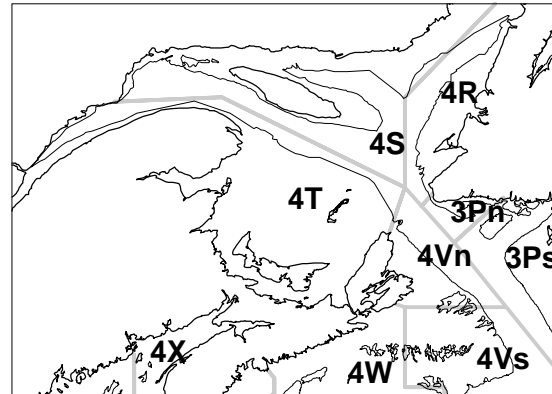


Yellowtail Flounder In The Southern Gulf Of St. Lawrence



Background

Yellowtail range from Labrador to Chesapeake Bay. In the southern Gulf of St. Lawrence (NAFO Division 4T), yellowtail flounder are most prevalent around the Magdalen Islands, and in the southern parts of 4T: Chaleur Bay, the Shediac Valley-Miramichi area, Northumberland Strait, and St. George's Bay. They are associated with sand or sand and mud bottoms usually at depths of 37-91 m and temperatures between 2 and 6 degrees. Throughout their range, they migrate seasonally into shallower waters in the spring and back to deeper waters in the winter. Spawning occurs on or near the bottom in spring or early summer. Female yellowtail deposit large numbers of small eggs that float to the surface once fertilized. Growth rates vary widely between regions, and there is no information on the biology of yellowtail flounder in 4T. The small mouth of yellowtail flounder restricts its choice of food to polychaete worms, amphipods, and other small crustaceans such as shrimp. They feed in lesser quantities on fish such as sand lance.

The 4T yellowtail flounder resource supports localized bait fisheries. Yellowtail is also a bycatch in fisheries for cod, white hake, American plaice and winter flounder. The fishery in 4T is prosecuted mainly by mobile gear operated by vessels less than 45 feet around the Magdalen Islands, off the northeast coast of New Brunswick, and the north coast of Prince Edward Island.

Yellowtail flounder in 4T have not been under quota management. This is the first assessment of the stock status.

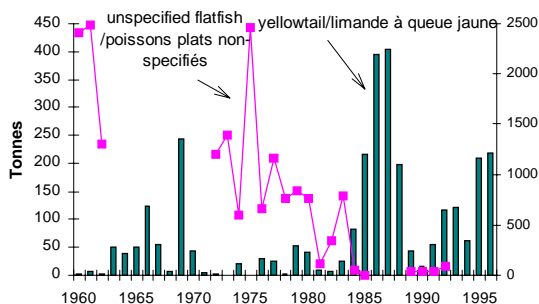
The Fishery

There has not been a TAC on yellowtail flounder in 4T. Various **regulations** were in place for 1996. In Northumberland Strait and the Magdalen Islands, the approved mesh size for mobile gear in yellowtail-directed fisheries was 130-mm square mesh in codends. In Chaleur Bay and Miscou Bank, the approved mesh size was 135-mm square. Mobile gear fisheries targeting American plaice and witch flounder were required to use a minimum mesh size of 155-mm square. Gillnets were required to have a minimum mesh size of 140 mm. Restrictions were also imposed on the minimum size of yellowtail flounder. Fisheries were closed when yellowtail less than 25 cm in length exceeded 15% by number of the total yellowtail flounder catch, based on at-sea observers. Closures were also imposed when the bycatch of cod, white hake exceeded 10% of the weight of total catches in yellowtail flounder-directed fisheries. In 1995, special licenses for bait fishing were eliminated in the southern Gulf to reduce the catches of juvenile flatfish. Dockside monitoring recorded the length composition of landed catches, providing a means to detect discarding at sea.

Landings:

Landings (tonnes)

Year	1970-1979 Avg	1980-1989 Avg	1992	1993	1994	1995	1996
Total	18	142	117	121	63	208	217

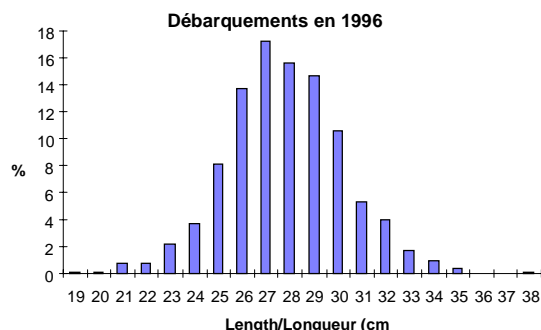


Landings of yellowtail flounder in 4T totaled 217 t in 1996, about the same as in 1995 (208 t). Reported landings have varied greatly since 1960, ranging from below 10 tonnes in the 1960s and 1970s to a high of over 400 tonnes in 1986 and 1987. This may reflect problems in yellowtail flounder catch statistics. There have been years of large unspecified flatfish catches, some of which may be yellowtail.

Seines and otter trawls continue to be the dominant gears in the 4T fishery which is prosecuted largely in the summer and fall months close to the Magdalen Islands, off the northeast coast of New Brunswick, and off the northwest coast of Prince Edward Island.

Port sampling of commercial yellowtail catches for length composition has been conducted sporadically since 1983. The modal size of yellowtail in the 4T landings appears to have declined over time, but this may be an artifact of sampling intensity. Length frequency samples of catches in the 1996 sentinel surveys were used to calculate the proportion of landings at length for the 1996 landings.

Percent of 1996 Landings / Pourcentage de

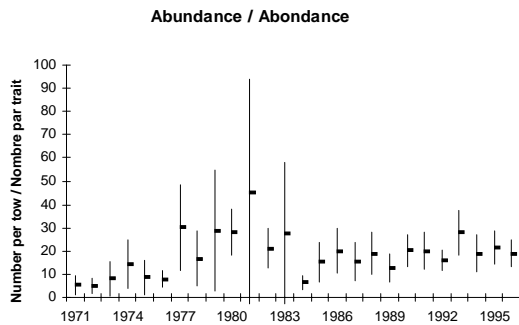


Resource Status

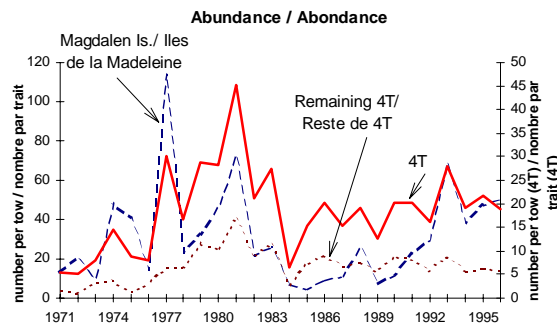
Research surveys have been conducted every year in September since 1971. From 1971 to 1985, the research vessel *E.E.Prince* was used with a Yankee 36 bottom trawl fishing in the daytime only; from 1986 to 1991, the *Lady Hammond*, with a Western IIA trawl was used for both day and night fishing; and since 1992, the *Alfred Needler*, with a Western IIA trawl has been used for 24 hour fishing. Comparative experiments found the *Lady Hammond* to be significantly better at catching yellowtail than the *E.E.Prince*, and night catches of yellowtail to be significantly higher than daytime catches. Research vessel catches were converted to their daytime *Alfred Needler* equivalents; numbers of fish caught by the *E.E. Prince* were divided by 0.673; numbers caught in night sets were multiplied by 0.323.

The **mean number per standardized tow** shows low abundance (fewer than 10 yellowtail/tow) in the early 1970s, increasing to the early 1980s, decreasing somewhat to a stable level at about 19 yellowtail/tow since 1985. In September, yellowtail are concentrated around the Magdalen Islands, along the northeast coast of New Brunswick, along the north coast of Prince Edward

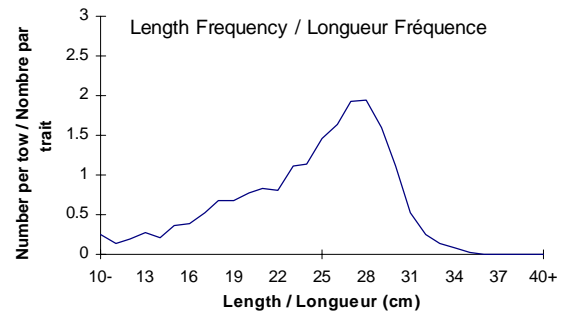
Island and in St. Georges Bay, with lesser concentrations along the east coast of P.E.I.



The surveys were analyzed to give a separate index of abundance for the strata surrounding the Magdalen Islands, because of the apparent separation of yellowtail in this area from the remaining 4T strata, and the particular interest in yellowtail expressed by fishers from the Magdalens. Abundance trends for these do not give the same picture as for 4T as a whole. The abundance peaked earlier for the Magdalen Islands than in 4T as a whole (1977 versus 1981), and has been generally increasing since 1985. Abundance in the rest of the strata follows very close to the 4T abundance.



Length frequencies of yellowtail in the survey appear in several instances to track year-classes from one year to the next. The modal length in 1996 is 28 cm. While the range of length frequencies has not changed, the number of small fish (<10 cm) was larger in 1995 and 1996 than the previous 3 years.



In September, 1996, a **lobster research survey** was conducted near the Magdalen Islands by DFO staff from Institut Maurice Lamontaigne. The survey area was close to the eastern shores on the Magdalen Islands - outside of the groundfish survey boundaries. Yellowtail flounder were present in every fishing set and a large number of small yellowtail (<16 cm) were caught. This may indicate a nursery or juvenile area for yellowtail in the shallow waters off the east coast of the Magdalen Islands. The 4T groundfish survey did not find large numbers of small yellowtail in the stratum bordering on the lobster survey area.

Outlook

Information from research surveys indicate that yellowtail flounder in 4T are at a stable abundance level since 1985. There is no indication from length frequency data that older fish are not as prevalent as they were in the past.

There is no expectation of increased effort on yellowtail flounder. The groundfish survey appears well suited to tracking yellowtail abundance in small geographic areas. An effort should be made to balance the number of sets fished in the day and night periods, especially in strata important for yellowtail. It may be possible to develop a recruitment index by continued surveys in the area close to the Magdalen Islands.

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Poirier, G., R. Morin, and D. Swain. 1997. The status of yellowtail flounder in NAFO Division 4T in 1996. DFO Canadian Stock Assessment Secretariat Res. Doc. 97/70.

This report is available from the:

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