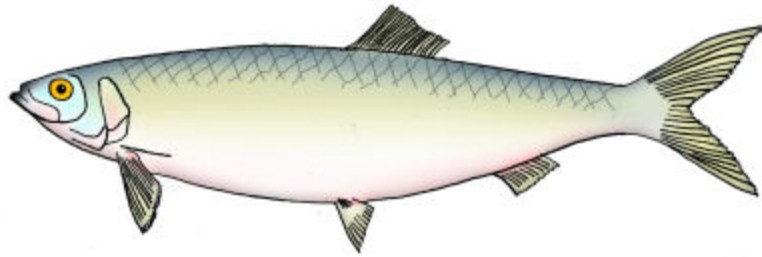


# Profile of the commercial herring fishery - December 2004



Policy and Economics Branch  
Gulf Region  
Department of Fisheries and Oceans  
Moncton, New Brunswick

December 2004

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## **Introduction**

Herring are a pelagic species that form schools during feeding and spawning periods. Fish that range through the water column are known as "pelagic" species, to differentiate them from "groundfish" which feed and dwell near the bottom. Feeding mainly in surface or middle depth waters, pelagic fish travel mostly in large schools, turning and manoeuvring in close formation with split-second timing.

The best known of the pelagic populations of Atlantic Canada are herring, but others include mackerel, bluefin tuna, swordfish, capelin, gaspereau, smelts, eels and shark.

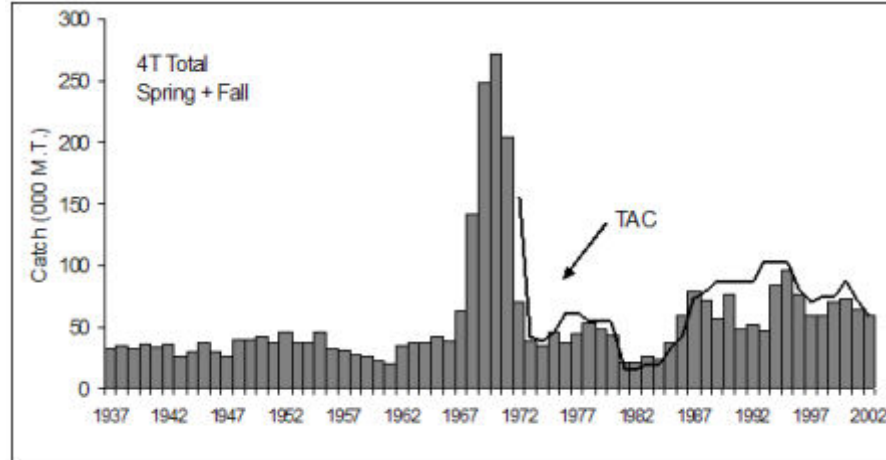
## **Background**

Atlantic herring (*Clupea harengus*) has been fished commercially since the late 1800's. It has been salted, smoked, canned, frozen, pickled, used as bait and fertilizer, reduced to meal and oil and more recently, harvested for its eggs, known as roe, and for its sperm, known as milt.

Until the late fifties, the fishery was exploited on the spawning grounds almost exclusively by gillnetters, with average landings of 32,000 metric tonnes. The 1960's saw major changes in the herring fishery and the processing industry. Large reduction plants were built in Newfoundland, Quebec, New Brunswick and Nova Scotia for the purpose of processing herring into fish meal and oil. In 1964, there were 60 fish meal plants in operation in Canada; of these, 49 were located on the Atlantic coast. These plants required large volumes of raw material and it was the purse seiner fleet that provided the main source of supply. Expansion of the fleet was rapid through new construction, conversion of existing fishing vessels and by the movement to the Atlantic coast of sixteen large herring seiners from British Columbia in 1966 and 1967.

From 1967 to 1971, herring fishing in the Gulf of St. Lawrence flourished like never before. The landings of the purse seiners dominated the fishery and the total catches peaked at nearly 300,000 metric tonnes in 1970 in NAFO zone 4T (see Figure 1). In 1972 the government imposed quotas on the seiner fleet for the first time. By 1976, the Department of Fisheries and Oceans decided to prohibit the use of herring for fish meal and oil in order to boost the value of the Canadian herring resource. Another step taken in 1976 to encourage Canadian plants to pay higher prices for herring was to allow direct sales to foreign vessels.

**Figure 1: Historical landings, Southern Gulf Division 4T of NAFO Zones (1937-2002)**



In 1983, the price paid for herring and the allowable catch were such that purse seiners were sustaining losses. The outlook for the years ahead promised nothing better and the prospect for many purse seiners was eventual bankruptcy. In an effort to improve the viability of the fleet, the Department of Fisheries and Oceans tabled a 10 year Herring Purse Seiner Fleet Restructuring Plan in the fall of 1983. The purse seiners from eastern Nova Scotia were limited to the Scotian Shelf (4WX) and the Gulf fleet was limited to the Gulf of St. Lawrence (4RSTVn). The Gulf fleet of purse seiners was composed of 16 licences from New Brunswick and Newfoundland. Today the fleet of purse seiners is composed of 6 licences from New Brunswick with five active vessels in the last few years, and five licences from Newfoundland who share the allocations for NAFO zones 4RSTVn (See Appendix 1 for map of NAFO zones).

The 1983 Management Plan was a significant departure from the traditional philosophy of fisheries management. Under this plan, each vessel was given a percentage share of the total annual herring seine quota for the region in which it operated. The Gulf Seiner fleet, which included vessels from New Brunswick and Newfoundland, were provided with 20% of the TAC (Total Allowable Catch) from NAFO zone 4T, 55% from zone 4R and 100% from sub-zone 4Vn.

For the inshore fleet, prior to 1984, the spring and fall fisheries were managed as one unit. In 1984, separate spring and fall quotas and seasons were introduced in an effort to recognize biological advice concerning the spring and fall components of the 4T herring stock, to prevent overfishing of the spring spawners and to better distribute the catch among fishers. In 1987, the southern Gulf (NAFO division 4T) was divided into seven specific herring management areas which are aligned with the major spawning grounds. This was introduced to improve the distribution of the fishing effort over these spawning areas, to provide for an enhanced distribution of the resource amongst the inshore fleet and to allow for more local management. That year, the inshore allocations for the fall fishery were established on the basis of these new management areas. The spring inshore herring quota was divided among each of these inshore areas starting in 1998 (see Appendix 2 for the map of herring fishing areas).

In 1996, the sharing of the 4T herring TAC was adjusted. The inshore fleet was allocated 76.83% of the TAC and the herring purse seiner fleet was allocated 23.17%. This change was made to reflect the fact that the herring quota in 4Vn allocated to the purse seine fleet was considered 4T fish.

### **Importance of the fishery**

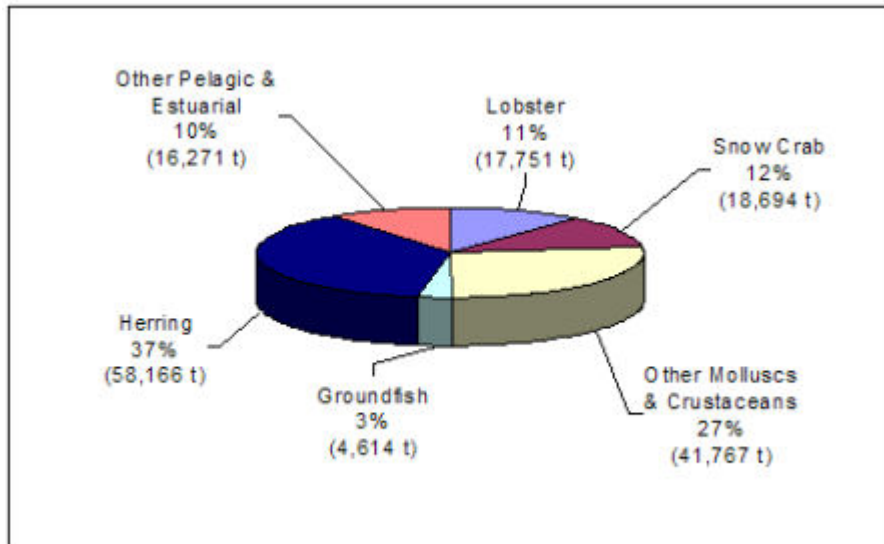
In 2002, a total of 58,166 metric tonnes of herring were landed in the Gulf Region for a total landed value of \$17.4 million.

In terms of volume, herring ranked first, followed by snow crab, lobster and mussels. The total landings of herring represented 37% of the total landed volume in the Gulf Region.

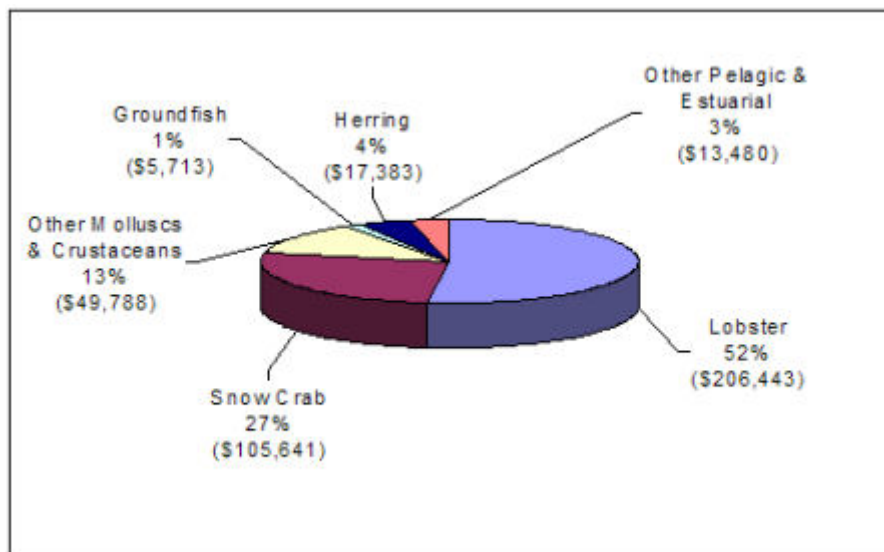
In terms of value, herring ranked fourth after lobster, snow crab and mussels. The value of herring represented 4% of the total landed value in the Gulf Region.

The following two charts (Figure 2 and 3) provide the volume and value of the major species/groups in the Gulf Region in 2002.

**Figure 2: Landed volume by species Gulf Region (m.t.) 2002**



**Figure 3: Landed value by species Gulf Region (\$000) 2002**



## Description of the herring fishery

### Southern Gulf Herring Fishery

There are two separate fishing periods in the southern Gulf of St. Lawrence: the spring fishery and the fall fishery. Management by season means that the spawning periods of the two herring components can be taken into account. In the spring, the gillnet fishery is concentrated in western Northumberland Strait and off the Magdalen Islands. The large seiners traditionally fish along the western Cape Breton coast and northeast of the Magdalen Islands, along the Laurentian Channel in the spring. However, the area northeast of the Magdalen Islands has not been fished for the past several years. The fall gillnet fishery is concentrated in Chaleur Bay, where approximately 50% of landings take place. The rest of the inshore fleet landings take place in the area of Escuminac, Fisherman's Bank and Pictou.

Historically, the seiner fleet effort was spread out over the entire Gulf and in Area 17 (northern part of 4Vn) during the fall season. Recently, the large seiners concentrate their efforts in Chaleur Bay (16B) and northeastern Gaspé Peninsula (16A) at the start of the season. Later in the fall when the 4T herring begins its migration toward Area 17 (under NAFO Division 4Vn), the large seiners follow the herring and concentrate their efforts along the coast in northeastern Prince Edward Island (16G) and western Cape Breton towards the end of October, and in Area 17 towards the end of November. However, for the past six years, fishers have not been finding any fish in Area 17 during this period.

The following table (Table 1) provides the total number of herring licences issued for the southern Gulf of St. Lawrence (NAFO 4TVn) in 2002. The report is by herring fishing areas and includes licences from the provinces of Quebec, New Brunswick, Nova Scotia and Prince Edward Island. Also included are the eleven large herring seiner licences from New Brunswick (6) and Newfoundland (5)

**Table I**

<i>Number of Commercial Herring Licences Southern Gulf of St. Lawrence (4TVn) by Herring Fishing Areas (2002)</i>		
<b>Fishing Area</b>	<b>Location</b>	<b>Total Number of Licences</b>
16A	Île Verte	313
16B	Chaleur Bay	896
16C and 16B	Escuminac and Western P.E.I.	1,026
16D	Magdalen Islands	329
16F	Pictou	392
16G	Fisherman's Bank	393
16A-16G and 17	Large Herring Seiners	11
<b>Total</b>		<b>3,360</b>

### Gulf Region Herring Fishery

We will now focus on the herring fisheries that occur within the Gulf Region. In 2002, a total of 2,375 herring licences were issued in the Gulf Region. A total of 1,119 were issued in Gulf New Brunswick, including six herring purse seiner licences issued to the large herring seiner fleet based in the Acadian Peninsula, 851 were issued in Prince Edward Island and 405 were issued in Gulf Nova Scotia (see Appendix 3).

The following table shows the number of herring licences that were active in the Gulf Region in 2002 by area. An active

licence is defined as one that landed at least one pound of herring.

**Table 2**

<i>Number of Active Licences by Area (2002)</i> <i>Gulf Region</i>			
<b>Area</b>	<b>Number of Licences Issued</b>	<b>Active Licences</b>	<b>Percentage Active</b>
Gulf New Brunswick	1,119	521	47%
Gulf Nova Scotia	405	156	39%
Prince Edward Island	851	346	41%
<b>Total</b>	<b>2,375</b>	<b>1,023</b>	<b>43%</b>

The rate of participation in the herring fishery fluctuates from between 35% to 50% in any given year. In 2002, 47% of the herring licences in Gulf New Brunswick were active; 39% of the herring licences in Gulf Nova Scotia were also active, while in Prince Edward Island, 41% of the herring licences were active. The overall participation rate for the herring fishery in the Gulf Region in 2002 was 43%. During that year, a total of 614 fishers recorded herring landings of greater than \$10,000 while 409 fishers recorded herring landings of less than \$10,000. In 2003, the numbers are quite similar with an overall participation rate of 42%.

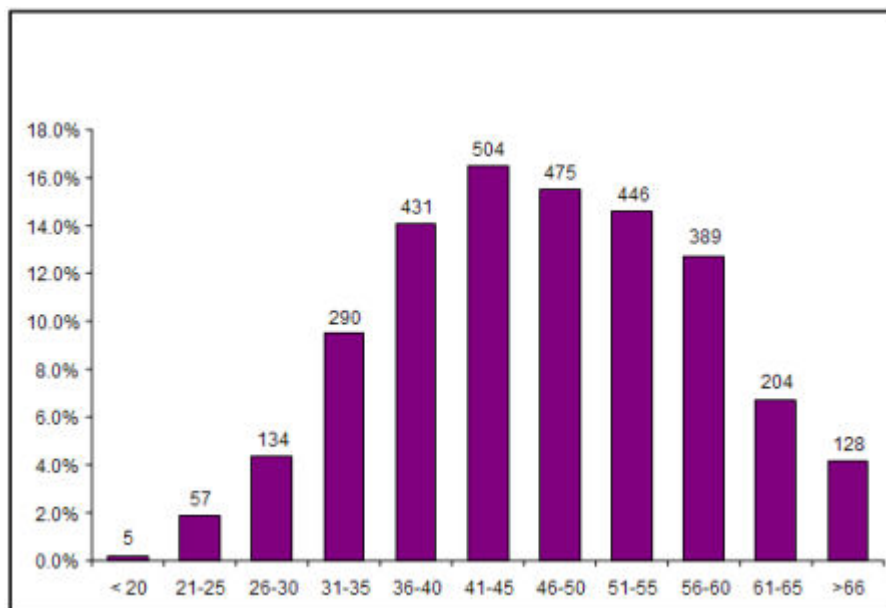
### **Characteristics of the inshore core enterprises**

The great majority of inshore herring licence holders are the lobster fishers. In fact, in 2002, more than 96% of inshore herring licences were held by core multi-specie enterprises that have lobster as their main fishery. They fish lobster for their primary source of revenue, and then they fish other species such as herring, mackerel, scallops, rock crab, smelts, gaspereau, groundfish, etc. to supplement their fishing income. Therefore, whether we are talking about the inshore herring fishers, or the core lobster fishers, we are talking about the same individuals.

A recent cost study of the core multi-specie fishing enterprise was conducted in the Gulf Region in the fall of 2003. The results show that the average vessel length was 42.7 feet and the vessels had an average age of about nine years, with a mean construction date of 1994. It should be noted that these fishing enterprises are involved in coastal fisheries where vessels of less than 45 feet are used. The study revealed that the average crew size for a commercial lobster fishing enterprises was 2.4 individuals, including the captain. For the herring fishery, the average crew size is usually three, including the captain.

We will now examine the age structure of the core fishers in the Gulf Region (Figure 4). In 2002, there was a total of 3,063 core fishers registered in the Gulf Region. Many of these fishers fall within the category that we often refer to as "baby boomers". Baby boomers represent an important segment of the population that were born between 1946 and 1964. Therefore in 2002, we are referring to those fishers that were between 38 and 56 years old. Using these years as a benchmark, we can conclude that in the Gulf Region, close to 60% of our core fishers fall within this category. Therefore, many of our core fishers will be retiring from the fishery during the next decade. It will be interesting to see how this transition will occur. As we know, most of the existing fishers did not have to acquire their licences via a purchase from actual licence holders. The new generation of fishers are already stressing the fact that one of the factors limiting their entry in the fishery is the investment required to purchase a fishing enterprise.

**Figure 4: Age Structure of the Core Fishers Gulf Region 2002**



## **Aboriginal Fisheries**

The Gulf Region comprises 14 First Nations, distributed as shown on the map in Appendix 4. The First Nations are found in the following statistical districts. A map of the statistical districts in the Gulf Region is also included in Appendix 5.

**Table 3**

<i>Distribution of First Nations by statistical district</i>	
<b>First Nations</b>	<b>District</b>
<i>Abegweit</i>	88
<i>Paq'tnkek (Afton)</i>	13
<i>Elsipogtog (Big Cove)</i>	76
<i>Bouctouche</i>	77
<i>Esgenoôpetitj (Burnt Church)</i>	70
<i>Eel Ground</i>	72
<i>Eel River Bar</i>	63
<i>Indian Island</i>	76
<i>Lennox Island</i>	93
<i>Madawaska</i>	61 (inland)
<i>Pabineau</i>	64
<i>Pictou Landing</i>	12
<i>Red Bank</i>	72
<i>Tobique</i>	60 (inland)

There are 10 First Nations in the Gulf N.B. sector, 2 on Prince Edward Island and 2 in Gulf Nova Scotia. The three largest reserves in terms of population are in New Brunswick; in order of size, they are Elsipogtog (Big Cove), Tobique and Esgenoôpetitj (Burnt Church), with respective populations of 2,633, 1,802 and 1,403 (Indian and Northern Affairs Canada - INAC, December 2002).

With regards to the number of licences held by First Nations, we must first distinguish between the two types of fishing rights held by members of a First Nation. Firstly, there are communal licences, for food, social and ceremonial purposes, and then there are communal commercial fishing licences. The *Sparrow* decision (1992) gave the First Nations the right to fish for food, social and ceremonial purposes. Unlike with the communal licences for food, social and ceremonial purposes, fish caught under the communal commercial licences can be sold to generate income.

Since the *Marshall* ruling (1999), First Nations have had increased access to commercial fishing. It should be noted that even before the *Marshall* ruling, Fisheries and Oceans Canada had implemented the Aboriginal Fisheries Strategy (1992), a nationwide program, to provide economic opportunities for Aboriginals in the commercial fisheries. The following table lists, as of December, 2003, the number of herring licences that were held by First Nations of the Gulf Region.

**Table 4**

<i>Number of herring licences held by First Nations in 2003</i>	
<b>Band</b>	<b>Number of Commercial Licenses</b>
<i>Abegweit</i>	3
<i>Paq'tnkek (Afton)</i>	4
<i>Elsipogtog (Big Cove)</i>	29
<i>Bouctouche</i>	4
<i>Esgenoôpetitj (Burnt Church)</i>	19
<i>Eel Ground</i>	4
<i>Eel River Bar</i>	10
<i>Indian Island</i>	3
<i>Lennox Island</i>	12
<i>Madawaska</i>	0
<i>NBAPC<sup>(1)</sup></i>	8
<i>NCPEI<sup>(2)</sup></i>	3
<i>Pabineau</i>	3
<i>Pictou Landing</i>	18
<i>Red Bank</i>	3
<i>Tobique</i>	3 <sup>(3)</sup>
<b>Total</b>	126

(1) New Brunswick Aboriginal People Council

(2) Native Council of Prince Edward Island

(3) Management of the Tobique First Nation's licences falls under the responsibility of the Maritime Region.



## **Description of Major Management Measures**

The herring fishery is managed on the basis of a total allowable catch (TAC) which takes into consideration an estimate of the biomass as provided by the departmental Science Branch, as well as consultations with industry.

Separate TAC's are established for the spring and fall components of the 4T herring stock and for the inshore and large herring seiner fleet. The sharing of the TAC between the two fleets is based on their historical shares since 1983 and the adjustment in percentage shares made in 1996. The TAC is fished on a competitive basis by the inshore fleet and on an Individual Transferable Quota (ITQ) basis by the large seiners.

Some of the management measures that are used to manage the herring fisheries in the Gulf Region are listed below:

- limited entry licences
- fishing areas
- quotas
- seasons
- opening dates
- trip limits
- weekend closures
- spawning area closure
- gear types
- minimum mesh size
- fish size
- dockside monitoring
- dockside sampling
- at sea monitoring
- vessel monitoring system (Black Boxes)

As mentioned previously, these measures are used primarily to monitor and ensure an orderly fishery, to improve the distribution of the fishing effort over the spawning areas, to provide for an enhanced distribution of the resource amongst the fleets and to allow for more local management.

## **TAC - Quota Distribution**

The following table (Table 5) provides the total Allowable Catch (TAC) and quota distribution for herring in the southern Gulf for the last four years (2001-2004). The table also provides a breakdown by fleets (inshore and purse seiner for both the spring and fall fisheries.

**Table 5**

<i>Herring TAC - Southern Gulf 2001 - 2004</i>				
<b>Year</b>	<b>Fleet</b>	<b>Spring</b>	<b>Fall</b>	<b>Total</b>
2001	Inshore	9,627	46,622	56,249
	<u>Seiners</u>	<u>2,873</u>	<u>13,878</u>	<u>16,751</u>
	<b>Total</b>	<b>12,500</b>	<b>60,500</b>	<b>73,000</b>
2002	Inshore	6,161	39,687	45,848
	<u>Seiners</u>	<u>1,839</u>	<u>11,813</u>	<u>13,652</u>
	<b>Total</b>	<b>8,000</b>	<b>51,500</b>	<b>59,500</b>
2003	Inshore	8,472	47,778	56,250
	<u>Seiners</u>	<u>2,528</u>	<u>14,222</u>	<u>16,750</u>
	<b>Total</b>	<b>11,000</b>	<b>62,000</b>	<b>73,000</b>
2004	Inshore	10,397	56,255	66,652
	<u>Seiners</u>	<u>3,103</u>	<u>16,745</u>	<u>19,848</u>
	<b>Total</b>	<b>13,500</b>	<b>73,000</b>	<b>86,500</b>

### **Sharing of the Quota**

Once the TAC is established for both the spring and fall fisheries, the sharing of the quota is sub-divided between the various herring fishing area in the southern Gulf (NAFO 4T) and in 4Vn (area 17), off the east coast of Cape Breton.

There is a small inshore fishery in area 17 and this fleet is provided with an allocation of 0.8% in the spring and 1.0% in the fall. Once this amount is deducted from the spring and fall quotas, then the historical percentages of the inshore and purse seiners are applied to the remaining amounts. The inshore fleet's percentage is 76.83% while the percentage for the purse seiner fleet is 23.17%.

If we look at the TAC for the Spring fishery in 2004, it was 13,500 metric tonnes. We first deduct the 0.8% for area 17 which equals to 108 tonnes. Therefore, the quotas for the inshore and large seiners are 10,289 tonnes and 3,103 tonnes respectively. The total inshore quota is then further broken down by herring fishing areas for Gulf and Quebec fishers as follows:

16-	Isle Verte	106
16B-	Bay of Chaleur	655
16C-	Escuminac	3,354
16D-	Magdalen Islands	982
16E-	Western P.E.I.	4,173
16F-	Pictou	246
16G-	Fisherman's Bank	207
16A-G-	All Areas	<u>566</u>
	<b>Total</b>	<b>10,289</b>

In 2004, the fall TAC for herring was set at 73,000 metric tonnes. The allocation for the inshore fishery in Area 17 is 1.0% or 730 metric tonnes. Therefore the quotas for the inshore is set at 55,525 metric tonnes while the quota for the large seiner fleet is 16,745 metric tonnes. The total inshore quota is then sub-divided by herring fishing area for the Gulf and Quebec fishers as follows:

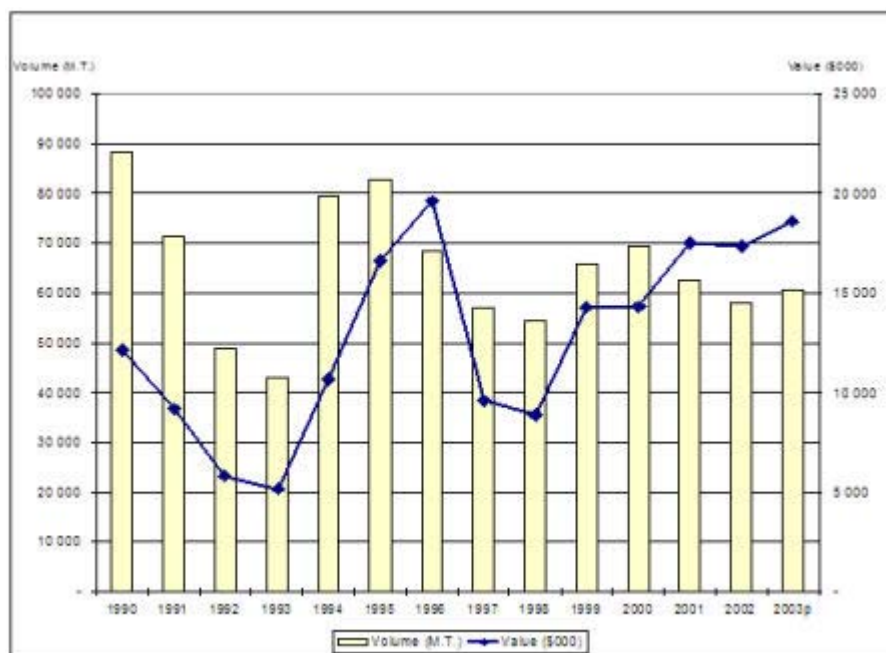
16A-	Isle Verte	438
16B-	Bay of Chaleur	26,396
16C and 16E-	Escuminac and Western P.E.I.	8,759
16D-	Magdalen Islands	1,826
16F-	Pictou	9,053
16G-	Fisherman's Bank	9,053
	<b>Total</b>	<b>55,525</b>

### **Landings - Gulf Region**

The volume and value of herring landings in the Gulf Region for the period 1990-2003 are reflected in Figure 5. These numbers are also found in Appendix 6. During the last 10 years (1993-2002), herring landings in the Gulf Region have averaged 64,132 metric tonnes while the average annual value for this same period was \$13.4 million.

The highest landings were recorded in 1990 with a total of 88,510 metric tonnes, while the landed value reached a peak of \$19.6 million in 1996.

**Figure 5: Volume and Value of Herring Landings Gulf Region, 1990-2003p**



### **Landings - Eastern Canada**

Appendix 7 provides the herring landings and value by management regions for the period 1984-2002 for all of Eastern Canada. These include numbers for the Quebec, Newfoundland, Maritimes and Gulf Regions. During the 10 year period (1993-2002), average herring landings in Eastern Canada were 196,732 metric tonnes, while the average annual value was \$33.9 million.

Table 6 provides the 10 year average landed volume and value of herring for the four Regions in Eastern Canada. The Gulf Region ranked second in terms of both volume (33%) and value (39%) during this period.

**Table 6**

<i>Herring Landings in Eastern Canada Volume and Value 10 Year Average (1993-2002) by Region</i>				
<b>Regions</b>	<b>Volume (m.t.)</b>	<b>Percentage of Total</b>	<b>Value (\$M)</b>	<b>Percentage of Total</b>
Maritimes	107,697	55%	\$16.2	48%
Gulf	64,132	33%	\$13.4	39%
Newfoundland	18,775	9%	\$3.0	9%
Quebec	6,127	3%	\$1.3	4%
<b>Total Eastern Canada</b>	<b>196,732</b>	<b>100%</b>	<b>\$33.9</b>	<b>100%</b>

### **Landings - Inshore and Large Herring Purse Seiners**

Appendix 8 shows the herring landings and value by fleet for the period 1993-2002. As mentioned earlier, there are two major gear types in the herring fishery. The inshore fishers use gillnets while the large vessels use purse seines.

During the last 10 years (1993-2002) inshore fishers have landed an average of 54,209 metric tonnes of herring with an average value of \$11.8 million. This represents 84.5% of the total herring landings and 88% of the total value.

The large herring seiners have landed an average of 9,924 metric tonnes of herring with an average value of \$1.6 million. This represents 15.5% of the total herring landings and 12% of the total value.

### **Price information**

It must be stressed that the price of herring fluctuates widely from one year to the other, from one province to the other, from one community, one season, one plant and even from one buyer to the other.

Inshore fishers are usually paid by the barrel. A barrel of herring weighs 250 pounds. During the spring inshore fishery, fishers were paid \$20.00 a barrel in 2001, over \$50.00 a barrel in 2002 and \$30.00 a barrel in 2003. During the fall fishery, inshore fishers were paid \$25.00 a barrel in 2001, over \$40.00 a barrel in 2002 and \$30.00 a barrel in 2003.

The large herring seiners are usually paid by the pound for their herring. They were paid an average of 7¢ a pound in 2001, 10¢ a pound in 2002 and 8¢ a pound in 2003. The information on price is provided by various buyers and/or processors, and from the Area Statistical Officers.

### **Information on the Cost Structure of a Typical Core Multi-Specie Fishing Enterprise**

A cost study on the average financial performance of the various lobster fleets was conducted in the fall of 2003 for the Gulf Region. As mentioned previously, more than 96% of inshore herring licences are held by core multi-specie enterprises that have lobster as their main fishery.

The following table shows the results of the study:

**Table 7**

*Cost Structure  
Core Multi-Specie Fishing Enterprise of the Gulf Region - 2002*

Variable Costs		
Fuel	\$4,858	
Bait	\$4,536	
Others	<u>\$453</u>	
Sub-Total		\$9,847
Repairs and Maintenance costs		\$2,343
Net Fishing Gear Expenditures		\$1,856
Fixed Costs		
Vessel Insurance	\$952	
Vehicle	\$1,938	
Storage	\$136	
Fees (union, Accounting, Etc.)	\$932	
Licences and Registration Fees <sup>1</sup>	\$530	
Others	<u>\$222</u>	
Sub-Total		<u>\$4,710</u>
Total Operating Costs		\$18,756
Financial Costs		\$8,846
Labour Costs		<u>\$13,587</u>
Total Costs		<b>\$41,189</b>

<sup>1</sup> Lobster permit @ \$310 + 4 secondary permit @ \$30 + fisher registration + boat registration.

These enterprises usually also have licences for several species such as herring, mackerel, and groundfish, and some enterprises also harvest such species as scallop, gaspereau, eels, smelts, mussels, oysters, and Irish moss. As a result, the total costs indicated in table 7 include all the costs associated for all the species landed by the coastal fishing enterprise and not only for lobster.

Variable costs include fuel, oil and grease, bait, ice, salt, food, dockside monitoring, employment insurance, etc. These costs vary mainly according to the number and duration of the fishing trips.

Vessel maintenance and repair costs include costs related to the maintenance and repair of the hull, deck equipment and electronic instruments. The net expenditures for fishing gear includes the cost of purchase and any repairs made to the gear.

The fixed costs are the costs borne by the enterprise regardless of the number of fishing trips taken. They include marine insurance, costs related to a vehicle, storage and wharfage as well as various fees for union membership, accounting, registration, and licensing, etc.

Financial costs include interest and capital that the fishing enterprise has paid to a financial institution or other entity. These costs are directly related to the enterprise and do not include the fisher's personal loans.

Coastal lobster fishing enterprises have an average of 1.4 employees, not including the captain/owner. The labour costs represent the salary paid to these employees.

For the inshore herring fishery, the average crew size is usually 3, including the captain.

## **Production information**

The last plant survey in the Gulf Region was conducted in the fall of 2000. Table 8 provides the number of plants that process herring and the number of plant workers for each area in 2000.

**Table 8**

<i>Number of Plant and Plant Workers by Area in 2000 Gulf Region</i>		
<b>Area</b>	<b># of Plants</b>	<b># of Employees</b>
Gulf Nova Scotia	3	210
Gulf New Brunswick	52	3,232
Prince Edward Island	8	368
<b>Total</b>	<b>63</b>	<b>3,810</b>

The table shows that a total of 63 plants processed herring in 2000 and employed a total of 3,810 plant workers. It must be emphasized that most of these plants process many other species such as lobster, snow crab, groundfish, and other molluscs. For some of these plants, the herring processing season can be as short as a few weeks, while for others, such as the bloater plants, herring is processed all year round.

### **The Smoked Herring Industry**

The spring inshore fishery is directed mostly towards supplying bait for the lobster fishery, cured and pickled products including fillets and smoked products for the bloater plants in southeastern New Brunswick. There are presently 28 smokehouses operating in the Cap-Pelé area. In 2003, the main products of these smokehouses were salted smoked ventral split herring, hard-cure herring (bloaters) and boneless smoked fillets.

According to our production reports, more than 1.5 million boxes of herring were produced by this industry in 2003. A box of hard cure herring weighs 18 pounds while a box of boneless fillets is 10 pounds. The major markets for these products include the Dominican Republic, Haiti and the United States. Some bloater plants are also involved in the production of mild-cure herring, destined for the Greek and Italian markets.

In addition to the smoked herring products, some of these plants also produce cured or pickled herring, gaspereau and mackerel, as well as groundfish and frozen herring roe.

### **Frozen Herring Roe**

The fall gillnet fishery is almost entirely directed towards the production of frozen herring roe. The roe is extracted, frozen in blocks and exported to Japan, our only market for herring roe. Almost all of the frozen herring roe exported to Japan is used to produce flavored herring roe.

Flavored herring roe gained popularity in Japan largely due to its ease of use. Unlike salted herring roe, the flavored product is "ready-to-eat". This has been especially attractive to younger Japanese who have become accustomed to "fast food" and the ease of preparation.

Flavored herring roe is available in various product styles, with roe marinated in soy sauce one of the more popular styles. The makers have developed products that are geared towards the consumers in each region of Japan and to the different age groups. Roe in mayonnaise is aimed at the younger Japanese, as is soy-marinated roe mixed with seaweed (a herring

roe salad). Even with the popular soy-marinated roe, however, the makers have to be sensitive to the tastes of the consumer.

In 2003, a total of 19 processing plants produced in excess of 6 million pounds (2,762 metric tonnes) of frozen herring roe in the Gulf Region. Production of herring roe is concentrated in the Acadian Peninsula where approximately 75% of the herring roe is processed. Smaller quantities are also produced in southeast New Brunswick, Gulf Nova Scotia and in Prince Edward Island.

### **Export Information**

Appendix 9 provides information on herring exports (volume and value) by province for the period 1996-2003. It shows that New Brunswick was the largest exporter of herring products in terms of volume in 2003. British Columbia ranked second, followed by Nova Scotia and Newfoundland. In terms of value, British Columbia was first, followed by New Brunswick, Nova Scotia and Newfoundland.

Appendices 10, 11 and 12 provide herring exports by province by country of destination for Nova Scotia, New Brunswick and Prince Edward Island. The information is provided for the entire provinces, and not only for the Gulf Region.

For the province of Nova Scotia (Appendix 10), the major countries of destination for herring products in 2003 in terms of volume were Germany, Japan and the United States.

For the province of New Brunswick (Appendix 11), the major countries of destination for herring products in 2003 in terms of volume were the United States, the Dominican Republic and Japan.

### **Conclusion**

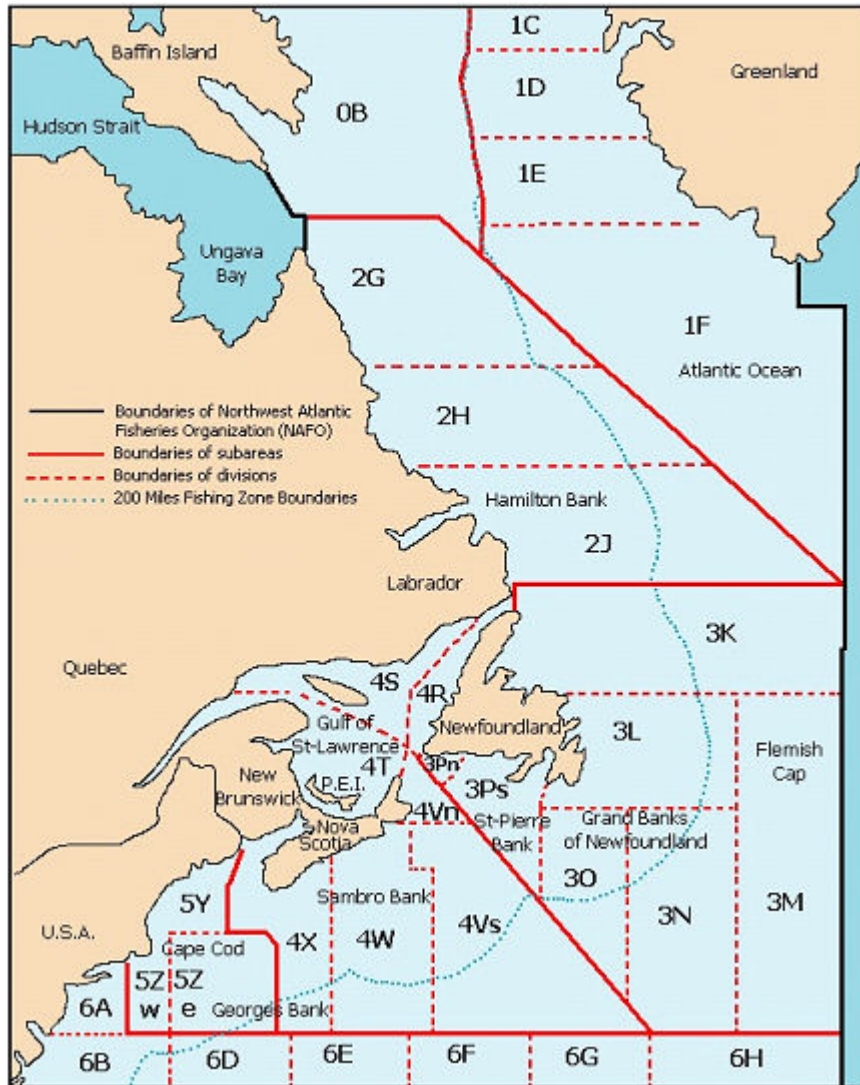
The commercial herring fishery is an important one for the Gulf Region and represents an additional source of revenue for a large number of core multi-specie fishing enterprises that have lobster as their main fishery. For most of these enterprises, lobster represents approximately 75% of their total revenue, while other species such as herring, rock crab, mackerel, scallops, gaspereau, smelts, oysters, clams, etc. are fished to supplement their income.

In 2002, a total of 2,375 herring licences were issued in the Gulf Region. Six of these licences were issued to the large herring purse seiner fleet based in the Acadian Peninsula while the others are inshore licences. Approximately 40% of these inshore licences were active in 2002, ie. they caught at least one pound of herring. During that year, a total of 614 fishers recorded herring landings of greater than \$10,000 while 409 fishers recorded herring landings of less than \$10,000.

In 2002, the total herring landings in the Gulf Region were 58,166 metric tonnes, valued at \$17.4 million. In 2003, the landings increased to 60,552 metric tonnes while the value was \$18.6 million.

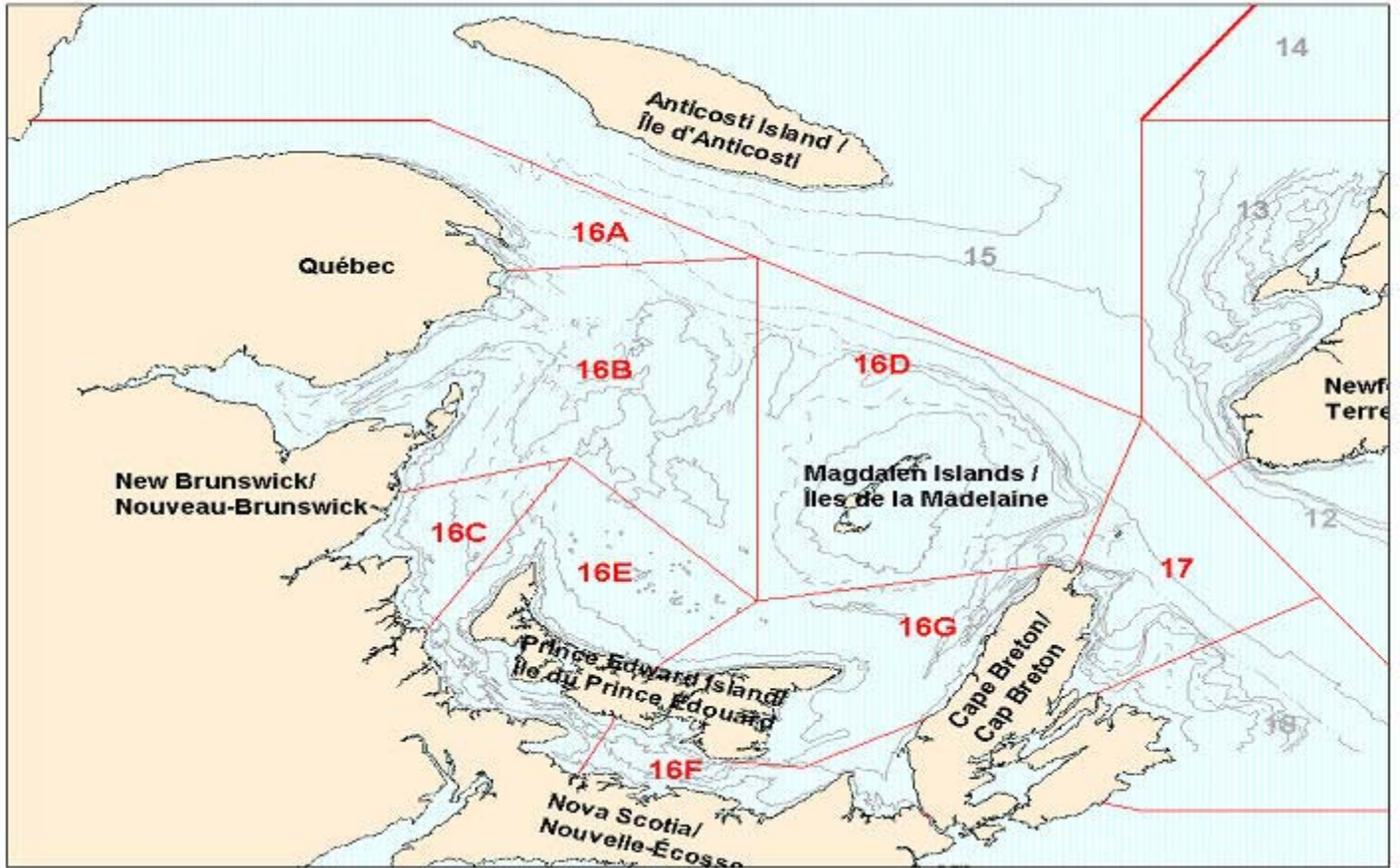
This commercial fishery is also very important for many plant workers throughout the Gulf Region. Although the spring and fall herring fisheries are of short duration and seasonal, they do provide additional work weeks that allow many plant workers to qualify for employment insurance.

Appendix 1: Map of NAFO zones





Appendix 2: Map of herring fishing areas in the Gulf Region

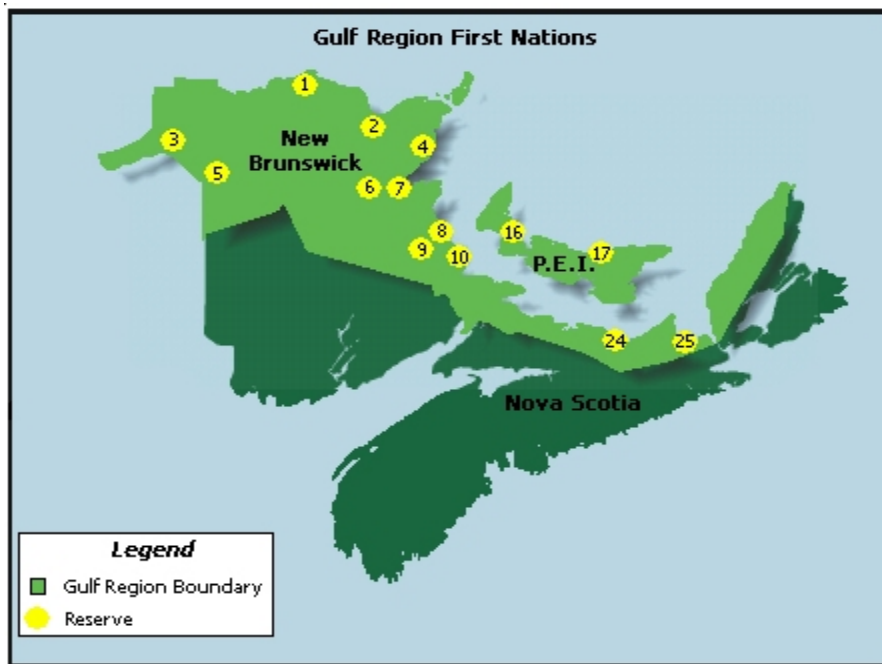


**Appendix 3: NUMBER OF LICENCES ISSUED BY SPECIES - GULF REGION 2002**

<i>NUMBER OF LICENCES ISSUED BY SPECIES - GULF REGION 2002</i>					
<b>Specie Desc.</b>	<b>Lic. Type</b>	<b>Gulf N.S.</b>	<b>Eastern N.B.</b>	<b>PEI</b>	<b>TOTAL</b>
Groundfish	Midshore	-	17	-	<b>17</b>
Groundfish	Offshore	-	3	1	<b>4</b>
Groundfish	ITQ	8	14	12	<b>34</b>
Groundfish	Comp.	311	599	844	<b>1,754</b>
Herring	Bait	503	532	1,028	<b>2,063</b>
Herring	ITQ	-	6	-	<b>6</b>
Herring	Inshore	405	1,113	851	<b>2,369</b>
Mackerel	Bait	404	199	960	<b>1,563</b>
Mackerel	F/G	20	-	-	<b>20</b>
Mackerel	Inshore	616	1,185	1,245	<b>3,046</b>
Swordfish		180	1	162	<b>343</b>
Tuna, bluefin		113	94	350	<b>557</b>
Alewives/Gaspereau	Bait	216	3	880	<b>1,099</b>
Alewives/Gaspereau	F/G	1	-	1	<b>2</b>
Alewives/Gaspereau		96	122	21	<b>239</b>
Eel		137	171	673	<b>981</b>
Salmon	F/G	4	8	1	<b>13</b>
Shad		-	10	-	<b>10</b>
Smelts		169	598	325	<b>1,092</b>
Capelin	Offshore	-	2	-	<b>2</b>
Silversides		2	1	92	<b>95</b>
Bar Clams		-	368	20	<b>388</b>
Soft Shell Clams		-	650	13	<b>663</b>
Quahaugs		-	118	7	<b>125</b>
Clams, Unspecified		122	4	1,501	<b>1,627</b>
Mussels		9	246	710	<b>965</b>
Oysters - American		197	1,604	989	<b>2,790</b>
Oysters - Relay		-	4	854	<b>858</b>
Scallops		125	227	390	<b>742</b>
Squid, Unspecified		335	5	239	<b>579</b>
Lobster	Lobster Pound	10	7	22	<b>39</b>
Lobster	Category A	632	1,172	1,261	<b>3,065</b>
Lobster	Category B	22	50	6	<b>78</b>

Lobster	Part. A	1	3	-	4
Lobster	Part. B	-	1	-	1
Shrimp	Offshore	-	1	-	1
Shrimp	ITQ	-	18	-	18
Crab, rock		43	33	48	124
Snow Crab	ITQ - Part.	-	-	6	6
Snow Crab	ITQ	134	76	22	403
Marine Plants		56	53	294	403
<b>TOTAL</b>		<b>4,871</b>	<b>9,318</b>	<b>13,828</b>	<b>28,017</b>

#### Appendix 4: Map of Gulf Region First Nations

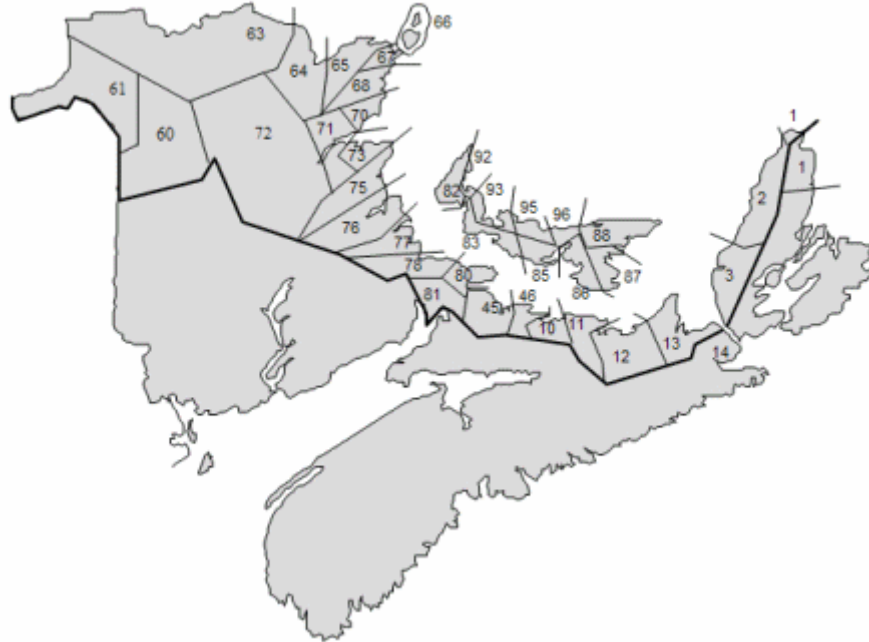


*Aboriginal Leaders as of MARCH, 2004  
Population statistics as of December 2002,  
(as registered under the Indian Act, both on and off reserves)*

	<b>Reserve</b>	<b>Chief</b>	<b>Population</b>
1	Eel River Bar	Everett Martin	578
2	Papineau	John Henry Paul	212
3	Madawaska Maliseet	Joanna Bernard	225
4	Esgenoôpetitj	Wilbur Dedam	1,403
5	Tobique	Steward Charles Paul	1,802
6	Red Bank	Freeman Ward	511
7	Eel Ground	George Ginnish	840
8	Indian Island	Second Peter Barlow	143
9	Elsipogtog	Susan Levy	2,633
10	Buctouche	Gary Sanipass	93
16	Lennox Island	Darlene Bernard	734
17	Abegweit	Roderick Gould Jr.	297
24	Pictou Landing	Anne Francis Muise	537
25	Paq'tnkek	Michael Gerard Julian	485

**Appendix 5: Gulf Region - Statistical Districts**

**Gulf Region – Statistical Districts**



**Appendix 6: Herring Landings - Gulf Region - Volume and Value - 1990-2003**

<i>Herring Landings - Gulf Region Volume and Value 1990-2003</i>		
<b>Year</b>	<b>Volume (m.t.)</b>	<b>Value (\$000's)</b>
1990	88,510	12,124
1991	71,169	9,185
1992	48,910	5,788
1993	42,940	5,116
1994	79,713	10,658
1995	82,890	16,613
1996	68,438	19,626
1997	57,002	9,558
1998	54,438	8,907
1999	65,775	14,289
2000	69,216	14,312
2001	62,745	17,507
2002	58,166	17,383
2003 (p)	60,552	18,633

**Appendix 7: HERRING LANDINGS - EASTERN CANADA - VOLUME AND VALUE - BY MANAGEMENT REGION - 1984 - 2002**

<i>HERRING LANDINGS - EASTERN CANADA VOLUME AND VALUE BY MANAGEMENT REGION 1984 - 2002</i>					
	Quebec	Newfoundland & Labrador	Maritimes	Gulf	Total
<b>Volume (MT)</b>					
<b>1984</b>	2,888	1,844	94,772	23,075	<b>122,529</b>
<b>1985</b>	3,342	2,764	143,363	35,119	<b>184,588</b>
<b>1986</b>	3,860	4,983	108,167	56,288	<b>173,298</b>
<b>1987</b>	5,640	20,832	130,460	73,376	<b>230,308</b>
<b>1988</b>	5,057	20,693	167,190	67,492	<b>260,432</b>
<b>1989</b>	3,271	13,338	138,911	56,476	<b>211,996</b>
<b>1990</b>	6,267	10,152	155,343	88,510	<b>260,272</b>
<b>1991</b>	3,940	18,306	122,130	71,169	<b>215,545</b>
<b>1992</b>	3,846	28,155	136,027	48,910	<b>216,938</b>
<b>1993</b>	5,489	21,688	132,677	42,940	<b>202,794</b>
<b>1994</b>	5,448	17,526	104,090	79,713	<b>206,777</b>
<b>1995</b>	6,426	21,388	82,986	82,890	<b>193,690</b>
<b>1996</b>	7,915	17,290	95,200	68,438	<b>188,843</b>
<b>1997</b>	5,750	21,049	102,749	57,002	<b>186,550</b>
<b>1998</b>	6,019	21,257	108,601	54,438	<b>190,315</b>
<b>1999</b>	5,541	15,316	116,129	65,775	<b>202,761</b>
<b>2000</b>	7,369	16,654	109,014	69,216	<b>202,253</b>
<b>2001</b>	6,018	17,248	114,534	62,745	<b>200,545</b>
<b>2002</b>	5,301	18,340	110,993	58,166	<b>192,800</b>
<b>Value (\$000)</b>					
<b>1984</b>	660	339	13,275	3,822	<b>18,096</b>
<b>1985</b>	878	426	21,592	5,710	<b>28,606</b>
<b>1986</b>	1,027	626	20,126	10,765	<b>32,544</b>
<b>1987</b>	1,499	2,732	22,378	15,939	<b>42,548</b>
<b>1988</b>	1,294	2,656	26,647	11,401	<b>41,998</b>
<b>1989</b>	882	1,611	20,967	6,136	<b>29,596</b>
<b>1990</b>	1,415	1,084	22,880	12,124	<b>37,503</b>
<b>1991</b>	833	2,556	16,742	9,185	<b>29,316</b>
<b>1992</b>	819	3,557	17,848	5,788	<b>28,012</b>

<b>1993</b>	1,290	3,049	16,414	5,116	<b>25,869</b>
<b>1994</b>	1,194	2,981	12,844	10,658	<b>27,677</b>
<b>1995</b>	1,301	3,355	12,787	16,613	<b>34,056</b>
<b>1996</b>	2,388	2,909	17,408	19,626	<b>42,331</b>
<b>1997</b>	975	3,220	14,867	9,558	<b>28,620</b>
<b>1998</b>	1,071	3,342	15,901	8,907	<b>29,221</b>
<b>1999</b>	1,038	2,386	16,921	14,289	<b>34,634</b>
<b>2000</b>	1,383	2,596	16,591	14,312	<b>34,882</b>
<b>2001</b>	1,232	2,736	20,799	17,507	<b>42,274</b>
<b>2002</b>	1,365	3,329	17,788	17,383	<b>39,865</b>



**Appendix 8: HERRING LANDINGS - GULF REGION - VOLUME AND VALUE - BY FLEET - 1993 - 2002**

<i>HERRING LANDINGS - GULF REGION VOLUME AND VALUE BY FLEET 1993 - 2002</i>			
	<b>Purse Seiner</b>	<b>Inshore</b>	<b>Total</b>
Volume (T.M.)			
1993	8,253	34,687	<b>42,940</b>
1994	9,304	70,409	<b>79,713</b>
1995	16,357	66,533	<b>82,890</b>
1996	8,735	59,703	<b>68,438</b>
1997	7,255	49,747	<b>57,002</b>
1998	5,216	49,222	<b>54,438</b>
1999	12,527	53,248	<b>65,775</b>
2000	8,956	60,260	<b>69,216</b>
2001	10,597	52,148	<b>62,745</b>
2002	10,597	52,148	<b>62,745</b>
Value (\$000)			
1993	1,000	4,116	<b>5,116</b>
1994	1,272	9,386	<b>10,658</b>
1995	2,229	14,384	<b>16,613</b>
1996	1,456	18,170	<b>19,626</b>
1997	1,238	8,320	<b>9,558</b>
1998	842	8,065	<b>8,907</b>
1999	1,924	12,365	<b>14,289</b>
2000	1,382	12,930	<b>14,312</b>
2001	2,101	15,406	<b>17,507</b>
2002	2,654	14,729	<b>17,383</b>

**Appendix 9: HERRING EXPORTS BY PROVINCE - 1996 - 2003**

<i>HERRING EXPORTS BY PROVINCE</i> 1996 - 2003								
<b>Quantity (in metric tons)</b>								
<b>Province</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Nova Scotia	19,811	12,934	15,588	14,272	9,041	15,878	10,191	8,612
New Brunswick	24,500	26,773	29,498	24,853	22,907	26,053	25,834	21,964
Prince Edward Island	1,170	1,106	1,150	949	510	424	114	44
Quebec	2,188	1,841	1,701	551	790	498	974	448
Newfoundland	7,541	7,078	8,455	4,834	5,640	7,316	6,720	6,246
Ontario	2,383	1,839	2,343	1,608	1,737	1,849	2,175	2,078
British Columbia	7,607	9,638	10,121	10,399	10,983	9,040	8,588	8,841
Others	51	37	330	244	55	48	105	42
<b>Total</b>	<b>65,251</b>	<b>61,246</b>	<b>69,186</b>	<b>57,410</b>	<b>51,663</b>	<b>61,106</b>	<b>54,401</b>	<b>48,275</b>
<b>Value (in thousand dollars)</b>								
<b>Province</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Nova Scotia	47,377	27,047	25,094	24,749	24,907	35,159	30,771	29,242
New Brunswick	45,624	43,448	48,228	50,234	48,751	56,438	54,001	45,480
Prince Edward Island	1,293	1,020	1,961	1,105	849	1,267	739	79
Quebec	3,660	3,166	3,334	931	1,342	1,943	1,758	1,207
Newfoundland	8,706	8,276	9,251	5,922	6,969	10,641	10,153	9,624
Ontario	2,745	3,129	4,775	3,556	3,121	4,302	7,443	4,953
British Columbia	201,543	108,416	106,941	102,080	135,176	106,432	100,222	92,167
Others	70	29	596	165	70	42	518	109
<b>Total</b>	<b>311,018</b>	<b>194,531</b>	<b>200,180</b>	<b>188,742</b>	<b>221,185</b>	<b>216,224</b>	<b>205,605</b>	<b>182,861</b>

**Appendix 10: HERRING EXPORTS BY NOVA SCOTIA - BY COUNTRY OF DESTINATION - 1996 - 2003**

<i>HERRING EXPORTS BY NOVA SCOTIA BY COUNTRY OF DESTINATION 1996 - 2003</i>								
<b>Quantity (in metric tons)</b>								
<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Germany	10,876	5,202	8,954	7,338	3,172	8,022	4,487	3,132
United States	2,676	2,931	3,478	2,675	1,827	1,784	1,589	1,313
Japan	2,248	1,914	1,308	1,558	1,816	1,738	1,638	2,054
Poland	262	455	438	627	-	187	46	22
Greece	345	330	289	368	115	218	152	310
Dominican Republic	165	227	295	147	130	546	302	551
France	656	197	132	45	-	67	-	-
Korea	824	46	24	47	91	192	161	-
Trinidad & Tobago	102	44	156	1,166	1,313	933	767	642
Others	1,657	1,588	514	301	577	2,191	1,049	588
<b>TOTAL</b>	<b>19,811</b>	<b>12,934</b>	<b>15,588</b>	<b>14,272</b>	<b>9,041</b>	<b>15,878</b>	<b>10,191</b>	<b>8,612</b>
<b>Value (in thousand dollars)</b>								
<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Germany	11,553	5,388	8,834	7,102	3,623	11,057	6,441	3,780
United States	6,192	6,292	7,445	6,181	5,851	5,886	5,836	5,222
Japan	24,372	11,837	6,142	7,890	12,737	12,523	14,526	16,242
Poland	268	402	413	524	-	267	58	18
Greece	827	833	834	1,064	331	605	518	1,054
Dominican Republic	260	386	451	298	184	780	481	870
France	866	285	138	47	-	107	-	-
Korea	911	56	27	45	75	400	243	-
Trinidad & Tobago	183	76	144	1,098	1,254	869	815	580
Others	1,945	1,492	666	500	852	2,665	1,853	1,476
<b>TOTAL</b>	<b>47,377</b>	<b>27,047</b>	<b>25,094</b>	<b>24,749</b>	<b>24,907</b>	<b>35,159</b>	<b>30,771</b>	<b>29,242</b>

**Appendix 11: HERRING EXPORTS BY NEW BRUNSWICK - BY COUNTRY OF DESTINATION - 1996 - 2003**

*HERRING EXPORTS BY NEW BRUNSWICK  
BY COUNTRY OF DESTINATION  
1996 - 2003*

<b>Quantity (in metric tons)</b>								
<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
United States	12,136	14,485	17,443	13,772	12,886	12,344	12,195	11,227
Dominican Republic	6,224	8,562	8,096	7,527	6,813	8,898	9,769	6,733
Haiti	2,090	1,216	856	752	172	762	288	432
Japan	1,539	886	1,527	1,170	1,456	1,927	1,005	1,476
Trinidad & Tobago	591	430	211	351	336	482	432	453
Greece	23	234	366	467	232	174	691	406
Jamaica	381	160	117	108	75	116	121	139
Germany	765	355	170	61	45	405	21	11
Italy	92	182	317	292	426	319	506	421
Others	659	263	395	353	466	626	806	666
<b>TOTAL</b>	<b>24,500</b>	<b>26,773</b>	<b>29,498</b>	<b>24,853</b>	<b>22,907</b>	<b>26,053</b>	<b>25,834</b>	<b>21,964</b>
<b>Value (in thousand dollars)</b>								
<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
United States	15,722	18,965	24,755	23,703	25,064	22,431	23,189	19,244
Dominican Republic	8,780	14,189	12,108	13,627	10,600	13,439	16,433	9,371
Haiti	2,287	1,553	897	922	229	1,011	432	640
Japan	15,599	5,849	7,382	8,681	9,846	15,871	8,538	11,011
Trinidad & Tobago	846	724	386	780	630	781	818	798
Greece	76	547	837	943	513	368	1,663	1,128
Jamaica	503	216	172	211	134	260	202	335
Germany	894	443	165	71	41	594	25	19
Italy	249	376	760	702	781	523	1,046	1,211
Others	668	586	766	594	913	1,160	1,655	1,723
<b>TOTAL</b>	<b>45,624</b>	<b>43,448</b>	<b>48,228</b>	<b>50,234</b>	<b>48,751</b>	<b>56,438</b>	<b>54,001</b>	<b>45,480</b>

**Appendix 12: HERRING EXPORTS BY PRINCE EDWARD ISLAND - BY COUNTRY OF DESTINATION - 1996 - 2003**

*HERRING EXPORTS BY PRINCE EDWARD ISLAND  
BY COUNTRY OF DESTINATION  
1996 - 2003*

**Quantity (in metric tons)**

<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
United States	534	911	933	446	442	143	19	27
Japan	66	62	154	88	68	174	95	-
United Kingdom	26	20	41	19	-	12	-	-
Other	544	113	22	96	-	95	-	17
<b>TOTAL</b>	<b>1,170</b>	<b>1,106</b>	<b>1,150</b>	<b>649</b>	<b>510</b>	<b>424</b>	<b>114</b>	<b>44</b>

**Value (in thousand dollars)**

<b>Country</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
United States	140	255	320	226	189	173	16	57
Japan	747	603	1,528	785	660	963	723	-
United Kingdom	37	47	82	34	-	17	-	-
Other	369	115	31	60	-	114	-	22
<b>TOTAL</b>	<b>1,293</b>	<b>1,020</b>	<b>1,961</b>	<b>1,105</b>	<b>849</b>	<b>1,267</b>	<b>739</b>	<b>79</b>