

DIVISIONS 2J3KL WITCH FLOUNDER

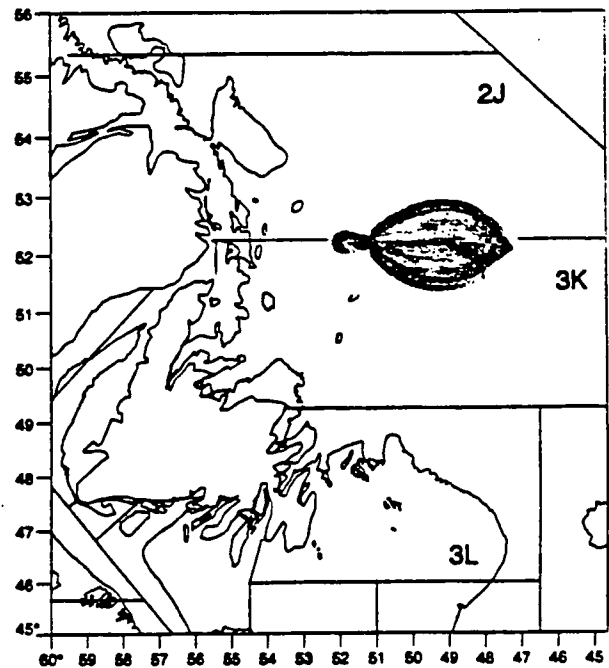
Background

Witch flounder is a deepwater flatfish which reaches its northern limits 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) in divisions 2J3KL, more recently it has been caught mainly in depths well in excess of 900 meters (492 fathoms). Witch flounder are generally associated with deep holes and channels running between the fishing banks as well as the slope area of the continental shelf and prefers a bottom of mud or muddy sand. Its main area of distribution is in Division 3K followed by Division 3L with very low numbers found in Division 2J

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 divisions 2J3KL has been reduced substantially since the mid 1970s and fish older than 14 years are now rarely seen in either the commercial or survey catches.

Spawning occurs over a rather prolonged period usually extending from March through to September in the Northwest Atlantic, however in the divisions 2J3KL area spawning takes place from March to July with highest intensity in the period March to May. During the winter and spring months witch flounder can be found in dense prespawning and spawning concentrations along the continental slope of Division 3K and it is here at this time when most commercial fishing operations occur and catch rates are highest.

The fishery began back in the 1960s, and has continued to the present. The first quota was put in place in 1974 at 22,000 metric tons in 1973. The peak catch was 24,000 metric tons, but catches declined under quota management and averaged only about 3,500 metric tons during the first half of the 1980s. The stock was relatively stable during this period, but declined rapidly thereafter. Recent data suggest that the stock may have declined by as much as 40 times since the early 1980s.



The Fishery

The commercial fishery began for witch flounder in this area in the early 1960s and catches increased steadily from about 1,000 metric tons in 1963 to a peak of over 24,000 metric tons in 1973. Catches declined rapidly to only 2,800 metric tons by 1980, then subsequently fluctuated between 3,000 and 4,500 metric tons to 1991. The catch in 1992 declined to 2,300 metric tons, the lowest since 1964, and further declined to 342 metric tons in 1993. Catches of only 12 and 0.5 metric tons were reported for 1994 and 1995 respectively.

Landings (thousand metric tons)

Year	60-76 Avg.	77-91 Avg.	1992	1993 ¹	1994 ¹	1995 ¹	1996
TAC	N/A	N/A	4	4	1	.1 ²	.1 ²
Can.	2	2	2	3	+	+	
Others	7	2	.6	0	0	0	
Totals	9	4	3	3	+	+	

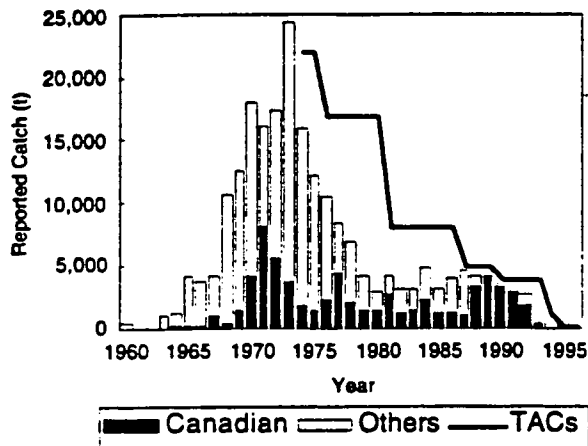
¹ Provisional

² By-catch only

⁺ Catch less than 500 metric tons

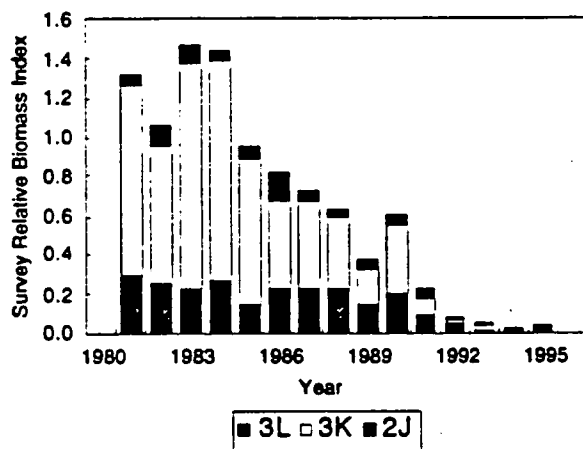
Up until the late 1980s the fishery was prosecuted by Poland, USSR and Canada

primarily in Division 3K. In recent years, the fishery has been mainly Canadian although some catches were estimated as taken by European Union (EU-Portugal) in the NAFO Regulatory Area of Division 3L. For both 1994 and 1995 no catches of witch flounder were estimated for the Regulatory Area of Division 3L. However, Canadian surveillance authorities indicate that witch flounder catches in the NAFO Regulatory Area of Division 3L are again increasing in 1996.



Resource Status

Research vessel surveys have been conducted in the fall in divisions 2J and 3K (to 1,000 m - 547 fathoms) and 3L (to 730 m - 400 fathoms) since 1977, 1978 and 1981 respectively.



For Division 2J, survey relative biomass index ranged from a high in 1986 to less than 4% of that level in 1994. In Division 3K, during 1979-85, there was a period of relative stability,

but since that time, the estimates have declined considerably to about 1% of this level in 1994, the lowest in the time series. For Division 3L, the survey index remained fairly stable from 1981-1988 but has declined rapidly since then by about 75% by 1992, and by about 95% in 1993 and 1994. For the three divisions combined, there has been a very steady and rather systematic decline from about 1984 through 1994, with the 1994 estimate being the lowest in the time series.

A survey was conducted in 1995 using different vessel-gear combinations and therefore cannot be put in the same context as previous surveys (see Regional Overview). The survey relative biomass index estimate for divisions 2J3KL combined was nevertheless, near the lowest observed.

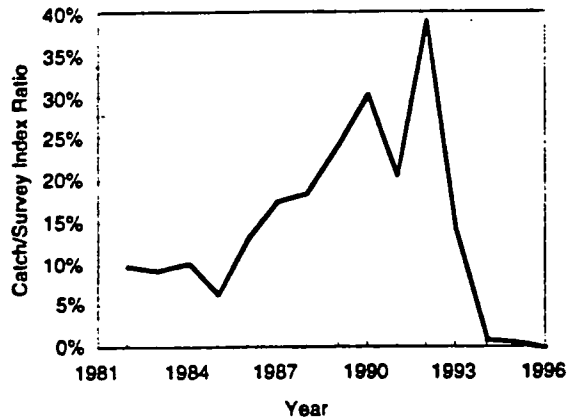
In the earlier years, the stock in all divisions was generally distributed in depths less than 500 meters. Since 1989 however, most witch flounder have been found in depths greater than 500 meters.

Deepwater surveys directed primarily towards Greenland halibut were conducted to 1,500 meters (820 fathoms) in divisions 3KLMN during 1991, 1994 and 1995. Results indicate that witch flounder have become somewhat more abundant in the NAFO Regulatory Area in divisions 3LM (Flemish Pass). This suggests that at least some of this witch flounder stock may have migrated there from inside the Canadian zone.

Based on the size distribution of witch flounder caught during the surveys, there has only been poor recruitment to the resource for a number of years.

This stock has declined to levels far below anything observed in the past with no signs of improving recruitment. It is also apparent that during the 1980s, the magnitude of the decline in the biomass index observed in the surveys

cannot be fully explained by the removals of the commercial fishery as the commercial catch over trawlable biomass ratios are generally quite low during most of the period.



However, given the **shrinking area of distribution** in recent years, coupled with the fact that fishing was most intense in this area (depths greater than 1000 m (546 fathoms) upon prespawning aggregations, it is probable that recent catches may have accelerated the decline over the last few years.

Outlook

This stock is at an **extremely low level** and any exploitation of it in its present state continues to be unjustifiable from a conservation point of view. Based on recent indicators of continuing poor recruitment, there is nothing to suggest that this stock will increase in the foreseeable future. Any fishery in 1997 could be detrimental to stock rebuilding.

If the stock has migrated (at least in part) to the NAFO Regulatory Area as suggested from the deepwater survey data, then it could be subjected to unregulated fishing. Early observations in 1996 from Canadian Surveillance indicate that this is already the case.

Research Document: Bowering, W.R. 1995. Stock status update of witch flounder stock in divisions 2J and 3KL. DFO Atl. Fish. Res. Doc. 95/37.

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For More Information