



# Southern Gulf of St. Lawrence Herring Fishery

December 2001

SRSF Fact Sheet 5

Gulf Nova Scotia Bonafide Fishermen's Association

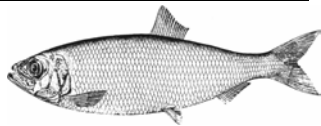
By: **Sarah Kinnie**, Student Research Assistant

**Inside this issue:**

<i>History of the Commercial</i>	1
<i>Herring Fishing Area Map</i>	2
<i>Summary of Integrated Fisheries Management Plan</i>	2
<i>Total Allowable Catch</i>	3
<i>Herring landings and values</i>	4
<i>Stock Status</i>	5
<i>About GNSBFA and SRSF</i>	6

## History of the Commercial Herring Fishery

The Atlantic commercial herring fishery has been in existence since the late 1800s in the Southern Gulf of St. Lawrence and has been very important for the fishermen of St. Georges Bay. Until the late 1970s, the species were mostly used for bait, fishmeal, and farm field fertilizer due to stock abundance and low commercial value. From the 1950s up until the 1970s herring landings and values for the whole Southern Gulf of St. Lawrence were fairly stable. The 1970s though, saw many changes and transitions in the global market. In 1972, the Total Allowable Catch (TAC) management system was introduced to the herring fishery, and in 1978 the face of the herring fishery changed with its transition to a commercial food fishery. Although the species was still being used as meal and bait, the expansion of the fishery resulted in increased landed value, an increase in employment



The transition to a food fishery occurred in the late 1970's as a result of the expansion of two significant markets. The first market that opened up to Canadians was the European market and was due to significant

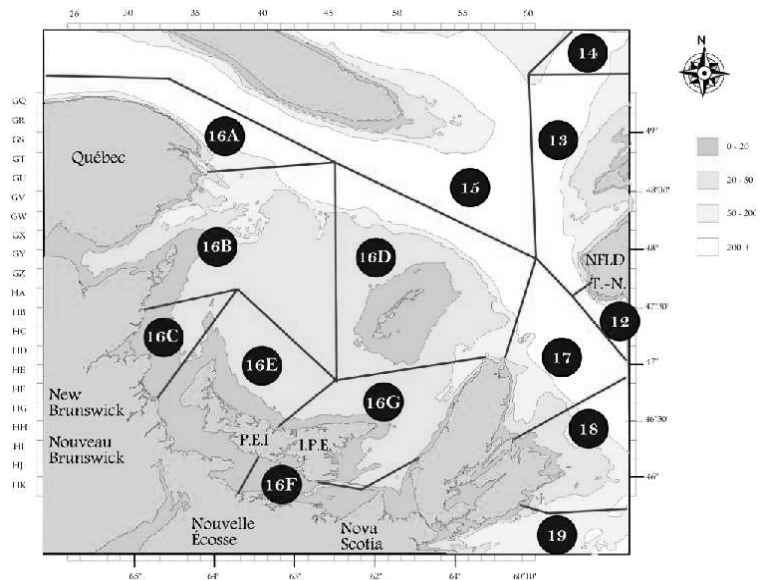
declines in the North Sea herring landings. The second market opened up when the Japanese were expelled from traditional herring grounds in various locations. Canadians have managed to maximize their involvement in these markets and now have established trade relations with Japan where there is a large herring roe market. The roe market constitutes a very valuable sector of the Southern Gulf's herring fishery and has become the driving force behind the fall inshore landings (DFO 1998). The roe is extracted, frozen, and then exported to Japan, the only market available for herring roe. The three main types of roe sold in Japan are: salted roe, flavoured roe, and roe mixed with other seafood products (DFO 1999). Landings are market driven which results in high fluctuations in value. Historically, the value for roe herring has ranged between 3-4 cents/pound in 1991 to 18-20 cents/pound in 1996 (DFO 1998, 2001).

In 1978 the face of the herring fishery changed with its transition to a commercial food fishery. Although the species was still being used as meal and bait, the expansion of the fishery resulted in increased landed value, an increase in employment for processing and an overall increase of

There have been various changes in gear used to fish herring over the past

century. Until the mid 60s, herring was fished with gill-nets on the spawning grounds. It was in 1965 that purse seiners were first permitted to enter the fishery. In just five years the number of seiners fishing herring in HFA 16 had reached 65.

Little is known about the herring's preferred habitat but it is known that spawning occurs anywhere between April and October, often concentrated between the months of May and September. Preferred habitat for spawning grounds tends to be sea-beds mostly composed of rock, gravel and algae where the eggs can easily adhere to the hard substrate (DFO 1984).



Historically, spawning areas were determined to be along the eastern shore of Georges Bay and near Port Hood for the spring spawners, and west of Cape George and between Port Hood and the Margaree River for the autumn spawners (Davis *et al.* 1999). In 1982, Lambert *et al.* reported that the largest spawning sites were located at Malignant Cove and Havre Boucher for both the fall and spring stocks. The most recent report of spawning grounds stated that small numbers have been seen at Ballantynes Cove and Port Hood (Davis *et al.* 1999).

Today, for the fishermen of St. Georges Bay, the herring remains instrumental mostly as a bait

## Integrated Fisheries Management Plan for Herring (HFA)

Recently, in 1999 a new management strategy was introduced to the herring fishery. The "Integrated Fisheries Management Plan" uses the existing TAC management system while integrating people from different sectors of the industry with DFO Science Branch to act as a collective governing body. The reason for the change of management strategy was largely due to quotas of 1997 and quotas of previous years not being caught. In Herring Fishing Area 16F, the fishermen were becoming concerned.

Many fishermen in the Southern Gulf of St. Lawrence began working with DFO to create a more effective and efficient management plan. Greg Egilsson, a local fisherman, was particularly instrumental in setting up the new management plan and today he is president of the Gulf Nova Scotia Herring Federation. In this role he has been able to work together with DFO to implement

DFO to establish the yearly management strategy. The one year management plan covers the spring and fall herring fisheries and revolves around the establishment of Total Allowable Catches (TAC.) The TAC is divided between the inshore fleet and the large seiner fleet for the spring and the fall fishery. The inshore fleet fishes the TAC on a competitive basis and the seiner fleet fishes their TAC on an Individual Transferable Quota (ITQ.)

Measures (HFA 16)	Inshore Fleet	Large Seiners
Limited Entry Licenses	Yes	Yes
Fishing Areas	Yes	Yes
Quotas	Competitive	ITQ
Seasons	Yes	Yes
Opening Dates	Yes	Yes
Trip Limits	Yes	No
Weekend Closures	Most	No
Spawning Area Closures	No	Yes
Gear Types	Yes	Yes
Minimum Mesh Size	Yes	Yes
Fish Size	No	Yes
Catch Monitoring	Yes	Yes

*Source: Integrated Fisheries Management Strategy 1999*

### How is Total Allowable Catch Deter-

The Gulf NS Herring Working Group decides on the TAC by looking at the information gathered from two different, annual surveys. A bottom trawl survey is carried out in September and an acoustic survey in September-October. These surveys are used to collect data pertaining to age structure and catch rates. DFO also collects information directly from fishermen through an annual telephone survey of 20-25% of the active herring gill netters. This survey has been conducted since 1985 and provides very valuable information on effort, numbers of nets used, mesh sizes, and opinions on stock abundance. Fall abundance was reported as being the same or less in 1998 by comparison to 1997, while Spring abundance was felt to be the same for both years (DFO

*“Twenty Years ago herring were caught in great numbers from Arisaig around Cape George to Cribben Head; from Tracadie around Cape Jack to the Strait of Canso, and from Port Hood northeast along the Cape Breton shore. Today both stocks have declined drastically and only areas adjacent to Ballantynes Cove, Havre Boucher and Port Hood yield herring in any quantity” (Lambert et al. 1982).*

*For more information on Stock Status see page 5*

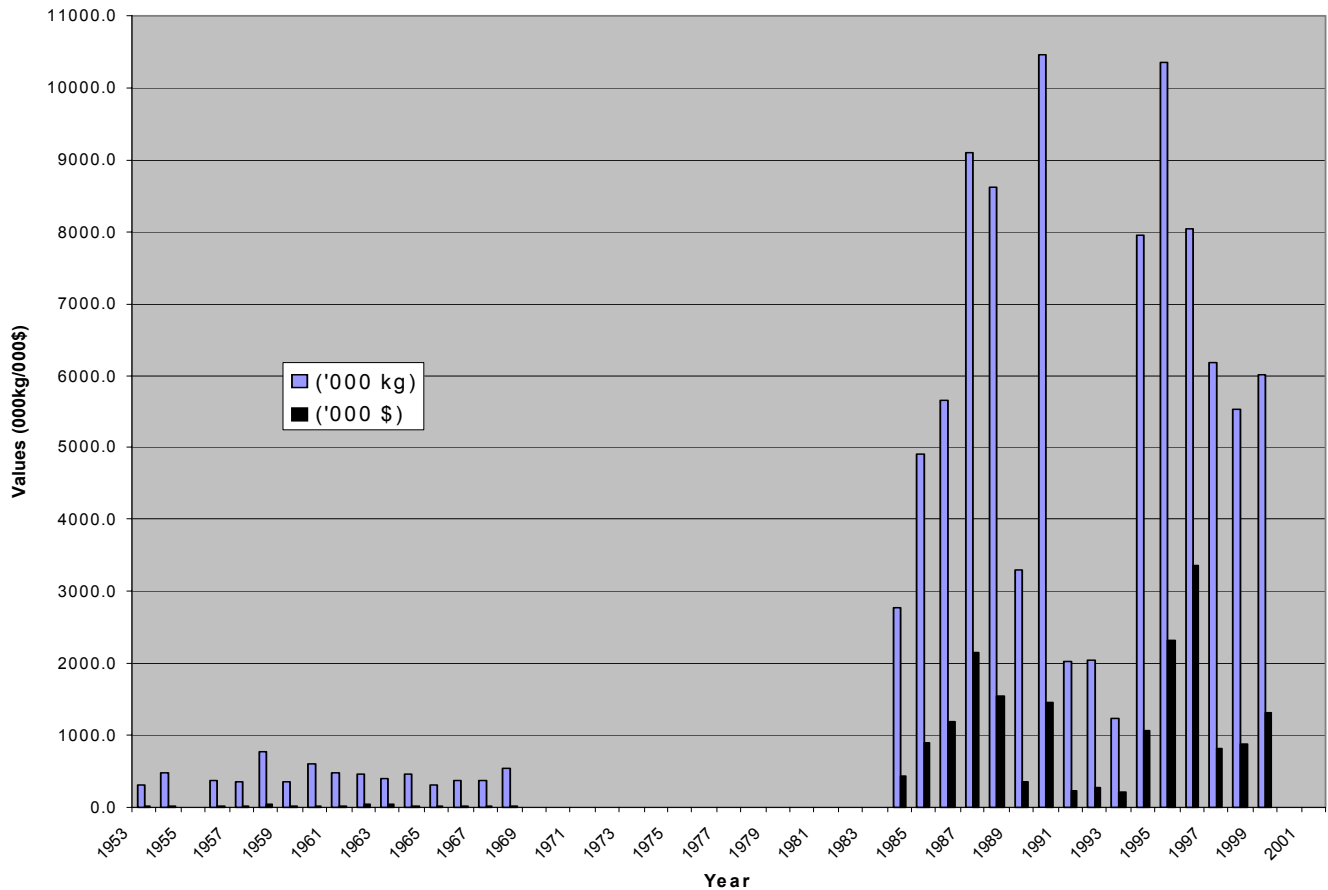
### Trends in Land-

When looking at the trends in landings and values, it is evident that they have experienced significant increases over the past five decades. Although the data has not been found for the 1970s, this is where the major transition to a higher volume, higher profit fishery was made. As previously discussed, the 1978 transition from a fish meal fishery to a food fishery was the event that caused these changes. The landings for the 1990s show that they were 22 times higher than the landings reported in the 1950s. Since the 1980s, both landings and values have been somewhat more stable but landings and values for the 90s were still double those of the 80s (values have not been

Herring	000kg
50s	2669
60s	4029
70s	N/A
80s	34367
90s	59834

## Herring landings and Values for Gulf Nova Scotia 1953—1999

This graph looks at landings for the Southern Gulf of St. Lawrence and displays the general trends in herring landings and values that were also seen in the smaller area of St. George’s Bay. Unfortun-



Source: Department of Fisheries and Oceans Canada

### Current Stock Status



When calculating the stock status of a fishery, DFO Science Branch tends to look at larger areas than a single bay or strait. For this reason, this paper summarizes the stock status of the herring fishery for the entire Southern Gulf of St. Lawrence. Stock status is calculated for two separate components; the fall spawner component and the spring spawner component. The  $F_{0.1}$  Harvesting Strategy has been used in past years to establish the overall Total Allowable Catch.  $F_{0.1}$  is a variable used by biologists in a mathematical formula to estimate how much harvesting can be done in a fishery without depleting future stocks.

For the fall spawners, the inshore catches for 2000 were equal to 1999 at 59,086 tonnes. These catch rates were the highest since the time series began in 1978. During a phone survey of the inshore fleet, a general opinion of increased abundance was similarly expressed. Expressed data

for 2001 for all herring four years or older has been estimated to be at its highest level since 1978 (DFO 2001). Using the  $F_{0.1}$  mathematical formula, DFO has calculated that catches in 2001 will have to be below 51,000 tonnes in order to minimize the risk of exceeding the sustainable harvest level of the fishery. According to DFO calculations a harvest of 51,000 tonnes would mean that the risk of exceeding a sustainable catch would be 25%. Higher risk factors have been used in previous years when setting the TAC (DFO 2001).

For the spring spawners, landings for 2000 were reported at 16,703 tonnes, exceeding the TAC of 16,500 tonnes. The stock status of spring spawners is much lower than that of the fall spawners. This is not a development that has started over the past five years but is the consequence of a long term decline in numbers. The spring spawner inshore catches for 2000 were the second lowest since 1990. Spawning biomass for herring four years and older has been on the decline since 1995,

### **Future of the Herring fishery**

In Canada and abroad, we have begun to realize the need for local control and input from all sectors of the fishing industry. With integrated fisheries management strategies such as the one discussed in this paper, perhaps those involved in fisheries management and those who harvest its resources will be increasingly equipped to adequately manage future stocks. Even though we know that herring continues to be an abundant and instrumental species for the fishermen around St. Georges Bay, it is essential that we continue to look at the future of the herring fishery objectively and with much caution, particularly since herring is a cornerstone species in the marine ecosystem.

### **References Cited**

- Davis, Anthony, Lisa Kellman, Gorazd Ruseski, James Williams, Caroline Cameron, Sean Mitchell, Colin Edwards, and David Spencer. 1999. *St. Georges Bay Ecosystem Project (GBEP): Research Report*. Antigonish, N.S.: Interdisciplinary Studies in Aquatic Resources, St. Francis Xavier University.
- Department of Fisheries and Oceans. 1977. *Annual Report*.
- Department of Fisheries and Oceans. 1984. *Underwater World: Atlantic Herring*. Ottawa: Department of Fisheries and Oceans, Communications Directorate.
- Department of Fisheries and Oceans. 1998. *Southern Gulf of St. Lawrence Herring*. DFO Science Stock Status Report B3-01(1998). Dartmouth, N.S.: Maritime Provinces Regional Advisory Process, Department of Fisheries and Oceans.
- Department of Fisheries and Oceans. 1999. *Integrated Management Plan., Herring - Area 16*. [Web Page]. Accessed Aug 1999. Available at [http://www.gfc.dfo.ca/fish\\_mgmt/mgmt\\_plan/herring\\_16\\_1999-e.html](http://www.gfc.dfo.ca/fish_mgmt/mgmt_plan/herring_16_1999-e.html).
- Department of Fisheries and Oceans. 2001. *Southern Gulf of St. Lawrence Herring*. DFO Science Stock Status Report B3-01(2001). Dartmouth, N.S.: Maritime Provinces Regional Advisory Process, Depart-

## **Gulf Nova Scotia Bonafide Fishermen's Association (GNSBFA)**

The GNSBFA is an organization formed to represent the interests and concerns of the Nova Scotian bonafide fishermen working within the Lower Northumberland Strait, Southern Gulf of St. Lawrence and St. Georges Bay regions. The GNSBFA's first responsibility is to represent its membership's concerns in fisheries management meetings that decide on subjects such as policy, annual allocations, regulations, and fishing effort. The GNSBFA recognizes that fulfilling this responsibility requires that it have access to and knowledge about research and research results. An example of the GNSBFA's interest and involvement in research is the St. Georges Bay Ecosystem Project. The GNSBFA is a founding partner in this project and has been instrumental in its definition and development.

Starting in 1999, GNSBFA became involved in the SRSF project and will be until December 2002. To find out more information about the research GNSBFA has engaged in through SRSF contact our office.

### **HOW TO CONTACT US:**

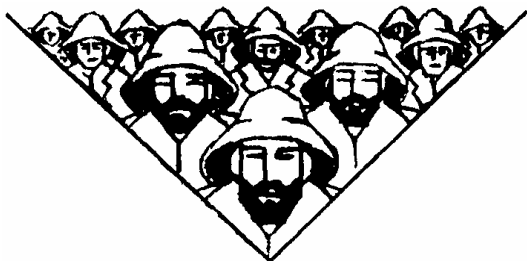
Kay Wallace, Community Research Coordinator

**Gulf Nova Scotia Bonafide  
Fishermen's Association**  
Mini-Trail Community Centre  
Lakevale, Antigonish Co.  
Nova Scotia  
B2G 2S3

Phone: (902) 867 1438

Fax: (902) 867 1439

Email: [kwallace@gulfnsbonafidefishersassoc.ns.ca](mailto:kwallace@gulfnsbonafidefishersassoc.ns.ca)



## **Social Research for Sustainable Fisheries (SRSF)**

SRSF is a partnership linking university researchers and capacity with Mi'kmaq and commercial small boat fisheries community organizations. Although administered at St. Francis Xavier University, SRSF engages and represents a working collaboration between Gulf Nova Scotia Bonafide Fishermen's Association, Guysborough County Inshore Fishermen's Association, the Mi'kmaq Fish and Wildlife Commission - Afton Band, and St.F.X as well as other university-based social researchers. Additional fisheries and community organizations are linked with SRSF through relations with these core partners.

SRSF is funded by the Social Sciences and Humanities Research Council of Canada (SSHRCC) through its Community-University Research Alliance (CURA). The basic purposes of SRSF are: to develop fisheries-focused social research linkages between university researchers and community organizations, to build social research capacity, and to facilitate specific fisheries social research activities that will examine the concerns of the partnered community organizations. Social research capacity, experience and linkages are developed through research-focused workshops and specific research projects.

### **HOW TO**

#### **Social Research for Sustainable Fisheries**

St. Francis Xavier University  
PO Box 5000, CURA Box 21  
Antigonish, Nova Scotia  
B2G 2W5

Phone: 902-867-2292

Fax: 902-867-5395

[www.stfx.ca/people/adavis/srsf](http://www.stfx.ca/people/adavis/srsf)



### **CONTACT US:**