

SUBDIVISION 3Ps WITCH FLOUNDER

Background

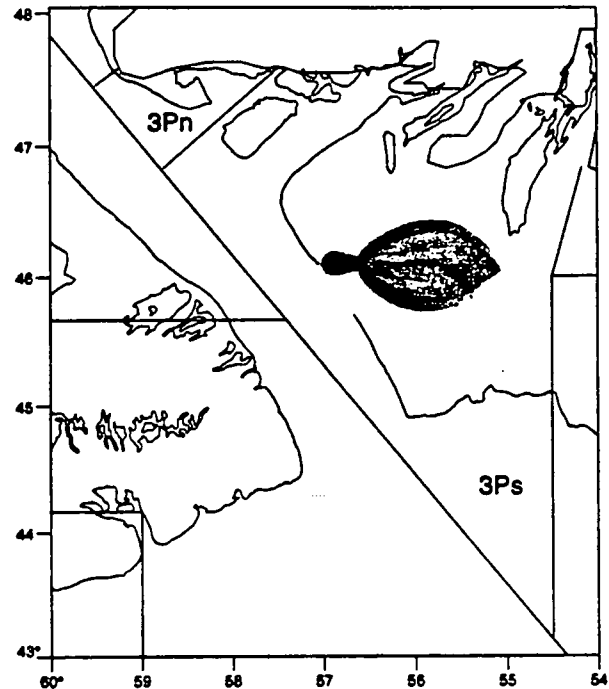
Witch flounder is a deepwater flatfish which reaches its northern limit in the Northwest Atlantic near Hamilton Bank off southern Labrador, but extends as far south as the east coast of the southern United States. Although traditionally it has been most abundant in depths of about 200–400 meters (109–219 fathoms), more recently it has been caught mainly in depths well in excess of 900 meters (492 fathoms). In Subdivision 3Ps, it is generally distributed along the slope of the continental shelf as well as in the mouth of Fortune Bay off Newfoundland's south coast.

It is a long-lived, slow growing species and has been aged to over 30 years old. However, the number of age groups comprising the witch flounder stock in Subdivision 3Ps has been reduced substantially since the mid-1970s when it was common to catch fish up to at least 20 years old. Fish older than 13 years are now rarely seen in either the commercial or survey catches.

About 50% of the males are mature at age 6.9 (30 cm (12 inches)). Females don't mature until they are somewhat older; 50% are mature at ages 9.5 (40 cm (16 inches)).

Spawning occurs over a rather prolonged period usually extending from March through to September for most areas of the Northwest Atlantic, however in the Subdivision 3Ps area spawning takes place early by comparison, with highest intensity in the period January to March. During the winter and spring months it can be found in spawning concentrations along the continental slope of St. Pierre Bank at which time most commercial fishing operations occur and catch rates are generally highest.

The first quota was set at 3,000 metric tons in 1974. The TACs remained at this level through 1988. Since then they have been 1,000 metric tons annually until 1996 when it was reduced to 500 metric tons.



The Fishery

Catches of witch flounder in NAFO Subdivision 3Ps averaged about 1,000 metric tons annually during the 1960s. They increased to over 4,000 metric tons in 1967 to 1969, then declined slowly to former levels in the late 1970s. During the last 10 years catches ranged from 300 metric tons in 1983 to 1,300 metric tons in 1986. However, since 1989 the average catch has been about equal to the TAC of 1,000 metric tons with the exception of 1994 and 1995 when reported catches were only about 400 and 270 metric tons respectively.

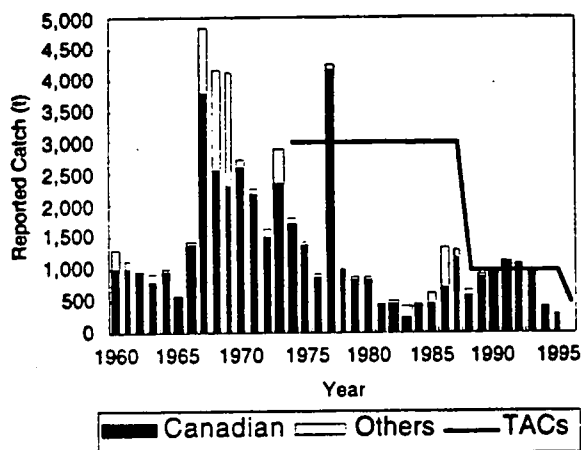
Landings (thousand metric tons)

Year	60-76 Avg.	77-90 Avg.	1992	1993 ¹	1994 ¹	1995 ¹	1996
TAC	-	-	1	1	1	1	.5
Can.	2	.9	1	1	.4	.3	
Others	.4	.1	0	0	0	0	
Totals	2	1	1	1	.4	.3	

¹ Provisional

Catches from this stock have been taken mainly by Canadian trawlers fishing offshore on St. Pierre Bank while there are some catches taken

by small vessels using Scottish seines and gillnetters fishing in Fortune Bay off the south coast of Newfoundland. Prior to the boundary settlement between Canada and France, fishers from St. Pierre and Miquelon also caught small amounts of witch flounder (usually less than 100 metric tons annually) although this no longer appears to be the case.



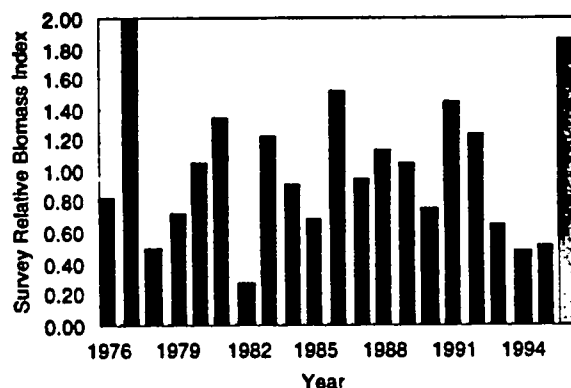
Fishing was conducted at the southeastern tip of St. Pierre Bank in depths ranging from 200 to 900 meters (110 to 492 fathoms) during 1993 and 1994. As a result of the closure of the American plaice and cod fisheries in Subdivision 3Ps combined with a 5% by-catch constraint, the 1994 fishery for witch flounder was seriously hampered and resulted in the lower than usual catch level. The reported offshore trawler catch for 1995 was only about 5 metric tons. This was due to excessive by-catch of American plaice which caused the witch fishery to be curtailed. The remainder of the reported catch (265 metric tons) was taken by vessels using Danish seines.

Resource Status

Stratified-random research vessel surveys have been conducted annually by Canada on St. Pierre Bank since the early 1970s, however, only since about 1976 has coverage been relatively complete at least to a depth of 549 meters (300 fathoms). The **survey relative biomass index** has been highly variable over the past 15 years

fluctuating between years, but showing little in the way of any trends.

The survey conducted in 1996 was done using a new and more efficient survey trawl. Until acceptable conversion factors have been established between the gears, the 1996 result cannot and should not be put in the same context as those of previous years.

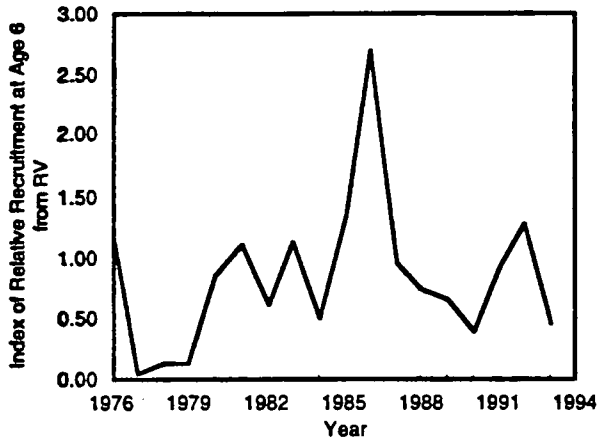


An examination of the survey catches by depth zone indicated that during the late 1970s and early 1980s there were considerable numbers of fish in depths less than 183 meters (100 fathoms) whereas during the 1990s there were none.

Survey results from 1993-95 were below average, but within the range of previous estimates. The commercial fisheries in 1993 and 1994 occurred in deep water beyond the survey area which would support the hypothesis that witch flounder are currently distributed in depths not surveyed by the research vessel. On the other hand, in both years the fishery was concentrated within a relatively small area on a pre-spawning concentration of high density. Therefore, the fishery may not be an indicator of a high level of biomass.

Information on age distribution is not available for the years since 1993. However, based on research survey information to 1993,

recruitment has been at about the long term average in recent years.



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Sources of Uncertainty

The main sources of uncertainty regarding the status of this stock may be summarized as follows: a) the only source of data regarding stock status is the research survey database which shows very little in the way of trends over time, b) the current survey coverage may not include all depths where witch flounder are distributed, and c) because of the change in fishing gears, the 1996 survey results are presently not comparable with those from previous surveys.

Outlook

The survey biomass has been below average but relatively stable over the last few years while catches have been very low. Continued low catches are not likely to cause a decline in this stock.

For More Information

Research Document: Bowering, W.R. 1995. Witch flounder in NAFO Subdivision 3Ps: a stock status update. DFO Atl. Fish. Res. Doc. 95/38.