



NEWFOUNDLAND AND LABRADOR REGION GROUND FISH STOCK UPDATES

Background

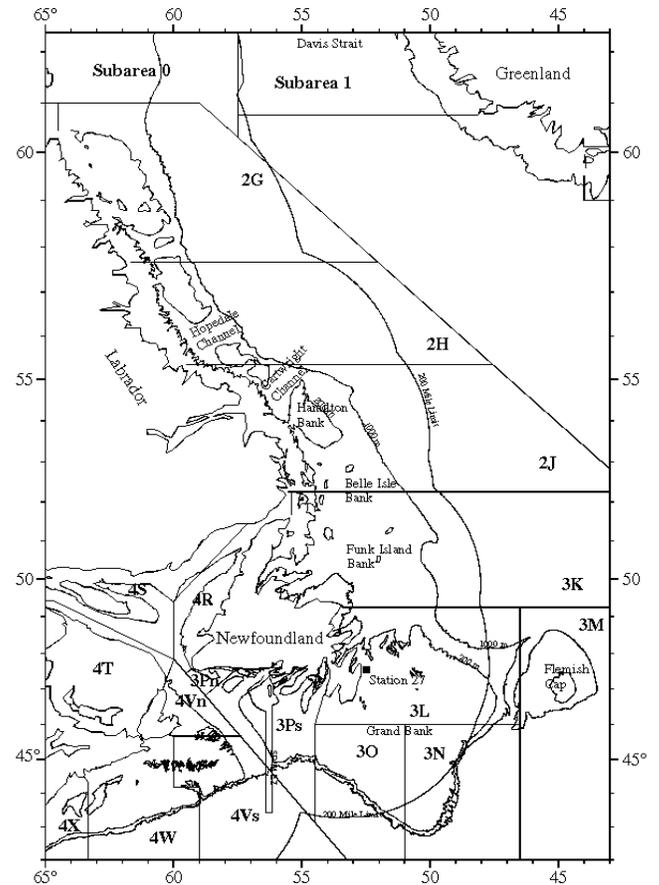
In Newfoundland and Labrador, Science, Oceans and Environment Branch of the Department of Fisheries and Oceans is responsible, either directly or indirectly, for advising on the status of numerous groundfish stocks located from Davis Strait in the north to the south coast of Newfoundland in the south.

In this area, there are 5 cod stocks (2GH, 2J3KL, 3M, 3NO and 3Ps), 5 redfish stocks (SA2+3K, 3LN, 3M, 3O and Unit 2), 4 American plaice stocks (SA2+3K, 3LNO, 3M and 3Ps), 3 witch flounder stocks (2J3KL, 3NO and 3Ps), 2 Greenland halibut management areas (SA0+1 and SA2+3KLMNO), 2 haddock stocks (3LNO and 3Ps), 1 yellowtail flounder stock (3LNO), 1 pollock stock (3Ps), 2 roundnose grenadier stocks (SA0+1 and SA2+3), thorny skate, white hake and monkfish in 3LNO as well as a portion of the 3NOPs4VWX Atlantic halibut stock. In addition, there are coastal fisheries for lumpfish, and winter flounder.

Scientific information on the above stocks is provided either through the DFO Science, Oceans and Environment Branch regional review process and the FRCC, or the Scientific Council of NAFO. Quotas are set by the NAFO Fisheries Commission for 3NO and 3M cod, 3LN and 3M redfish, 3LNO and 3M American plaice, 3LNO yellowtail flounder, 3NO witch flounder, 2+3 grenadier and SA2+3KLMNO Greenland halibut. The NAFO Scientific Council also reviews the Canadian assessment of 2J3KL cod and 2J3KL witch flounder on an annual basis. Greenland halibut, and roundnose grenadier in SA0+1 are managed bilaterally by Denmark, on behalf of Greenland, and Canada. Quotas for the other stocks are set by the Minister of the Department of Fisheries and Oceans based on recommendations of the FRCC.

The Newfoundland and Labrador Region Stock Status Reports contain information pertaining only to those stocks for which the FRCC directly provides catch recommendations to the Minister. Information on the stocks evaluated and managed by NAFO is contained in separate documentation; the reports of the NAFO Scientific Council.

Detailed technical information on each of the stock assessments can be found in the research documents listed with each stock report. Technical information for the NAFO stocks is available through the NAFO SCR Document series. **This report includes updates for stocks not formally assessed in 2003.**



Background to Groundfish Updates

This report provides an update on the status of **3Ps American plaice, 3Ps witch flounder, white hake, wolffish (catfish), 2+3K redfish, 3Ps haddock, 3LNO haddock, 3Ps pollock, 2GH cod and lumpfish.** These stocks were not formally assessed through the RAP in 2003 but the responsible assessment scientists have updated the status and commented on the recent data.

Cod in Division 2J3KL (SSR 2003/018) was assessed during a zonal assessment meeting in winter 2003 and **cod in Subdivision 3Ps** (SSR 2003/043) was assessed regionally in fall 2003. **Monkfish in Subdivision 3Ps** (SSR 2003/045) and **2 + 3K American plaice** (SSR 2003/044) were also assessed during the fall 2003 regional assessment meeting.

Information on the status of stocks assessed by NAFO, as well as the 2003 advice of Scientific Council, is available in the **report of the June 2003 meeting (NAFO SCS Doc. 03/19)**.

Subdivision 3Ps American Plaice

This stock has been under moratorium since September 1993. Bycatches in recent years increased from 90 t in 1995 to about 650 t in 1999 and 2000 and to over 1000 t in 2001 and 2002. The preliminary estimates to the end of September 2003 is 670 t. This bycatch is mainly taken in the cod and witch flounder fisheries. Bycatch rates in the directed witch flounder fishery remain extremely high at 67% in 2002 and 58% to September 30 in 2003.

DFO research vessel survey results indicate that this stock has remained at a low level since 1992. Biomass (Figure 1) and abundance (Figure 2) in the last 5 to 6 years are somewhat higher than those seen in the mid-1990's. However, the average biomass in 2000-2003 is only 20% of the 1983-87 average and abundance is 26% of the 1983-87 average.

Information is available from 1998 to 2001 from surveys sponsored by the

Groundfish Enterprise Allocation Council (GEAC). Over this time period this survey series has shown the same overall trend as the DFO surveys.

In the short to medium term there appears to be little prospect of significant rebuilding of this stock. Any removals from this stock will further delay recovery.

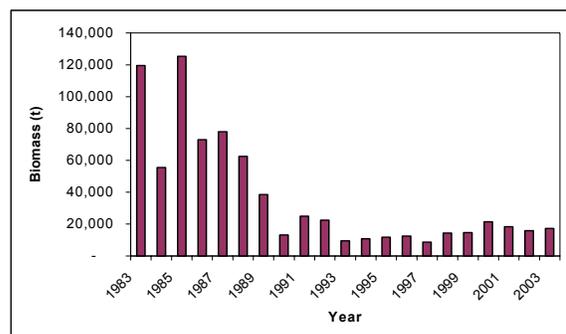


Figure 1. Research survey biomass index for Subdivision 3Ps American plaice, 1983-2003. All data 1983-1995 are in Campelen data equivalents. Data from 1996-2003 are Campelen data.

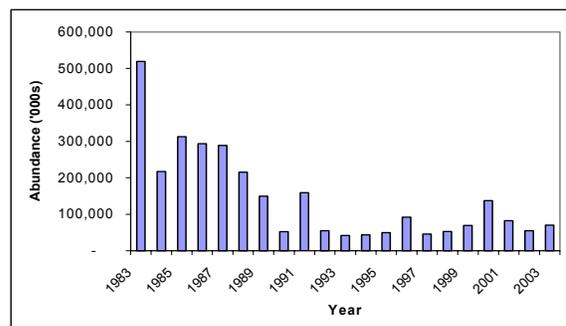


Figure 2. Survey abundance estimates for Subdivision 3Ps American plaice from Canadian research vessel surveys, 1983-2003. All data 1983-1995 are in Campelen data equivalents. Data from 1996-2003 are Campelen data.

Subdivision 3Ps Witch flounder

This fishery has remained open, with a TAC of 650 t in each year from 1998 to 2003. Catches since 1998 have been mostly over 550 t annually although the

preliminary estimate for the 2003 catch (up until December 5) is only about 130 t.

The mean biomass index from DFO surveys (Figure 3) has been highly variable over the 20 year period. The index was lowest in 1999 but generally has been increasing since then. The estimates of abundance from the 2002 and 2003 surveys were near the average of the entire time series from 1983-2003.

Presently there are insufficient data available to be able to fully evaluate the results of the annual industry surveys.

Recruitment has been relatively stable for over the past 20 years.

Considering the relative stability in distribution, length compositions, growth patterns and recruitment observed over many years, fishing at recent catch levels should not be harmful to the stock.

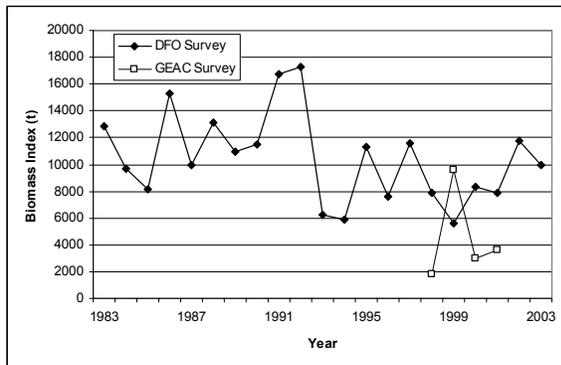


Figure 3. Research survey biomass index for Subdivision 3Ps with flounder, 1983-2003. All data 1983-1995 are in Campelen equivalents. Data from 1996-2003 are Campelen data.

White Hake in Divisions 3L, 3N, 3O and Subdivision 3Ps

The fishery for white hake on the Grand Banks is **not regulated by quota**. At present, relatively low market value and closures due to high bycatch are the only limits on directed effort for white hake inside 200 miles. If this constraint was not in place, catches could increase, possibly to the detriment of the stock. Outside 200 miles, there are no constraints and data suggest the fishery is expanding in that area.

Landings occur both as bycatch and from a directed fishery. Reported catches in recent years have been mainly from 3Ps and 3O although significant amounts were reported from 3N in the late 1980's. Catches declined from about 4000 t annually in the 1980's to less than 1000 t in 1994 (Figure 4). The average catch from 1994 to 2001 was 1182 t, but increased rapidly to 5399 t in 2002-2003 (2003 preliminary) due to increased non-Canadian activity outside 200 miles. Non-Canadian catches made up 69% of the total reported catch in 2002-2003, up from 20% in 1994-2001.

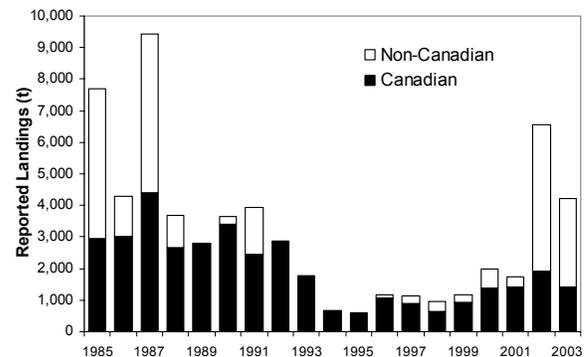


Figure 4. Catches of white hake, inside and outside Canada's 200 mile limit, 1985-2003.

White hake exhibits fast growth, high fecundity and large fluctuations in the populations. Three peaks in biomass/abundance have been observed in the survey series since 1971. Most recently, substantial recruitment in the mid-1990's although the biomass was relatively low, resulted in a dramatic increase in the abundance index in 1999-2002.

In 1999-2002, the spring biomass index (Figure 5) was more than three times that of 1996-1998, primarily due to an increased 3O index. The 3N index was at its highest level in 2001 since 1986. This suggests a substantial increase in biomass for this stock since the low period of the early 1990's. Since 2000, the stock has declined somewhat, especially between 2002 and 2003. Average size of hakes declined dramatically during the 1980's and has remained low since.

Increase in the reported catch coupled with a decline in the index of biomass has resulted in an increase in Relative Exploitation (catch/survey biomass) in 2002 and 2003.

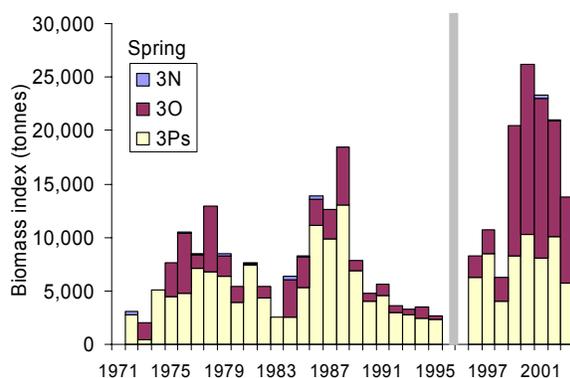


Figure 5. Spring research survey biomass index for white hake 1986-2003. Campelen gear was used for 1996-2003, Engel for previous years (not converted).

Wolffish (Catfish) in Divisions 2J, 3K, 3L, 3N, 3O and Subdivision 3Ps

In 2001, wolffish species (*Anharichus denticulatus* – Threatened, *A. minor* – Threatened and *A. lupus* – Special Concern) were listed by COSEWIC as species at risk. There is no directed fishery for these species within the Canadian Zone and special recovery measures will come into force in June 2004.

Subarea 2 and Division 3K Redfish

This stock has been under moratorium to directed fishing since 1997. Prior to this, there had not been any persistent directed effort on this stock since 1990 when 2400 t were landed (Figure 6). Landings declined to 280 t in 1991, and were less than 19 t in each year from 1992-1997.

Catch increased rapidly to 1600 t in 2001, with further increases to 3200 t in 2002 and to 4400 t in 2003 (provisional to Nov. 30). The increases beginning in 2001 were from non-Canadian directed fisheries outside the 200-mile limit utilizing large midwater trawls. It is likely these catches were from the pelagic stock of redfish that resides primarily in the Irminger Sea between Greenland and Iceland. In recent years mid-summer trawl-acoustic surveys of this Irminger Sea population have measured a portion of the concentration within the 2J3K boundary.

Canadian landings since the moratorium have been bycatch from Greenland halibut fisheries and have been less than 40 t annually.

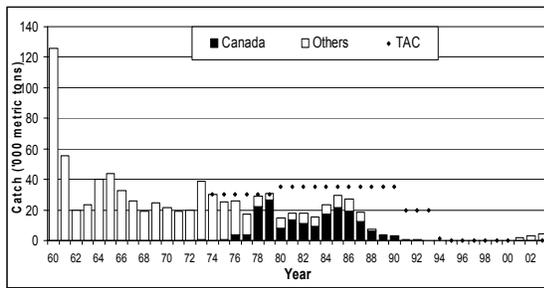


Figure 6: Reported catches and TACs (in tons) in SA2+Div. 3K.

Estimates of redfish bycatch discarded from shrimp fisheries in the Div. 2G to Div. 3K area since 1980 have ranged from 14 t in 1983 to 665 t in 1990. Since 2000 estimates have ranged from 60 t to 135 t.

Results from **research vessel surveys** in Div. 2J and 3K suggest the resource was at an historically low level in 1994 (Figure 7). Although the survey biomass index increased by a factor of six from 1994 to 1998 then remained stable, the average from 2000-2002 is only 4% of the index averaged from 1978-1990.

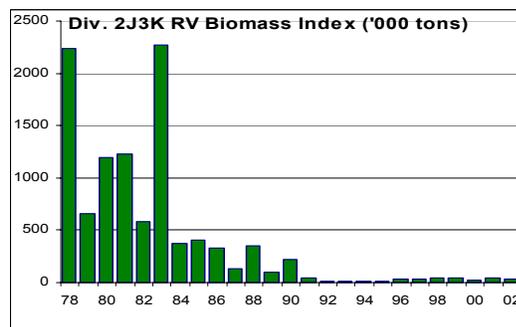


Figure 7: RV Biomass Index for Div. 2J3K.

This **stock remains at a very low level**. Recruitment has been very poor since the year classes of the early 1970's. Most of the abundance in the 2002 survey is composed of fish less than 25 cm (10 inches).

There are no indications that the status of the stock will change in a positive way in the foreseeable future.

Subdivision 3Ps Haddock

Landings in the 3Ps haddock fishery (Figure 8) peaked in the mid to late 1950's just as they did in many of the other groundfish fisheries in the Northwest Atlantic. Landings for this stock increased from 5800 t in 1953 to a peak of 58,000 t in 1955 then declined to 6000 t in 1957.

Catches of haddock in 3Ps since 1960 have been mainly in the 1000 to 2000 t range, but increased to 7500 t in 1985 before falling below 1000 t after 1990.

There has been no quota for haddock since 1997 and reported catch is taken by Canada and France (SPM) mainly as bycatch in the cod fishery. Since the cod fishery reopened in 1997 reported annual **by-catch** of haddock has varied with the level of cod quota from a low of 84 t in 1997 to a high of 621 t in 1998. Haddock bycatch since 2000 has been in the 200-300 t range and a preliminary estimate (which does not include French catch) for 2003 is 140 t.

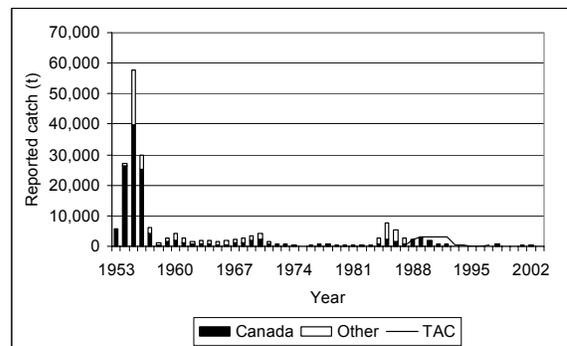


Figure 8. Historical Landings and TACs for haddock in Subdivision 3Ps 1953-2003.

The trawl index of haddock biomass from research surveys was low from 1972 to 1982, peaked in 1985 due to the presence of the relatively strong 1981-year class, but then declined again to low levels (Figure 9). Recent surveys have found very few haddock.

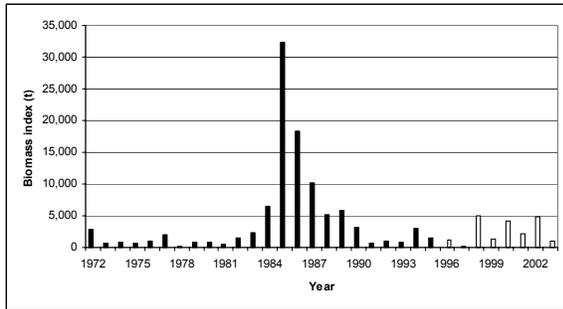


Figure 9. Biomass estimates for haddock from Canadian Research Vessel Multispecies Surveys NAFO Subdivision 3Ps. The 1996-2003 points are with the Campelen 1800 shrimp trawl. Pre 1996 data have not been converted and are not directly comparable.

The biomass of haddock has been low since the mid 1980's. Since 1996 estimates have been derived using the Campelen 1800 shrimp trawl and the biomass index has been variable but low in all years especially when compared to the mid to late 1980's.

The 1999 survey estimate was low however the survey did encounter relatively large numbers of small fish, predominately the 1998 year class. Length frequencies from subsequent surveys suggest that the population is made up mainly of the 1998 year class and there has been no sign of recruitment since then and there are few mature haddock.

There has been no significant recruitment since the mid 1950's. It's not known whether haddock in 3Ps constitute a separate stock or whether

haddock in the entire 3LNOP area undergo range expansion when a year class survival is enhanced by suitable environmental conditions.

The future of this resource cannot be predicted, however without any signs of recent recruitment and current temperature regime there is no reason for optimism.

Haddock in Divisions 3LNO

Landings were highest during the 1950's and early 1960's with a peak of 76,000 t in 1961 (Figure 10). The presence of the strong 1949 and 1955 year-classes supported these catches. Landings remained low from the mid 1960's to mid 1980's because of poor recruitment. In 1988 landings increased to 8200 t the highest since 1967. Since 1988 catches have declined and have been less than 200 t since 1994.

The 2002 catch estimate was 320 t and a preliminary estimate for 2003 is 103 t (this does not include French catch). Catch in recent years is mainly bycatch in Canadian yellowtail fishery and fisheries for non-regulated species beyond the Canadian 200 mile limit.

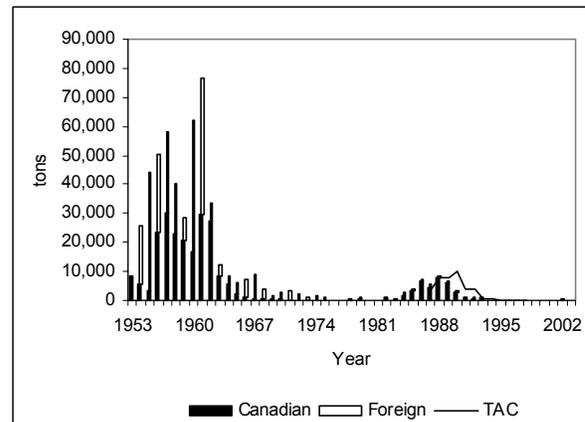


Figure 10. Historical landings and TACs for haddock in Divisions 3LNO.

Spring research vessel survey indices for haddock were low from 1972 to 1982. Both peaked in 1985 due to the relatively strong 1981 year-class (Figure 11). In 1997 the survey abundance and biomass increased sharply due to one large catch of pre-spawning fish. This one set accounted for 97% of the survey abundance and 98% of the biomass. Surveys in 1998 located few haddock.

The 2002 spring survey estimate was less than the 2001 estimate and the 2003 spring estimate declined further. Catches in all three years were small with no mature haddock encountered.

There is evidence the 1998 year-class may be strong. Young-of-the-year haddock were encountered in the 1998 pelagic 0 group survey, the fall 1998 multi-species survey and as 1 year olds in the 1999 spring survey. Based on length composition, the 1998 year class appeared to also dominate in the 2000 to 2003 surveys; however, aging analysis is required to confirm this.

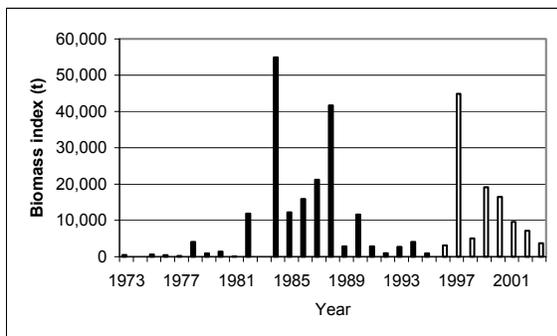


Figure 11. Index of haddock biomass (t) from the spring Canadian Multi-species surveys 1973-2003. Values derived from surveys using the Campelen net are indicated by open bars.

Since 1998 the abundance index from the fall surveys (Figure 12) has been variable while the biomass index (Figure 13) has shown a steady increase. The

population is made up of mostly immature fish likely of the 1998 year class. The annual growth of this relatively strong year class could account for much of the biomass increase.

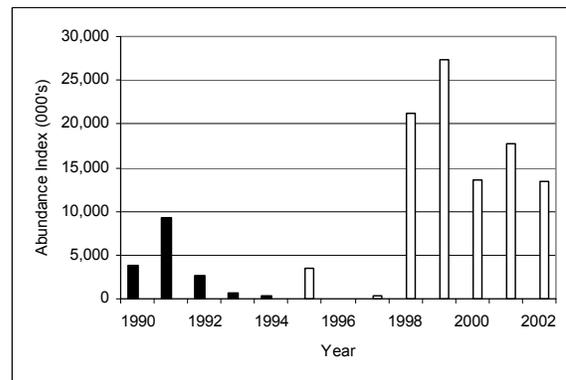


Figure 12. Index of haddock abundance (000's) from the fall Canadian Multi-species surveys 1990-2002. Values derived from surveys using the Campelen net are indicated by open bars.

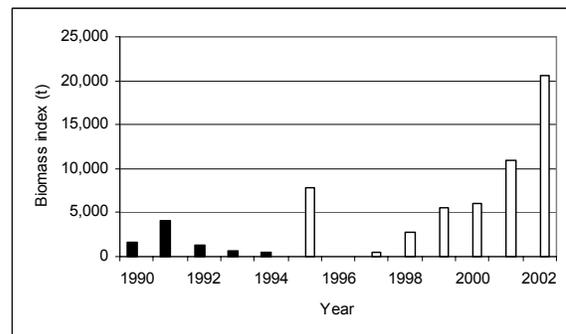


Figure 13. Index of haddock biomass (t) from the fall Canadian Multi-species surveys 1990-2002. Values derived from surveys using the Campelen net are indicated by open bars.

It appears the current population is made up a few mature haddock and the relatively strong 1998 year class. There have been no signs of any significant recruitment since the 1998 year class.

Bycatch has the potential to increase as the Yellowtail quota increases from 13,000 t to 14,500 t and there is an increased effort for non-regulated

species by non-domestic fleets outside Canada's 200 mile limit.

Subdivision 3Ps Pollock

Since 1993 the pollock fishery has been regulated as bycatch only. Catches by Canada and France (SPM) occur mainly as bycatch in the cod fishery. Since the cod fishery reopened in 1997 bycatch has been in the 600-850 t range annually (Figure 14). A preliminary Canadian catch estimate for 2003 is 320 t with approximately 95% of the 2003-2004 Canadian quota for cod caught.

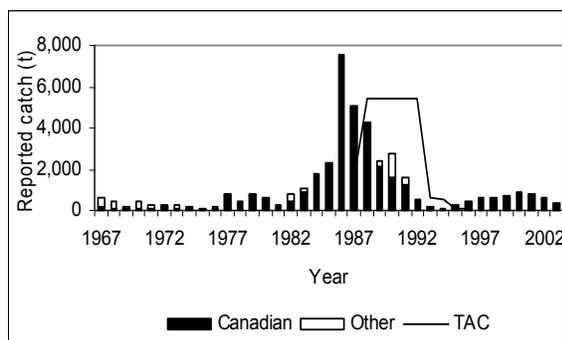


Figure 14. Historical landings and TACs for pollock in Subdivision 3Ps.

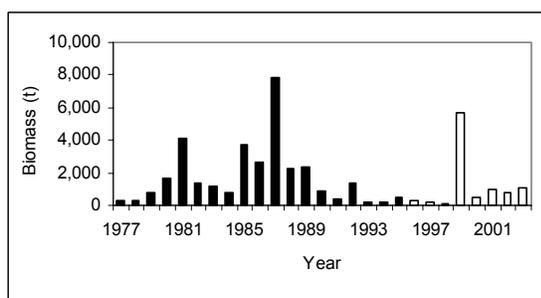


Figure 15. Biomass estimates from Canadian Research Vessel Surveys for pollock in NAFO Subdivision 3Ps. The 1996 - 2003 points are with the Campelen 1800 shrimp trawl. Pre-1996 data have not been converted are not directly comparable.

In 1999 the biomass increased (Figure 15) due to a few larger (50 - 100 fish) catches in strata in the Halibut channel

area. In 2002 there were small catches of pollock along the slopes of Burgeo and St. Pierre Bank with some larger catch of small pollock in inshore strata in the Ramea area.

In 2003 catches were small and restricted to the slopes of Burgeo Bank with some small catches on the Southeastern slopes of St. Pierre Bank. Pollock are rarely found on St. Pierre Bank.

Pollock have never been a major component of the commercial fishery in NAFO Subdivision 3Ps. Bycatches since the cod fishery reopened in 1997 have been in the range of 600-850 t. Assuming cod quotas remain at current levels and environmental conditions in the area do not recede to the cold conditions of the early 1990's this level of pollock bycatch can be expected to continue.

Cod in Divisions 2GH

This stock like most cod stocks in the Northwest Atlantic had a large increase in catch by non-Canadian fleets from the mid 1960's to early 1970's peaking at 94,000 t in 1966 (Figure 16). Unlike other Canadian stocks this stock never had a major Canadian component averaging only 480 t annually from 1960 - 1990 with a maximum catch of 3200 t taken in 1982. When jurisdiction was extended in 1977 this stock was severely depleted. Average catch for the period 1977-1990 was 2600 t and the non-Canadian catch was the largest component until 1986. No directed fishing has been permitted on this stock since 1996. There has been no reported catch since 1991.

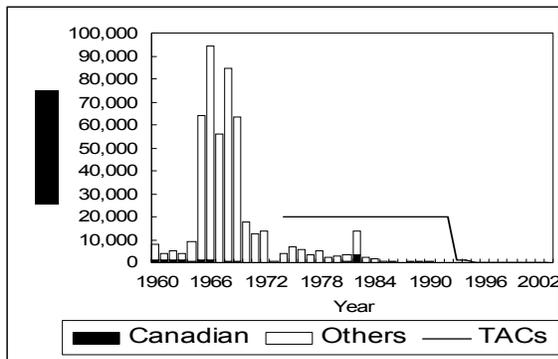


Figure 16. Historical landings and TACs for cod in Divisions 2GH

Survey coverage has been sporadic in both time and space. For areas covered no significant concentrations of cod were found in the 1996-1999 or the 2001 surveys and it appears that the **stock remains at a low level** compared to earlier periods.

Lumpfish in Divisions 3K, 3L and 3P

Lumpfish roe **landings** (Figure 17) from divisions 3K, 3L and 3P were approximately 500 t from 1977 to 1984. They reached a high of 3000 t in 1987 then declined to an average of 2000 t from 1988 to 1994. There was a decline to 1000 t in 1995 and 1996. The landings increased to 2000 t in 1997 and fell to 1100 t in 1998. In 2000 total reported landings were 1572 t with 710 t taken in 3P. Total preliminary landings to December 20, 2003 are 212 t, with 183 t taken in Division 3P.

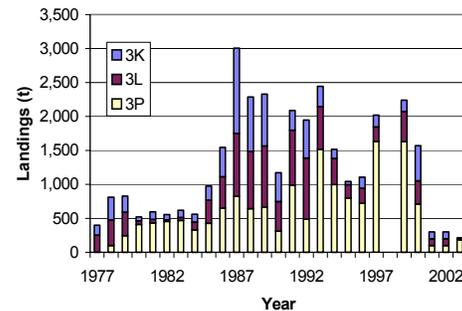


Figure 17. Lumpfish roe landings for NAFO Divisions 3K, 3L, and 3Ps, 1977-2003.

The lumpfish fishery is exclusively on pre-spawning mature females and therefore the spawning stock is vulnerable to over-exploitation.

This fishery is regulated by **effort controls**. There have been reductions in numbers of nets allowed as well as duration of the fishery in recent years. These reductions in effort over time were imposed as a result of indications of stock declines, particularly in divisions 3K and 3L.

Research vessel survey results are not useful in evaluating this resource due to the relative inshore distribution compared to survey coverage.

There are **no scientific investigations to determine the current status of this resource**.

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