5 million \$).

Finally, in the case of the province of Quebec, the principal export product is, as for New Brunswick, *smoked herring – including fillets* (1 million dollars), followed by *livers and roes – frozen* (800 thousand \$) and (*except livers or roes*) – frozen (*excluding fish fillets*) (208 thousand \$).

Turning our attention to export markets, we find that for fresh or chilled herring (*herring (except livers and roes) – fresh or chilled (excluding fish fillets)*) (tables A1-A3) nearly all our exports are destined to the United States. The situation is quite different for frozen herring (*Herring (except livers or roes) – fresh or chilled (excluding fish fillets)*) (tables A4-A10) where, still focusing on the 2004, Eastern Europe is the most important destination for Newfoundland and Labrador and for Nova Scotia, while Western Europe is the most important destination for New Brunswick. Exports from Quebec are not very important while those from Prince Edward Island were zero for 2004. The United States'

market was also important while, for British Columbia, those of Japan and China were the most important.

The most important export markets for *smoked herring – including fillets* (tables A11-A17) were the Dominican Republic (New Brunswick), followed by Western Europe (New Brunswick and Nova Scotia), the United States (Nova Scotia, New Brunswick and Quebec) and Haiti (New Brunswick and Nova Scotia). In the case of *herring, salted or in brine – not dried or smoked* (tables A18-A21), the vast majority is exported to the United States. The situation is similar for *mackerel (except livers or roes) – fresh or chilled (excluding fish fillets)* (tables A22-A25), although in this case, Nova Scotia exported significant values to Eastern Europe and to China.

Markets for frozen mackerel (*mackerel (except livers or roes) – frozen (excluding fish fillets)*) (tables A26-A32) were more diversified with significant exports to the United States (Newfoundland and Labrador), China (Newfoundland and Labrador and Nova Scotia), Eastern Europe (Newfoundland and Labrador and Nova Scotia), Japan (Newfoundland and Labrador), Western Europe.

Finally, for roe, the principal markets for fresh or chilled (*livers and roes – fresh or chilled*) (tables A33-A36) is Western Europe, for frozen (*livers and roes – frozen*) (tables A37-A41) Japan, the United States, China and Western Europe, and for *livers and roes – dried, smoked, salted or in brine* (tables A42-A47), Japan is the most important one, although significant amounts are exported to Western Europe. For British Columbia, important quantities are exported to China.

World Markets for Herring and Mackerel

Let us first analyse Canada's place in the world markets for herring and mackerel. Focusing initially on the world production of herring, we see that Canada is far from being a dominant player (table B1). In fact, the country's greatest share of world production is for *cured herring*, where we were responsible, in 1999, for 12.3 % of total

world production. For this category, Poland is the most important country followed by the Netherlands and Canada. For the *prepared, preserved* category, our share was 4 %. Germany is in this case the most important producer, followed by Poland, Sweden and Denmark. For *frozen herring*, Canada's share of world production is 2.1 %, a category dominated by Norway, followed by the Netherlands and Germany. Finally, Canada is not included in the statistics for *fillets, fresh/frozen*. In this later category, Norway is the principal producer followed by Denmark.

The analysis of world exports of herring (tables B2) confirm Canada' relatively limited importance, with in 1999 a 3.8 % share of the value of world exports of herring. The world's principal exporter of herring was Norway, followed by the Netherlands, Denmark and Germany. The most important importers of *fresh or frozen herring* were Japan, Nigeria, the Russian Federation and Denmark (table B3). If we focus on Japan's herring roe imports, we find that Canada is the most important supplier, with over half to that country's imports (table B4).

The situation is somewhat different for mackerel: Canada, for the period 1991 to 1999, is not even included in the list of principal producers (table B5). The most important exporters of fresh and frozen mackerel were, in 1999, Norway, the United Kingdom, the Netherlands and Ireland (table B6). Turning to imports of mackerel, we find that Canada accounted for less than 0.5 % of total world imports (table B7). The world's most important importers of fresh and frozen mackerel were Japan, Nigeria, Norway, Egypt and Poland.

General trends

Future demand for fish in general is expected to increase. In fact, the Food and Agricultural Organization of the United Nations (FAO) "estimates that given current fish consumption patterns an additional three million tonnes of fish will be required annually to meet the demands of increasing world population" (GSGislason & Associates Ltd, 2004, 34-35). Some estimate that world-wide fish consumption, which was 71 million MT

in 1990 and 100 million MT in 2000 will reach 137 million MT in 2015 (Josupeit, 2004, 1). This is the result of population growth and rising incomes in developing countries. In North America and Europe, the aging population is also going to contribute to increasing demand for fish, since older people tend to consume healthier food which includes seafood. In fact, “[i]ncreased consumption of seafood high in omega-3 fatty acid has been shown to help reduce high blood pressure, ensure a healthy heart, and develop and maintain brain functioning” (GSGislason & Associates Ltd, 2004, 35), and the consumption of herring and mackerel consequently offer important health benefits (IRZC, 2004, 7). This trend toward healthier food which will benefit seafood is also generating higher quality and safety standards which translate, for example, in a preference for fresh products compared to frozen one or local products compared to foreign ones (GSGislason & Associates Ltd, 2004, 36).

Asia

In Japan, market conditions are changing. The younger generation has different preferences than the older generation. This, for example, has an impact on the demand for roe. Younger Japanese are not consuming roe like the older generation (MacKinnon Consulting & Market Development Ltd., 2005, p.4). Many younger Japanese “are increasingly buying flavoured roe products that are convenient, lower-priced, and consumed year-round. The decline of the gift market has shifted Pacific [B.C.] roe into the lower-price flavoured roe markets” (GSGislason & Associates Ltd., 2004. 72). Flavoured roe, which is sold year-round, experiences less price fluctuations. Furthermore, we find “a growing preference for red meat and the acceptance of farmed fish as a substitute for wild fish” (GSGislason & Associates Ltd, 2004, 35). This is leading to a situation where some estimate that one-year’s supply of roe corresponds to two years’ demand (MacKinnon Consulting & Market Development Ltd., 2005, 5).

As indicated above, Japan’s high-end roe market, supplied in Canada mostly by roe from British Columbia, is generally for the high quality year-end pack trade (GSGislason & Associates Ltd., 2004, 72). The reason B.C.’s roe is preferred to Eastern Canada’s roe

is that the former's roe has characteristics more similar to traditional Japanese roe (IRZC, 2004, 3). Eastern Canada's roe is mostly used for flavoured roe (IRZC, 2004, 36). Quality is important: Japanese importers base their purchases on past quality. Reputation thus has a significant impact on demand (IRZC, 2004, 36). Consequently, quality improvement can take time to yield benefits.

Factors influencing the quality include freshness, size and classification. Focusing on Eastern Canada's roe, criticism often raised by Japanese importers include a high percentage of broken roe, discoloured roe, poor texture, a short shelf-life, a bitter taste, a high proportion of spongy roe and bad classification. Elements influencing or responsible for those criticisms include harvesting techniques, level of herring maturity, handling of herring as well as freezing (IRZC, 2004, 36).

With respect to mackerel, we can say that Japan's demand is more sensitive to quality than to size (Globefish, 2003a).

China's market for mackerel is getting stronger. Increased individual income should translate in the coming years in increased demand for mackerel. Combined with forecasted decreases in domestic landings, this should translate into significant increases in interest for mackerel imports (Globefish, 2003f). Furthermore, China's access to the World Trade Organization (WTO) should encourage increased processing of mackerel for re-export.

Western Europe

It is considered that pelagic processing capacity in Norway and the United Kingdom is far more important than the fish supply, leading to upward pressure on price as processors try to increase their purchases. It is estimated that the capacity in Norway is about 5 times the quota available and 3 times in the United Kingdom (Globefish, 2004b).

Norway has experienced an increase in the demand for its herring, a situation related to the relatively large size of the herring (Globefish, 2004a). Close to 80 % of its frozen herring is destined for the Russian and Ukrainian markets. This is different than the European Union, which has Nigeria as its most important export market for herring (Globefish, 2003b).

Turning to Norway's mackerel industry, we find that the supply has decreased by 85,000 tons between 2001 and 2004, but is expected to stabilize (Globefish, 2004b). The demand for Norwegian mackerel is relatively good for large mackerel (above 600g) and for smaller mackerel (Globefish 2003a). Demand for medium-sized mackerel is not as good. It is considered that this category of mackerel (medium-sized) is more price sensitive than other categories and faces fierce competition from mackerel from Ireland, Scotland and Shetlands. Japan and Russia are the most important markets for Norwegian mackerel exports.

In 2003, Iceland's exports of herring declined, even if landings increased. This is the result of smaller herring being caught (mostly <300g) combined with the relatively good price offered by the meal and oil industry (Globefish, 2004). In 2002, Ireland – as well as the Faroe Islands – had increased their production capacity for fillets (Globefish, 2003e).

Eastern Europe

Eastern Europe is changing rapidly. Poland, for example, is now a member of the European Union. It is receiving financial support which should translate into increased demand for products such as herring and mackerel (MacKinnon Consulting & Market Development Ltd., 2005, 4).

For herring, some consider that the markets of Russia, Ukraine and Poland are price sensitive (Globefish, 2004a). In 2001 and 2002, when prices increased significantly, importers reduced their purchases. Others argue, singling out Russia, that demand is solid, pointing out to a recent 30 percent increase in herring consumption while price

was increasing 36 percent (MacKinnon Consulting & Market Development Ltd., 2005, 4). At the same time, an increase in the number of companies producing preserved herring has been observed in Russia. This corresponds to an increase in the income levels of the population, leading to a demand increase for prepared herring products (Globefish, 2004c). Analysts observe that the increased demand coupled with the increasing number of companies is generating intense competition

Interestingly, data shows a decrease in the value of import of finished herring product into Russia since 2001 (Globefish, 2004c). At the same time, import of raw materials increased. This reflects an increase in Russian-produced goods as a result of custom duties but also of consumer preference for domestic products. Some argue that Russian consumers do not like foreign-products which have a sour or sweet taste. Russian companies nevertheless prefer foreign raw materials as opposed to domestic raw materials. Analysts argue that Russian boats do not have the equipment and technology to allow them to process their catches quickly and satisfactorily and are thus considered of inferior quality (Mackinnon Consulting & Market Development Ltd., 2005, 4). In Russia, herring is mostly consumed lightly salted, but marinated herring is becoming more and more popular (Globefish, 2003d). The emergence of super and hypermarkets in Moscow will improve the distribution of herring, and will also help ensure the quality of the product

Russia's and Ukraine's demand for mackerel are influenced by size (preference for 600 grams and above). Poland, for its part, has relatively strong demand for small mackerel (Globefish, 2003a).

Global and local perspective of some specific products

Fishmeal

Fishmeal production from the five major exporting countries was expected to reach 3.4 million tons in 2004, an increase compared to 2003, but 100,000 tons less than the

average of the previous five years (Globefish, 2005a). The Europeans have a ban on the use of fishmeal in ruminants and other feed, which lead to a decrease in EU imports of fishmeal from 950,000 tons in 2000 to 600,000 tons in 2004.

Fishmeal is an important component of the herring sector since all herring waste from other processing can be in turn processed in fish meal or oil and become an economically viable solution to the goal of reducing the environmental impact of the waste (IRZC, 2004, 66). Raw materials include waste from roe, milt and filleting, damaged herring as well as small herring. The quality of the product is directly correlated to the quality of the raw material.

Roe on Kelp

From 1995 to 1999, an experimental herring roe on kelp took place in the Escuminac region (New Brunswick Department of Fisheries and Aquaculture, 1997, 45; New Brunswick Department of Fisheries and Aquaculture, 2000, 34; IRZC, 2004, 71-72). Roe was harvested on kelp and preserved in brine. The kelp used was *Laminaria longicuris*. Japanese prefer the *Macrocystisi pyrifera*, but found the kelp used acceptable. The project offered potential but was terminated as a result of an overabundance of roe on the kelp, the presence of sand and difficulties with the markets.

Matjes

The largest markets for matjes herring are the Netherlands and Germany, markets estimated at 30,000 MT. The most important suppliers are Norway, Denmark and local producers (Globefish, 2003d). Imported matjes herring is initially sorted by size (up to twelve different categories) and then put in tubs of brine with 10-15% salt, where it matures for 24 hours before being vacuum-packed and frozen. It is then sent to Germany and the Netherlands where it is filleted and ready for consumption. For matjes, the herring must have a well developed pancreas, be 24 to 28 cm, be at a level of

maturity II or III, have a minimal fat content of 18%, not be damaged and, ideally, have a full stomach (IRZC, 2004, 70).

The high season for matjes herring is between June 1 and July 15 during large festivals and celebrations, in both the Netherlands and Germany. It is nevertheless available year-round (Globefish, 2003d). In the Netherlands, the usual way of eating it is as a whole 60 gram fillet with onion, in one bite. It is a “national dish” and a trendy and relatively expensive product. In Germany, it is usually eaten as a 100 gram fillet as a plate dish together with, for example, beans, potatoes as well as various dressings/sauces. Most of the gastronomy restaurants offer matjes dishes during the high season.

A pilot project focusing on matjes took place in the mid 1990s in New Brunswick (New Brunswick Department of Fisheries and Aquaculture, 1997, 45). The project did not succeed for logistical reasons but analysts insist that a significant potential existed and still exists if the initiative is properly managed.

Milt

Herring milt is the reproductive substance of male herrings (IRZC, 2004, 45-46). It is mostly consumed by Europeans, often fried or used as a spread. It is also used for its antiseptic properties as well as in the preparation of lotions and shampoo for its high oil concentration. Finally, in Japan, milt is extracted and used to accentuate the flavour of rice.

Smoked herring

A significant proportion of the raw material for smokehouses comes from herring carcasses from the roe industry in the southern Gulf of St-Lawrence (IRZC, 2004, 49). At present, most of the smoked herring producers in the world require major investment to develop new products. Herring for smoking has to be of good quality to produce a quality

product. Smoking procedures and the quality of the equipment utilized also have important impact on the quality of the product.

Fillets

Atlantic herring is considered ideal for fillets, with its long body and small abdominal cavity (IRZC, 2004, 64). Furthermore, for the majority of the season (May to November), the spring and fall spawners have a fat content above 8 %, offering characteristics sought by consumers (e.g. better taste, texture, etc.).

Fish sauces

Fish sauces are very popular in Japan. To produce quality sauces, it is necessary to use fish (herring) of quality similar to those used to produce commercial products for human consumption (IRZC, 2004, 70-71).

ISSUES FROM CONSULTATION AND ANALYSIS OF LITERATURE

Quality

The principal issue that came out of the consultations as well as the analysis of the literature (e.g. IRZC, 2004; Surette, 2004, 62) is the importance of quality and the significant improvements required on this front if any progress can be achieved. At present, it is probably fair to state, although individuals did not necessarily use the same adjective, that herring and mackerel are not fished optimally. We were told on several occasions that we do not fish for quality, we fish for quantity.

Quality is indeed important. The quality of the fish is not reversible (IRZC, 2004, 10). In order to improve the quality of the end product, everybody in the production stream has to be concerned with quality. For herring, for example, soak time of gillnets has a great impact on quality (MacKinnon Consulting & Market Development Ltd., 2005, p.3).

Furthermore, temperature is of paramount importance. Herring will deteriorate six times faster in 15 degrees Celsius water than it will in 4 degrees. Handling all through the process is very important, whether we look at the vessels, the unloading, the trucking, the storage, etc. Factors affecting the quality of the fish thus include the physical condition of the fish, its level of fatigue, its size, its handling and the temperature during the various stages of handling and storage (IRZC, 2004, 10).

Gillnet harvesting was generally targeted when poor quality was discussed. While some have argued that the harvesting technique (gillnets) was at the root of the problem, others have argued that it was possible to supply quality fish using gillnets, but only by developing what could be called a culture of quality. Furthermore, one could bring to the wharf herring of the highest quality, but if the other links of the production chain do not help maintain this quality, whether it is during landing, transportation, or at the processing plant, quality will still be an issue. Ultimately, quality will only be as good as what the weakest link in the chain will produce.

Initiatives are taking place to improve quality, but most of them are on a limited scale. The Coastal Zone Research Institute has for the past couple of years had pilot projects which seem to generate enthusiasm as well as a genuine potential of improving the situation. It has used small group sessions to share information with stakeholders and increase the level of awareness to the importance of quality. It has also participated in a project to develop a rapid detection kit for histamine (IRZC, 2004, 16).

Reasons for insufficient progress with respect to the quality are numerous. First and foremost, there do not seem to be many incentives to improve quality, a point which we will focus on later. We were often told that fishers bringing low-quality fish received the same price as those with high-quality fish. One of the reasons for this is that herring and mackerel are used as bargaining chips in the process of supply and demand for lobster. Fishers will require buyers to take their low-quality herring at the going price if they want to get their lobster. In this highly competitive process, buyers often agree.

Governments

The region is in the unique position of having 5 provincial governments, in addition to the federal government, involved in the fishery. This does tend to make the situation more complex than is the case, for example, for the B.C. fishery where we only have one provincial government. And provincial governments are important: processing, for example, falls under their jurisdictions. It was widely felt that a real and strong partnership between both levels of government as well as with other stakeholders is required in order to generate significant progress

Transparency and predictability

The credibility of the Department of Fisheries and Oceans was sometimes questioned during our consultations. The perceived arbitrariness of some decisions was sometimes used as demonstration of this. Surette (2004, p.62) also pointed out this issue, often linked to the perception that decisions are too often political. From an economic perspective, this is a very important issue: unpredictability increases uncertainty and risk, making investment decisions less likely to occur (investment decisions are discussed later). The message from several individuals was that there is a need to reduce uncertainty as much as possible and that this, invariably, requires greater transparency and predictability in the government decision making process. In fact, it was argued that what they consider past arbitrary decisions and they perceive as the lack of flexibility in the establishment of the regulatory framework are putting at risk the economic survival of some of the present participants: there needs to be a clear framework in place to allow for informed investment decisions.

The Department's decision making process is thus being questioned by some. For example, in the îles-de-la-Madeleine, there is a certain level of frustration that their situation with respect to the herring fishery is still uncertain. This uncertainty may stop some of the fishers to make required investments. On the other hand, some feel that a balanced approach – which translates into re-evaluating the situation regularly – is

required to guarantee the long term stability of the fishery. Another aspect of the decision making process which may have negative impact on the efforts to improve quality is the often used “historical landings” criteria. Improving quality will most likely translate into reduced landings, a disincentive is the fear of losing future quotas if the Department uses historical landings in their decision making process. This could especially be the case when there is a learning curve during a certain period when innovative initiatives will temporarily generate reduced landings.

Dependency on selected markets

It was pointed out on several occasions that some segments of the herring and mackerel sectors are sometimes vulnerable. Smoked herring, for example, is very dependant on the Dominican Republic and Haitian markets. The same can be said for roe and the Japanese market. Consequently, efforts to diversify markets – although it is easier said than done – are a worthy objective.

Economic Incentives

Economic incentives are of paramount importance if any progress is to be made in efforts to improve quality which in turn will lead to an increase impact on the herring and mackerel fisheries. This may seem to some as self-evident, but it is by no means automatic. First, as we have seen earlier, improved quality is not often rewarded financially (IRZC, 2004, 33). Bargaining for lobster seems to explain, at least partly, why some buyers are ready to pay the same price for lower-quality fish as for high-quality fish. But this is not the only reason why quality is not always rewarded. It has been argued that there will always be a unique price, independently of quality and that some form of regulation (e.g. single desk sales) was required.

The role of other more lucrative fisheries needs to be taken under account. For many, fishers and processors, lobster and / or snow crab, is more important. Bait for those fisheries, for example, is thus important. When supply of bait is scarce, price will

increase (e.g. Lessard, 2005, 3; Prince Edward Island Department of Agriculture, Fisheries and Forestry, 2004), making the search for alternative use of the fish less attractive. In short, the market for bait may be creating a bias unfavourable to improving quality, although as some have indicated, even bait should be of relatively good quality.

Even if improved quality can lead to higher prices for fishers, it may not be economically attractive if significant investments are required or if it translates into an important reduction of quantities (IRZC, 2004, 21). Furthermore, markets may be slow to reward improved quality with a higher price. Processors have indeed indicated that it may not be easy for them to instantaneously increase the price to fishers. It may take time to improve one's reputation which in turn will influence the price one receives.

It is not clear that economic incentives are sufficient for processors to consider new product development. Some would not only require important investment for new equipment but also expansion to increase space for processing and storage. The challenge is even greater when one considers the uncertainty with respect to supply. Some could argue that investing large sums of money to develop new products in the uncertain environment faced by processors is very risky at best. With such uncertainty, it should not be surprising to see processors reluctant to diversify outside their core activities of snow crab, lobster and/or roe. To some, economic support from governments will have to accompany any initiative, whether it is for plants or for boats.

A point raised was that the pelagic fishery is unlike other fishery and requires economies of scale. According to this point of view, it needs to be harvested in large volume, it needs to be processed in large volumes and it needs to be marketed in large volumes.

Finally, on the question of economic incentives, some have argued that "when quotas are up, prices are down." Such a situation may very well reflect a relative lack of integration with international markets and an overwhelming influence of local supply and demand conditions, principally for bait. By becoming more fully integrated with international markets, international prices should influence local prices and because of

our relative small share of the overall supply, there should be less of a direct relationship between prices and local quotas.

Need for more research, more information

As Allister Surette indicated that (Surette, 2004, p.2), “today’s scientific techniques have progressed considerably since the early days of the herring fishery, but it must be recognized that there will never be an exact science regarding the fishery.” This statement, which also applies to the mackerel fishery, is indeed correct. That being said, increasing knowledge will invariably have a positive impact on all aspects of the fishery. This has been repeated on several occasions during the consultations and also found in various documents (e.g.: Surette, 2004, p.29 and p.44). Some argued strongly that the pelagic scientific capacity at the DFO-Moncton should be increased. It was also argued that every sub-region should benefit from research efforts. For example, some felt that the Baie des Chaleurs was unjustly favoured with respect to research at the expense of other regions. A final note on science: it was pointed out that there is a perception by some that the quota allocations often had more to do with the fishing effort (i.e. past landings) than with science and that an increased focus on science was required to readjust the balance.

Generally, it was felt that there was a need to invest in science. It could be argued that the need is even greater and includes harvesting techniques, new product development as well as market intelligence. Seminars involving various stakeholders (e.g. fishers, processors, inspectors, etc.) were often identified as potential forums to increase the dissemination of information. Fact seeking missions were also suggested. Learning from others instead of trying to reinvent the wheel is indeed very efficient. This has been done on a relatively low scale and could be broadened. It could focus on issues such as harvesting techniques, harvesting technology, consumer preferences, new product development, etc.

The recent initiative of the Coastal Zone Research Institute in Shippagan was often showcase as an excellent example. Its recently produced document on the quality of herring (IRZC, 2004) was deemed an important instrument and a wish was expressed to have it translated in English in order to reach a wider audience.

The Coastal Zone Research Institute's approach of working with small local groups comprising stakeholders from various field of expertise to possibly develop pilot projects was considered very interesting and offering a certain potential. It met the objective suggested by some of creating a nucleus of fishers and processors which may be ready to progress and demonstrate leadership. It also offered a forum where these stakeholders representing various interests could simply discuss common issues.

Historical landings for mackerel

Some feel that we need to increase our landings of mackerel. As has been argued by DFO biologists for several years, an important first step would be to properly record landings, including the bait and recreational fisheries as well as discards. There is a feeling that the Americans are building up historical landings with proper recording while we are not. The danger is that if we negotiate joint quota allocation with the United States, unrecorded landings by Canadians could lead to a relative loss of quotas for Canadians. Recent landing statistics seem to give credence to this point of view since American landings by commercial fishermen rose to 52,490 t, a peak since 1960 (Department of Fisheries and Oceans, 2005a, 1)

Increasing markets in Canada

Several times during our consultations it was pointed out that opportunities existed for increased sales within Canada. GSGislason & Associates Ltd (2004, p.xxi), in the context of their study on British Columbia's fishery, suggest that there "appears to be an

opportunity for increased BC seafood sales within Canada. Increased domestic sales would not only avoid exchange rate and other risks in the international marketplace, but would likely engender greater public support for the seafood industry in the province.” The same could be said of Eastern Canada’s fish. Some argue that even herring roe could be sold locally.

Monitoring / inspection

Several issues regarding monitoring have been raised during our consultations and we also found pertinent information in our analysis of the literature. First, many feel that the government, which includes the Canadian Food Inspection Agency, is not doing enough to monitor the sector. While the relative responsibilities seem to confuse several of the stakeholders, there is a general feeling that rules and regulations are not adequately monitored. The situation in 2003 when smoked herring containing unacceptable levels of histamine were returned on three separate occasions by European inspectors (Europa, 2005a) was often referenced as a demonstration of the present weakness of the system.

Some worry that a given sector may be adversely affected by such event as it gives the region’s products a bad reputation. The need for increased inspection was often suggested.

The issue of monitoring should remain on the “radar screen”. Traceability, as we will discuss next, will become increasingly important. Furthermore, regulation will most probably increase. For example, the European Commission (2004, 12) has announced that “[h]istamine criteria for fishery products will be included in the Commission Regulation on microbiological criteria for foodstuffs, which is expected to be adopted in 2005 and to become applicable from 1 January 2006.” Proper monitoring will thus be increasingly important if the southern Gulf industry hopes to maintain, let alone increase, its exports to key markets like the European Union.

Traceability

“Traceability refers to mechanisms for tracking product history. It is intended not only to assure consumers of food safety, but also to provide them with differentiated products according to their needs (e.g. wild or farmed, organic/sustainably produced, complying with religious or other requirements). Traceability is an emerging requirement and key component of international trade” (GSGislason & Associates Ltd, 2004, p.40). Mackinnon Consulting & Market Development Ltd. (2005, xix) in a recently published study make a similar argument: “Ultimately, the traceability of harvest back to the vessel and fishing location is likely to be a market requirement.” The European Union, for example, seems to be going in that direction, as is British Columbia.

For the herring and mackerel fisheries, this requirement may have a significant impact. Fish buyers may find it inefficient to deal with numerous small suppliers (i.e. fishers offering small quantities) as opposed to a few larger ones. There may be innovative solutions available, such as smaller harvesters forming some consortiums, but the trend may indeed lead to changes in harvesting practices. For example, fish buyers may want to limit their purchases to only seiners and to inshore fishers able to supply relatively large quantities.

Harvesting techniques

Harvesting techniques were discussed regularly during our consultation, with no consensus on the situation. From the literature, we found that various techniques present various advantages and disadvantages. As indicated earlier, from a quality perspective, it was often argued that while fish from purse seines was generally of good quality, fish from gillnet could also be of good quality if fishers were quality conscious and took all the measures required to land quality fish. Note that some inshore fishers, particularly in les Îles de la Madeleine, use handlines to fish mackerel, which arguably generates better quality fish.

In the past, studies were done to analyse the possibility of using other harvesting techniques. A 1988 study on pair mid-water trawl (PMWT) by GTA (1988, 3-4) concluded, for example, that “this is not a viable technology for the typical inshore operator who is currently engaged in net-fishing or purse seining for mackerel in the Gulf. There are, however, sound economic and stock management arguments to justify the development of a small fleet of specialized inshore mackerel vessels (<45’) which would make use of PMWT, possibly in tandem with purse seine techniques.” With technological innovation, this conclusion may need to be revisited. Indeed, mid-water trawl is presently used extensively in Europe. Further analysis on all aspects of the fishery, including both environmental and economic impact would be required to arrive at any conclusion.

Infrastructure

The need for infrastructure improvements was raised regularly during our consultation. It focused principally on infrastructure on wharves (unloading facilities, water, ice making, etc.) as well as on the need for large freezers. The argument presented was that the poor infrastructure represented a barrier to the improvement of quality. In some instances, the ice making capacity is either inexistent or producing ice of poor quality. It was also pointed out that on some wharves, the water used to pump the fish is coming directly from the dock and is of poor quality. Finally, it was argued that the presence of lifts is essential if fishers are to use boxes which are often considered to produce better quality of fish than the use of pumps.

A common comment was that the Department of Fisheries and Oceans turned over wharves to local communities, but that they barely have the resources to maintain them, let alone to improve infrastructure which is required if an improvement in the quality of herring and mackerel is to be achieved.

Other issues

Some have argued that they did not agree with a process that analysed the mackerel fishery strictly in the context of the Gulf region and that such an initiative should encompass the larger region of Eastern Canada. It was also pointed out that if there are any actions resulting from the present exercise, as a marketing campaign, for example, players from regions other than the Gulf should not be excluded. The issue of user fees and the burden on fishers was also raised.

Potential threats have also been flagged, including the impact of a dedicated roe fishery on the stock, the need to report everything taken out of the water to allow decision makers to make informed decisions, the vulnerability of at least some smoke herring producers against price increases, and finally the impact of seals.

RECOMMENDATIONS

For our recommendations, we start with the following assumptions. First, as previously mentioned, we assume that the present allocation between the seiners and the inshore fleets will not be modified. We further assume that improving the economic impact of the herring and mackerel fisheries is an objective. This may at first appear to be a strange assumption, but as we will see, it is indeed important. Also, we assume that the role of government is one of what could be called a facilitator. This means, for example, that we make the assumption that it is the private sector which will harvest, process and market the fish. Finally, although we have alluded to some factors which fall under elements 1 and 3 of the terms of reference, we will focus our recommendations on element 2, recognizing that there may still be some overlap.

During the course of the present study, we have come to the conclusion that progress was indeed possible, but that it would be more realistic to assume that change will be progressive, rather than occurring at a very fast pace. In this context, a long term vision focusing on a horizon of, for example, 10 years, should not expect a revolution, but

rather a series of small steps leading to a solid improvement of the situation. It is thus with this in mind that I present the following recommendations.

Approach

On several occasions, it was suggested that working on a community level or with small groups of individuals could prove successful. The Maritime Fishermen's Union (2004) has, for example, espoused the concept of community of interest. The Coastal Zone Research Institute has started working with small groups with the objective of developing pilot projects. In Nova Scotia, a first workshop took place to discuss issues important to the herring fishery and one of the recommendations to come out of that event was that a second workshop takes place (MacKinnon Consulting & Market Development Ltd., 2004. 6). The Surette report (2004, p.59) also arrived at the conclusion that such an approach was desirable: "Establishing controlled Round Table and/or Sectorial Table formats as in the case with the fish quality pilot project in Shippagan may be another possibility to discuss isolated subjects pertinent to the herring fishery in the Gulf." Consequently, I make the following recommendation.

RECOMMENDATION 1: ROUND TABLES AND/OR SECTORAL TABLES COMPRISED OF ALL STAKEHOLDERS SHOULD BE ESTABLISHED TO BECOME A FORUM TO DISCUSS VARIOUS ISSUES, BE THE FOCAL POINT FOR THE DISSEMINATION OF RESEARCH RESULTS AND THE CATALYST TO DEVELOP PILOT PROJECTS. GOVERNMENT FUNDING SHOULD BE PROVIDED TO THESE GROUPS TO PAY FOR A RESOURCE WHICH WOULD ACT AS A FACILITATOR. FURTHERMORE, ITS PRECISE STRUCTURE SHOULD BE ALLOWED TO VARY TO REFLECT THE REALITY OF THE VARIOUS REGIONS AND COMMUNITIES.

Research and Information

Information is a fundamental component of development efforts. And information requirements touch every aspect of the fishery, from the science to harvest, processing

and markets. While some of these components pertain more to other elements of the terms of reference, they nonetheless influence every aspect of the sector. Better information will invariably translate into better decision making.

Information can be acquired two ways. It can be the result of research efforts undertaken by the actors involved or it can be obtain from third parties. Both have merit. We will leave specific recommendations pertaining to science and harvesting technology aside, as it falls outside our focus. We will thus make the following recommendations with respect to research and information on ways to improve quality).

RECOMMENDATION 2: MISSIONS WITH REPRESENTATIVES FROM ALL SECTORS OF THE INDUSTRY SHOULD BE ORGANIZED ON A REGULAR BASIS TO VARIOUS REGIONS OF THE WORLD WHICH MAY HELP INCREASE THE KNOWLEDGE WE HAVE WITH RESPECT TO VARIOUS ASPECTS OF THE HERRING AND MACKEREL FISHERIES, INCLUDING HARVESTING, STORAGE, TRANSPORTATION, PROCESSING, AND MARKETING.

RECOMMENDATION 3: THE DEPARTMENT OF FISHERIES AND OCEANS SHOULD PARTNER WITH THE PROVINCIAL GOVERNMENTS TO DEVELOP WHAT COULD BE CALLED “APPLIED RESEARCH” CAPACITY WHO’S ROLE WOULD BE TO GATHER INFORMATION ON INNOVATIONS, MARKETS, TECHNOLOGY, ETC., PERTAINING TO THE HERRING AND MACKEREL FISHERIES AND DISSEMINATE THE GATHERED INFORMATION TO ALL STAKEHOLDERS. THIS SHOULD BE DONE IN CONJUNCTION WITH THE “ROUND TABLES / SECTORAL TABLES” INITIATIVE IN RECOMMENDATION 1.

Finally, in its efforts to increase the amount of information available, the Coastal Zone Research Institute has prepared a very good study on the quality of herring (IRZC, 2004). Unfortunately, it is only available in French. We make the following recommendation.

RECOMMENDATION 4: THE COASTAL ZONE RESEARCH INSTITUTE REPORT ON HERRING QUALITY SHOULD BE TRANSLATED AND DISTRIBUTED AS WIDELY AS POSSIBLE. A SIMILAR STUDY ON MACKEREL SHOULD BE UNDERTAKEN.

Improvement of infrastructure

It was clear from our consultation and analysis that infrastructure improvements are required if the objective of improving quality is to be achieved. Consequently, we make the following recommendation.

RECOMMENDATION 5: IN THE CONTEXT OF A CONCERTED EFFORT TO IMPROVE THE QUALITY OF FISH, A DETAILED ANALYSIS OF INFRASTRUCTURE REQUIREMENTS NEEDS TO BE UNDERTAKEN, IDENTIFYING AND PRIORISING REQUIRED IMPROVEMENT ON A REGIONAL BASIS. THE DEPARTMENT OF FISHERIES AND OCEANS SHOULD THEN WORK IN PARTNERSHIP WITH THE RELEVANT PROVINCIAL GOVERNMENTS AS WELL AS WITH OTHER FEDERAL DEPARTMENT TO FIND FUNDS NECESSARY TO ACHIEVE THE IMPROVEMENTS DEEMED A PRIORITY. STAKEHOLDERS SHOULD ALSO BE EXPECTED TO CONTRIBUTE FINANCIALLY. THE PROCESS SHOULD NOT ONLY CONSIDER THE CAPITAL COSTS BUT ALSO THE COSTS OF MAINTAINING THESE INFRASTRUCTURE AS THEIR PERFORMANCE WILL HAVE A DIRECT IMPACT ON THE QUALITY OF FISH.

Economic Incentives

As we have seen, the economic incentives are not always present to foster quality improvement. Governments have some tools at their disposal to try to bolster efforts to improve quality. They range from coercion (e.g. regulation) to incentives (e.g. subsidies). First, we found that private financial structures may not be functioning optimally for the actors present in the sector, both for fishers and processors. This is not unique to the fisheries: when financial institutions perceive the risk or the uncertainty to be too high, they will either limit the financing available or even not make available any financing in certain cases. This does not mean that the project is without merits, but that the uncertainty and the risk is judged too large. Consequently, good projects may not be

able to proceed as a result of the lack of financing. In this case, factors at play would not only include the sector involved, but also the region. For example, for a financial institution, selling a repossessed plant would be a lot more difficult in rural New Brunswick than in a suburb of Toronto, a reality which may lead to the refusal of financing of a project which would have otherwise been accepted. These are examples of what economists define as market failures, situation which may warrant government intervention. The efforts to develop the herring and mackerel sectors will invariably require investments from the participants, and we have serious concerns that traditional financial mechanism will not be working properly for a variety of reason including the relatively high level of uncertainty and risk in the sector as well as the geographical location of these projects. Consequently, I recommend the following.

RECOMMENDATION 6: IF IT IS CONSIDERED THAT THERE IS INDEED A MARKET FAILURE AND THAT TRADITIONAL FINANCIAL MECHANISMS ARE NOT WORKING PROPERLY, BOTH LEVELS OF GOVERNMENT SHOULD CONSIDER SUPPORTING EFFORTS TO DEVELOP THE HERRING AND MACKEREL FISHERIES THROUGH TOOLS WHICH COULD INCLUDE LOAN GUARANTEES, INTEREST-FREE LOANS, SUBSIDIES OR A COMBINATION OF THESE. THESE TOOLS SHOULD BE MADE AVAILABLE TO FISHERS AND PROCESSORS, INCLUDING FOR NEW PRODUCT AND FOR NEW MARKET DEVELOPMENT EFFORTS. IT IS IMPORTANT THAT SUCH AN INITIATIVE NOT LEAD TO AN OVER-CAPITALIZATION.

The Department of Fisheries and Oceans could also create incentives through the quota allocation system.

RECOMMENDATION 7: IN AN EFFORT TO ENCOURAGE THE DEVELOPMENT OF QUALITY IMPROVING EFFORTS AS WELL AS INNOVATIVE VENTURES, THE DEPARTMENT OF FISHERIES AND OCEANS IN PARTNERSHIP WITH STAKEHOLDERS SHOULD CONSIDER ALLOCATING PART OF THE AVAILABLE QUOTA – WHILE PRESERVING THE ALLOCATION BETWEEN FLEETS – FOR PILOT PROJECTS AIMED AT IMPROVING QUALITY AND /OR DEVELOP NEW PRODUCTS.

Inspection

In today's ever increasing quality conscious environment, inspection is very important. Efforts are already taking place on this front (e.g. Government of Newfoundland and Labrador, 2005, 11). Continued access to several international markets, let alone the expansion of these and development of new markets, will increasingly be dependent on the quality of the products, both real and perceived. With upcoming issues such as traceability, the relative strength of the CFIA's inspection programs will have a direct impact on the sector's prospects. A tarnished reputation, for example, will make it even more difficult to export, even if the culprit is another company: the entire region's producers risk being painted with the same brush. Consequently, I make the following recommendation.

RECOMMENDATION 8: THE CANADIAN FOOD INSPECTION AGENCY, THE PROVINCIAL GOVERNMENTS AND OTHER ACTORS SUCH AS THE DEPARTMENT OF FISHERIES AND OCEANS NEED TO BECOME MORE PRO-ACTIVE IN PROMOTING A CULTURE OF QUALITY AND IN TAKING STEPS TO GUARANTEE ITS IMPLEMENTATION.

Need for flexibility

A barrier to change that has been identified is the tendency of the Department of Fisheries and Oceans to use history as a basis for decisions on allocation of quota. This, consequently, fosters a culture of quantity as opposed to a culture of quality. I thus make the following recommendation.

RECOMMENDATION 9: SINCE DECISION MAKING BASED ON HISTORY ENCOURAGES A CULTURE OF QUANTITY AND MAY WELL BE A BARRIER TO EFFORTS TO IMPROVE QUALITY, THE DEPARTMENT OF FISHERIES AND OCEANS SHOULD CONSIDER INTEGRATING EFFORTS TO IMPROVE QUALITY – WHICH OFTEN MAY TRANSLATE INTO REDUCED QUANTITY – IN ITS DECISION MAKING PROCESS IN ORDER NOT TO PENALIZE FISHERS WHO WANT TO PUT MORE EMPHASIS ON QUALITY RATHER THAN QUANTITY. SUCH A CHANGE SHOULD BE WIDELY ADVERTISED.

It was also pointed out that actors should have more flexibility in their use of their quotas. Some suggested that the region should consider allowing willing parties to be innovative with their allocations and be able to make decisions to maximize the economic benefits.

RECOMMENDATION 10: STARTING WITH THE PREMISE THAT THE QUOTA ALLOCATION IS SET BETWEEN FLEETS, THE DEPARTMENT OF FISHERIES AND OCEANS SHOULD WORK WITH THE VARIOUS STAKEHOLDERS, AND CONSIDER INNOVATIVE MANAGERIAL REGULATIONS WHICH WOULD ALLOW THEM TO HAVE MORE FLEXIBILITY, REDUCE UNCERTAINTY AND CONTRIBUTE TO INCREASING ECONOMIC BENEFITS.

Marketing

Marketing is an integral part of doing business. Norway through the Norwegian Seafood Export Council (http://seafoodfromnorway.com/usa/index_main.php) has been identified as an example which could possibly have some valuable lessons for any initiative in that field. In Nova Scotia, their workshop indeed identified marketing as a priority (MacKinnon Consulting & Market Development Ltd., 2005, 5). I make the following recommendation.

RECOMMENDATION 11: MARKETING BEING A FUNDAMENTAL COMPONENT OF SUCCESSFUL BUSINESSES, THE DEPARTMENT OF FISHERIES AND OCEANS AND THE PROVINCIAL GOVERNMENTS SHOULD PARTNER TO CONSIDER THE RELEVANCE OF CREATING AN EASTERN CANADIAN VERSION OF THE NORWEGIAN SEAFOOD EXPORT COUNCIL TO BOLSTER OUR EXPORTS, TO CONTRIBUTE TO MARKET INTELLIGENCE GATHERING AND EVEN TO NEW PRODUCT DEVELOPMENT.

CONCLUSION: WHERE SHOULD WE BE IN 10 YEARS?

I have learned long ago that it is difficult and even foolhardy to attempt to forecast the future. This case is no exception. This being said, improvements can certainly take place, but a revolution should not be expected. The recommendations proposed are consistent with such a perspective.

From a socio-economic perspective, a quote from a recent report by McRae and Pearse could summarise our vision: “Our vision of the fishery is one that is economically viable – where those who fish have secure access to the resources on which they depend, based on long-term, well-defined and quantified fishing rights. Secure rights, embedded in a clear framework of government policy, will provide the certainty fishers need to organize themselves, and to invest and operate to maximum advantage.” (McRae and Pearse, 2004, p.19)

LIST OF ORGANIZATIONS CONSULTED

- Association coopérative des pêcheurs de l'Île – March 22
- Association des pêcheurs propriétaires des Îles-de-la-Madeleine – April 6
- Association des senneurs du Golfe – March 22
- Barry Group – March 23
- Blue Cove Group – March 22
- Canadian Food Inspection Agency – March 1 (Robert Johnston)
- Coastal Zones Research Institute – February 23 and March 22
- Coopératives des pêcheurs de Baie-Ste-Anne – April 26
- Department of Fisheries and Oceans; Gulf NS – March 21 (Robert Johnston)
- Department of Fisheries and Oceans; Science – February 22 and February 24
- Gulf Nova Scotia Fishermen – March 21 (Robert Johnston)
- LA Trading – February 23
- McGraw Seafood – April 26
- Ministère de l'agriculture, des pêcheries et de l'alimentation du Québec – April 13
- New Brunswick Department of Agriculture, Fisheries and Aquaculture – April 21
- Newfoundland and Labrador Department of Fisheries – April 4
- Nova Scotia Department of Fisheries & Aquaculture – March 23
- Prince Edward Island Department of Agriculture, Fisheries and Aquaculture – May 16 (Robert Johnston)
- Prince Edward Island Fishermen's Association Herring/Mackerel Committee – March 15 (Robert Johnston)
- Prince Edward Island Seafood Processors – March 1 (Robert Johnston)
- Produits Belle Baie Ltée – March 22
- Produits du Golfe Saint-Laurent – March 22
- Produits Océaniques Canadiens Ltée – March 22
- Pêcheurs professionnels du sud de la Gaspésie – March 30 (Robert Johnston)
- Seafood Producers Association of Nova Scotia – March 18
- Union des pêcheurs des Maritimes – March 22 and March 23
- Women for Environmental Sustainability – March 12 and 18 (Robert Johnston)

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- Globefish: <http://globefish.org>

APPENDIX A: EXPORT STATISTICS FOR SELECTED PRODUCTS AND MARKETS

Herring (Except Livers or Roes) – Fresh or Chilled (Excluding Fish Fillets)

Table A1: Value of Exports to All Destinations, HERRING (EXCEPT LIVERS OR ROES) - FRESH OR CHILLED (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	76,210	33,261	48,348	85,391	25,035	181,017	28,922	15,818	25,777
PEI	118,267	209,785	248,999	73,015	104,476	24,912	0	0	81,012
NS	8,083	59,605	175,276	103,481	70,705	0	48,639	0	10,943
NB	721,859	1,085,397	1,857,130	1,273,927	896,846	606,279	380,182	398,959	698,690
Qc	0	0	38,435	0	0	0	0	0	4,332
ON	325,211	199,739	190,646	242,704	263,412	308,732	303,518	259,662	184,577
BC	638,119	2,458,716	2,527,848	3,242,580	4,107,579	0	253,257	105,913	476,956

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A2: Value of Exports to the United States, HERRING (EXCEPT LIVERS OR ROES) - FRESH OR CHILLED (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	76,210	33,261	48,348	85,391	25,035	181,017	28,922	15,818	25,777
PEI	118,267	209,785	248,999	73,015	104,476	24,912	0	0	81,012
NS	8,083	59,605	175,276	100,364	47,058	0	48,639	0	10,943
NB	721,859	1,085,397	1,857,130	1,273,927	896,628	606,279	379,482	398,959	698,690
Qc	0	0	38,435	0	0	0	0	0	4,332
ON	325,211	199,739	150,863	242,704	263,412	308,732	303,518	259,662	184,577
BC	638,119	2,458,716	2,527,848	3,242,580	4,107,579	0	0	79,774	476,956

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A3: Value of Exports to Japan, HERRING (EXCEPT LIVERS OR ROES) - FRESH OR CHILLED (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	253,257	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Herring (Except Livers or Roes) – Frozen (Excluding Fish Fillets)

Table A4: Value of Exports to All Destinations, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	3,557,170	3,735,048	3,622,610	1,463,972	1,993,178	2,769,321	2,702,803	2,612,174	3,625,702
PEI	427,451	142,943	39,529	190,851	66,260	240,006	11,095	79,033	0
NS	4,334,662	1,787,594	2,623,875	2,570,240	2,040,201	6,602,707	3,275,868	1,843,252	2,111,055
NB	779,790	457,920	249,564	82,992	46,859	658,072	353,976	551,110	182,545
Qc	10,319	155,011	173,179	29,737	0	4,028	0	29,898	6,259
ON	22,074	61,327	121,407	8,207	97,314	50,593	248,525	620,140	3,805
BC	2,222,713	1,360,477	3,045,783	3,918,716	3,749,004	4,570,667	968,414	3,750,991	3,808,249

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

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Table A5: Value of Exports to the United States, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	1,182,259	1,185,120	1,929,197	1,190,305	1,329,220	1,534,036	1,100,096	819,794	848,372
PEI	22,215	42,364	39,529	129,806	66,260	116,462	11,095	56,847	0
NS	653,204	452,160	1,201,715	1,058,576	359,522	334,172	150,557	52,908	100,723
NB	101,614	62,458	83,830	48,754	23,774	456,838	38,019	166,557	52,316
Qc	10,319	25,880	17,187	29,737	0	4,028	0	0	6,259
ON	22,074	42,712	40,161	8,207	9,774	50,593	171,347	13,031	3,805
BC	921,958	1,022,173	2,291,836	3,121,982	2,243,482	4,508,753	547,223	2,823,042	1,014,819

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A6: Value of Exports to Japan, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	492,369	445,688	202,330	0	0	0	3,554	392,217	79,631
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	130,267	0	36,168	39,468	0	227,469	23,559
NB	63,956	105,832	28,184	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	498,798	0
BC	917,907	338,304	294,643	277,946	1,042,210	61,914	421,191	788,455	1,634,176

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A7: Value of Exports to China, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	82,181	0	0	0	0	0	31,317	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	11,277	0	0	0	99,537	0
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	382,848	0	435,818	447,669	463,312	0	0	139,494	1,158,450

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A8: Value of Exports to Western Europe, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	128,211	590,141	64,085	0	120,776	198,914	197,331	20,680	795,732
PEI	85,572	74,627	0	0	0	92,956	0	0	0
NS	2,796,837	1,207,886	783,404	367,499	850,943	4,759,163	1,936,971	711,642	112,936
NB	598,820	55,556	92,659	0	0	77,409	310,269	384,553	130,229
Qc	0	0	0	0	0	0	0	0	0
ON	0	18,615	81,246	0	87,540	0	67,646	61,503	0
BC	0	0	23,486	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A9: Value of Exports to Eastern Europe, HERRING (EXCEPT LIVERS OR ROES) - FROZEN

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(EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	122,065	668,891	617,806	0	0	619,362	337,766	328,227	1,246,392
PEI	319,664	25,952	0	0	0	30,588	0	22,186	0
NS	85,753	64,901	308,342	296,078	23,975	612,348	403,042	62,996	852,173
NB	0	0	0	0	0	123,825	5,688	0	0
Qc	0	129,131	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	16,159	0
BC	0	0	0	71,119	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A10: Value of Exports to the Dominican Republic, HERRING (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	33,916	0	100,604	0	0	0	0	0	0
NB	0	164,174	44,891	34,238	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Smoked Herring – Including Fillets

Table A11: Value of Exports to All Destinations, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	56,606	72,433	0	133,892	90,834	168,756	47,139
PEI	0	62,607	35,947	0	0	0	0	0	0
NS	3,274,132	3,490,951	3,390,632	3,430,905	2,409,091	3,727,143	2,884,817	3,089,157	3,010,493
NB	13,335,301	17,583,344	15,526,267	17,415,129	14,502,511	17,171,604	21,800,724	14,429,978	15,285,595
Qc	1,590,817	1,238,095	1,185,001	375,322	369,226	160,467	861,656	804,934	1,063,207
ON	209,536	142,943	77,776	302,426	222,890	37,589	48,133	0	3,150
BC	0	36,260	0	0	8,418	25,376	10,969	0	10,997

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A12: Value of Exports to the United States, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	56,606	44,419	0	9,606	4,176	0	47,118
PEI	0	0	4,992	0	0	0	0	0	0
NS	1,482,283	1,802,427	1,763,645	1,638,074	1,335,510	1,387,531	1,347,153	1,178,101	1,093,895
NB	1,105,124	1,189,154	1,116,811	1,546,811	1,209,453	871,082	642,699	525,540	722,311
Qc	98,206	113,070	92,206	109,237	129,575	101,265	435,681	380,851	665,779
ON	2,451	125,004	77,776	5,260	57,310	9,914	0	0	3,150
BC	0	2,054	0	0	8,418	25,376	10,969	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A13: Value of Exports to Japan, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004

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NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	350,005	0	0	0
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A14: Value of Exports to Western Europe, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	35,333	21
PEI	0	62,607	0	0	0	0	0	0	0
NS	1,053,329	976,370	878,571	1,064,000	406,440	604,600	537,380	1,054,173	1,078,015
NB	146,504	959,327	1,505,941	1,404,007	1,297,041	833,658	2,647,955	2,283,968	1,426,101
Qc	0	0	0	49,581	77,285	54,004	239,138	130,524	16,012
ON	0	0	0	0	37,049	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A15: Value of Exports to Haiti, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	38,118	20,986	28,908	0	255,085	103,451	128,250	0	241,088
NB	2,245,370	1,482,695	802,573	921,813	206,271	571,420	432,423	640,196	910,199
Qc	144,187	39,420	0	0	0	0	0	0	0
ON	29,813	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A16: Value of Exports to the Dominican Republic, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	124,286	86,658	33,588	0
PEI	0	0	0	0	0	0	0	0	0
NS	226,345	386,019	352,284	298,427	183,913	712,120	480,634	701,924	500,381
NB	8,224,350	13,025,943	11,429,998	12,446,841	10,540,535	13,426,736	16,447,164	9,370,938	10,101,548
Qc	1,126,959	841,834	951,932	178,058	94,096	0	86,072	0	0
ON	32,971	0	0	227,015	47,494	0	0	0	0
BC	0	34,206	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A17: Value of Exports to Africa, SMOKED HERRING - INCLUDING FILLETS, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	28,014	0	0	0	0	0

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PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	118,110	23,721	20,681	0
NB	15,600	0	0	0	282,277	204,320	98,829	268,466	147,988
Qc	0	0	0	0	0	0	0	31,159	43,121
ON	0	0	0	0	0	0	47,687	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Herring, Salted or in Brine – Not Dried or Smoked

Table A18: Value of Exports to All Destinations, HERRING, SALTED OR IN BRINE - NOT DRIED OR SMOKED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	2,873,231	3,415,159	3,514,576	2,347,114	3,935,904	1,665,110	1,247,624	352,149	240,859
PEI	0	2,493	0	5,718	0	0	0	0	0
NS	130,202	125,831	42,388	65,684	84,770	41,365	52,282	83,035	128,078
NB	508,373	987,983	1,586,678	3,586,702	1,025,663	892,936	1,505,540	1,789,420	1,450,379
Qc	203,916	177,900	220,161	195,757	141,369	128,123	241,874	118,376	117,713
ON	22,094	206,424	592,481	209,819	71,617	193,840	62,779	83,410	247,332
BC	0	0	0	0	10,021	7,420	5,365	0	10,215

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A19: Value of Exports to the United States, HERRING, SALTED OR IN BRINE - NOT DRIED OR SMOKED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	2,873,231	3,415,159	3,514,576	2,347,114	3,935,904	1,665,110	1,247,624	352,149	240,859
PEI	0	2,493	0	5,718	0	0	0	0	0
NS	130,202	102,654	22,998	27,700	72,358	0	52,282	83,035	126,853
NB	19,753	30,474	1,119,974	2,318,463	849,765	891,996	1,504,661	1,789,013	1,410,925
Qc	53,372	107,016	164,811	149,217	92,682	128,123	241,874	118,376	117,713
ON	22,094	189,495	519,642	209,819	71,617	193,840	62,779	83,410	247,332
BC	0	0	0	0	10,021	7,420	5,365	0	10,215

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A20: Value of Exports to Western Europe, HERRING, SALTED OR IN BRINE - NOT DRIED OR SMOKED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	27,200	0	0	0
NB	76,463	0	113,371	142,301	35,200	0	0	0	0
Qc	0	0	0	24,540	0	0	0	0	0
ON	0	16,929	72,839	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A21: Value of Exports to the Dominican Republic, HERRING, SALTED OR IN BRINE - NOT DRIED OR SMOKED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0

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NS	0	0	19,390	0	0	13,432	0	0	0
NB	383,532	873,397	353,333	1,125,938	45,335	0	0	0	0
Qc	150,544	70,884	55,350	22,000	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Mackerel (Except Livers or Roes) – Fresh or Chilled (Excluding Fish Fillets)

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	43,805	4,278	4,150	0	0	43,719	847,879	104,495
PEI	181,533	285,259	280,628	229,085	256,424	282,362	446,979	360,066	312,416
NS	181,406	215,421	133,351	138,266	59,514	155,451	61,158	107,379	1,004,265
NB	7,697	70,528	93,542	136,518	116,834	114,608	72,671	119,822	0
Qc	445,957	238,652	796,756	609,347	434,331	372,562	155,668	82,319	153,586
ON	0	2,033	8,266	0	3,591	64,833	37,660	0	0
BC	0	0	0	0	0	0	0	3,911	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	43,805	4,278	4,150	0	0	43,719	103,786	104,495
PEI	181,533	285,259	280,628	229,085	256,424	282,362	446,979	360,066	312,416
NS	181,406	215,421	133,351	84,614	59,514	155,451	52,808	107,379	63,291
NB	7,697	70,528	93,542	136,518	116,834	114,608	72,671	16,421	0
Qc	445,957	238,652	796,756	453,936	434,331	372,562	60,322	82,319	135,239
ON	0	2,033	8,266	0	3,591	64,833	0	0	0
BC	0	0	0	0	0	0	0	3,911	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	65,191	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	202,485
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	300,898	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	574,009

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NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	95,346	0	18,347
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Mackerel (Except Livers or Roes) – Frozen (Excluding Fish Fillets)

Table A26: Value of Exports to All Destinations, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	2,927,050	1,177,240	272,786	1,177,336	351,568	2,082,705	12,807,606	17,321,827	32,303,133
PEI	162,560	1,017,208	184,991	60,768	81,353	585,141	384,578	1,803,804	941,260
NS	1,642,842	1,589,316	458,242	412,643	528,009	1,586,162	3,181,319	3,328,097	5,989,504
NB	86,914	11,370	44,031	43,806	71,237	193,788	126,428	200,833	540,657
Qc	28,393	22,361	9,163	77,112	17,892	222,286	41,897	347,685	208,611
ON	354,319	75,623	35,847	0	18,424	80,422	894,344	162,508	101,928
BC	37,884	77,895	60,059	65,944	7,874	200,825	37,595	78,430	117,748

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A27: Value of Exports to the United States, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	169,098	84,058	246,402	500,924	174,144	245,481	556,993	350,500	1,496,473
PEI	27,349	137,943	184,991	60,768	57,985	57,985	82,910	23,212	16,252
NS	351,442	127,847	245,790	359,372	440,789	176,364	239,248	18,407	196,454
NB	16,875	0	0	33,698	71,237	34,818	0	0	24,273
Qc	0	22,361	9,163	68,858	17,892	35,928	41,897	58,522	28,190
ON	45,632	42,018	35,847	0	18,424	80,422	172,490	102,104	101,928
BC	12,559	77,895	60,059	65,854	7,874	200,825	37,595	78,430	71,791

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A28: Value of Exports to Japan, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	2,705,989	1,091,582	0	191,451	0	108,719	3,152,820	2,234,775	5,706,848
PEI	129,538	293,298	0	0	0	175,658	223,200	745,045	377,418
NS	1,200,523	1,171,654	0	0	0	0	315,802	1,297,336	545,044
NB	70,039	0	0	10,108	0	0	64,100	156,645	125,777
Qc	0	0	0	0	0	0	0	108,976	92,009
ON	280,132	33,605	0	0	0	0	454,090	0	0
BC	25,325	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A29: Value of Exports to China, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	323,368	0	37,960	2,981,046	5,803,335	14,316,426
PEI	0	0	0	0	0	0	0	943,484	454,413
NS	0	0	0	0	0	0	360,015	647,049	1,564,817

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NB	0	0	0	0	0	0	0	21,788	341,155
Qc	0	0	0	0	0	158,854	0	29,921	32,934
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	90	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A30: Value of Exports to Western Europe, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	12,917	1,600	0	0	0	114,542	358,875	162,082	711,350
PEI	0	10,941	0	0	0	0	38,280	0	0
NS	42,997	154,427	0	0	0	0	155,337	39,429	456,114
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	8,254	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A31: Value of Exports to Eastern Europe, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	15,362	349,736	1,161,100	5,746,163	6,366,573
PEI	5,673	550,276	0	0	0	0	20,004	0	0
NS	0	0	14,239	0	0	813,066	1,115,462	513,887	2,150,229
NB	0	0	0	0	0	0	44,113	0	49,452
Qc	0	0	0	0	0	27,504	0	86,820	18,640
ON	0	0	0	0	0	0	240,524	27,591	0
BC	0	0	0	0	0	0	0	0	45,957

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A32: Value of Exports to Africa, MACKEREL (EXCEPT LIVERS OR ROES) - FROZEN (EXCL FISH FILLETS), Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	1,105,409	1,556,600	33,730	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	141,708	0	99,107	0
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	27,240	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Livers and Roes – Fresh or Chilled

Table A33: Value of Exports to All Destinations, LIVERS AND ROES - FRESH OR CHILLED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	120,088	0	105,917	41,127	0	0	0	555,172	1,333,034
PEI	122,486	4,887	0	0	0	0	0	0	0

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NS	352,965	39,409	2,249	157,847	30,256	7,609	3,479	0	233,956
NB	0	26,492	69,036	0	0	34,288	0	0	15,057
Qc	1,844	0	0	0	0	0	0	315,350	0
ON	25,024	153,314	37,712	36,749	86,308	0	34,514	47,378	46,278
BC	1,981,997	1,136,865	1,650,227	778,024	681,395	2,499,217	591,351	2,034,993	434,187

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A34: Value of Exports to the United States, LIVERS AND ROES - FRESH OR CHILLED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	120,088	0	105,917	41,127	0	0	0	555,172	0
PEI	122,486	4,887	0	0	0	0	0	0	0
NS	343,567	39,409	2,249	15,506	30,256	7,609	3,479	0	4,206
NB	0	26,492	69,036	0	0	0	0	0	15,057
Qc	1,844	0	0	0	0	0	0	0	0
ON	25,024	8,363	37,712	36,749	86,308	0	34,514	47,378	46,278
BC	541,207	613,547	1,427,482	609,513	212,031	354,345	453,408	807,724	303,540

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A35: Value of Exports to Japan, LIVERS AND ROES - FRESH OR CHILLED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	9,398	0	0	142,341	0	0	0	0	0
NB	0	0	0	0	0	34,288	0	0	0
Qc	0	0	0	0	0	0	0	315,350	0
ON	0	0	0	0	0	0	0	0	0
BC	1,440,790	509,960	156,099	38,703	469,364	2,144,872	102,400	1,227,269	92,953

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A36: Value of Exports to Western Europe, LIVERS AND ROES - FRESH OR CHILLED, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	1,333,034
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	229,750
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	144,951	0	0	0	0	0	0	0
BC	0	0	66,646	0	0	0	35,543	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Livers and Roes – Frozen

Table A37: Value of Exports to All Destinations, LIVERS AND ROES - FROZEN, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	283,044	1,244,740	945,169	1,845,327	1,990,919	722,354	201,200	2,923,257	3,190,549
PEI	747,103	602,603	1,610,145	818,588	678,598	970,879	723,171	0	581,168
NS	22,110,904	10,790,038	4,976,537	7,826,120	12,367,041	11,848,609	14,387,311	20,424,143	12,136,191
NB	13,596,788	6,306,831	7,586,942	8,849,039	10,032,806	16,345,762	9,256,059	13,466,546	6,111,637

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Qc	908,096	839,666	996,418	39,499	91,096	468,123	244,795	488,808	797,792
ON	156,021	416,292	236,163	203,796	186,820	261,799	2,883,179	1,088,413	173,886
BC	6,541,122	11,556,005	14,623,890	1,838,177	4,194,723	6,804,860	11,422,388	15,091,424	20,376,559

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A38: Value of Exports to the United States, LIVERS AND ROES - FROZEN, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	30,185	0	0	10,887	0	4,962	0	0	0
PEI	0	0	0	0	18,535	0	0	0	0
NS	2,061	0	32,592	19,817	0	374,263	1,217,166	1,309,547	2,631,180
NB	0	17,603	0	0	16,165	6,599	0	0	0
Qc	0	0	0	0	0	0	0	0	7,263
ON	86,988	22,764	39,690	17,243	0	80,767	129,529	79,356	12,119
BC	512,679	117,498	647,657	102,210	185,463	205,878	268,695	482,819	427,627

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A39: Value of Exports to Japan, LIVERS AND ROES - FROZEN, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	252,859	0	199,008	0	276,799	380,975	201,200	2,039,232	557,614
PEI	747,103	602,603	1,528,057	784,988	660,063	963,244	723,171	0	348,778
NS	22,103,193	10,706,519	4,824,645	7,645,289	11,997,086	10,954,585	12,917,772	18,097,610	7,583,581
NB	13,596,788	5,861,926	7,277,139	8,717,049	9,846,248	15,871,447	8,654,826	12,631,764	5,247,909
Qc	908,096	665,961	996,418	0	91,096	468,123	244,795	287,736	790,529
ON	0	131,048	0	0	0	0	2,721,266	243,849	0
BC	6,015,113	11,376,910	12,838,229	1,668,106	3,520,782	6,438,168	10,921,290	12,054,614	17,926,027

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A40: Value of Exports to China, LIVERS AND ROES - FROZEN, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	201,707	0
PEI	0	0	0	0	0	0	0	0	225,270
NS	0	0	0	0	0	0	0	581,222	1,577,686
NB	0	0	0	0	0	0	0	188,357	124,957
Qc	0	0	0	0	0	0	0	201,072	0
ON	69,033	0	0	0	0	0	0	0	0
BC	0	0	938,931	0	474,514	0	12,855	645,717	1,024,752

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A41: Value of Exports to Western Europe, LIVERS AND ROES - FROZEN, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	1,244,740	746,161	1,834,440	1,714,120	336,417	0	682,318	2,473,322
PEI	0	0	82,088	33,600	0	7,635	0	0	7,120
NS	5,650	83,519	119,300	127,100	25,506	262,792	3,519	120,856	162,779
NB	0	427,302	309,803	131,990	170,393	467,716	599,833	506,625	738,771
Qc	0	173,705	0	39,499	0	0	0	0	0
ON	0	262,480	196,473	186,553	186,820	181,032	32,384	765,208	160,843
BC	0	5,569	135,996	0	0	160,814	15,138	1,122,582	74,600

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Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Livers and Roes – Dried, Smoked, Salted or in Brine

Table A42: Value of Exports to All Destinations, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	9,346,511	8,220,661	6,592,079	8,042,908	5,204,226	6,020,931	797,034	4,727,246	7,873,396
PEI	0	0	0	0	0	0	0	0	0
NS	2,307,377	1,061,257	1,039,078	456,930	677,659	1,259,855	813,871	807,138	265,233
NB	2,222,592	527,977	146,128	324,546	81,333	0	56,095	0	1,461,190
Qc	92,630	281,056	0	0	193,788	788,595	49,871	2,555	198,229
ON	296,749	544,753	842,182	660,516	55,760	230,742	1,395,148	708,913	476,890
BC	197,615,569	100,388,034	90,377,486	92,790,109	126,632,854	99,913,713	96,720,175	84,160,788	84,377,161

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A43: Value of Exports to the United States, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	4,916	227,419	124,452	81,348	111,945	169,111	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	4,595	18,087	0	0	0	136,778	0	0	0
NB	63,717	151,349	146,128	154,098	38,580	0	0	0	0
Qc	2,630	0	0	0	0	0	0	0	198,229
ON	0	0	0	0	3,329	30,331	0	0	0
BC	598,304	319,026	178,107	2,087,748	800,031	347,891	876,560	392,876	851,215

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A44: Value of Exports to Japan, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	240,074	190,374	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	2,056,640	687,870	1,039,078	260,640	677,659	1,094,452	813,871	807,138	205,993
NB	1,945,177	0	0	0	0	0	0	0	1,461,190
Qc	90,000	281,056	0	0	193,788	788,595	0	0	0
ON	0	544,753	538,700	367,500	0	0	70,605	350	0
BC	186,591,847	94,416,421	80,141,184	81,062,943	110,727,829	88,694,360	86,155,080	68,751,787	66,130,851

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A45: Value of Exports to China, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$

	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	0	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	0	0	0	0	0	0	0	0	0
BC	10,106,233	5,548,860	9,701,479	9,380,123	13,591,149	10,500,344	8,948,993	11,105,018	15,743,087

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

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Table A46: Value of Exports to Western Europe, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	9,211,884	7,993,242	6,467,627	7,721,486	4,901,907	5,851,820	797,034	4,727,246	7,873,396
PEI	0	0	0	0	0	0	0	0	0
NS	246,142	355,300	0	196,290	0	0	0	0	56,415
NB	0	376,628	0	170,448	0	0	56,095	0	0
Qc	0	0	0	0	0	0	0	0	0
ON	296,749	0	303,482	293,016	52,431	200,411	1,324,473	708,426	473,030
BC	311,925	29,553	272,706	0	34,167	40,202	89,527	93,501	280,960

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Table A47: Value of Exports to the Dominican Republic, LIVERS AND ROES - DRIED, SMOKED, SALTED OR IN BRINE, Selected Provinces, 1996-2004, \$									
	1996	1997	1998	1999	2000	2001	2002	2003	2004
NL	129,711	0	0	0	0	0	0	0	0
PEI	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0
NB	213,698	0	0	0	42,753	0	0	0	0
Qc	0	0	0	0	0	0	49,871	0	0
ON	0	0	0	0	0	0	0	0	0
BC	0	0	0	0	0	0	0	0	0

Source: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

APPENDIX B: OTHER SELECTED STATISTICS

Table B1: World production of herring, by product form and major producing countries, in 1 000 MT									
	1991	1992	1993	1994	1995	1996	1997	1998	1999
Fillets, fresh/frozen									
Denmark	58.6	55.6	48.7	48.2	48.3	32.2	35.5	39.6	42.1
Finland	8.5	8.7	11.5	11.6	9.2	9.2	9.5	9.5	6.0
Ireland	16.7	19.0	14.0	10.0	7.9	7.8	7.4	9.4	4.2
Norway	20.6	29.7	50.2	81.6	91.6	105.9	93.9	106.7	120.7
Iceland	6.6	6.1	8.0	11.0	11.7	17.0	7.3	4.5	3.8
Others	15.2	16.8	23.8	19.1	18.3	5.0	5.3	1.7	1.7
<i>Total</i>	126.2	135.9	156.2	181.5	187.0	177.1	158.9	171.4	178.5
Frozen									
Netherlands	34.5	34.5	53.0	27.7	82.5	48.1	59.9	30.0	52.9
Norway	34.0	30.5	71.4	103.4	205.2	372.4	413.8	249.9	277.9
Germany	34.5	32.5	31.6	31.9	40.3	31.6	26.0	35.7	42.9
Canada	13.3	20.3	15.3	16.5	13.8	10.0	10.0	12.0	10.0
Ex USSR	18.8	0.0	0.0	3.6	15.5	18.6	19.9	29.0	7.1
Denmark	8.5	10.5	8.7	8.2	7.4	7.2	6.6	11.8	7.8
USA	36.1	47.0	32.8	33.7	32.1	23.0	35.6	21.2	19.6
France	5.3	8.5	7.9	19.4	23.2	20.1	16.1	17.0	11.6
Others	37.5	42.9	41.8	44.6	51.3	67.8	83.4	34.4	50.5
<i>Total</i>	209.9	209.9	209.9	289.0	471.3	598.8	671.3	441.0	480.3
Cured									
Japan	17.6	16.3	15.9	20.4	15.1	16.8	13.2	13.0	12.2
Canada	18.1	19.4	18.9	18.4	18.0	14.7	15.8	16.3	15.1
Iceland	10.3	6.4	10.2	13.9	11.4	12.2	7.4	7.1	6.6
Poland	14.5	17.9	18.5	19.0	28.7	26.8	22.3	19.9	20.0
UK	6.4	6.0	6.0	5.7	6.0	7.8	7.4	7.7	6.4
Norway	12.0	7.9	9.2	17.6	23.6	18.5	17.4	13.4	14.4
Netherlands	20.8	16.1	18.8	17.7	13.1	14.9	15.7	15.3	17.9
Ex USSR	31.0	49.2	48.9	50.2	29.4	18.9	17.6	6.8	5.8
Others	33.0	27.8	29.1	23.4	26.3	44.3	40.9	24.9	24.5
<i>Total</i>	163.7	167.0	175.5	186.3	171.6	174.9	157.7	124.4	122.9
Prepared, preserved									
Poland	15.6	26.7	29.0	31.5	45.0	42.6	60.6	67.8	41.8
Denmark	34.6	35.7	36.1	39.7	36.4	22.9	26.2	25.4	27.8
Sweden	18.4	19.9	36.2	19.7	10.8	32.1	38.7	36.0	37.3
Netherlands	11.0	15.0	15.0	17.0	17.0	16.0	16.0	16.5	15.5
Germany	149.5	143.8	137.2	128.4	130.4	86.5	69.9	66.6	66.2
Canada	13.6	13.1	13.5	12.6	12.0	9.0	8.0	8.5	9.0
Ex USSR	315.7	161.5	99.2	71.9	40.5	51.2	46.2	30.9	8.0
Others	16.2	17.8	20.9	12.3	17.6	15.8	14.7	12.1	20.6
<i>Total</i>	574.6	433.5	387.1	333.1	309.7	276.1	280.3	263.8	226.2

Source: Globefish, 2001, p.27.

Table B2: World exports of herring, by major exporting countries, in US\$ million									
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Long Term Vision for the Herring and Mackerel Fisheries in the southern Gulf of St. Lawrence: Socio-economic aspects of the herring and mackerel fisheries

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Norway	53.9	40.3	54.4	67.0	124.2	229.9	248.4	153.8	142.2
Netherlands	75.6	75.7	58.2	72.5	91.2	59.1	65.0	51.6	69.9
Denmark	65.0	64.6	60.9	63.4	64.4	71.6	65.0	67.2	65.1
Germany	57.9	52.7	51.4	52.9	56.6	58.0	55.1	52.4	50.2
Sweden	28.9	31.8	22.1	25.6	36.6	74.9	58.7	51.6	48.8
Poland	-	-	-	36.9	38.7	39.4	43.0	44.8	40.2
USA	63.8	72.5	49.8	55.7	71.3	55.2	48.9	31.4	32.9
UK	25.7	28.3	27.0	16.6	16.1	29.1	22.8	29.2	31.1
Canada	21.2	22.9	21.2	16.7	13.8	16.9	16.2	21.3	21.3
Ireland	6.3	6.7	7.2	7.9	10.4	16.3	10.4	11.8	9.1
Korea Rep.	1.5	2.9	1.3	1.8	1.5	2.1	4.1	2.5	6.0
Lithuania	-	-	-	2.4	7.1	11.4	13.0	16.4	5.7
France	5.4	6.8	3.5	7.1	9.0	8.8	6.9	6.5	4.6
Estonia	-	-	-	-	-	-	-	11.5	4.0
Faeroe Isl.	2.3	2.1	0.9	0.7	2.7	7.7	3.7	1.7	3.8
Belarus	-	-	-	-	-	-	-	5.4	3.7
Finland	0.4	0.4	0.8	2.5	2.5	3.7	5.4	4.2	3.4
Latvia	-	-	-	7.4	9.7	12.6	7.2	5.3	2.3
Croatia	-	1.0	1.9	1.9	2.8	4.9	3.3	3.5	1.9
Iceland	5.3	4.6	4.2	3.3	4.0	9.8	13.2	4.7	1.6
Japan	0.2	0.3	0.3	0.4	0.2	0.2	0.7	0.8	1.5
Thailand	1.0	0.7	1.5	1.7	0.8	0.9	1.0	1.0	1.4
Austria	0.3	1.7	1.6	1.7	2.7	2.4	1.6	1.4	1.2
Portugal	0.0	0.0	0.0	-	0.0	0.0	-	-	0.5
Belgium	1.1	1.0	1.4	1.2	1.7	1.6	0.7	0.5	0.5
Others	0.4	1.7	1.3	1.3	3.1	2.8	2.3	2.2	2.3
TOTAL	416.2	418.9	370.7	448.5	571.4	719.5	696.6	582.8	555.4

Source: Globefish, 2001, p.23.

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Russian Fed	-	-	-	22.9	61.9	79.6	88.6	43.3	40.3
Denmark	32.1	32.3	22.9	32.4	37.5	46.2	41.4	47.2	38.7
Nigeria	0.0	0.0	25.3	17.3	37.2	30.3	35.2	39.5	41.7
Japan	127.0	117.5	93.6	96.3	129.1	121.5	80.7	60.2	78.8
Lithuania	-	-	-	4.4	7.7	15.1	16.7	15.4	5.5
Poland	0.0	0.0	0.0	9.7	14.7	21.0	23.9	20.5	20.0
Netherlands	29.9	30.2	25.9	30.8	25.0	25.3	22.2	26.9	32.7
Germany	21.5	20.6	15.3	20.4	17.8	23.6	17.1	14.0	13.1
Ukraine	-	-	-	0.0	8.4	11.4	NA	3.8	-
China	0.0	4.1	1.3	1.5	6.6	9.6	6.1	3.4	2.5
Canada	2.9	5.6	2.5	3.0	5.2	13.4	9.6	2.4	4.3
Others	32.1	32.1	25.2	39.1	35.8	47.7	73.6	92.7	84.9
TOTAL	245.5	242.4	212.0	277.8	386.9	444.7	415.1	369.3	362.5

Source: Globefish, 2001, p.20.

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	1991	1992	1993	1994	1995	1996	1997	1998	1999
Canada	10.9	11.4	9.5	10.6	8.6	8.9	9.5	8.3	4.7
Ireland	2.1	2.9	2.6	2.6	2.5	2.4	1.2	1.5	0.0
Netherlands	1.6	1.7	1.0	1.6	1.6	1.5	1.4	0.7	0.7
USA	1.0	2.0	1.6	1.2	1.1	1.3	1.4	0.6	0.5
Korea Rep	0.5	0.3	0.1	-	0.1	0.1	0.0	0.0	0.0
Poland	0.4	0.1	0.1	0.0	0.1	0.2	0.3	0.0	0.0
Ex USSR	0.2	0.4	0.3	0.1	0.1	0.1	0.3	0.3	0.2
Denmark	0.4	0.3	0.3	0.3	0.4	0.2	0.1	0.0	0.0
Korea Dem	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0
Others	0.3	0.6	0.7	0.7	1.7	3.2	3.3	3.7	3.0
TOTAL	17.8	19.8	16.4	17.1	16.2	17.9	17.5	15.2	9.1

Source: Globefish, 2001, p.20.

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Table B5: World production of mackerel, by product form and major producing countries, in 1 000 MT									
	1991	1992	1993	1994	1995	1996	1997	1998	1999
Fillets, frozen									
Ireland	11.4	9.0	10.1	12.2	12.5	19.7	14.1	10.9	6.6
Germany	2.5	3.3	5.0	2.8	3.1	1.5	2.1	0.4	-
Denmark	2.7	1.2	3.7	2.6	1.6	1.0	0.9	0.9	1.2
Ex USSR	7.9	8.0	7.0	NA	NA	NA	7.0	8.9	3.7
New Zealand	4.6	5.3	4.9	4.5	5.2	4.8	5.3	3.4	3.4
Others	5.8	5.3	4.9	4.5	5.2	4.8	5.3	3.4	3.5
Total	30.3	26.8	30.7	22.1	22.4	27.0	29.4	24.5	15.0
Frozen, whole									
Norway	172.5	230.3	245.2	339.2	298.0	239.3	223.1	245.7	294.6
Japan	149.4	171.5	382.4	343.6	322.5	504.8	601.5	415.1	273.8
Korea Rep.	36.5	58.9	80.7	99.6	110.0	253.9	93.2	98.4	95.1
Russian Fed.	-	-	-	-	-	-	65.4	97.3	69.4
Thailand	61.3	55.6	67.0	68.2	69.0	58.0	55.3	58.1	65.2
Ireland	48.3	47.7	63.3	149.1	123.7	111.0	77.8	59.6	52.6
UK	41.9	87.9	70.1	61.3	61.2	40.1	42.2	53.5	50.6
Netherlands	31.0	77.8	80.0	40.0	24.0	24.3	24.7	21.1	47.3
Taiwan PC	7.3	6.7	8.7	25.4	30.1	17.8	14.4	18.9	24.5
Germany	10.3	13.4	10.3	7.0	9.1	6.7	4.8	4.5	18.5
USA	12.5	14.1	21.7	19.0	32.6	51.4	29.0	16.3	11.0
Denmark	4.9	2.7	4.3	5.7	4.5	6.6	12.2	8.4	10.6
Others	46.2	16.4	18.1	21.0	35.9	36.2	46.0	36.2	31.4
Total	622.2	782.5	1051.8	1179.2	1120.7	1350.0	1289.6	1133.1	1044.6
Salted, in brine									
Japan	86 070	91 977	94 590	93 653	97 875	95 455	80 301	79 423	83 002
Peru	1 432	50	4 581	5 551	5 624	4 098	3 576	3 593	4 312
Cambodia	-	-	-	90	98	95	53	96	115
Chile	-	-	3	-	-	-	-	-	-
Greece	254	207	-	-	421	300	-	-	-
Korea Rep.	15	1	12	60	88	17	119	33	1
South Africa	400	400	400	300	300	300	-	-	-
Taiwan PC	704	704	691	684	2	2	2	-	-
Total	88 875	93 339	100 277	100 338	104 408	100 267	84 054	83 145	87 429
Smoked									
UK	3.4	3.9	4.2	3.9	3.5	3.8	3.5	3.4	3.7
Russian Fed.	-	-	-	-	-	-	7.0	2.1	1.2
Netherlands	2.3	2.2	1.7	1.5	1.2	1.5	1.3	1.1	1.1
Greece	-	-	-	-	0.4	0.3	0.3	0.4	0.4
New Zealand	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Ireland	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	0.8	0.8	0.5	0.4	0.4	0.4	-	-	-
Poland	-	-	-	-	15.0	-	15.9	-	-
Taiwan PC	0.2	0.0	0.0	-	-	-	-	-	-
Un. Sov. Soc. Rep.	23.0	-	-	-	-	-	-	-	-
Total									
canned									
Japan	28.9	26.3	31.0	31.3	24.9	20.7	27.3	30.4	26.7
France	19.8	17.4	18.9	19.9	19.3	22.5	20.7	19.1	19.2
Denmark	20.0	19.5	18.9	20.1	20.4	14.8	14.6	12.8	15.5
Taiwan PC	2.7	9.7	36.1	21.2	8.7	8.6	16.5	3.3	4.4
Spain	11.2	10.1	10.3	21.0	28.8	11.0	11.3	11.0	7.6
Argentina	3.5	2.5	3.5	4.5	5.0	4.0	4.0	4.0	3.5
Morocco	3.9	3.4	3.1	4.1	7.1	6.0	5.2	4.5	3.5
Portugal	6.2	5.1	4.3	3.3	3.2	3.6	4.3	3.6	4.0
Peru	0.6	0.3	0.6	0.8	0.5	0.2	6.9	4.0	9.2
Brazil	4.2	4.1	4.1	4.0	4.1	4.0	4.0	3.8	4.0
Norway	4.9	7.6	6.4	6.2	8.1	6.2	3.8	3.6	3.0
Ex USSR	23.6	0.0	0.3	0.5	0.8	1.8	5.1	4.9	2.6
Thailand	18.7	15.0	20.3	19.5	21.0	13.9	14.5	17.2	16.0
Others	11.5	12.7	17.9	13.2	13.3	15.9	17.2	16.1	16.5
Total	159.7	133.7	175.7	169.6	165.2	133.2	155.4	138.3	135.7

Source: Globefish, 2001, p.46,47.

Table B6: World exports of fresh and frozen mackerel, by major exporting countries, in US\$ million

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	1991	1992	1993	1994	1995	1996	1997	1998	1999
Norway	183.2	142.4	157.0	174.9	204.2	270.8	294.3	260.2	239.4
UK	82.7	82.3	64.7	76.1	77.1	110.1	112.9	162.4	92.0
Ireland	41.4	40.5	44.8	57.1	82.7	90.1	70.2	74.9	46.4
USA	13.8	15.0	22.9	20.1	36.6	56.7	35.2	14.1	8.3
Korea Rep.	34.9	26.7	25.2	32.9	36.3	37.8	19.1	24.6	39.4
Netherlands	53.3	58.6	54.2	50.4	39.2	35.1	40.3	43.9	47.4
Faeroe Is.	5.8	3.0	3.8	3.2	14.9	18.5	16.2	9.0	4.6
Taiwan PC	5.2	5.9	8.0	16.0	19.4	15.8	9.7	8.7	15.2
Denmark	16.5	11.0	16.4	19.3	22.2	15.2	27.6	17.6	19.7
Japan	5.1	9.0	17.7	12.9	6.1	13.9	27.0	12.2	3.3
Germany	10.8	14.2	9.2	9.2	14.7	13.7	11.4	13.5	8.9
Spain	1.3	0.9	3.5	4.3	4.2	11.2	7.2	6.3	4.6
Uruguay	-	-	0.0	0.0	0.0	0.0	9.0	11.6	8.3
France	7.3	4.5	4.7	7.0	5.9	7.8	9.6	11.2	8.5
Lithuania	-	-	-	3.4	8.2	10.5	7.2	6.8	1.5
Estonia	-	-	0.7	3.9	1.0	0.7	2.2	6.3	2.7
Sweden	0.1	0.2	1.7	3.4	5.6	9.7	7.4	5.1	4.0
Mexico	-	-	-	0.0	0.1	0.2	0.8	4.3	2.4
India	0.3	1.3	2.0	1.0	2.0	7.1	3.1	2.8	10.4
China	-	0.3	0.8	1.3	2.9	2.8	4.4	2.9	2.8
Singapore	-	-	-	-	8.5	7.8	5.5	2.2	3.1
New Zealand	3.5	4.4	2.4	1.1	1.6	2.1	1.9	1.7	2.2
South Africa	0.2	0.3	0.3	0.3	0.6	0.7	0.3	1.5	1.8
Others	11.0	10.2	9.0	14.8	17.7	17.0	19.4	14.6	30.1
TOTAL	476.4	430.7	449.0	512.6	611.7	755.3	741.9	718.4	607.0

Source: Globefish, 2001, p.44.

Long Term Vision for the Herring and Mackerel Fisheries in the southern Gulf of St. Lawrence: Socio-economic aspects of the herring and mackerel fisheries

Table B7: World imports of fresh and frozen mackerel, by major importing countries, in US\$ million									
	1991	1992	1993	1994	1995	1996	1997	1998	1999
Japan	234.1	137.6	182.2	158.7	168.2	153.9	280.2	187.6	200.2
Nigeria	23.4	36.3	41.1	54.7	18.5	18.9	69.0	63.9	63.8
Norway	23.9	16.6	13.9	18.3	34.2	70.1	52.7	106.3	59.6
Egypt	5.9	2.4	6.0	23.2	33.3	45.2	9.7	24.9	30.8
Poland	-	24.5	17.7	20.3	27.1	34.6	37.3	37.5	29.0
Philippines	4.5	8.7	17.3	19.3	20.1	35.1	26.5	15.1	23.1
Russian Fed.	-	1.2	1.7	51.6	68.5	66.2	54.2	38.8	22.0
Netherlands	24.2	30.4	19.9	24.0	20.1	15.5	21.4	15.6	19.8
Korea Rep.	6.7	12.7	8.4	12.6	4.7	7.0	12.1	4.7	17.3
Malaysia	2.4	3.4	4.8	5.3	10.9	17.9	19.7	10.5	17.0
France	17.5	15.8	14.1	14.3	19.3	28.3	20.1	20.6	14.4
USA	5.0	4.7	7.8	10.4	13.3	15.8	13.0	10.6	11.5
Germany	11.5	12.1	6.6	8.0	11.3	10.4	9.2	8.8	11.4
Thailand	7.7	7.8	10.8	15.5	23.7	26.3	20.9	11.3	11.0
Côte d'Ivoire	10.0	11.0	11.5	9.0	9.3	8.0	10.0	9.4	9.6
Singapore	-	-	-	-	12.4	12.2	8.1	4.5	8.9
Turkey	6.2	10.0	6.0	4.2	3.3	3.4	2.3	3.9	8.8
Romania	-	0.0	0.5	5.1	0.1	5.9	7.0	14.8	8.3
Lithuania	-	-	-	4.0	7.0	14.2	10.5	10.8	7.8
Spain	8.1	8.3	5.8	6.1	6.5	7.6	5.8	6.9	6.9
Italy	7.1	5.1	6.4	5.5	6.0	6.9	5.9	6.0	6.3
Denmark	12.2	8.2	9.3	9.5	12.2	13.3	14.7	14.7	6.1
Bulgaria	-	1.6	0.0	0.1	0.0	-	5.7	8.3	5.9
Ghana	-	-	-	-	4.5	2.8	0.6	0.1	5.7
China	-	0.9	1.5	7.3	12.1	6.7	15.7	5.0	5.3
Hong Kong	-	5.7	4.4	4.2	2.6	4.7	6.2	4.8	5.0
Latvia	-	-	0.2	2.9	6.1	7.4	8.9	8.8	4.3
Papua NG	-	-	-	-	2.3	12.7	8.0	8.3	3.8
UK	8.3	5.8	2.0	3.9	3.9	1.3	1.3	4.5	3.6
Brazil	2.4	3.6	5.9	9.7	9.4	7.5	7.0	5.0	3.6
Israel	4.3	4.2	3.4	3.1	3.9	4.5	4.7	3.7	3.4
Czech Rep.	-	-	3.0	3.8	5.5	5.9	5.1	4.3	3.3
Belarus	-	-	-	-	-	-	-	8.4	3.3
Morocco	-	-	0.1	0.2	-	0.6	3.6	4.8	3.1
Zimbabwe	0.0	0.0	3.7	6.1	5.2	4.6	6.1	1.7	3.1
Estonia	-	-	-	1.3	1.8	1.5	3.7	7.5	2.8
Canada	1.7	2.2	1.8	2.3	3.0	3.8	3.0	3.1	2.4
Indonesia	0.6	0.9	2.4	2.3	1.9	1.7	1.5	0.3	2.3
Portugal	3.5	2.6	2.0	2.9	2.7	3.7	4.8	4.2	2.3
Fiji Islands	2.8	2.5	2.2	4.1	7.5	2.5	3.0	2.0	2.0
Jamaica	2.6	3.1	3.3	-	-	6.2	3.2	2.8	2.0
Mozambique	-	-	-	-	0.3	0.1	0.0	1.4	1.8
Slovenia	-	0.8	1.1	1.3	1.1	1.7	1.4	1.5	1.6
Greece	2.3	4.1	2.6	2.2	2.3	1.7	2.1	2.5	1.6
Sweden	1.7	1.7	1.4	1.6	1.4	1.5	1.3	1.6	1.5
Yugoslavia Fed. Rep.	-	-	-	-	0.2	0.8	1.1	1.3	1.3
Others	22.5	25.3	14.8	18.4	20.8	16.9	25.8	16.9	10.8
TOTAL	463.0	421.6	447.7	557.4	628.5	717.4	834.0	739.9	679.6

Source: Globefish, 2001, p.33.

APPENDIX C: TERMS OF REFERENCE

LONG TERM VISION FOR THE HERRING AND MACKEREL FISHERIES IN THE SOUTHERN GULF OF ST. LAWRENCE

A. INTRODUCTION

Following a consultation with the herring and mackerel fisheries stakeholders at the Gulf Small Pelagics Advisory committee meeting of December 1-2, 2004, DFO has decided to hire consultants to assist DFO and industry in developing a long-term vision for the Southern Gulf herring and mackerel fisheries including the validation/identification of; Fishery objectives important to both industry and DFO; Key threats and challenges impacting on the objectives; Performance indicators to determine progression in relation to objectives and the Potential strategies to attain the objectives.

The purpose of this initiative is to establish an independent process that will enable the stakeholders to define their goals and objectives in relation to the southern Gulf of St. Lawrence herring and mackerel fisheries.

The establishment of objectives is considered an essential element in helping resolve issues surrounding these fisheries as well as establishing a more cohesive direction for the industry to ensure sustainable use of these resources as well as to respond to market trends.

B. BACKGROUND

The annual meeting of the Department of Fisheries and Oceans' (DFO) Gulf Small Pelagics Advisory Committee is the usual forum for discussions of herring and mackerel issues in the southern Gulf of St. Lawrence. Its main purpose is:

- a) To obtain input and seek consensus on elements for the preparation and approval of a new multi-year herring management plan for the southern Gulf of St. Lawrence (4T stock) and;
- b) To solicit the opinions of industry on past regional management practices and on proposed management measures for the 2005 Gulf mackerel fishery as a component of the existing Atlantic Mackerel Management Plan.

For more detailed background information and ongoing issues for the southern Gulf herring and mackerel fisheries, please refer to Annex I.

C. OBJECTIVES

1. To develop with stakeholders a vision for the future of the Southern Gulf Herring and Mackerel fisheries with a special focus on sustainability of the resources and the viability of the industry by concentrating on the value of the fishery and not the volume of the harvest.
2. To develop a more stable and long term approach to fisheries management by incorporating elements which reflect:
 - a) the precautionary approach,
 - b) the concept of Objectives Based Fisheries Management (OBFM), and
 - c) relevant ecosystem considerations.
3. To engage the fishing industry and provinces by encouraging the parties to precisely define their ideas, concerns and issues as well as their recommendations in support of the aforementioned objectives.
4. To identify areas of consensus between the parties and to offer options that could be considered for resolving differences.

D. SCOPE

1. The consultant(s) will focus his/their activities on consulting with DFO, stakeholders and provinces to assist DFO and industry in developing a long-term vision for the Southern Gulf herring and mackerel fisheries consistent with the Precautionary Approach (PA), the concept of Objectives Based Fisheries Management (OBFM), and any relevant ecosystem considerations.
2. With respect to the southern Gulf herring fishery, the long-term vision will apply to fleets in Québec, New Brunswick, Prince Edward Island, Gulf Nova Scotia and Newfoundland with access to the southern Gulf. The assigned work is to be consistent with access/quota sharing arrangements already in place between the two Gulf large seiner fleet sectors, and with an anticipated forthcoming decision on sharing arrangements within the inshore herring fleet sectors. The long-term vision will be applicable to fleets in their authorized fishing areas (Herring: Inshore-HFA 16A-G, Large seiners-Area 13, 14, 15, 16 and 17); Mackerel: Inshore-Area 16, Large seiners-Area 12, 13, 14, 15 and 16).
3. The consultant's approach to mackerel is to move forward within the scope of the current Atlantic Mackerel Management Plan. The long-term vision for mackerel is intended to be a separate document to guide the industry in the southern Gulf. The long-term vision is not intended to be incorporated into the current Atlantic Mackerel Management Plan.

This long-term vision could, however, serve as a benchmark for any future work involving the whole mackerel industry should a decision be taken to consider broader issues.

4. Consultations with DFO, stakeholders and the provinces will include validation and identification of objectives important to industry and DFO, key threats and challenges impacting on the objectives, performance indicators to measure progress in relation to objectives, and potential strategies to attain the objectives.
5. The consultant(s) will not undertake new scientific, socio-economical or fishery related research, but will instead rely on existing research and reports.
6. The vision should be consistent with principles such as establishing more transparent rules-based decision-making, multi-year plans focused on conservation and risk management, and stable long-term sharing arrangements. Under this framework, options and recommendations regarding fleet viability and healthy fish resources must be well thought out.
7. As fish quality would benefit all in the industry, close attention should be given to the two-year pilot project undertaken by the Centre de Recherche et de Développement des Produits Marins in Shippagan. Allister Surette, in his report, pointed out that attention should be given to this project for two reasons; one, the results of the research and development project regarding fish quality and optimum use of the herring, and two, the process being used to involve various parties of this industry (Round Table and Sectorial Table) and whether this structure could be used by the industry to discuss other matters of interest.

Precautionary Approach (PA)

1. The PA is a concept which requires that:
 - Stock conservation, environmental and ecosystem considerations, as well as the socio-economic performance of the fishery be given due consideration in managing the fishery;
 - Unacceptable outcomes, such as stock collapse, be identified;
 - Strategies to achieve objectives while avoiding unacceptable outcomes be duly considered at an early stage;
 - Uncertainties be taken into account and mitigated; and
 - Greater caution be exercised when knowledge is less complete or less reliable.

Objectives Based Fisheries Management (OBFM)

1. The role of Resource Management is to implement, in partnership with industry, plans, policies and programs to protect the stocks in order to assure future abundance and provide for the fair allocation and distribution of harvestable surpluses among those dependent on the resource.
2. The OBFM is a concept that has been developed to guide the development of new Integrated Fisheries Management Plans for a fishery. This concept will be introduced gradually in all fisheries of the southern Gulf of St. Lawrence.
3. The OBFM attempts to:
 - a) Improve conservation, ecosystem and fisheries management with explicit measurable goal;
 - b) Clarify the roles of Stakeholders, Science and Fisheries Management;
 - c) Measure the management of a fishery through performances objectives;
 - d) Assess or manage all risks associated with achieving the objectives; and
 - e) Fully consider the Precautionary Approach and ecosystem management in the development of fisheries management plans

E. METHODOLOGY / APPROACH

1. The work in support of the long-term vision will involve three distinct elements that will be dealt with simultaneously by different consultants.
2. Element 1 will deal with the scientific aspects of the herring and mackerel fisheries including conservation and ecosystem objectives with a special focus on, but not limited to, improving the fisheries by conducting a critical review of the current research programs and providing recommendations to DFO in regards to the orientation of future research activities. The scientific portion of the long- term vision will focus primarily on conservation and achieving sustainable use of the resource, on developing a more stable and long term approach to fisheries management through shared stewardship with industry, and in setting measurable objectives and identifying strategies towards protecting the stocks and provide recommendation aimed at improving management of the fishery.
3. Element 2 will examine the socio-economic aspects of the herring and mackerel fisheries including Fisheries Management objectives with a special focus on, but not limited to, improving the quality and value of the products, market diversity, and catches by all fleet sectors for areas where their licences are valid. The socio-economical portion of the long-term vision will focus primarily on developing a more stable and long term approach to fisheries management through shared stewardship with industry in setting measurable objectives and identifying strategies towards improving quality, markets diversity, establishing socio-economic goals (such as increasing the overall value of these fisheries) and provide recommendation aimed at improving management of the fishery,

4. Element 3 will examine ways and means to achieve a sustainable fisheries, identify potential risks to fisheries sustainability, address current issues regarding gear technology, gear selectivity and fish quality, design a road map for promoting shared stewardship between industry and government and provide recommendation aimed at improving fisheries management.
5. The consultants will be required to meet with representatives of the following primary parties (considered as “core”) in carrying out their duties:

Fishers’ Associations

Maritimes Fishermen’s Union,

Prince Edward Island Fishermen’s Association (PEIFA),

Association des pêcheurs propriétaires des Îles-de-la-Madeleine (APPIM),

Regroupement des pêcheurs professionnels du sud de la Gaspésie (RPPSG),

Regroupement des pêcheurs professionnels du nord de la Gaspésie (RPPNG),

Gulf Nova Scotia Herring Federation (GNSHF)

Gulf Nova Scotia Fishermen’s Association (GNSFA)

Gulf Nova Scotia Bonafide Fishermen’s Association (GNSBFA)

Fédération régionale acadienne des pêcheurs professionnels (FRAPP)

Association des senneurs du Golfe (ASG)

Newfoundland large seiners representatives

First Nations

Provincial Governments

NS Department of Agriculture, Fisheries and Aquaculture (NSDAFA)

Ministère de l’Agriculture, des Pêcheries et de l’Alimentation du Québec (MAPAQ),

Newfoundland Department of Fisheries

NB Department of Agriculture, Fisheries and Aquaculture (NBDAFA), and

PEI Department of Fisheries, Aquaculture and Forestry (PEIDFAF)

Seafood Processors

Representatives groups of seafood processors in each of the provinces of Newfoundland, New Brunswick, Nova Scotia and Prince Edward Island

Association Québécoise de l'Industrie de la Pêche (AQIP)

Non-Gouvernemental Organisation

Centre de Recherche et de Développement des produits marins (CRDPM)

6. The consultants may consult other interests which they feel may contribute to a proper understanding of the issues and conduct of the required work.
7. The consultants will carry out interviews, obtain and examine relevant documents and information to identify and describe the views of the representatives.
8. The consultants will organize meetings with the primary parties either individually, collectively or both at their discretion and likewise, with DFO staff.
9. The consultants will have access, as required and subject to Access to Information and Privacy Acts, to DFO documentation and DFO personnel when seeking information on the southern Gulf of St. Lawrence herring and mackerel fisheries.
10. The Department's Gulf Region will provide assistance for the work, including coordination for the production of report, assigning experienced technical staff to undertake documentary research which may be required by the consultants as well as to respond to requests for information.
11. The consultants will prepare and submit a report to the Minister of Fisheries and Oceans on the long-term vision for the herring and mackerel fisheries of the southern Gulf of St. Lawrence.
12. The above written report to the Minister will also be provided to the primary parties, in both official languages.
13. The consultants may speak to the media on the process being used to scope out the long-term vision in the herring and mackerel fisheries.

F. TIMEFRAME

1. The consultants' activities will commence on February 17, 2005, and conclude by April 30, 2005. A preliminary report to the Minister must be completed by March 31, 2005, with a final report submitted no later than April 30, 2005.

G. CONSIDERATIONS

1. The need to clearly articulate the perspectives of all parties.
2. Obtaining the most readily available published information related to ideas, issues and concerns raised by all parties.
3. The need to identify possible gaps of information that would be helpful in addressing the concerns and issues of the various parties.
4. The need to articulate an overall perspective on the long-term vision.

ANNEX I

ADDITIONAL BACKGROUND INFORMATION AND ONGOING ISSUES FOR THE SOUTHERN GULF HERRING AND MACKEREL FISHERIES

Southern Gulf Herring fishery

1. The multi-year integrated fishery management plan (2000-2003) for the southern Gulf herring fishery (4T stock) ended on December 31, 2003 and was rolled over in 2004 with minor adjustment on access and allocation issues. The roll-over included:
 - a) A temporary allocation of 29.82% to HFA 16D (Magdalen Islands) in the spring of which 20.28% was risk-managed within the 2004 spring TAC and;
 - b) A modification of the temporary inshore fall quota transfer process by allocating equally 2,356 t to be risk-managed to requesting HFA's before the start of the fishery. HFA 16B, 16C&E, 16F and 16G received an equal amount each.
2. The management of the southern Gulf herring fishery is based on a strategy which promotes sustainability (in this case, $F_{0.1}$ level). DFO Science provides the $F_{0.1}$ level following the Regional Advisory Process (RAP) currently held at the end of March. A decision on the upcoming fishery TAC level, set at or below the $F_{0.1}$ value, is based on the results of the RAP and on consultations with industry after the RAP.
3. Over the past number of years, there have been disagreements between inshore fishers and the seiner fleet over the conduct and potential impacts on the fishery by seiner vessels. Proximity to the shoreline by the seiners is the most recent contentious issue in NB, Gaspé and PEI.
4. A facilitator, Mr. Allister Surette, was hired to meet with all parties to ascertain the facts and perceptions in the herring dispute between the seiner and inshore fleets. His report, tabled in February 2004, identified six issues as being central to the dispute: Exclusion zones as being the most divisive issue, more science and improved mechanisms for communicating and discussing science, the possible negative impact of purse seining activity on lobster habitat and possible negative impact of lost gillnets on habitat, estimation of unaccounted herring mortality by both fishing gears, lack of knowledge regarding mixing of various local herring aggregations and their migration route, lack of trust in DFO management, enforcement and science.
5. A summary of potential monitoring activities and scientific studies as well as possible transition management measures to help resolve the conflict were developed and discussed with industry and Provincial representatives in 2004. The total project cost is estimated at 700K. The parties agreed that Science work was important to address the issues raised in the Surette Report. Funding sources remain to be confirmed
6. There is an emerging concern about quality and histamine content of herring caught in the inshore (gillnet) fishery in the Southern Gulf of St. Lawrence. Histamine is produced during the decomposition process of fish and can be harmful to humans. Canadian and foreign inspection agencies monitor the levels of histamine in herring. The roe and flesh markets of

herring caught by inshore fishers may be severely affected in the short term if herring quality issues persist.

7. Historical inshore quota shares between Herring Fishing Areas (HFA) is the other major issue that has been disruptive within the inshore herring fishery over the past 6 years. This includes the contentious issue of the spring quota share for the Magdalen Islands and fall quota transfers of uncaught quota near season end. While the overall TAC is determined using scientific analysis, there is currently no objective method to determine how the TAC should be divided based on local abundance. Work in this area is on-going.
8. DFO will attempt to obtain a consensus amongst the various inshore groups on a new approach for sharing the inshore quota. In the absence of a consensus amongst the industry, DFO will provide its own recommendations to the Minister by end of February 2005.

Southern Gulf Mackerel fishery

1. The Atlantic Mackerel Integrated Fisheries Management Plan is an Atlantic plan ending in 2006 involving fishers from the Maritimes, Gulf, Québec and Newfoundland Regions. Regional management measures for the coming season's fishery are discussed during annual regional consultations on small pelagics.
2. 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 annually and consist in collecting egg and larvae samples at regularly distributed stations using plankton nets. The number of eggs found at each station is extrapolated for the entire area samples to obtain daily annual egg productions. The figures are converted to reproductive biomass data by taking into account the biological characteristics of the females.
3. The TAC for Atlantic mackerel was reduced from 100,000t to 75,000t in 2002 following Canada's scientific advice. Catches in the mackerel fishery are under reported. Annual recorded landings for the almost 17,000 licence holders have only been about one-fifth of the TAC since the 1990s. However, in 2003 total recorded landings by Canadian provinces were about 45,000 t. Total recorded mackerel landings from all source (American and Canadian) in 2003 was about 76,000 t. An increased incidence of small, unmarketable mackerel in catches has curtailed fishing activity for this species and those fishers who are active. Small mackerel caught by hand lines and mechanical devices in particular are discarded and raises concerns (uncertain mortality rate).
4. An increase in abundance was forecast for 2003 given the predominance of the 1999 year-class in the catches and the fact that these fish were all mature in 2003. However, a lower abundance was measured in 2003 and may be attributable to the presence of the 1999 year-class alone in the stock and/or to the very unusual oceanographic conditions encountered during the survey (very cold water was observed as a significant reduction of the spawning area). Given this uncertainty, the TAC was maintained at 75,000 t for 2004.

5. The TAC is divided between the traditional inshore fisheries (60%) and the exploratory mobile gear fishery (40%). This sharing formula has been in place for many years and was decided following consultations with stakeholders during various Atlantic Mackerel Advisory Committee meetings. Landings in the Atlantic Provinces have averaged 20,000 t in the last 10 years of which about 15,000 t (75%) was landed in the Gulf of St. Lawrence (Area 4RST). Of this amount, about 8000 t were harvested in the Southern Gulf of St. Lawrence (4T). The large seiners have had more success during the last three years in catching mackerel on the west coast of NFLD. Despite the importance of the landings in 2003, only 49% of their quota was caught.
6. The southern Gulf mackerel industry would like to see further development of the mackerel fishery (increasing landings) and improvement of markets. The international market is for large mackerel. Processors have indicated that exports are not well developed. There is potential for additional market penetration but regular supply and improvement in price is needed. Quality of mackerel has been raised as an obstacle to improvement of the mackerel fishery and increases in landings. Mackerel is more prone to oxidation because of its high fat content compared to other small pelagics. Mackerel is presently mainly sold for bait purposes and the outlook suggests that it will remain like that in the next few years unless there are concerted efforts to change this.
7. Improvement of catch statistics in the mackerel fishery has been identified as an important element towards improving the stock assessment process, determining more precisely where are landings in reference to the TAC and to ensure a fair share of the quota if international shares are renegotiated with the USA. Currently there are no self reporting of catches other than sale slips filled by fish buyers and logbooks submitted by large seiners.
8. The Atlantic mackerel observed in Canadian waters during the summer and fall migrate to the coast of Maine (USA) during the winter where it may mix with another more southerly mackerel stock and is fished extensively. The extent of mixing in the American catches is unknown. Scientists in the USA have been conducting their own stock assessment on this same stock using Canadian and American landings catch data. (In fact the American considers these two stocks as one stock in their assessment). DFO and industry have serious preoccupations with the way the USA stock assessment is carried out. This assessment may lead to unrealistic high biomass and jeopardize conservation of the species. In order to improve the stock assessment and reach an agreement between Canada and USA on what the Mackerel biomass should be, it was suggested by stakeholders that discussions be initiated between scientists from Canada and USA in an open process with industry.