

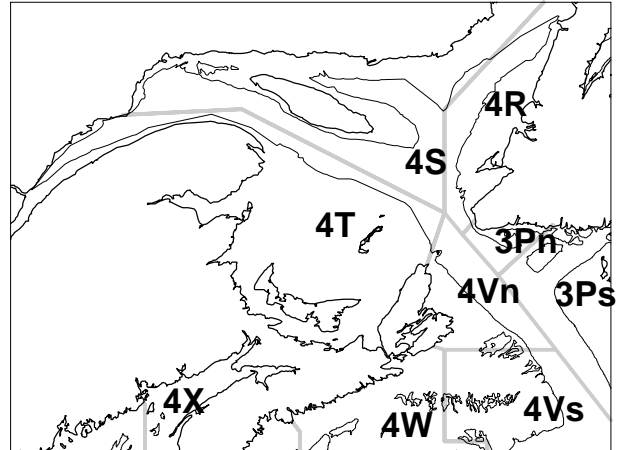
Updates on Selected Gulf of St. Lawrence Groundfish Stocks in 1999

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Updates on Selected Gulf of St. Lawrence Groundfish Stocks in 1999

Background

The most recent full assessments of the status of southern Gulf of St. Lawrence American plaice, white hake and witch flounder stocks were conducted in January 1998 and are summarized in Stock Status Reports A3-26, A3-12 and A3-20 (1998). This report provides a brief update on fishery and survey data on these stocks for 1998.



Summary

- **American plaice** abundance and recruitment remain poor; the stock is concentrated in eastern 4T.
- The **white hake** resource in NAFO Division 4T remains near its lowest level since the first quota was put in place in 1982. Considering the low abundance and indications of weak incoming recruitment over the next couple of years, any recovery of this stock will occur slowly.
- Although relatively abundant in eastern 4T, biomass of the 4RST **witch flounder** stock as a whole has been at a low level since 1993, despite the low level of catches in recent years.

American plaice (Div. 4T)

The Fishery

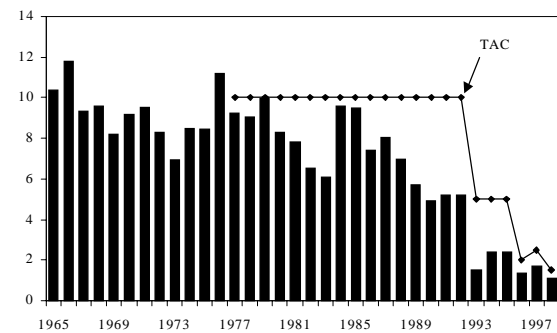
Landings (000's tonnes)

Year	1992	1993	1994	1995	1996	1997*	1998*
TAC	10.0	5.0	5.0	5.0	2.0	2.5	1.5
TOTAL	5.2	1.5	2.4	2.4	1.4	1.7	1.1

* preliminary statistics

Landings of plaice declined in 1998 along with fishing effort and the number of vessels engaged in the directed plaice fishery. The decline in catch and effort was mainly attributed to a restricted quota, a limited redirecting of effort to cod in the index fishery, and to fishery closures. The plaice fishery of the mobile competitive fleet was closed when their allocated quota was caught and the mobile gear fishery was closed in mid October due to bycatch of witch flounder.

Landings (000's tonnes)

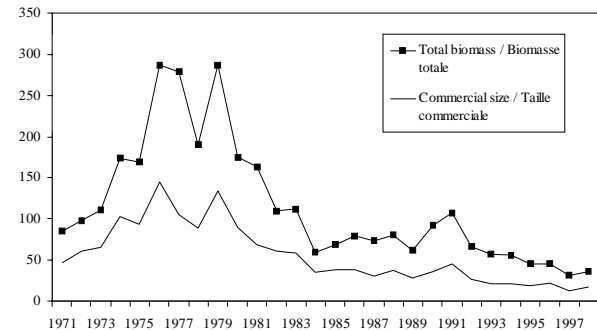


Resource Status

Research surveys from 1995 to 1997 recorded the lowest levels of abundance and biomass of 4T plaice since the survey began in 1971. Abundance remains low in 1998. The minimum trawlable biomass, based on the research survey and unadjusted for catchability, was approximately 36,000 tonnes in 1998, of which commercially-sized plaice (minimum 30 cm) contributed 18,000 tonnes.

This is the second lowest level of biomass in the survey time series.

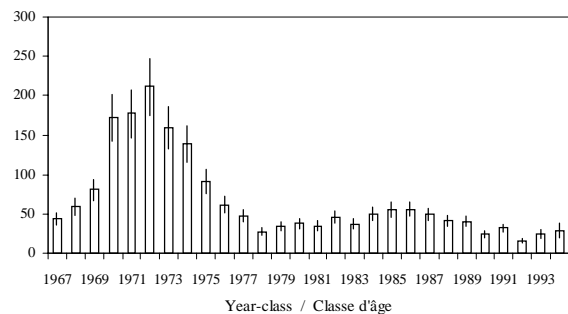
Survey trawlable biomass (000's tonnes)



The abundance of plaice in the research survey followed a similar trend to that of stock biomass. In 1998, catches averaged 149 plaice per tow, the second lowest catch in the survey time series. The lowest average catch was registered in 1997 at 131 plaice per tow.

Year-class strength remains at a low level for this stock. Year-classes were evaluated by their abundance in the survey at ages that were not fully recruited to the commercial fishery (ages 4-7). Results indicate strong year-classes born in the early 1970s, with declining year-class strength since the mid 1980s.

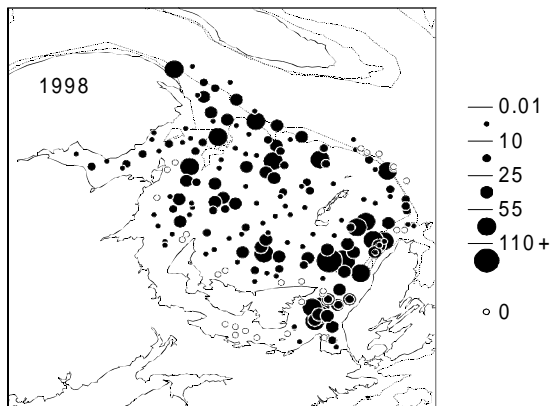
Mean number per tow at age-5



Research surveys and commercial catches continue to indicate a recent shift in the **distribution of plaice** within 4T. Survey data indicate that plaice abundance has varied more widely in the western half of 4T. Stock abundance has declined during the 1990s in western 4T, while it has remained relatively

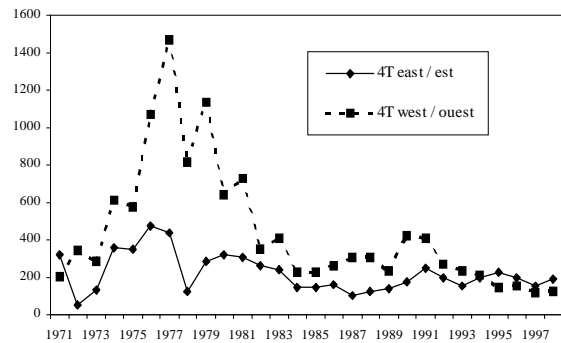
stable in the east. The 1998 survey data illustrate this pattern, with the most abundant catches off the coast of Cape Breton. Plaice catches on the slope of the Laurentian Channel were stronger than in most recent years; however, the resource remains below average on the central Magdalen Shallows and is particularly weak in Chaleur Bay.

Catches of plaice (kg) in standard tows of the 1998 research survey.



Catch rates of plaice have declined in the western half of 4T and plaice are now relatively more abundant in the east. As concluded in the previous assessment, we cannot attribute this pattern to the occurrence of separate stocks in 4T. Studies of plaice genetics and the analysis of biological characteristics of 4T plaice suggest that there is a single stock in 4T.

Mean number of plaice per tow



Outlook

Several factors indicate that this stock is at a low level of abundance and that it should be exploited with caution. Commercial catches are concentrated in the eastern part of 4T. Commercial vessels also have higher catch rates in eastern 4T, similar to catch rates in the research survey. Recruitment remains poor. The concentration of the stock in eastern 4T makes it vulnerable to excessive exploitation. The last assessment concluded that chances of stock conservation would improve if catches were maintained well below average landings in the most recent period of stock decline (2,000 tonnes over 1994-97 period). Information from the 1998 fishery and research survey gives no reason to modify this conclusion.

For More Information

Contact: Roderick Morin
 Marine Fish Division
 Gulf Fisheries Center
 P.O. Box 5030, Moncton
 New Brunswick, E1C 9B6

TEL: (506) 851-2073
 FAX: (506) 851-2620
 email: MorinR@mar.dfo-mpo.gc.ca

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White hake (Div. 4T)

The Fishery

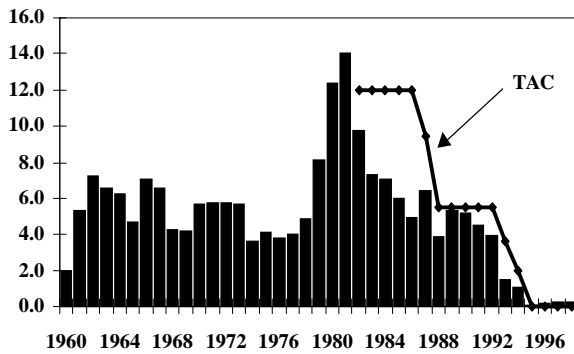
Landings (000's tonnes)

Year	1992	1993	1994	1995	1996	1997*	1998*
TAC	5.5	3.6	2.0	0	0	0	0
TOTAL	3.9	1.5	1.0	0.1	0.2	0.2	0.2

* preliminary statistics

Directed fishing for white hake has been closed since 1995. In 1998, 237 t were **landed**, mostly (115 t) in the sentinel fishery. Detailed historical information on the NAFO 4T white hake fishery is available in Hurlbut et al. (1998).

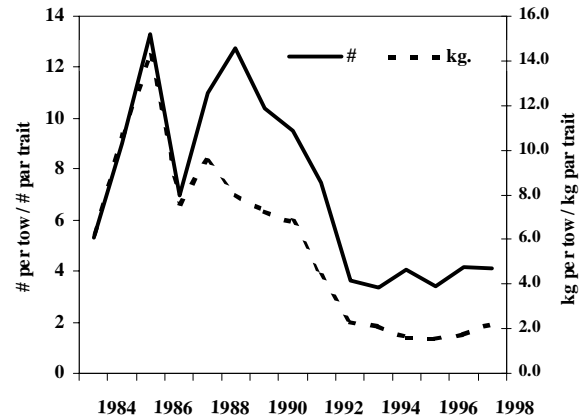
Landings (000's tonnes)



Resource Status

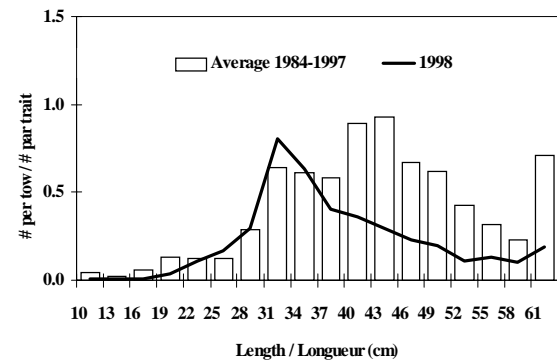
The **catch rate** of white hake (mean number per tow of all ages) during the 1998 research survey was similar to that in the 1997 survey (4.19 in 1997 compared to 4.11 in 1998). Abundance remains near the lowest historical level. The mean weight of white hake caught per tow (all ages) remains low.

Survey mean number and mean weight per tow (all ages)



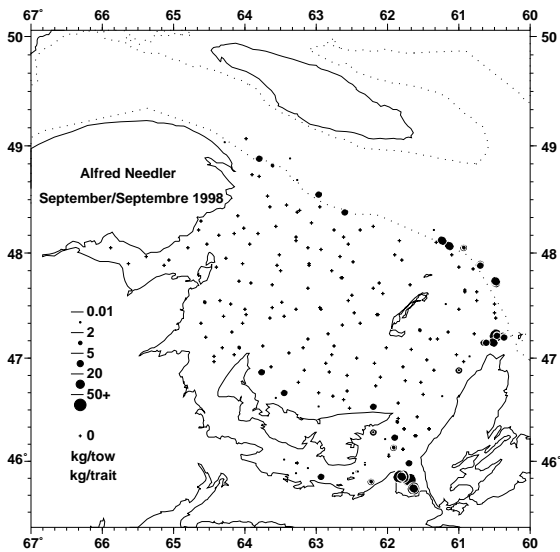
The **length frequencies** from the 1997 and 1998 surveys indicate that the abundance of small fish (less than 40 cm) and in particular of 0-group or “young of the year” hake (less than 10 cm) is considerably less than observed in 1995 and 1996. As well, the abundance of commercial size fish (over 40 cm) remains low.

Survey length frequency



The **distribution** of white hake in the 1998 survey was very similar to that of recent years, with the main areas of concentration occurring in St. George’s Bay and the Cape Breton Trough. Concentrations were also present along the Laurentian Channel near 4Vn. Previously, hake were usually encountered in the Shediac Valley but they were again virtually absent from that area in 1998.

Catches of white hake (kg) in standard tows of the 1998 research survey.



Catch rates in the 1998 **sentinel fishery** suggest that white hake were again most abundant in St. George's Bay and in the area between eastern PEI and Cape Breton, and were relatively rare in other areas of the southern Gulf. The highest catch rates were recorded by longliners in St. George's Bay and were slightly lower than those seen in 1996 and 1997. Longline catch rates off P.E.I. were intermediate between those of 1996 and 1997. Gillnet catch rates were generally similar to those observed in 1996 and 1997, and showed a similar spatial pattern.

Outlook

The white hake resource in NAFO Division 4T remains near its lowest level since the first quota was put in place in 1982. Considering the low abundance and indications of weak incoming recruitment over the next couple of years, any recovery of this stock will occur slowly.

For More Information

Contact: T. Hurlbut
Fisheries and Oceans
Gulf Fisheries Center
P.O. Box 5030
Moncton, N.B.
E1C 9B6

Tel: 506-851-6216
Fax: 506-851-2620
E-Mail: HurlbutT@mar.dfo-
mpo.gc.ca

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Witch Flounder (Divs. 4RST)

The Fishery

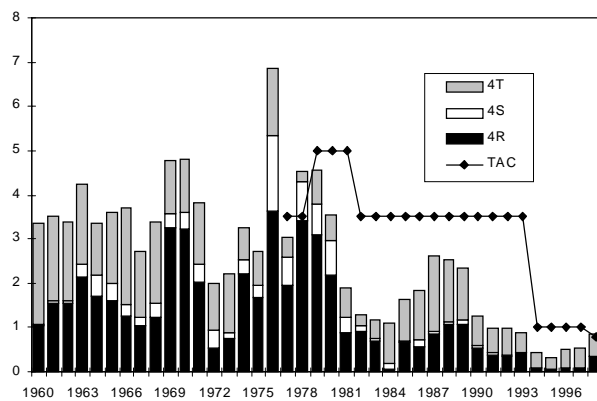
Landings (tonnes)

Year	1992	1993	1994	1995	1996	1997*	1998*
TAC	3500	3500	1000	1000	1000	1000	800
TOTAL	989	897	445	327	498	528	857

* preliminary statistics

Landings in 1998 increased above the low levels of 1994-1997 to a level comparable to those seen in 1991-1993. Most of this increase occurred in 4R, where landings had dropped to very low levels in 1994-1997. 4R contributed 39% of the 1998 landings, close to its historical (1960-1990) contribution of 48% and well above the 15-20% contributed by 4R in 1994-1997. Total landings in 1998 remained well below the 3000-3500 t level sustained throughout the 1960s, though they were limited in 1998 by the 800 t TAC.

Landings (000's tonnes)

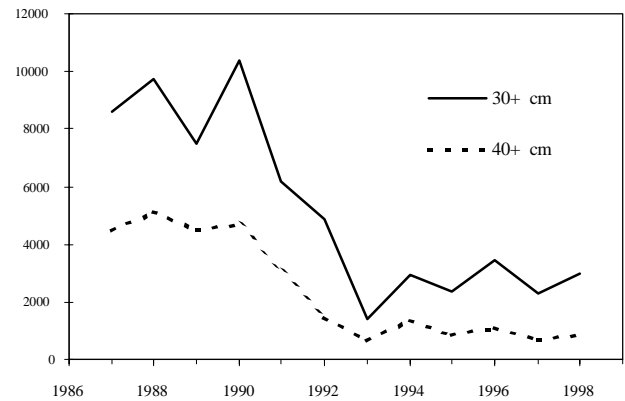


Resource Status

Abundance indices for witch flounder over the entire 4RST area are calculated by combining data from **research surveys** conducted in the southern Gulf each September and in the northern Gulf each

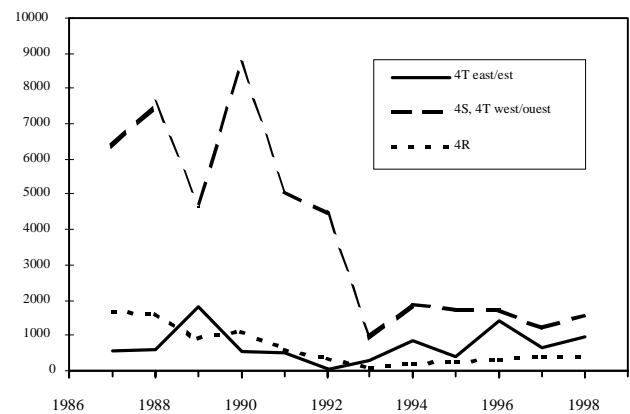
August. These indices suggest a sharp decline in spawning stock biomass from 1990 to 1993. The biomass estimate from the 1998 surveys remains at the low level seen since 1993.

Trawlable Biomass (t)



The decline in biomass after 1990 has not occurred uniformly throughout the stock area. Biomass declined in 4R, 4S and western 4T but not in eastern 4T. Biomass in 1998 exceeded the 1987-1990 average in eastern 4T but remained well below this average in other areas of the Gulf.

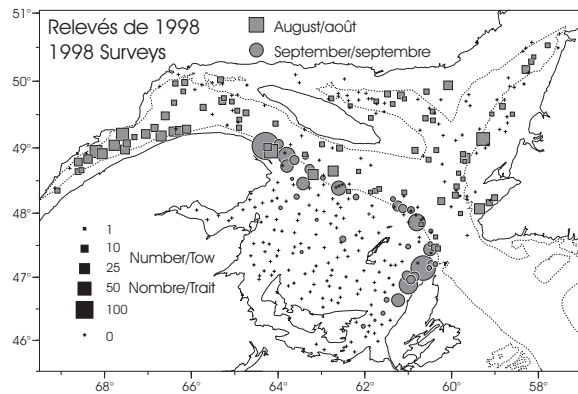
Trawlable Biomass (t)



The highest catch rates of witch flounder in the 1998 surveys occurred in the Cape

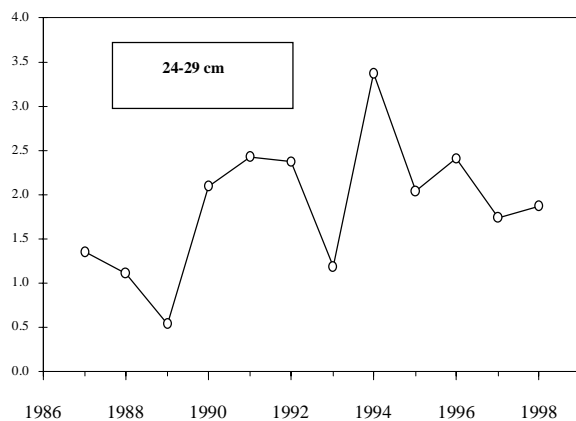
Breton Trough, and along the southern slope of the Laurentian Channel, particularly to the northeast of the Gaspé Peninsula. Catch rates also tended to be relatively high in the estuary of the St. Lawrence River. Witch flounder were widely dispersed throughout the relatively deep waters of the northern Gulf but were rare on the Magdalen Shallows.

Catches of witch flounder (kg) in standard tows of the 1998 research surveys.



Abundance of pre-recruit witch flounder (24-29 cm in length) in 1998 was similar to the 1997 level. **Recruitment** has remained fairly constant throughout the 1990s (except for fluctuations in 1993 and 1994), and has tended to be higher than in the late 1980s.

Number/Tow



Outlook

Although biomass is at a relatively high level in eastern 4T (the Cape Breton Trough), biomass for the 4RST stock as a whole appears to have remained low from 1993 to 1998, despite low landings in recent years. Improved recruitment appears to be needed for stock rebuilding.

For More Information

Douglas Swain
Marine Fish Division
Gulf Fisheries Center
P.O. Box 5030, Moncton
New Brunswick, E1C 9B6

TEL: (506) 851 6237
FAX: (506) 851 2620
email: swaind@mar.dfo-mpo.gc.ca

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Maritimes Regional Advisory Process
Department of Fisheries and Oceans
P.O. Box 1006, Stn. B203
Dartmouth, Nova Scotia
Canada B2Y 4A2
Phone number: 902-426-7070
e-mail address: myrav@mar.dfo-mpo.gc.ca

Internet address: www.dfo-mpo.gc.ca/csas
ISSN: 1480-4913

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Correct citation for this publication

DFO 1999. Updates on Selected Gulf of St.
Lawrence Groundfish Stocks in 1999.
DFO Sci. Stock Status Rep. A3-36(1999).