



# NEWFOUNDLAND AND LABRADOR REGION GROUND FISH STOCK UPDATES

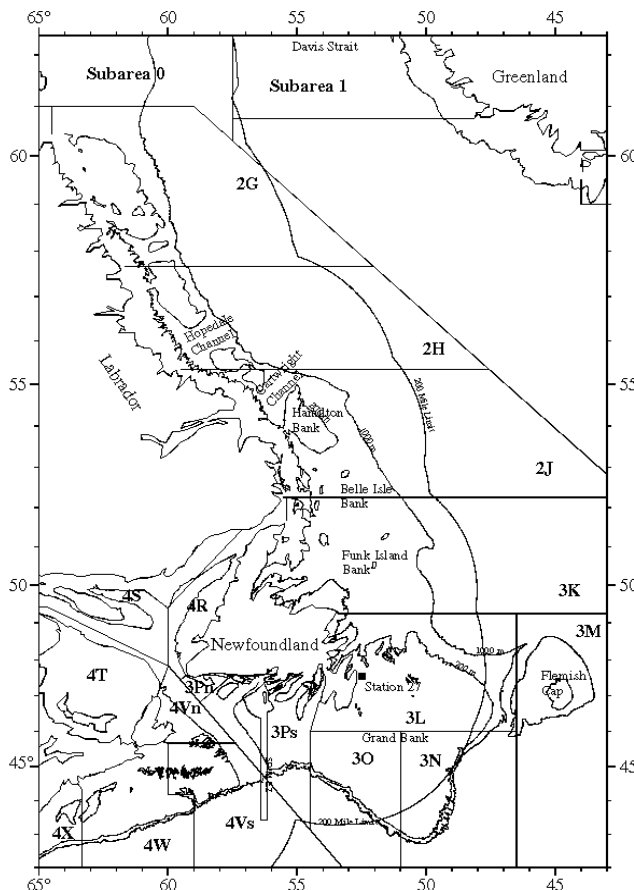
## Background

*In Newfoundland and Labrador, Science 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 Branch regional review process 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.*

*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 2004.***



## Background to Groundfish Updates

This report provides an update on the status of **3Ps American plaice, 2+3K American plaice, 3Ps witch flounder, 2+3K redfish, 3Ps haddock, 3LNO haddock, 3Ps pollock, 2GH cod, 3Ps thorny skate and 3KLP lumpfish**. Updated information and status was provided by the responsible scientists, and while full assessments were not conducted, the updated information was tabled and reviewed through the RAP in 2004.

Updates of **cod in Division 2J3KL (SSR 2004/011)** and **redfish in Unit 2 (2004/016)** were produced in winter 2004. **Cod in**

**Subdivision 3Ps** (SSR 2004/039) was also assessed regionally during the RAP in fall 2004.

Information on the status of stocks assessed by NAFO, as well as the 2004 advice of Scientific Council, is available in the report of the June 2004 meeting (**NAFO SCS Doc. 04/16**).

### **Subdivision 3Ps American Plaice**

This stock has been under moratorium since September 1993. Bycatches in recent years have increased from 90 t in 1995 to about 650 t in 1999 and 2000 and to over 1,000 t in each year from 2001 to 2003. Preliminary estimates until the end of September 2004 are 535 t. This bycatch is mainly taken in the cod and witch flounder fisheries. Bycatch rates in the directed witch flounder fishery using bottom otter trawl remain extremely high at 72% in 2003 and 50% to date in 2004.

DFO research vessel survey results indicate that this stock has remained at a low level since 1992. Biomass and abundance indices in the last 6 to 7 years are somewhat higher than those seen in the mid-1990's. However, the average biomass in 2000-2004 is only 19% of the 1983-87 average and abundance is 25% of the 1983-87 average.

Information is available from 1998 to 2003 from a survey 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.**

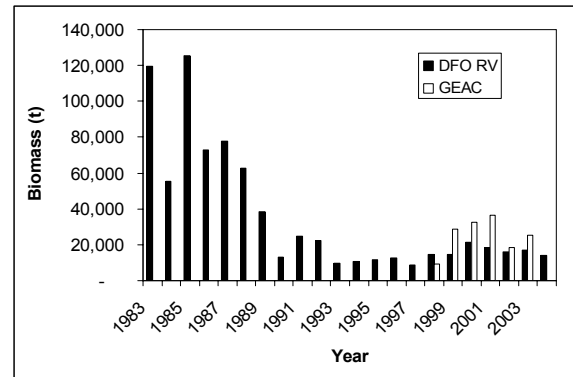


Figure 1: DFO Research survey and GEAC survey biomass indices for Subdivision 3Ps American plaice.

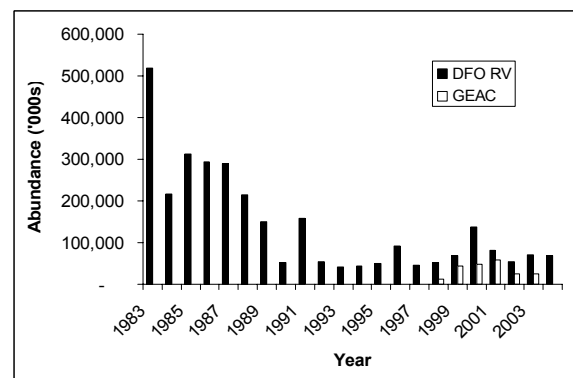


Figure 2: Survey abundance estimates for Subdivision 3Ps American plaice from DFO research vessel and GEAC surveys.

### **Subarea 2 and Division 3K American Plaice**

This stock has been under moratorium since 1994. Bycatch from 1994-1999 was very low, averaging approximately 13 t a year. In 2003, bycatch totaled 34 t and preliminary catch data from January to September 2004 shows the bycatch value at a level of 15 t. Bycatch is mainly taken from the Greenland halibut (otter trawl) fishery and the remaining bycatch taken from several gillnet fisheries. The shrimp fishery discarded 17 t (calculated from incomplete observer data) of American plaice in 2004, compared to 10 t in 2003.

DFO research vessel surveys indicate that this stock has remained at a low level since 1991. In 2003, Divisions 2GH were not surveyed. Levels of biomass and

abundance indicate that the status of this stock has not improved. The average biomass index from 2000-2003 is only 4% of the 1980-85 average; the 2003 level is estimated at 8000 t. The average abundance index from 2000-2003 is only 7% of the 1980-85 average; the 2003 abundance level is estimated at 52 million fish.

**Prospects for rebuilding of this stock continue to be extremely poor.**

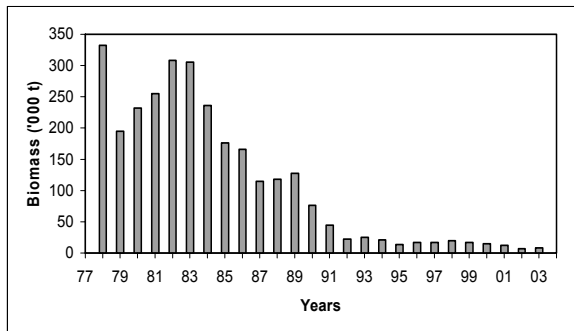


Figure 3: Research survey biomass index for Division 2J3K American plaice, 1978-2003. All data 1978-1994 are in Campelen data equivalents. Data from 1995-2003 are Campelen data.

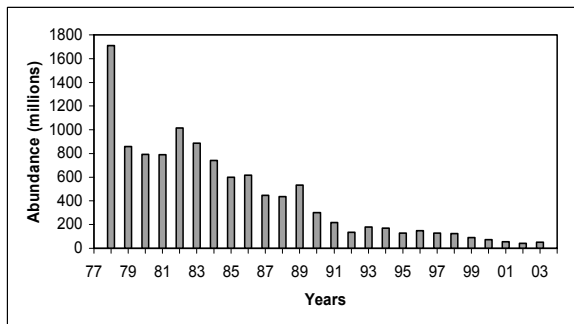


Figure 4: Research survey abundance estimates for Division 2J3K American plaice, 1978-2003. All data 1978-1994 are in Campelen data equivalents. Data from 1995-2003 are Campelen data.

**Subdivision 3Ps Witch Flounder**

This fishery has remained open, with a TAC of 650 t in each year from 1998 to 2004. Catches since 1998 have been mostly over 550 t (530 t in 2003) and the preliminary

estimate for 2004 (up until October 6) is about 453 t.

The mean biomass index from DFO surveys (Figure 5) 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 2003 and 2004 surveys were near the average of the entire time series from 1983-2004.

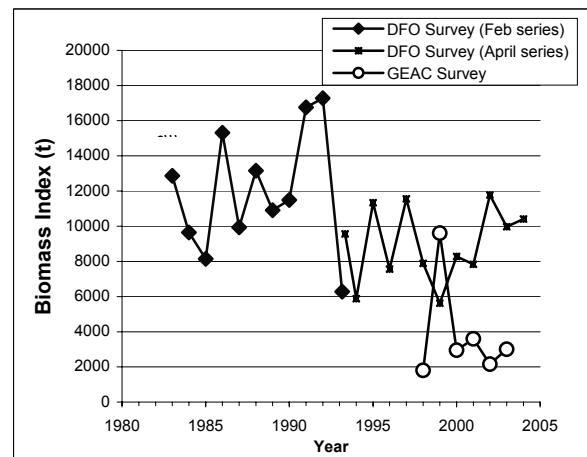


Figure 5: Research survey biomass index for Subdivision 3Ps witch flounder, 1983-2004. All data 1983-1995 are in Campelen equivalents. Data from 1996-2004 are Campelen data. There were two surveys in 1993, one in February and one in April.

The biomass index from the industry surveys (Figure 5) has been relatively stable from 2000-2003 and shows no trend.

Recruitment has been relatively stable 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.

**Subarea 2 and Division 3K Redfish**

This stock has been under moratorium to directed fishing since 1997. Prior to this,

there had not been a persistent directed effort on this stock since 1990 when 2,400 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 1,600 t in 2001, with further increases to 3,200 t in 2002 and to 5,000 t in 2003. The increases beginning in 2001 were from non-Canadian directed fisheries outside the 200-mile limit in Divisions 2HJ utilizing large midwater trawls. It is presumed these catches were from the pelagic stock of redfish that resides primarily in the Irminger Sea between Greenland and Iceland. This stock is managed by the Northeast Atlantic Fisheries Commission (NEAFC). In recent years mid-summer trawl-acoustic surveys of this Irminger Sea population, conducted by member countries of NEAFC, have measured a portion of the concentration within the 2J3K boundary in the NAFO Regulatory area. Canadian landings since the moratorium are bycatch from Greenland halibut fisheries and have been less than 40 t annually.

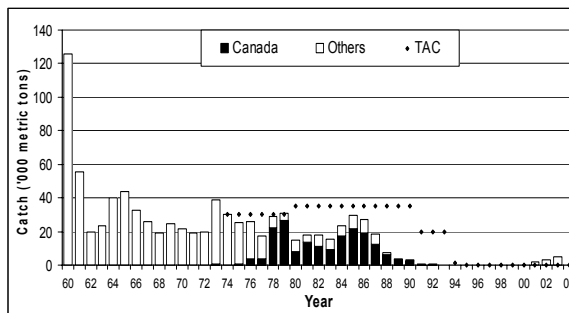


Figure 6: Reported catches and TAC's (t) in Subarea 2 and Division 3K.

Based on observer data, estimates of redfish bycatch discarded from shrimp fisheries in the Divisions 2G to 3K area since 1980 have ranged from 14 t in 1983 to 665 t in 1990. Since 2000, discard estimates have ranged between 60 t (2002) to 231 t (2003).

Results from **research vessel surveys** in Divisions 2J3K suggest the resource was at an historically low level in 1994 (Figure 7). The survey biomass index increased by a

factor of six from 1994 to 1998 and has since fluctuated around a level 25% lower than 1998. The average of the index from 2000-2003 was only 4% of the index averaged from 1978-1990.

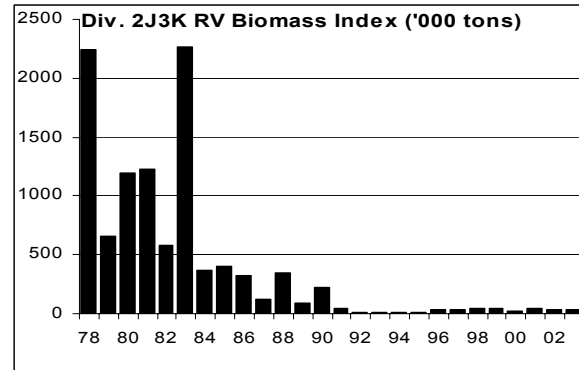


Figure 7: RV Biomass Index for Divisions 2J3K.

Although there has been an improvement in recruitment from the 1997, 1998 and 2000 year classes (Figure 8, fish less than 17cm), these are considered very poor in comparison to year classes of the early 1970's. Prior to the 1990's, a substantial portion of the stock was comprised of fish greater than 30 cm (fish 15 years and older). Since 1994 these older fish are not well represented in the survey abundance even though exploitation is assumed low.

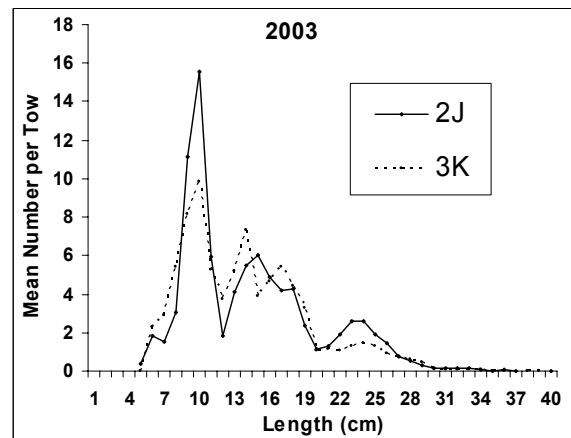


Figure 8: RV length distribution Index for Divisions 2J3K.

**This stock remains at a very low level. There is little indication that the status of the stock will change in a positive way in the foreseeable future.**

## Subdivision 3Ps Haddock

### The Fishery

Landings in the 3Ps haddock fishery peaked in the mid to late 1950's, just as they did in many of the groundfish fisheries in the Northwest Atlantic. Landings for this stock increased from 5,800 t in 1953 to a peak of 58,000 t in 1955, then declined to 6,000 t in 1957.

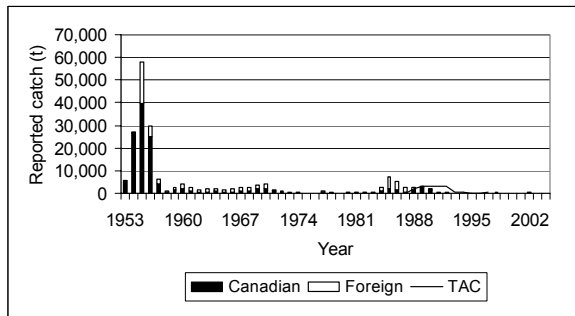


Figure 9: Historical landings and TAC's for haddock in NAFO Subdivision 3Ps, 1953-2004.

Catches of haddock in 3Ps since 1960 have been mainly in the 1,000-2,000 t range, but increased to 7,500 t in 1985 before falling below 1,000 t after 1990.

There has been no quota for haddock since 1997 and reported catch is taken by Canada and France (SP) 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 and been in the 200-300 t range in most years.

### Surveys

Canada has conducted research vessel surveys since 1972. In 1994, the survey stratification scheme was extended into Placentia Bay. In 1997, Fortune Bay and the inshore area west to the 3Pn line were also stratified. This expansion of survey coverage has not led to a significant increase in survey biomass.

The survey index of haddock biomass was low from 1972 to 1982 then peaked in 1985

due to the presence of the relatively strong 1981-year class. The index has remained low since the mid 1980's.

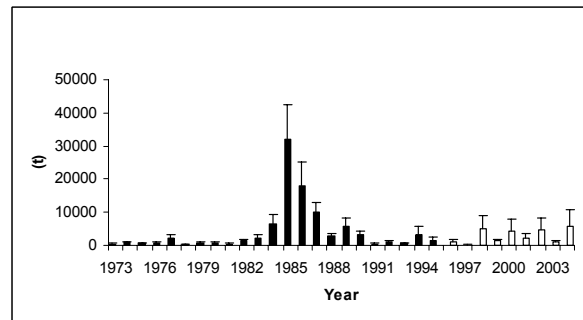


Figure 10: Biomass estimates for haddock from Canadian Research Vessel Multispecies Surveys NAFO Subdivision 3Ps. The 1996-2004 points are with the Campelen 1800 shrimp trawl. Pre-1996 data have not been converted and are not directly comparable.

The 1999 survey estimate was low. However, it encountered relatively large numbers of small fish, predominately the 1998 year-class. This year-class has also been dominant in the more recent surveys and accounted for the majority of the catch in the 2004 survey at age 6.

An additional source of information is the GEAC Survey (Groundfish Enterprise Allocation Council) which has been conducted annually by industry since 1997. This survey covers St. Pierre Bank excluding the French economic zone using a commercial unlined trawl. The largest catches of haddock occur in strata in the Halibut Channel. Both abundance and biomass estimates, though low, show an increasing trend over the time series.

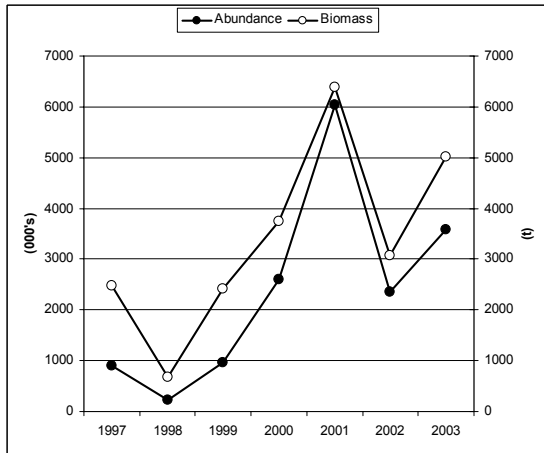


Figure 11: Abundance and Biomass estimates from GEAC surveys conducted annually in late November and early December.

**Recruitment of 3Ps haddock has been poor since the early 1950s, with few fish surviving to maturity. Under these conditions, prospects of recovery are poor.**

### Divisions 3LNO Haddock

Landings were highest during the 1950's and early 1960's, with a peak of 76,000 t in 1961. During this period the fishery was prosecuted mainly by Canada with significant landings reported by Spain and USSR in some years. 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 8,200 t, the highest since 1967. Since 1988, catches have declined and have been less than 200 t since 1994. Catch in recent years has been mainly bycatch in the Canadian skate and yellowtail fisheries and non-Canadian fisheries for unregulated species beyond the Canadian 200 mile limit.

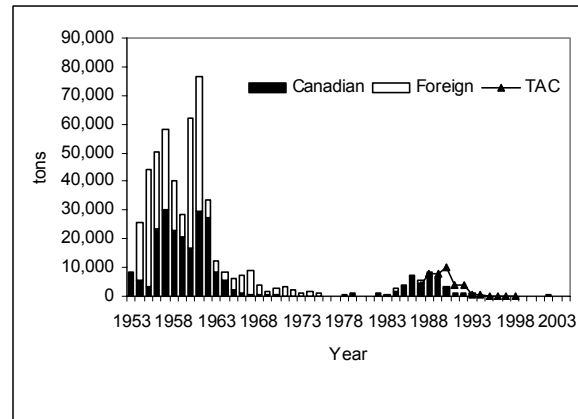


Figure 12: Landings of haddock from NAFO Divisions 3LNO from 1953-2004.

### Canadian Research Vessel Surveys

Research vessel surveys have been conducted in the spring since 1972. Abundance and biomass indices for haddock were low from 1972 to 1982. Both peaked in 1985 due to the relatively strong 1981 year-class.

Survey biomass in recent years peaked at 44,000 t in 1997 (based primarily on one large catch of 5.5 t) and has showed some promise for the future with the appearance of the relatively strong 1998 year-class.

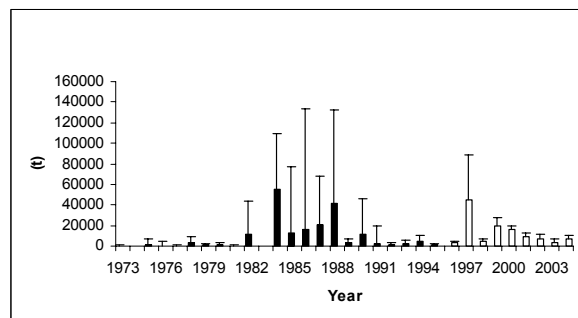


Figure 13: Biomass estimates for haddock from spring Canadian Research Vessel Multispecies Surveys NAFO Divisions 3LNO. The 1996-2004 points are with the Campelen 1800 shrimp trawl. Pre-1996 data have not been converted and are not directly comparable.

Canada has also conducted surveys of the area annually in the autumn since 1990.

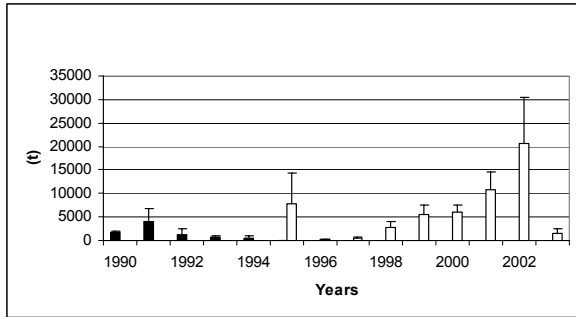


Figure 14: Biomass estimates for haddock from autumn Canadian Research Vessel Multispecies Surveys NAFO Divisions 3LNO. The 1995-2004 points are with the Campelen 1800 shrimp trawl. Pre-1995 data have not been converted and are not directly

The autumn surveys showed very few haddock until the 1998 survey which caught high numbers of young of the year. Biomass estimates have increased as this year-class grows. However, the most recent survey suggests that very few of this year-class have survived to maturity.

**Currently the haddock in Divisions 3LNO are at low numbers with very few mature fish. Any increase in population size in the near future may be dependent on the survival of the 1998 year-class.**

**Subdivision 3Ps Pollock**

Catches in the early 1960's were taken mainly by USSR and Spain, with the Canadian and French catch being a small component. From the mid 1960's to the mid 1980's, annual catches were less than 1,000 t and taken mainly by Canada and France. Catches peaked in 1986 at 7,500 t and declined to less than 100 t in 1994. Catch since 1993 has been regulated as by-catch and occurs mainly as by-catch in the cod fishery. Since the cod fishery reopened in 1997, annual catches have been in the 600-850 t range. The preliminary catch estimate (Canadian only) for 2003 is 491 t and 251 t to October 1, 2004.

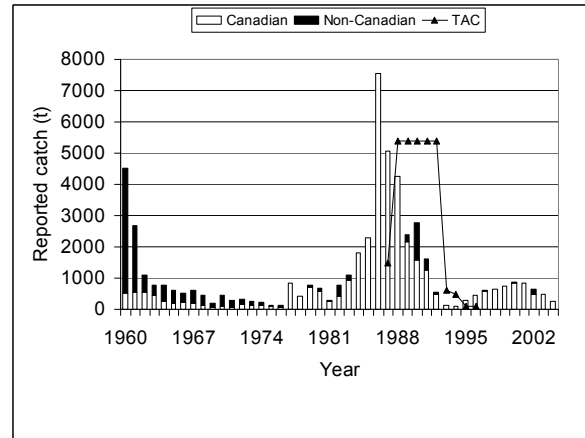


Figure 15: Pollock landings and TAC's (t) in NAFO Subdivision 3Ps, 1960-2004.

Annual surveys have been conducted by Canada in Subdivision 3Ps since 1972. In the past, the utility of using an otter trawl survey as an indicator of abundance for pollock has been questioned due to the semi-pelagic nature of the species. However the survey is the only non-fisheries source of information.

In 1997, strata were added in the inshore area of Fortune Bay and in the inshore areas westward to the 3Pn line. During the 1997 to 2000 period, no significant catches of pollock were encountered in these strata. However, in 2002, the only significant catches of pollock occurred in these inshore strata.

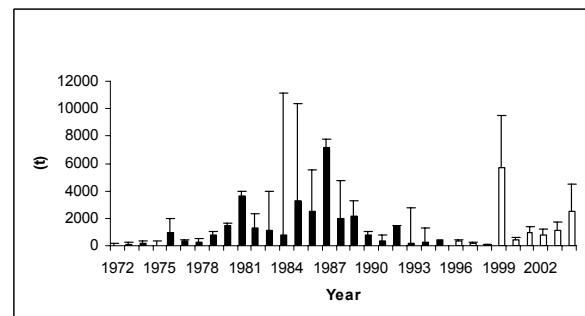


Figure 16: Biomass estimates for pollock from Canadian Research Vessel Multispecies Surveys NAFO Subdivision 3Ps. The 1996-2004 points are with the Campelen 1800 shrimp trawl. Pre-1996 data have not been converted and are not directly comparable.

Another major question related to pollock in Subdivision 3Ps is whether the population in the area constitutes a stock. Indices for pollock indicate it is present in the area in both the winter and spring portions of the time-series. Catches, though low, are recorded in the area in all months. Pollock is obviously not an incidental visitor to the region. Pollock of all sizes are encountered in the area. Surveys catch pollock of various stages of maturity, from maturing to spent.

**Pollock have never been a major component of the commercial fishery in Subdivision 3Ps. Their contribution is based on the occurrence and survival of year-classes against great odds in the extreme north of their range.**

### ***Divisions 2GH Cod***

This stock, like most cod stocks in the Northwest Atlantic, saw 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. Unlike other Canadian stocks, this stock never had a major Canadian component as part of the fishery, with Canadian catches averaging only 480 t annually from 1960-1990 with a maximum catch of 3,200 t taken in 1982. When jurisdiction was extended in 1977, this stock was severely depleted. Average catch for the period 1977-1990 was 2,600 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.

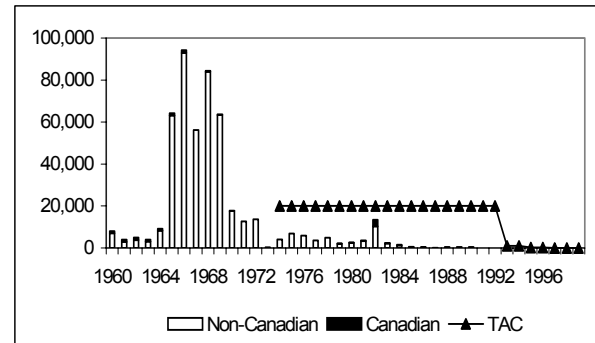


Figure 17: Historical landings and TAC's (t) for cod in NAFO Division 2GH, 1960-2004.

### ***Resource Status***

Since 1996, Canada has made several attempts to conduct a multi-species survey of Divisions 2GH to 1,500 m using the Campelen 1800 shrimp trawl. These have given varying results because of lost time due to weather and search and rescue and mechanical problems with vessels. The last attempt was in 2001 and coverage was limited. As with surveys conducted in the area in the 1980's, survey coverage and timing are probably more appropriate for Greenland halibut than cod. The question of cod being inshore of the surveyed area at the time of the survey still remains. Without appropriate timed surveys covering the entire stock or other inshore activity, it will remain unknown if concentrations of cod exist shoreward of the 200-metre contour.

Nonetheless, for areas covered, no significant concentrations of cod were found in the surveys conducted from 1996-2001 and it appears that the **stock remains at a low level** compared to earlier periods.

### ***Subdivision 3Ps Thorny Skate***

Thorny skate was previously managed by Canada as 3LNOPs together. However, this species is presently managed in two components: 3LNO by the NAFO and 3Ps by DFO.

Prior to 1994, skates were considered commercially as "undesirable" fish, and thus readily discarded (averaging 2750 t in 3Ps).



With the collapse of major groundfish fisheries, Canadian fishers began directing for thorny skates in 1994. From 1994 to 2003, skate catches averaged 1,351 t in 3Ps. Canadian catches in 3Ps for 2003 and 2004 are respectively 1,999 t and 1,090 t (preliminary).

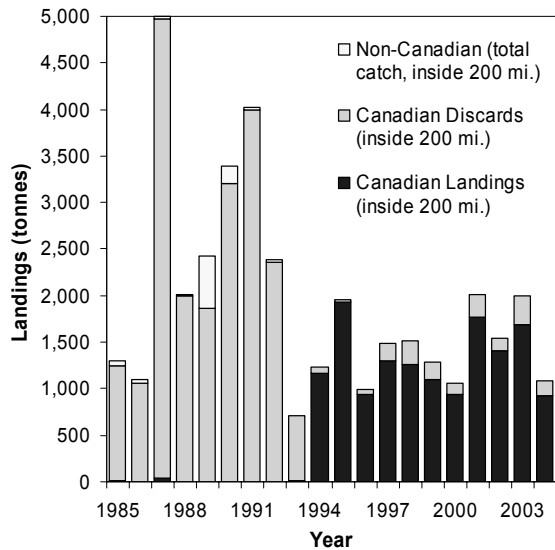


Figure 18: Catches of skate in Subdivision 3Ps, 1985-2004. Catches were calculated from ZIF files (landings) and Observer data (Canadian discards and non-Canadian catches). Data for 2004 are preliminary.

An increasing trend in the biomass index over the past 9 years, coupled with an apparent “levelling off” of the abundance index since 1996, suggests that the 3Ps component of the thorny skate population is healthy.

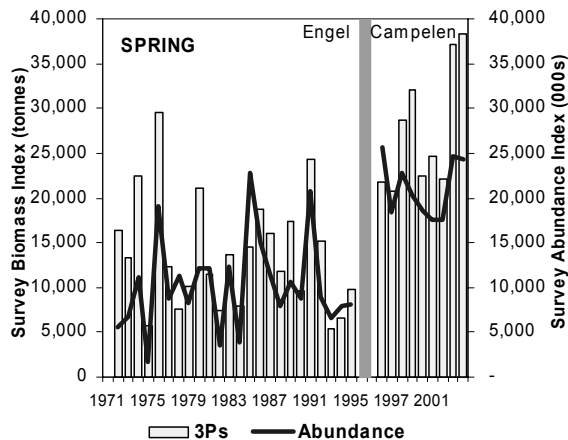


Figure 19: Spring research survey biomass

indices (vertical bars) and abundance (horizontal line) for thorny skate in Subdivision 3Ps, 1971-2004. Thick vertical line represents the change from Engel to Campelen survey gear in fall 1995 (Engel data are unconverted).

### Divisions 3KLP Lumpfish

Lumpfish roe landings from Divisions 3KLP were approximately 500 t from 1977 to 1984. They reached a high of 3,000 t in 1987, and then declined to an average of 2,000 t from 1988 to 1994. There was a decline to approximately 1,000 t in 1995 and 1996. The landings increased to 2,146 t in 1999 and fell to 155 t in 2002. Total preliminary landings for 2004 are 938 t, with 636 t taken in 3Ps.

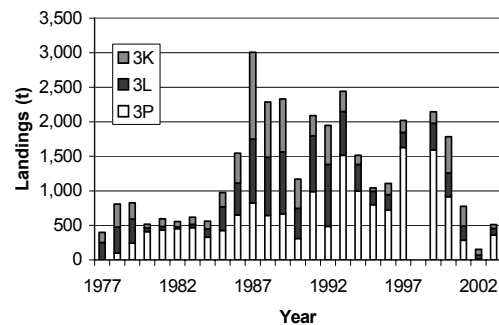


Figure 20: Lumpfish roe landings for Divisions 3KLP, 1977-2003.

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 3KL.

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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### ***References***

- DFO, 2004. Northern (2J+3KL) Cod. DFO Can. Sci. Advis. Sec. Stock Status Report. 2004/011.
- DFO, 2004. Unit 2 Redfish. DFO Can. Sci. Advis. Sec. Stock Status Report. 2004/016.
- DFO, 2004. Subdivision 3Ps Cod. DFO Can. Sc. Advis. Sec. Stock Status Report. 2004/039.

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