

SUBAREA 2 + 3K AMERICAN PLAICE

Background

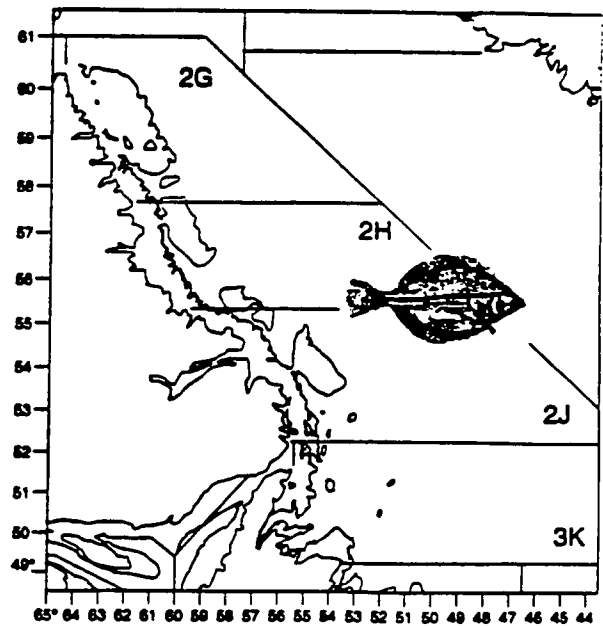
American plaice, which occurs on both sides of the North Atlantic, is a bottom dwelling flatfish. In the western Atlantic, the species ranges from U.S.A. waters to the Arctic, with the largest population historically occurring on the Grand Bank off Newfoundland. American plaice in the Labrador and northern Newfoundland region were usually found to be most abundant at depths less than 250 m, although there has been a shift to deeper water since the late 1980s.

American plaice in NAFO Subarea 2 + Division 3K grow relatively slowly, entering the fishery at age 6 or 7, at a length of about 30 cm (12 inches). Most plaice are mature by age 9, at a length of about 38 cm (15 inches). Plaice up to 20 years old have been caught from this stock in the past, but few fish older than 14 years have been caught recently.

Catches from this stock increased steadily throughout the 1960s, peaking at about 13,000 metric tons in 1970. Quotas were first put in place in 1974.

After the declaration of the 200 mile limit in 1977, non-Canadian catches were greatly reduced, with the total catch from the stock exceeding 2,000 metric tons on only 2 occasions after 1981. In most years the majority of the catch came from the southern part of the stock, with catches from the northernmost areas being negligible. There have been inshore and offshore fisheries, with the major gears being gillnets and otter trawls respectively.

Stock size, as measured by research vessel surveys since 1977, peaked in the early 1980's, then declined by more than 90% to the early 1990's. Stock size has remained at a very low level in the 1990's, even though catches in recent years have been insignificant.



The Fishery

Catches from 1992 to 1995 averaged less than 70 metric tonnes per year, with the provisional estimate of catch in 1995 being only 23 metric tonnes. They are by far the lowest in the time series, due in part to the moratorium on the northern cod fishery, and drastic reductions in the American plaice TAC after 1993.

Landings (thousand metric tons)

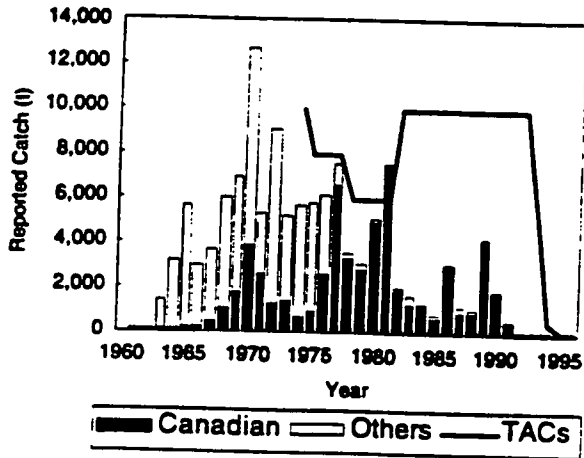
Year	60-76 Avg.	77-91 Avg.	1992	1993 ¹	1994 ²	1995 ¹	1996
TAC	N/A	N/A	10	5	.5 ²	.1 ²	.1 ²
Can.	1	2.9	.1	.1	.1	.02	
Others	3	.2	0	0	0	0	
Totals	4	3.1	.1	.1	.1	.02	

¹ Provisional

² By-catch only

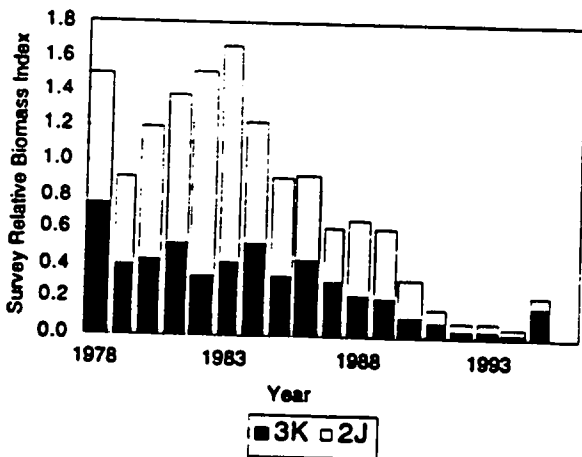
In most years prior to 1992, a large percentage of the catch came from Division 3K, with recent exceptions of 1989 and 1990 when a directed fishery took place in Division 2J. In most years prior to 1991, the inshore catch from the stock ranged between 500 and 2,000 metric tons. The offshore catch fluctuated more widely, as the offshore fleet often chose to fish for American

plaice in the southern divisions of Subarea 3, mainly divisions 3LNO.



Resource Status

No recent catch rate data are available from Canadian offshore otter trawlers, due to the very low catches in recent years. Catch-at-age data for the period 1984 to 1990, based on samples from the Canadian fisheries, show that American plaice aged 9 to 12 years comprised the bulk of the commercial fishery, and there was a declining trend in the catch numbers of older individuals up to 1990. For many years before 1984, and particularly for 1991 to 1995 when catches were very low, data are either non-existent or inadequate to estimate the commercial catch-at-age.



Research vessel survey information shows that the stock is currently at a very low level. In all surveyed areas, the survey relative biomass

index declined substantially between the early 1980s and the early 1990s.

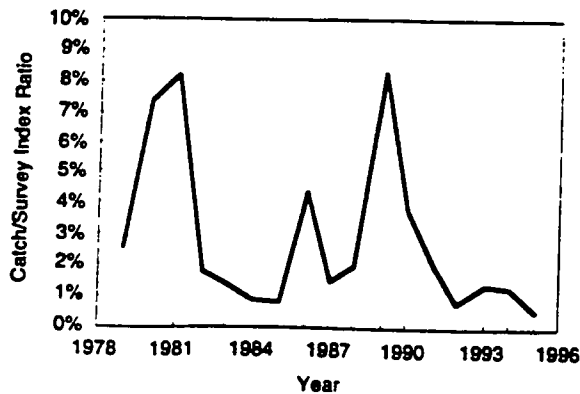
Shifts in the depth distribution of American plaice to deeper water occurred during 1986 to 1989 both in divisions 2J and 3K, and were followed by rapid, severe declines of the stock. In divisions 2J and 3K combined, the survey relative biomass index declined by about 95% between about 1982 and the 1990s. The 1994 values are the lowest ever observed in both 2J and 3K.

The 1995 survey was conducted with a different trawl gear (see Regional Overview), known to catch small American plaice much more effectively. Therefore the estimates from divisions 2J and 3K respectively are not directly comparable with previous ones. However, even with this change in survey gear, the overall survey biomass index in 1995 is only about 10% of the peak values seen in 1982-83. Analysis of comparative fishing data will be required to put the 1995 survey estimates in context with results from previous years.

There has been a gradual reduction in the numbers of older fish caught in the surveys, which is consistent with the commercial fishery data. The numbers of fish in all age classes declined at very high rates from 1990 to 1994, and recent estimates of spawning stock size, as measured by the surveys, are about 2 percent of peak values. There has also been decreased recruitment in recent years, although the decline is not as severe as the overall decline in stock size. Age specific data from the 1995 survey are not available at this time.

It is clear from the research vessel survey data that this stock declined to an extremely low level by 1992, and has remained low since then. Comparing the catch from the fishery with the biomass index from surveys indicates that fishing mortality alone cannot explain the magnitude of the declines in stock size since reported catches never exceeded about 9% of the

survey biomass index. At present there is no explanation for the decline in this stock, or why it has remained so low since 1991 with virtually no fishery during that time.



status of the stock of American plaice in Subarea 2 + Div. 3K. DFO Atl. Fish. Res. Doc. 95/35.

Contact: Bill Brodie
Tel. (709) 772-3288
Fax. (709) 772-4188

e-mail: Brodie@athena.nwafc.nf.ca

Ecological Factors

Factors such as anomalously low water temperatures since the mid-1980s, predation by seals, and migration have been hypothesized as reasons why stock size has decreased, but none of these has yet been demonstrated to be a major factor.

Outlook

Given the current stock size estimates from surveys, there can be no optimism about recovery of this stock in the **short or medium term**. Even with negligible catches, the stock has remained at a very low level since 1991.

The prospects for rebuilding in the **longer term** are unknown, although a recovery of the stock is unlikely before 10 to 15 years. The 1996 TAC of 100 metric tons is for by-catch only, with no provision for a directed fishery. Any fishery in 1997 could be detrimental to stock rebuilding, given the current low level of biomass.

For More Information

Research Document: Brodie, W.B., J. Morgan and W.R. Bowering. 1995. An update of the