

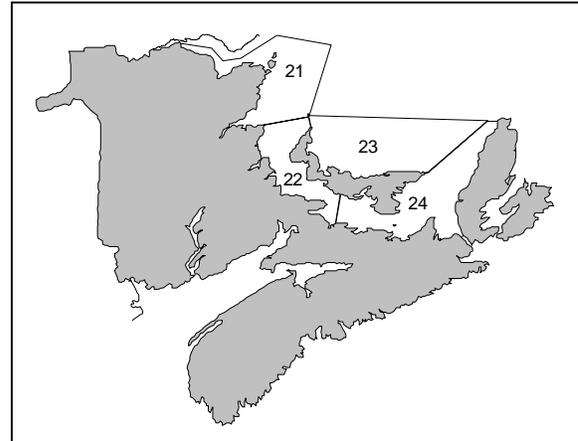
Southern Gulf of St. Lawrence Sea Scallop

Background

The sea scallop (*Placopecten magellanicus*), is a bivalve mollusc found only in the north-western Atlantic from Cape Hatteras to the Strait of Belle Isle. Sea scallops occur between depths of about 5 and 40 m in the coastal waters of the southern Gulf of St. Lawrence. They occur on a wide range of hard bottom types but are rare or absent from mud and silt. Water temperatures above 20-23° C are usually lethal to sea scallops and are one possible cause of occasional mass mortalities of adult scallops in the southern Gulf.

Sea scallops spawn as early as age 2 but do not contribute significantly to egg production until they reach a length > 70 mm (4 to 5 years old). Sexes are separate and egg fertilization occurs in the water column. Spawning usually occurs during late summer and the larvae are planktonic for 4 to 5 weeks before they metamorphose and settle to the bottom in mid-autumn. Recruitment to the bottom is often patchy and highly variable due to variation in egg and larval mortality, suitability of bottom type, and wind and tidal effects on currents at the time of metamorphosis. Sea scallops in the southern Gulf reach harvestable size at age 4 or 5.

Almost all scallop fishermen hold more than one fishing license; they also fish herring and lobster. The main scallop beds are in Northumberland Strait and Chaleur Bay. A small fishery also occurs on the north side of PEI. Most fishermen in the southern Gulf of St. Lawrence use modified Digby dredges, which are the most efficient gear on rocky and gravel bottoms.



Summary

- Catch in 1997 was 246 t, there was no sampling of the commercial fishery.
- A research survey was conducted in SFA 22. Overall abundance was low. Areas of highest density were lower than the average catch rates in Bay of Fundy research surveys.
- There is very high exploitation on this resource.
- The resource is likely overexploited and effort should be reduced.

The Fishery

There currently are 779 licences for SFAs 21 to 24 and no new licences have been issued since 1978 (Lanteigne et al. 1987). **Management strategies** are developed and approved by individual SFA advisory committees in consultation with DFO Resource Management and Science branches. The Fisheries Management regulations for 1997 were:

Summary of the 1997 southern Gulf of St. Lawrence Scallop Fishery regulations.

	Total # of Licences	Meat Count per 500g	Max. Drag Width	Ring Size
SFA 21	107	39	20'	3"
SFA 22	202	52	16'	3"
SFA 23	79	52	21'6"	---
SFA 24	391	52	16'8"	---

Summary of the 1997 Scallop Fishing Seasons in the southern Gulf of St. Lawrence.

	Fishing Seasons
SFA 21A	26 May-16 Aug. and 15 Sep.-15 Nov.
SFA 21B	1 May-16 Aug. and 15 Sep.-30 Nov.
SFA 21C	24 Jun.-13 Sep.
SFA 22	5 May-7 Jun.
SFA 23	1 Jun.-29 Nov.
SFA 24	14-18 Apr., 5 May-14 Jun. and 13 Oct.-31 Dec.

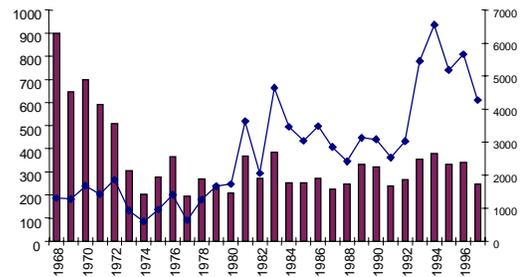
In 1997, 247 mt of scallop meat were **landed** in SFAs 21-24 of southern Gulf of St. Lawrence.

Summary of reported scallop landings (mt of meat) for the southern Gulf of St. Lawrence

Year	70-79 Avg.	80-89 Avg.	90-93 Avg.	1994	1995	1996	1997
SFA21	32.7	44.9	72.3	112.5	85	92.7	75.5
SFA22	163.7	133.0	87.4	97.1	105.9	90.6	120.7
SFA23	0.3	1.9	0.4	0.8	0.3	3.1	8.3
SFA24	168.1	101.3	134.9	170	145.4	155.1	42.0
Total	364.8	281.1	294.9	380.4	336.6	341.5	246.5

The reported landings dropped from over 600 mt from 1968 to 1971 to an average of less than 300 mt since 1981. Nevertheless, the value of the fishery has increased to a peak in 1994 because the price of scallops increased. Both landings and value of this fishery have declined since 1994.

Reported sea scallop landings (mt of meat) and landed value (solid line, in \$1000) for the southern Gulf of St. Lawrence from 1968 to present.



There has not been **at sea or port sampling** of the commercial catches since 1988; therefore, the size- and age-structure of the catches for 1997 are unknown.

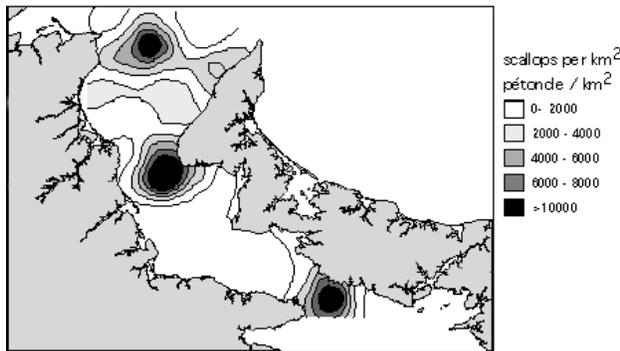
Resource Status

Catch rate numbers are considered to be unreliable. Twenty index logbooks were distributed in each of SFAs 22 and 24 during 1997. Returns were very low and could not

be used to calculate catch rates. During June 1997, the first **research survey** since 1986 was conducted in SFA 22. No other SFA was surveyed. 121 Stations were fished and the distribution of scallops > 40 mm shell height (animals fully recruited to the survey dredge) was mapped.

Concentrations of scallops were found in two area: (1) near the Cape Tormentine area; and (2) the area from West Point to near Escuminac.

Locations of concentrations of sea scallops (40 to 155 mm shell height) during research survey in SFA 22, June 1997.



There were very few scallops found near Egmont Bay or off of Richibucto -- two areas where scallops formerly were abundant. In 1997, the locations of juvenile scallops (animals ≤79 mm shell height) coincided with those of commercial-sized animals. The average catch per standard tow in 1997 was the lowest ever recorded.

For comparative purposes, the 1997 estimates were divided into sub-areas (Cape Tormentine versus the rest of SFA 22) to match surveys done in 1967 to 1986.

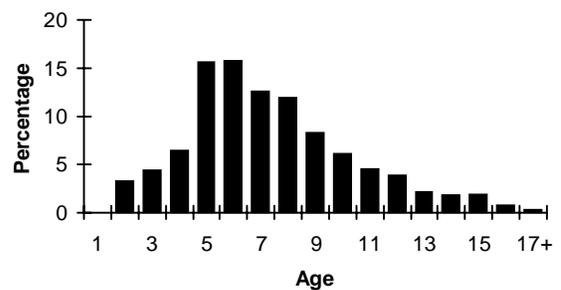
Summary of average number of scallops > 70 mm/m² reported in research surveys in SFA 22 (1967 to 1997). Similar dredges were used in all surveys and estimates were not corrected for dredge efficiency.

Year	Western Area	Cape Tormentine
1967	0.0165	No data
1979	0.0062	0.0032
1980	0.0078	0.0171
1981	0.0091	0.0069
1983	0.0036	0.0032
1986	No data	0.0051
1997	0.0030	0.0027

In 1997, the total population size in SFA 22 was 10 million scallops > 40 mm shell height (not corrected for dredge efficiency). In terms of biomass of commercial sized scallops (> 80 mm shell height), this represented 115 t of meats in the 2812 km² survey area at the end of the fishery.

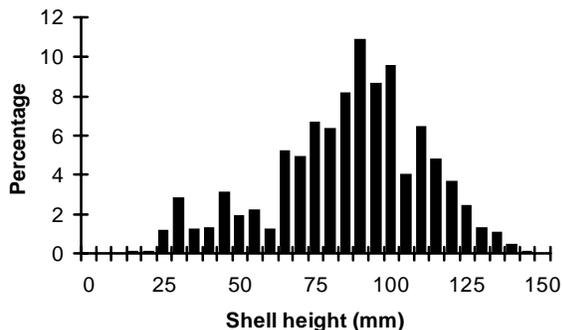
The age-distribution showed the population to be dominated by younger aged animals (ages 5 to 8) but suggested that the incoming age-groups (ages 3 and 4) are weak.

Age distribution (percentage) of sea scallops from the June 1997 research survey in SFA 22.



The survey captured relatively few scallops < 80 mm, thus, the shell-height distribution also suggests that incoming recruitment is weak.

Shell-height distribution (percentage) of scallops from the June 1997 research survey in SFA 22.



Previous assessments (Jamieson et al. 1981; Worms and Chouinard 1984; Lanteigne and Davidson 1989) expressed concern about the low abundance of scallops in the survey area. The current survey indicates resource levels are currently lower than in 1967 to 1986; therefore, there remains serious cause for concern about the low abundance of this population. Furthermore, the largest catch in a single research tow was 105 animals (> 40 mm) whereas the average number per tow in Bay of Fundy stocks (1996) was 83 to 150 animals per standard tow (Hanson 1997; Kenchington et al 1997) - and those stocks are considered to be overexploited.

Outlook

Reported catches have remained at about the same level since the early 1970s but real catches are unknown. The survey suggests stock abundance of scallops in SFA 22 during 1997 was low compared with other years and with other scallop areas in Maritime Canada. This low abundance suggests that the 202 licences in SFA 22 exceeds the limits of the resource. Overall, the southern Gulf scallop fishery is likely overexploited (779 licences only reported 246 mt of catch), which suggests that effort should be reduced.

For more Information

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