



STOCK ASSESSMENT ON SUBDIVISION 3Ps POLLOCK

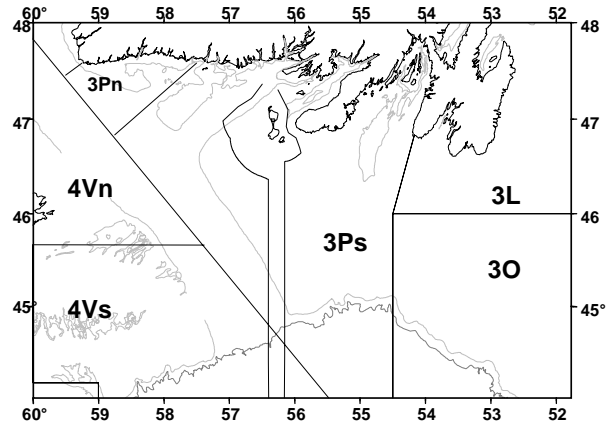
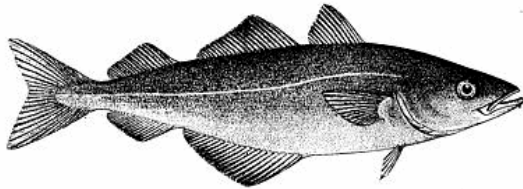


Figure 1: Map of the stock area of Subdivision 3Ps pollock.

Context

Pollock occur on both sides of the North Atlantic, on the North American side from southern Labrador around Newfoundland into the Gulf of St. Lawrence, and south to Cape Hatteras. Pollock is a member of the cod family (*Gadidae*), but unlike most gadids spends little time near the bottom. They are voracious eaters and often congregate in large numbers. As pelagic larvae they feed mainly on copepods, but as they settle and move inshore, crustacea, mainly amphipods, are the preferred food. As they increase in size euphausiids, shrimp and small fish become part of the diet. In the offshore areas sand lance, herring, silver hake, redfish and lanternfish become more important in the diet.

Pollock prefer waters from 0°C to 10°C however maturation of sex organs and incubation of eggs requires temperatures in the upper range. This fact places Newfoundland waters at the northern end of pollock range. Research on pollock in the Newfoundland area shows that mature fish occur along the slopes of St. Pierre Bank and the slopes of the southern Grand Bank. In summer months schools of young pollock are occasionally found in harbours along Newfoundland's south coast.

SUMMARY

- Debate is ongoing as to the importance of immigration from the Scotian shelf stock.
- Current position from a recent review of stock structure for 4VWX5Zc pollock is that the northern boundaries are appropriate.
- Distribution is restricted mainly to the slope waters of Burgeo and St. Pierre Banks and inshore waters.
- Due to the pelagic nature of pollock bottom trawl surveys may not be appropriate for creating indices of abundance.
- Information available is not sufficient to assess stock level and provide catch options.

DESCRIPTION OF THE ISSUE

Fishery

The pollock fishery in NAFO Subdivision 3Ps has generally been a bycatch fishery with substantial catches being taken in the ottertrawl, gillnet and trap fisheries for cod. Catches of pollock in the early 1960's declined from 4500 t in 1960 when most of the catch was taken by Spain. Since the extension of jurisdiction catches have been mainly taken by Canada and France (St. Pierre). Catches were generally low from 1967-1982 being less than 1000 t annually. Catches gradually increased peaking at 7500 t in 1986 with the entry of the French Metropolitan fleet to the cod fishery. During the cod moratorium catches declined to pre-1980's levels and were less than 500 t. Catches since the cod fishery reopened in 1997 have increased slightly but remain less than 1000 t annually.

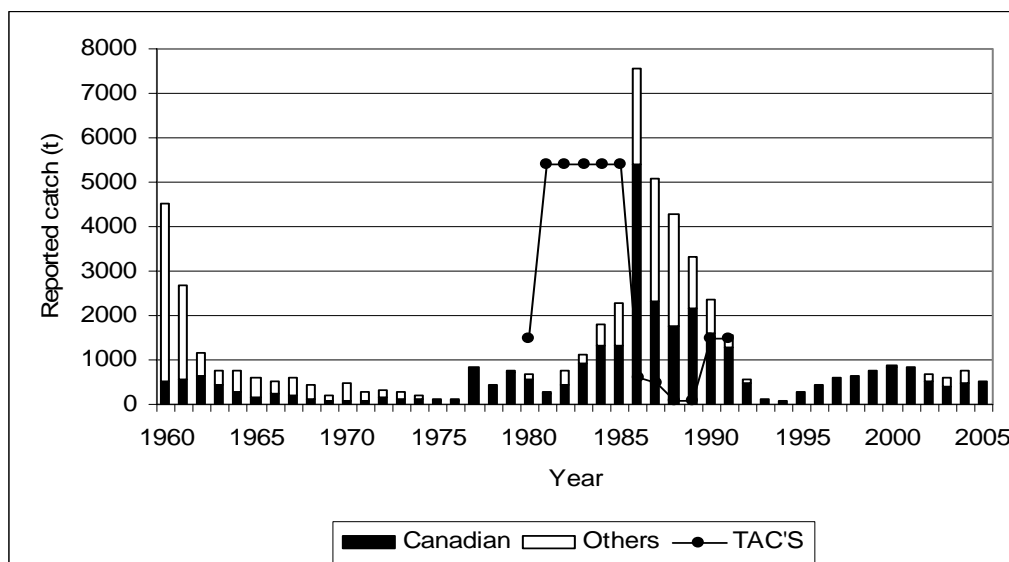


Figure 2: NAFO Subdivision 3Ps pollock landings and TACs from 1960 to 2005.

ASSESSMENT

Key Indicators

Research Surveys

Canada has conducted research vessel (RV) surveys in NAFO Subdivision 3Ps using the stratified random design since 1972. Surveys were conducted mainly in February to March prior to 1993 but since then have been conducted in April.

The vessels and survey gear used to conduct the survey have changed over time. The A. T. Cameron conducted surveys from 1972-1983 using the Yankee 41.5 ottertrawl. From 1983 to 1995 the Wilfred Templeman or its sister ship the Alfred Needler conducted the survey using the Engel 145 hi-rise ottertrawl. Since 1996 the Wilfred Templeman has conducted the survey using the Campelen 1800 shrimp trawl. The changes in gears means biomass estimates derived during the various periods are not comparable. Insufficient data was available from comparative fishing experiments to provide conversion factors for pollock.

The use of the research vessel ottertrawl time series as an indicator of stock status is complicated by various vessel and gear changes and the lack of conversion factors. An additional factor is that due to the pelagic nature of pollock research vessel (bottom trawl) surveys may not give a reliable index of biomass.

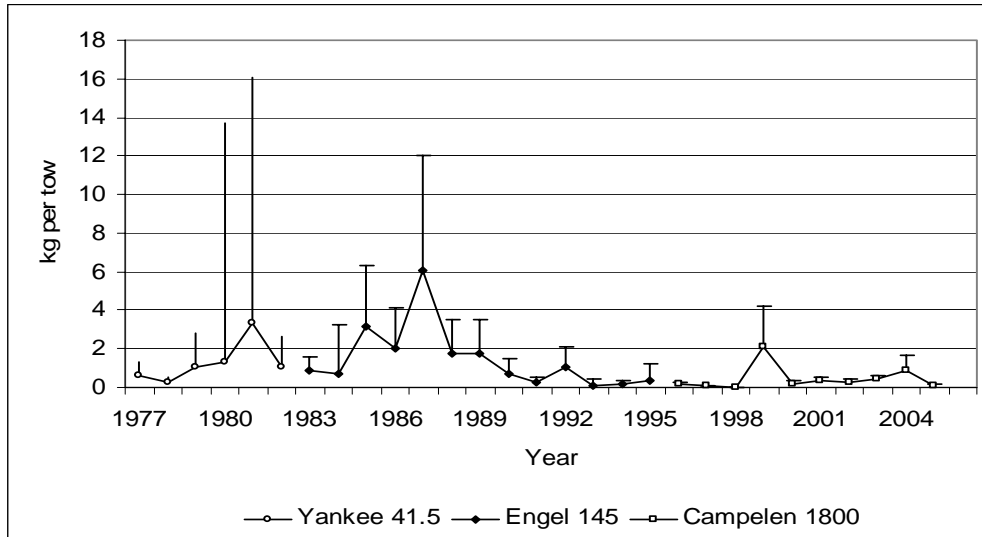


Figure 3: Biomass estimates for pollock from winter/spring Canadian RV surveys 1977-2005.

Survey coverage was extended into Placentia Bay in 1994, into Fortune Bay and inshore areas west of Fortune Bay in 1997; however no significant concentrations of pollock were observed in these areas until 1999. Overall biomass indices increased slightly from 2000-2004 (0.7 kg per tow). The increase from 1999-2002 are almost entirely due to increased biomass in the inshore strata. Surveys since 2002 have found no pollock in the inshore.

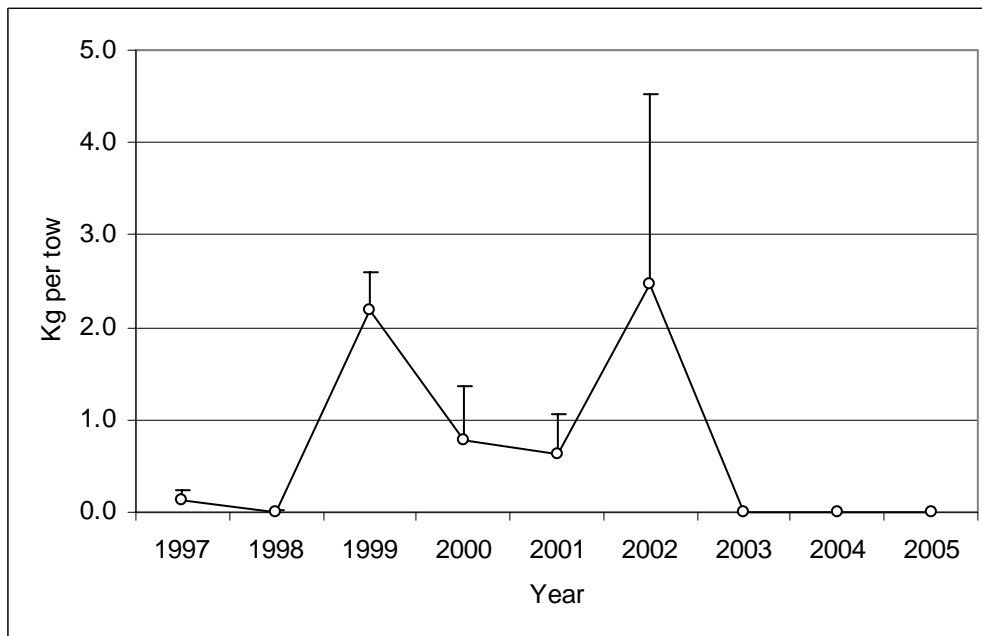


Fig 4: Biomass estimates in NAFO Subdivision 3Ps for pollock from inshore strata (Fortune Bay and westward) 1997-2005.

Ecological and Biological Factors

Pollock in Newfoundland waters are at the northern extent of their range in the Northwest Atlantic. Debate is ongoing as to the importance of immigration from the Scotian shelf stock. Current position from a recent review of stock structure for 4VWX5Zc pollock is that the northern boundaries are appropriate.

It was noted that pollock are not incidental visitors to these waters. Surveys indicate that distribution is restricted to the slopes of Burgeo and St. Pierre Banks and the inshore areas. They are found in surveys in both winter and spring. . Pollock of various stages of maturity are encountered during surveys indicating spawning in the area. Pollock are reported in the catch statistics in every month

ADDITIONAL STAKEHOLDER PERSPECTIVES

Representative of the offshore sector reiterated concerns as to whether bottom trawl surveys were appropriate for assessing pollock status.

CONCLUSIONS AND ADVICE

In light of concerns expressed as to the use of bottom trawl surveys as an indicator of stock size, information available is not sufficient to assess stock level and provide catch options.

Pollock have never occurred in NAFO Subdivision 3Ps in large numbers. Their contribution to the groundfish fishery is based on the infrequent occurrence and survival of year-classes against great odds in the extreme north of their range. If the warmer conditions persist then overall conditions for pollock might improve.

SOURCES OF INFORMATION

Murphy, E. F. 2003. The Distribution of Pollock (*Pollachius virens*) in NAFO Subdivision 3Ps. DFO Can. Sci. Advis. Sec. Res. Doc. 2003/004.

Neilson, J. D., Perley, P., Carruthers, E. H., Stobo, W. and Clark, D. 2003. Stock structure of pollock in NAFO Divisions. 4VWX5Zc. DFO. Can. Sci. Advis. Sec. Res. Doc. 2003/045.¹

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