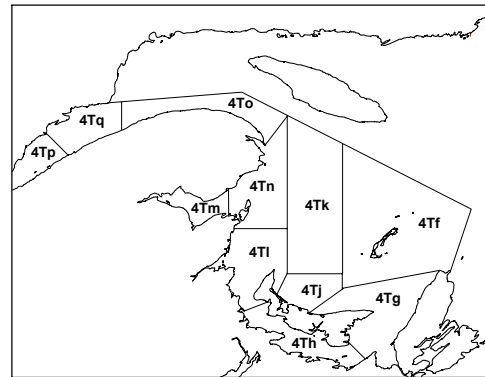


Yellowtail Flounder in the Southern Gulf of St. Lawrence



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, including 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 two and six degrees Celsius. 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 little 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.

A quota was imposed on yellowtail flounder in 4T for the first time in 1998.

The most recent in-depth assessment of this resource was conducted in 2002 (Poirier and Morin, 2002; SSR A3-16 (2002)).

Summary

- Landings in 2002 were approximately 200t against a TAC of 300t.
- The index of abundance for all of 4T in the DFO research vessel survey remained relatively stable from 1985 to 2002. In the strata surrounding the Magdalen Islands, the index of abundance increased from 1985 to 1993 and has remained relatively stable since then.
- Following the 800t catch of yellowtail in 1997, the modal (most common) length in the research vessel survey decreased, but has increased since then and remained at 24cm since 2000. There continues to be a large proportion of small yellowtail in the surveys.
- Harvest levels near 800t may cause the stock to decline, but the stock appears able to support harvest levels closer to 300t.

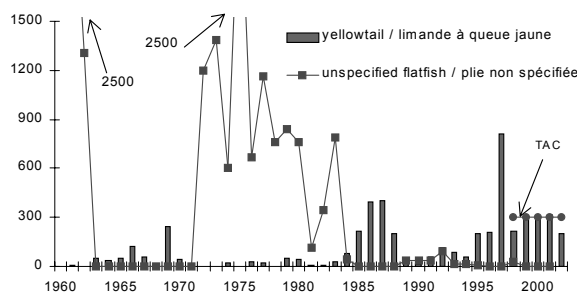
The Fishery

A TAC of 300t has been imposed on yellowtail flounder landed in the Magdalen Islands since 1998. Yellowtail in the rest of 4T is not under quota management. Mesh sizes of nets used in the fishery have increased considerably since the 1960s. In 2000, the minimum mesh size for mobile gears in most areas of 4T in the winter flounder-yellowtail directed fisheries was increased from 130mm to 140mm square.

Landings (thousands of t)

Year	1990-94		1995-98			
	Avg	Avg	1999	2000	2001	2002
TAC (Magdalen Islands)			0.3	0.3	0.3	0.3
Total 4T	0.1	0.4	0.3	0.3	0.3	0.2

Landings (t)



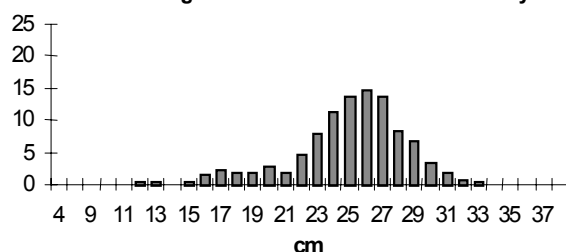
Reported **landings** of yellowtail flounder have varied considerably since 1960, ranging from below 10t in the 1960s and 1970s to a high of about 400t in the mid-1980s, and over 800t in 1997. Since 1998, annual landings have been between approximately 200 and 300t. More than 80% of the landings originates from areas around the Magdalen Islands.

Some of the fluctuations in landings appear to be caused by inconsistent reporting of yellowtail catches. There have been years of large unspecified flatfish catches, some of which may have been yellowtail.

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

Port samples of 4T yellowtail catches for length composition are available for some years since 1985, but annually since 1995. In addition, catches at sea have been sampled in the Observer Programme since 1995, and in the Sentinel Surveys for 1996 and 1997. Since 1992, the modal length of the commercial catches has been between 26cm and 29cm. In 2002, the length frequency distribution includes a large portion of fish less than 20cm in length. The proportion of small (<25cm) yellowtail in the landings was fairly steady at 6%-7% from 1995 to 1997, was about 20% in 2000 and 2001, and was about 37% in 2002.

Percent of Landings in the 2002 Commercial Fishery

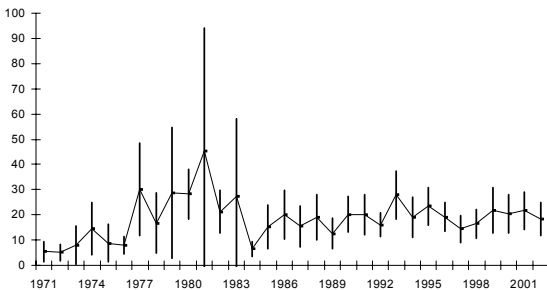


Resource Status

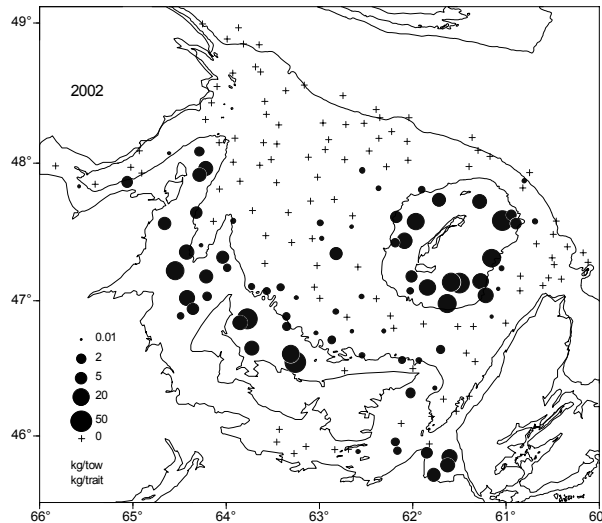
DFO **Research Vessel (RV)** surveys have been conducted in 4T every September since 1971. The **mean number per standard tow** shows that abundance was low (fewer than 10 yellowtail/tow) in the early 1970s, increasing to greater than 25 yellowtail/tow in the early 1980s, and

decreasing to 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 off the east coast of P.E.I.

Index of Abundance (mean number/tow) from the Annual Research Vessel Survey

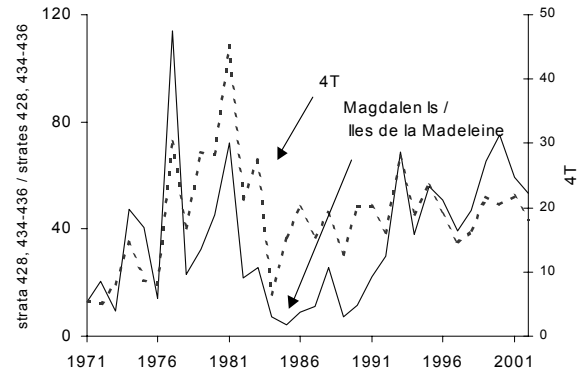


Distribution of Catches (kg) of Yellowtail Flounder During the 2002 Research Vessel Survey



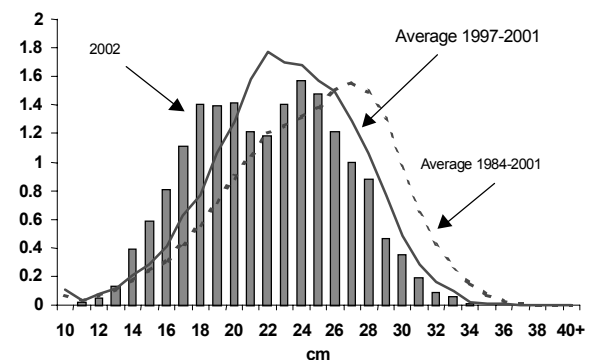
A separate index of abundance was calculated for the strata surrounding the Magdalen Islands. The abundance trend for this area is not the same as for 4T as a whole. The abundance peaked in the late 1970s and early 1980s in the Magdalen Islands and after a sharp decline in the mid-1980s, increased to the early 1990s and has been fairly stable since 1993.

Abundance Indices (mean number/tow) for 4T and the Magdalen Islands from the Research Vessel Survey



From 1984 to 1989, the **modal length** of yellowtail in the RV surveys varied between 27cm and 29cm. From 1990 to 1996, the modal length was generally between 25cm and 28cm. In 1997, the modal length was 21cm, and has increased since then to 24cm in 2000. The length frequency of yellowtail in the 2002 research vessel catches was bimodal, with modes at 20cm and 24cm. The proportion of small (less than 25cm) yellowtail in the catches was generally less than 50% before 1997, but since then has been greater than 65%. The proportion of small fish in 2002 was 70%.

Length Frequency (mean number/tow) from the Research Vessel Survey



Sources of Uncertainty

DFO RV surveys, although in all probability sampling the majority of distribution of adult yellowtail flounder, may miss large portions of small fish inhabiting very shallow water.

The stock structure of yellowtail in 4T is not known. Distribution maps of RV catches indicate the possibility of separate stocks, but, to date, analyses of length frequencies do not indicate the existence of separate stocks.

Outlook

The annual RV abundance is relatively stable for both 4T in its entirety, and the area surrounding the Magdalen Islands. The length frequency distributions of yellowtail in the surveys since 1997 have shown a smaller modal length and a larger proportion of less than commercial size fish (<25cm).

There do not appear to be signs of major change in the 4T yellowtail stock; indicators show relatively stable conditions, but the proportion of small fish in both the commercial and RV catches continues to be high.

Harvest levels near 800t may cause the stock to decline, but the stock appears able to support harvest levels closer to 300t.

For more Information

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