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1998 Conservation Requirements for the Scotian Shelf and Bay of Fundy Groundfish Stocks

Report to the Minister of Fisheries and Oceans

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CHAPRTER 1: INTRODUCTION

This report is one of a series that the Fisheries Resource Conservation Council (FRCC) makes to the Minister of Fisheries and Oceans on conservation measures for groundfish stocks in eastern Canada. This report deals with groundfish stocks in the Scotian Shelf and Bay of Fundy and makes recommendations for the 1998 fishery.

Every year the Fisheries Resource Conservation Council (FRCC) holds public consultations with stakeholders to gather information on all Atlantic groundfish stocks. This information assists us in forming our recommendations to the Minister of Fisheries and Oceans for annual conservation requirements for Atlantic groundfish. For this report we met with fishers and other concerned stakeholders in Sydney, Nova Scotia on October 21, Yarmouth, Nova Scotia on October 22 and in Halifax, Nova Scotia on October 23. We also received a number of written briefs which are noted in Appendix 3.

Although this report deals with groundfish stocks in the Scotian Shelf and Bay of Fundy, it does not include recommendations for cod stocks in division 4VsW. Recommendations for those stocks will be included as part of a separate FRCC report to the Minister in March 1998.

Special Zonal Assessment

For this year only, the Department of Fisheries and Oceans (DFO) Science will be holding a special zonal assessment for the following cod stocks: 2J3KL, 3Ps, 4RS,3Pn, 4TVn, and 4VsW. This special assessment will be held during the last week in January in order to incorporate all available information into the assessment including; the upcoming fall and winter surveys, and the results of this years sentinel fishery. Until this special zonal assessment is held the FRCC will not be receiving advice from DFO Science on these cod stocks. It is important for everyone to have the results of the latest assessment before we consult on these stocks.

As a result of this change, the FRCC's fall groundfish consultations will be staggered through out the fall and into the new year. Our schedule for future consultations includes the following:

Gulf Groundfish Stocks: December 1-3, 1997

Cod Stocks (2J3KL, 3Ps, 4RS,3Pn, 4TVn, and 4VsW): February 16 - 21, 1998

Conservation Issues

During our consultations many concerns were raised about the state and health of groundfish stocks and most of these concerns are dealt with in Chapter 2 of this report in Stock-by-Stock recommendations. However, the Council wishes to highlight some of these concerns and draw particular attention to certain problems.

Concentration of Fishing Effort to the Bay of Fundy

Included in the questions forwarded to stakeholders for discussion, the FRCC asked about the reports from some fishers that fishing effort had concentrated to the mouth of and the inner Bay of Fundy this year. Comments at consultations suggested that this was cause for some concern with one participant suggesting this was a "two-alarm fire" and if we fail to get control of the situation it could develop into a "four-alarm fire". Although others suggested that this may be caused by restrictive management measures such as closed areas, most expressed some concern over the situation. Council noted with interest the comments from the fixed gear, hook and line fishermen that they have failed to reach their quotas again this year.

The Council is very concerned about this situation and many of our members noted that a significant shift in effort has been a serious signal in other fisheries of approaching dangers. For these reasons the Council has made a strong recommendation to the Minister of Fisheries and Oceans that DFO Management and Science be tasked to update data on the shift in effort from eastern 4X to western 4X (particularly to the inner Bay of Fundy) for cod, haddock and pollock. If the result of this review indicates potential adverse effects on local aggregations or spawning components, measures should be put in place to protect these resources. The Council also recommends that for 4X cod, there be an update on genetic information on the Bay of Fundy and Scotian Shelf components of this stock with a view to determining if a geographic split in the stock between those two areas is appropriate.

Warning Signs

In addition to the redirection of effort to the western portion of division 4X, the Council is also concerned by reports of declining condition factor and weights-at-age, as well as shrinking geographic distribution, for

many species. In our stock-by-stock recommendations in Chapter Two of this report we have asked the Department of Fisheries and Oceans to closely monitor this situation.

Seals

As in previous years, we have included in our comments to the Minister our concern and alarm over the size and the effects of the grey seal herd on Sable Island. Recent reports on population put this herd at close to 200,000 animals. The Council believes that their consumption of juvenile cod and other species is a threat to the rebuilding of groundfish stocks, most especially cod in divisions 4Vn and 4VsW. Comments made by those in attendance at our consultation indicate that seals are going further and further in their search for food and there were many reports of seals moving inland after trout and salmon.

The Council, in its previous reports, has advocated use of seal contraceptives as a means to control the population of this herd and we again urge the Department of Fisheries and Oceans to move forward with this initiative.

Species Mix

In previous years, industry participants at our consultations in Southwestern Nova Scotia have advocated a species "mix" for cod and haddock quotas to minimize dumping and discarding. In the past some have suggested a ratio of 2 to 1 with respect to 4X cod and haddock. This year, many participants suggested that the FRCC should not place any undue priority on finding the right mix and instead urged the Council to concentrate on what was right with respect to conservation for each stock. Industry participants noted that the introduction of community quotas has made it easier to "trade" quotas and this management flexibility has allowed the industry to address the issue of a good species mix on their own.

The FRCC remains cautious, as this opinion was not shared by all stakeholders, and will listen carefully for reports of increased levels of dumping, discarding and "shacking off" over the coming year.

Atlantic Halibut

The Council had a difficult time forming its advice on Atlantic halibut to the Minister. We were struck by the consistent industry comments, throughout the range of this stock, that this stock was in better shape than suggested by DFO Science and could well stand a quota increase.

Fishers questioned the difference between the results of the Research Vessel Survey and the observations of the fishing industry. It was mentioned that experienced (halibut-specific) fishermen, on enterprise allocation longliner vessels fishing 3Ps and 3NO were not experiencing declining catch rates. They have a long history of similar fishing patterns, and there has been no major change in gear technology. Fishers reported a dramatic increase in 4VsW Halibut catches this past year.

The stock status report and the information from fishermen are diametrically opposed for this stock. The former paints a picture of a very depleted stock, while the latter indicates a healthier and growing stock. In the end, the Council used the precautionary approach and recommended that it would not be prudent to increase the commercial TAC at this point. However, the Council emphasized that it is crucial for a scientifically-designed fishermen-operated survey/index fishery to commence, to deal with the great uncertainty in the status of this resource. The Council notes that we have recommended this in the past and hopes that its implementation will help to bridge to gap between Science and the fishing industry on this important resource.

Chapter 2: Stocks of the Scotian Shelf and Bay of Fundy

Environmental overview

Temperature conditions over the Scotian Shelf, Bay of Fundy and Gulf of Maine are variable due to complex bottom topography, transport of water from upstream sources such as the Gulf of St. Lawrence, intrusion of offshore slope waters, and large seasonal cycles.

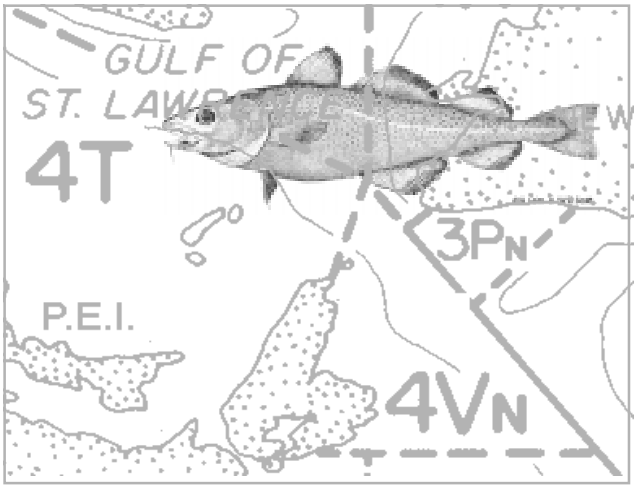
Air temperatures over the area were cooler-than-normal in early winter 1996 but rose above average in late winter and through the spring. During summer and autumn, air temperatures varied about the normal.

The amount of sea ice to reach the Scotian Shelf was below normal in 1996, and less than in 1995. The ice arrived later, and departed earlier than average.

Cold water temperatures were observed in 1996 at mid-depths and near bottom on the northeastern Scotian Shelf, in the near surface waters along the Atlantic coast of Nova Scotia, and throughout the water column off southwestern Nova Scotia. In contrast to these cool conditions, the waters in the central Scotian Shelf over Emerald Basin and along the continental slope, were warmer-than-normal; in the Gulf of Maine and in the Bay of Fundy, temperatures were also predominantly warmer-than-normal.

In summary, the northeastern and southwestern parts of the area, under the influence of waters from the Gulf of St. Lawrence and Newfoundland Shelf, were still colder-than-average, but less than last year. The central and southern parts of the area, under the influence of slope waters, were still warmer-than-normal, but also less than last year.

1. Cod 4Vn (M-O)



History Of FRCC Recommendations:

In August 1993, the Council recommended that fishing on this stock be halted immediately. The recommendation was accepted and the fishery was closed in September. In November 1993, the Council recommended that there be no directed fishing for this stock in 1994 and that by-catches be kept to the lowest possible level. This recommendation was repeated in November 1994 for the 1995 fishing year and again in November 1995 for the 1996 fishing season. These recommendations were accepted and the fishery has remained closed. In October 1996, the FRCC again recommended that there be no directed fishery for 4Vn Cod in 1997.Council also recommened that there be an expanded Sentinel Fishery with a strong commercial index component

1997 Consultations:

DFO Science representatives noted that mortality for the 4Vn cod stock is 40% which is approximately twice as high as would normally be expected. In addition, they noted that recruitment is extremely poor, resulting in a bleak outlook.

Cod by-catch in the halibut fishery was reported by fishermen as very good. These are “good fish”, (good size). However, the restrictive nature of the management regime has caused cod by-catch to be dumped.

Concern was expressed about the impact increasing seal populations are having on the recovery of this resource.

Analysis:

The 1997 Stock Status Report indicates that:

- a high level of stock mixing in the area confounds the assessment
- recruitment continues to be poor; the inshore survey indication of a good 1995 year class was not supported by research vessel results
- total mortality rates are still high despite the moratorium, suggesting emigration of fish out of the area, or a lack of survival
- catch rates in the sentinel survey have declined consistently from 1994 to 1996
- geographical distribution of cod (in sentinel fishery) has not changed over time

Recommendation # 1:

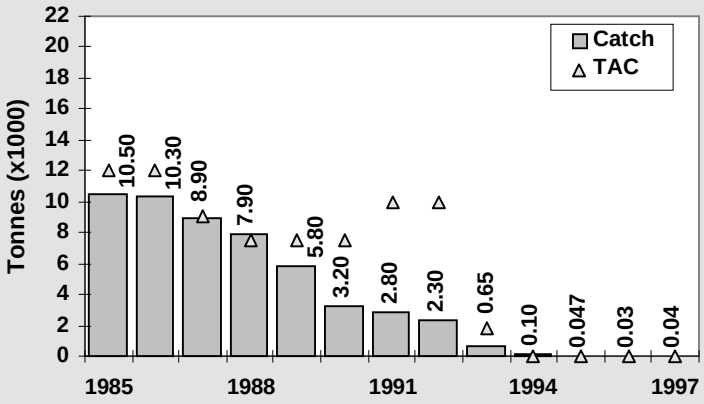
The FRCC recommends that:

1.1. there be no directed fishery for 4Vn (M-O) in 1998;

1.2. bycatches be kept to the lowest possible level;

1.3. sentinel surveys continue for several years to be of greatest value; and

1.4. a workshop involving industry be held in 1998 to assess the sentinel survey in 4Vn and in particular to determine if the commercial index can be made viable and continued.



*** 1997 Catch: as of Oct. 22/97**

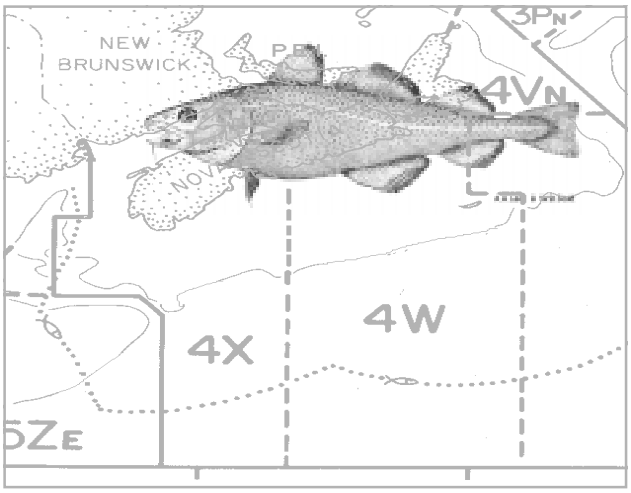
- total biomass and adult biomass remain very low; no recovery is possible in the short term

COUNCIL'S VIEWS ON STOCK STATUS:

Overall indicator: very low levels

	Compared to average
Spawning biomass:	**far below average**
Total biomass:	**far below average**
Recruitment:	**very low**
Growth/Condition:	**Average, improved from low values of 92-94**
Age structure:	**No good recruitment since 1987, all ages depressed**
Distribution:	**Steady in recent years, worse than in past**
Recent exploitation:	**Fishery closed since Sept. 1993; total mortality still high**

2. Cod 4X



History Of FRCC Recommendations:

In August 1993, the Council recommended, as a precautionary conservation measure, that the 1993 TAC be reduced from 26,000t to 15,000t. In November 1993, the Council recommended that the 1994 TAC for 4X cod be set at 13,000t. In addition, the Council recommended that other conservation measures, such as (a) improved selectivity of fishing gears (increased hook and mesh sizes), (b) limitations on the quantity and dimensions of fishing gear used, and (c) expanded use of area closures to protect spawning and/or juvenile aggregations, be considered for this fishery.In November 1994, the Council recommended that the 1995 TAC for 4X cod be set at 9,000t. As well, Council recommended that a workshop be organized jointly by the Department of Fisheries and Oceans and industry with the objective of an orderly fishery and the elimination of dumping, discarding and misreporting; and finally the Council recommended that should dumping, discarding and misreporting persist, the fishery be closed for the gear type involved. In the fall of 1995, the Council recommended a TAC of 11,000t for 1996 with mandatory dockside grading for all gear types.

For 1997, the FRCC recommended that the TAC be set at 13,000t, mandatory dockside monitoring be maintained for all gear types, and,the dialogue between DFO and industry concerning dumping, discarding and misreporting continue, to ensure that management measures to avoid these problems remain in place.

1997 Consultations:

Industry generally reported that the biomass of 4X cod is still relatively healthy, with a good proportion of spawners. However, some fixed gear inshore fishers observed that the cod biomass is the lowest level they have ever seen. This is the second year in a row some fixed gear quota groups had to leave fish in the water.

Many in the industry noted that the comments on the 1997 fishery are based on a four month fishery due to the problems of gaining approval for a CHP. They cautioned that these results should not be compared with the traditional year round fishery once practiced in 4X. They also noted that fish sizes and migratory patterns change with the seasons and their fishing experience, indicates the presence of many small and juvenile cod and haddock.

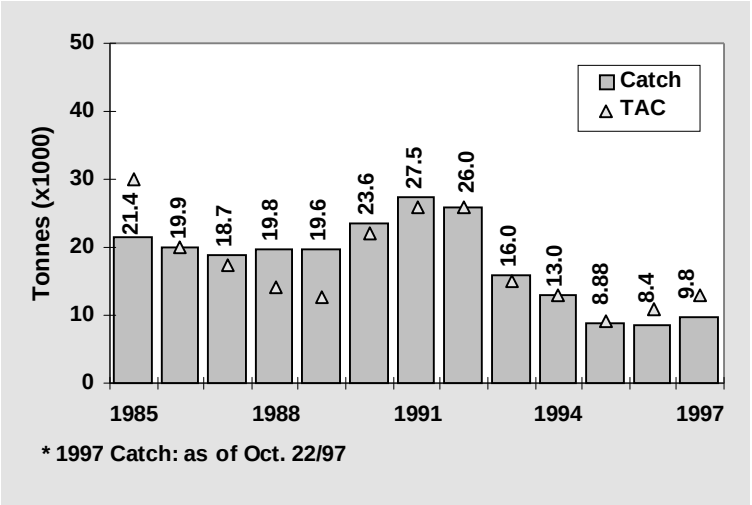
Recommendation # 2:

The FRCC recommends that:

2.1. the 1998 TAC for 4X Cod be set at 9,300t;

2.2. as an immediate priority, DFO Management and Science be tasked to update data on the shift in effort from eastern 4X to western 4X (particularly to the inner Bay of Fundy) for cod, haddock and pollock. If the result of this review indicates potential adverse effects on local aggregations or spawning components, measures should be put in place to protect these resources; and

2.3. there be an update on genetic information on the Bay of Fundy and Scotian Shelf components of this stock with a view to determining if a geographic split in the stock between those two areas is appropriate.



There was some discussion of closures due to the abundance of small fish on Roseway Bank this past year. However, it was felt that a permanent closure in this area would be unnecessary and would result in undue hardship to many who fish this area almost exclusively.

Some fishers felt the cod stocks are in better shape now than the landings show, given very cold water in early summer and dogfish keeping boats out of the deep water most of the year.

ne fisher wondered how Science could justify a recommendation to lower the TAC on 4X cod. However, some fixed gear fishers were concerned with this stock and supported a reduced TAC for 1998. There are reports of concentrations of fish at the mouth of, and up in, the Bay of Fundy. There was a great deal of concern expressed about the shift in effort from eastern 4X to western 4X for cod, haddock and pollock, and the effect this shift in effort could have on local stock components in western 4X. Concern was expressed about the use of Temporary Vessel Replacement Program (TVRP) vessels and the increased effort this placed on the Bay of Fundy portion of the stock.

Industry recommendations for TACs ranged from 8,000t to 13,000t for 4X cod in 1998. The majority of industry recommendations were in the range of 9,000-9,500t.

Analysis:

The 1997 Stock Status Report indicates that:

- the 1992 year class is strong, but the 1993, 1994 and 1995 year classes are weak
- adult biomass has reached a plateau, slightly above the long term average, but is reliant primarily on one year class
- total biomass is somewhat below the long term average

This stock has grown to average levels from historical low levels. Holding the harvest near F0.1 will allow for expected strong growth in individual fish, and a broadening in the age structure over time.

Industry has noted that the present management regime allows for temporary shifts of allocations between community quotas and between individual quotas within-season. This permits adjustment for specific availability of certain species to certain sectors in certain areas, so that quotas should be set primarily on biological grounds for each stock, with less concern for an 'appropriate mix' in catches between species.

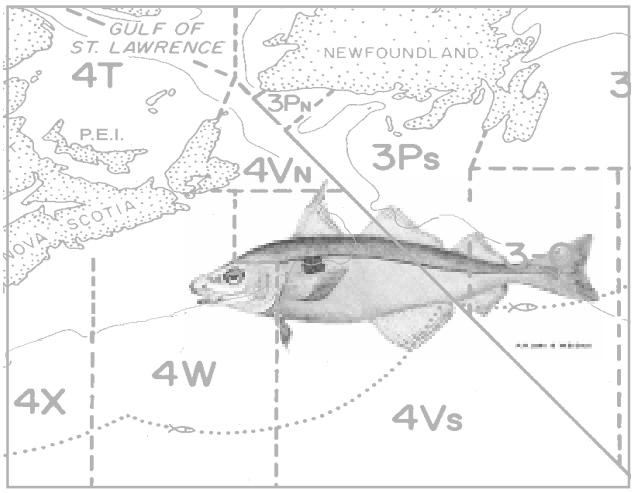
The Council is concerned about the reported shift in effort from the Scotian Shelf portion of 4X to the mouth and inner Bay of Fundy in 1997.

Council's views on Stock Status:

Overall Stock Indicator: **Medium**

	Compared to average
Spawning biomass:	**Slightly above average**
Total biomass:	**Somewhat below average**
Recruitment:	**Strong 1992 year class, weak after that**
Growth/Condition:	**good**
Age structure:	**average**
Distribution:	**Indications of declines outside Bay of Fundy**
Recent exploitation:	**Still above F0.1 but much lower than in past**

3. Haddock 4TVW



History Of FRCC Recommendations:

In August 1993, the Council expressed concern about the low level of this stock. In November 1993, the Council recommended that there be no directed fishing for the 4TVW haddock stock in 1994 and that the closure of the haddock box to all gears be continued. In 1994, the Council repeated this recommendation for 1995 and again for 1996. In October 1996, the FRCC again recommended that there be no directed fishing for 4TVW haddock in 1997 and the closure of the Haddock box to all gears be continued.

1997 Consultations:

Some participants at the consultation noted that fishing alone has not caused the collapse of this stock.

Analysis:

The 1997 Stock Status Report indicates that:

- adult population biomass is low, and likely to decrease further
- recruitment has been below average in every year since the mid-80s (except 1988), but the 1993 and 1994 year classes may be almost up to average
- the rate of natural mortality appears to be high on this stock

This stock shows a high natural mortality in the range of 40%. Fishing alone has not caused the collapse. Harsh environmental conditions and, to a lesser extent, seals were factors contributing to this decline.

A reversal of poor ecological conditions is required before stock improvement is expected.

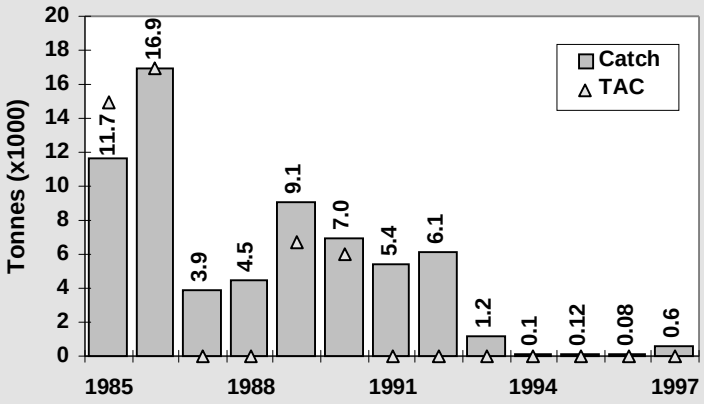
Recommendation # 3:

The FRCC recommends that:

3.1. there continue to be no directed fishing for 4TVW Haddock in 1998;

3.2. the closure of the haddock box to all gears be continued; and

3.3. the deterioration in the condition factor of 4TVW Haddock be monitored.

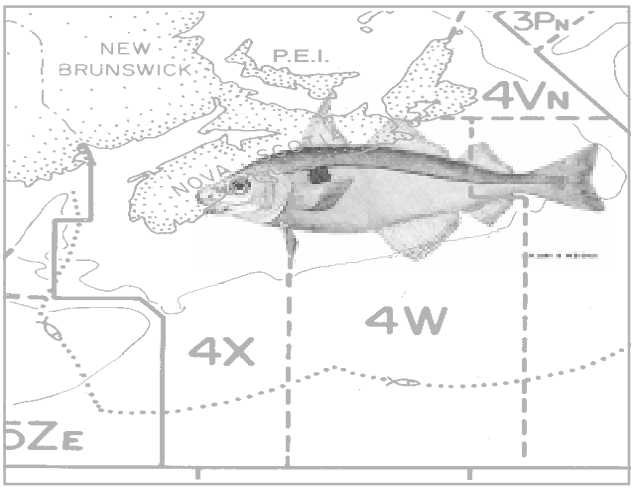


* 1997 Catch: as of Oct. 22/97

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator:	**very low (collapsed)**
	Compared to average
Spawning biomass:	**far below average (1/3 of long term average)**
Total biomass:	**far below average (1/3 of long term average)**
Recruitment:	**below average; possibly two year classes near average**
Growth/Condition:	**low; fish not growing larger**
Age structure:	**low biomass but reasonable spread in ages**
Distribution:	**Steady in recent years**
Recent exploitation:	**Fishery closed since 1993 (but total mortality still high)**

4. HADDOCK 4X



HISTORY OF FRCC RECOMMENDATIONS:

In its August 1993 report, the Council recommended that every action be taken to ensure that there are no overruns of the 1993 quota. The stock was closed to fishing in September because the quotas had been taken. In November 1993, the Council recommended that the 1994 TAC for 4X haddock be set at 4,500t (by-catch only) and that every action be taken to ensure that there are no overruns of this quota.In November 1994, the Council recommended that the 1995 TAC for 4X haddock be set at 6,000t. The Council recommended that, prior to the 1995 fishing season, a workshop be organized jointly by the Department of Fisheries and Oceans and the industry, with the objective of an orderly fishery, and the elimination of dumping, discarding and misreporting. Finally, the Council recommended that, should dumping, discarding and misreporting persist, the fishery be closed for the gear type involved.In November 1995, the Council recommended that the 1996 TAC for 4X Haddock be set at 6,500t, that mandatory dockside grading be implemented for all gear types and that the same closure procedure as recommended in 1995 be implemented for 1996.

In October 1996, the FRCC recommended that the 1997 TAC be set at 6,700t and mandatory dockside monitoring be maintained for all gear types. The Council noted, as part of its recommendation, that should there be sufficient evidence of dumping, discarding and misreporting, the fishery be closed for the gear type involved until such time as fisheries managers can be assured that this activity will not continue; and fisheries managers take appropriate measures to ensure the protection of incoming year-classes, including rigorously enforcing existing small fish protocols.

1997 CONSULTATIONS:

On-the-water experience indicates the presence of many small and juvenile haddock. There were reports of high abundance of haddock although it was noted that some of the longliners did not take their quota. TAC recommendations from stakeholders ranged from 8,000t to 11,000t for 4X haddock in 1998, most recommendations were in the 9,500-9,800t range.

ANALYSIS:

The 1997 Stock Status Report indicates that:

- both the total and the spawning biomass are now above long term averages

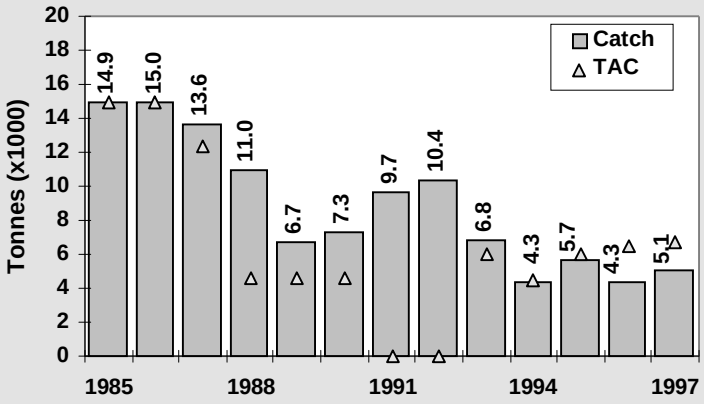
RECOMMENDATION # 4:

The FRCC recommends that:

4.1. the 1998 TAC for 4X Haddock be set at 8,100t;

4.2. as an immediate priority, DFO Management/Science be tasked to update data on the shift in effort from eastern 4X to western 4X (particularly to the inner Bay of Fundy) for cod, haddock and pollock. If the result of this review indicates potential adverse effects on local aggregations or spawning components, measures should be put in place to protect these resources; and

4.3. the decrease in condition factor be monitored.



*** 1997 Catch: as of Oct. 22/97**

- recruitment: average year class in 1992, very high in 1993, 1994 (twice the long term average), although there has been a tendency in the past to over-estimate the strength of strong year classes
- adjusting for the above tendency, and using a precautionary approach, the appropriate F0.1 level is 9500 tonnes
- risk analysis suggests a high probability that the stock will decline if harvested at F0.1 levels
- if the 1997 TAC is taken, the resulting exploitation rate will be below F0.1 (for only the second time since 1972)

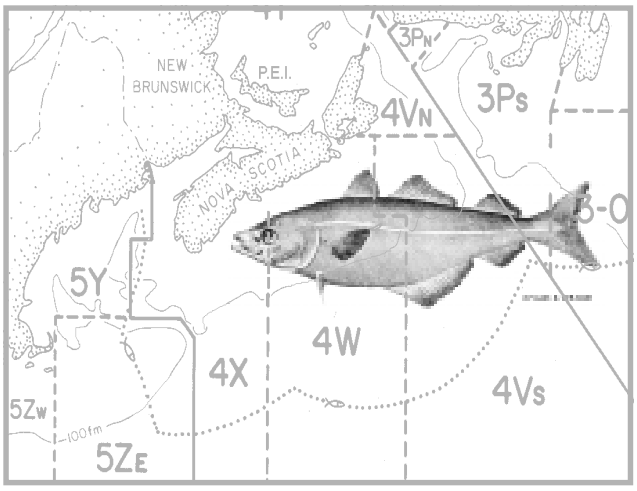
Council notes that maintaining the catch below the f0.1 level will aid in further building up of the biomass, to better achieve the catch potential of this stock.

The Council is concerned about the reported shift in effort from the Scotian Shelf portion of 4X to the mouth and inner Bay of Fundy in 1997.

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator:	**Medium-High**
	Compared to average
Spawning biomass:	**above average**
Total biomass:	**above average**
Recruitment:	**several strong year classes**
Growth/Condition:	**low**
Age structure:	**poor: 95% 3-5 year olds, 2% >9 year old**
Distribution:	**good and expanding**
Recent exploitation:	**at F0.1 (much lower than in past)**

5. Pollock 4VWX5Zc



History Of FRCC Recommendations:

In August 1993, the Council recommended, as a precautionary conservation measure, that the 1993 TAC be reduced from 35,000t to 21,000t. The Council also noted that the closure of the 4VsW cod fishery could cause some redirection of effort to the pollock fishery. In November 1993, the Council recommended that the 1994 TAC for 4VWX5Zc pollock be set at 24,000t, the F0.1 catch level then calculated for 1994.In 1994, the Council recommended that the 1995 TAC for 4VWX5Zc pollock be set at the revised F0.1 calculation of 14,500t. The Council also recommended that Fisheries and Oceans scientists work with the industry to determine if, and during what times of the year, it would be appropriate to establish closed areas for 4VWX5Zc pollock to protect the spawning stock. The Council notes that the 2nd Groundfish Workshop held in early October 1995 provided a forum to disucss possible measures to further improve conservation of groundfish stocks in this area. In November 1995, the Council recommended that the 1996 TAC for 4VWX5Zc pollock be set at 10,000t.

In October 1996, the FRCC recommended that the 1997 TAC be increased to 15,000t. The Council cautioned that DFO scientists continue to work with the industry to determine if, and during what times of the year, it would be appropriate to establish closed areas for 4VWX5Zc pollock to protect the spawning stock. The Council also recommended that DFO scientists look at other abundance indicators.

1997 Consultations:

DFO Science noted at the consultation that they use an industry index for this stock which shows an increase in abundance. Concern was expressed about pollock, and the 1,500t made available as in division 3Ps as by-catch in other fisheries. It was noted that this is likely an extension of the Scotian Shelf stock. Concern was expressed about the by-catch limit becoming a target for a directed fishery. It was suggested pollock might follow a pattern of out migration from the Scotian Shelf to 3Ps upon reaching some stage of maturation, not unlike halibut. There were reports that small pollock were common, “all across the board”, and in all sectors.

Stakeholders reported that the size and abundance of pollock was plentiful in the Bay of Fundy, while to the East it was scarce and small. Fishers from the tip end of Digby Neck reported that pollock seem

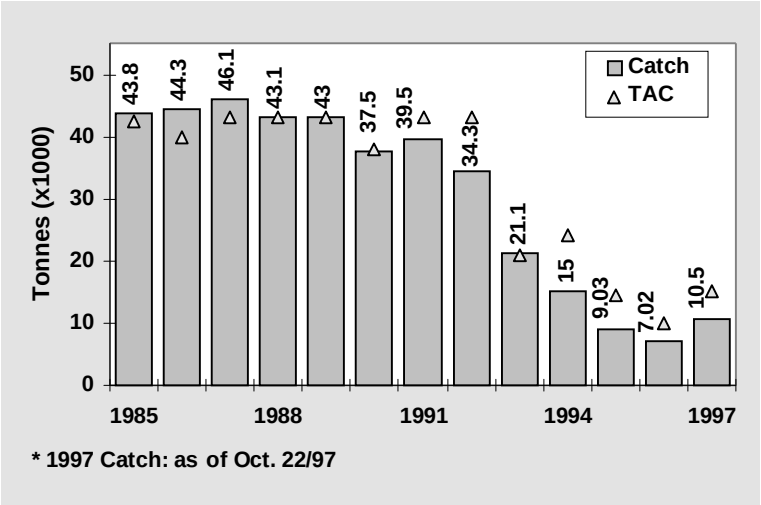
Recommendation # 5:

The FRCC recommends that:

5.1. the 1998 TAC for 4VWX5c Pollock be set at 20,000t;

5.2. as an immediate priority, DFO Management/Science be tasked to update data on the shift in effort from eastern 4X to western 4X (particularly to the inner Bay of Fundy) for cod, haddock and pollock. If the result of this review indicates potential adverse effects on local aggregations or spawning components, measures should be put in place to protect these resources; and

5.3. the decline in condition factor be monitored.



to be there, but not cod and/or haddock. Most people commented that pollock stocks are believed to be increasing. Many noted that Dogfish has been reported as a big problem in the pollock fishery.

Analysis:

The abundance of this stock is assessed without reference to the RV survey, but relies instead on commercial catch rates. This must be cause for caution, given that reliance on commercial catch rates has had negative conservation consequences in many fisheries around the world. Given that a long RV time series is available, efforts should be made to utilize this in some manner.

In addition to the reliance on commercial catch rates, and the unexplained fluctuations in the RV survey results, there are various other uncertainties in this stock assessment.

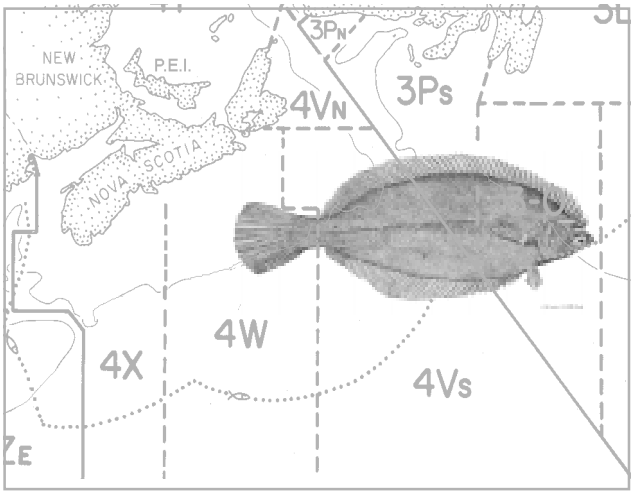
While the clear shift in fishing activity to western parts of the stock area may or may not be due to changes in distribution, a precautionary approach is needed to prevent excessive effort on possible sub-stock components.

The Council is concerned about the reported shift in effort from the Scotian Shelf portion of 4X to the mouth and inner Bay of Fundy in 1997.

Council's views on Stock Status:

Overall Stock Indicator:	**Medium (adult stock above long term average)**
	Compared to average
Spawning biomass:	**84,000t, above long term average of 70,000-75,000t**
Total biomass:	**129,000t, below long term average of 164,000t**
Recruitment:	**average**
Growth/Condition:	**slight decline in weights at age**
Age structure:	**good distribution, few older fish**
Distribution:	**indications of lower abundance in 4VW**
Recent exploitation:	**well below F0.1 in 1996 (less than half of long term average)**

6. Flatfishes 4VW



History Of FRCC Recommendations:

In November 1993, the Council recommended that efforts underway to obtain better information on the landings by species and area be encouraged in order to provide a more rational basis for conservation measures for this resource complex in future years. The Council also recommended that, pending the provision of more reliable catch data on flatfish on the Scotian Shelf, the 1994 TAC for 4VWX flatfish be set at 14,000t.In November 1994, based upon available information, the Council concluded that both the effort and the TACs for these stocks needed to be reduced further and, as well, that the proportions between the two units should be changed to better reflect relative stock abundance. The Council recommended that the global 1995 TAC for all 4VWX flatfishes be set at 7,500t. In November 1995, the Council recommended that the 1996 TAC for 4VW flatfishes be set at 3,500t and that the 1996 TAC for 4X+5 flatfishes be set at 3,375t.

In October 1996, the FRCC recommended that the 1997 TAC for 4VW flatfishes be set at 3,000t and the 1997 TAC for 4X+5 flatfishes be set at 3,000t and that efforts to avoid the capture of small fish be continued for both of these fisheries. The Council also recommended that work be carried out by DFO and the industry, possibly in conjunction with the dockside monitoring program, to address the problem of species identification.

1997 Consultations:

Witch (Grey sole):- There were comments that there was still “mixing” of Witch flounder with other flatfish and that this would tend to understate witch landings.

Plaice: There were no detailed discussions on this stock.

Analysis:

4VW Flatfish:

No new assessment in 1997, except for witch flounder, which has been assessed this year separately from other flatfish.

The 1997 Stock Status Report indicated that:

- biomass is in decline; resource status deteriorated in the last few years
- rebuilding unlikely unless catches kept below the 1996 level, and effort kept below those of recent years

Recommendation # 6:

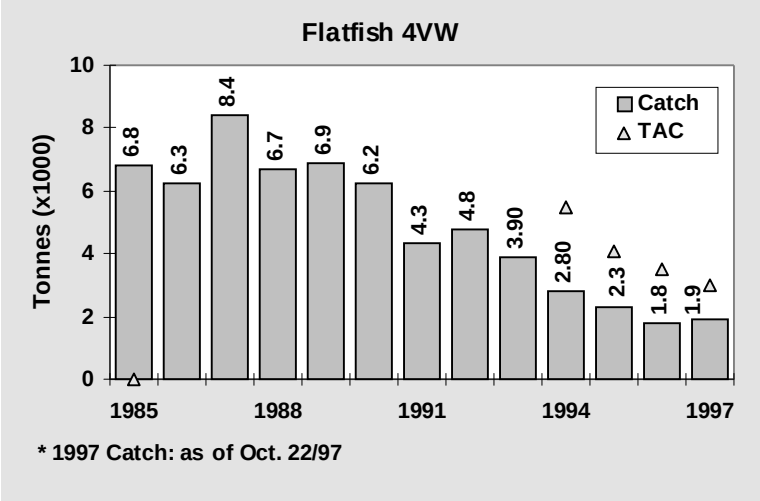
The FRCC recommends that:

6.1. the 1998 TAC for 4VW flatfish be set at 3,000t;

6.2. the proportionate catch of Witch in 4VW flatfish stocks not exceed current levels;

6.3. minimum size limits be enforced to protect incoming recruitment and efforts to avoid the capture of small fish be continued; and

6.4. work continue by DFO and industry to address the problem of species identification.



- must avoid capture and discarding of small flatfish
- modest to good recruitment except for yellowtail
- Winter flounder: abundance remains relatively high; not fished commercially in 4VW.
- Plaice: depleted and declining, fewer large fish than in the past, possible incoming recruitment
- Yellowtail: depleted to a very low level, no incoming recruitment

The 1997 Stock Status Report for Witch flounder indicates that:

- fishable population declined from 1980s levels to low of 1992-93, remaining low at present
- pre-recruit (<35 cm) abundance (early-90s year classes) is now highest in 28-year series
- pre-recruits highly localized in Gully and deep holes north of Banquereau Bank in 4VsW
- avoid increased effort on witch, to protect incoming recruitment and allow rebuilding
- likely some linkage with stocks to north and east

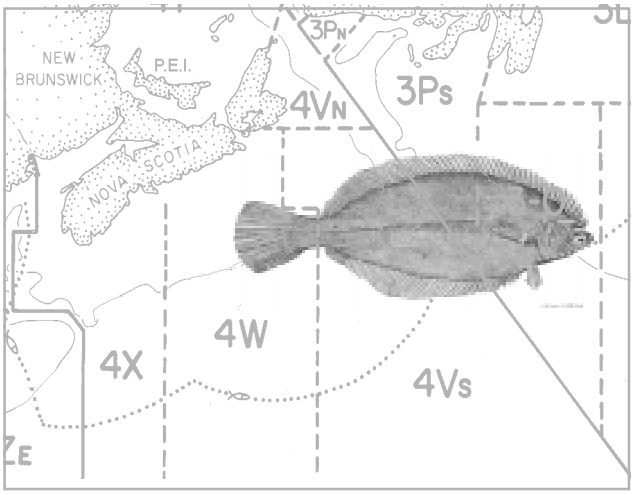
Council's views on Stock Status (Flatfish except Witch):

Overall Stock Indicator:	**Low (potential for rebuilding)**
	Compared to average
Spawning biomass:	**Low**
Total biomass:	**Low**
Recruitment:	**Signs of recruitment, except Yellowtail**
Growth/Condition:	**No particular observation**
Age structure:	**Shift toward smaller fish**
Distribution:	**Species specific**
Recent exploitation:	**Too high - must keep catches below 1996 level for rebuilding**

Council's views on Stock Status (Witch Flounder):

Overall Stock Indicator:	**Low-Medium (rebuilding)**
	Compared to average
Spawning biomass:	**low**
Total biomass:	**average**
Recruitment:	**strong**
Growth/Condition:	**No particular observation**
Age structure:	**Good for pre-recruits; older ages lowest observed**
Distribution:	**average**
Recent exploitation:	**Too high**

7. Flatfishes 4X



History Of FRCC Recommendations:

In November 1993, the Council recommended that efforts underway to obtain better information on the landings by species and area be encouraged in order to provide a more rational basis for conservation measures for this resource complex in future years. The Council also recommended that, pending the provision of more reliable catch data on flatfish on the Scotian Shelf, the 1994 TAC for 4VWX flatfish be set at 14,000t.In November 1994, based upon available information, the Council concluded that both the effort and the TACs for these stocks needed to be reduced further and, as well, that the proportions between the two units should be changed to better reflect relative stock abundance. The Council recommended that the global 1995 TAC for all 4VWX flatfishes be set at 7,500t. In November 1995, the Council recommended that the 1996 TAC for 4VW flatfishes be set at 3,500t and that the 1996 TAC for 4X+5 flatfishes be set at 3,375t.

In October 1996, the FRCC recommended that the 1997 TAC for 4VW flatfishes be set at 3,000t and the 1997 TAC for 4X+5 flatfishes be set at 3,000t and that efforts to avoid the capture of small fish be continued for both of these fisheries. The Council also recommended that work be carried out by DFO and the industry, possibly in conjunction with the dockside monitoring program, to address the problem of species identification.

1997 Consultations:

Witch (Grey sole):- There were comments that there was still “mixing” of Witch flounder with other flatfish and that this would tend to understate witch landings.

Plaice: There were no detailed discussions on this stock.

Analysis

Witch flounder has been assessed this year separately from other flatfish.

The 1997 Stock Status Report indicates that:

- given efficiency increases, declines in catch rates may under-estimate stock declines
- the precautionary approach implies immediate action is needed to reduce fishing effort on 4X flatfish (could be done by lowering the TAC so landings in 1998 are less than those in 1996)
- fishing effort should be spread proportionately among species

Recommendation # 7:

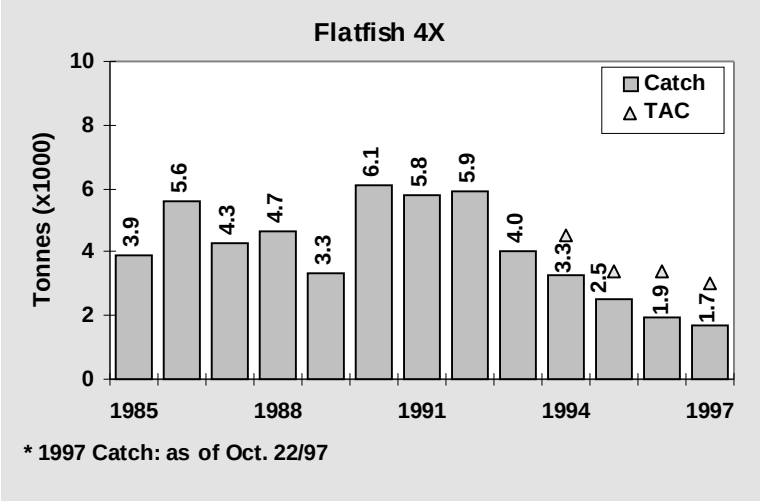
The FRCC recommends that:

7.1. the 1998 TAC for 4X flatfish be set at 2,000t;

7.2. the proportionate catch of Witch in 4X flatfish stocks not exceed current levels;

7.3. minimum size limits be enforced to protect incoming recruitment and efforts to avoid the capture of small fish be continued; and

7.4. work continue by DFO and industry to address the problem of species identification.



• low commercial catch rates, consistent with industry view of declining abundance

Yellowtail:

• some increase in <30cm fish, possible increase in >30cm fish, decline in >40cm fish

• no significant new recruitment

• industry notes declining abundance in keeping with lower CPUE

Witch flounder:

• fishable population declined from 1980s to low of 1992-93, still near lowest level observed

- pre-recruit (<35 cm) abundance (early-90s year classes) now highest in 28-year series
- small witch (<14 cm, probably 2-year-olds) remain at low abundance (in contrast to 4VW)
- crucial to avoid increased effort on witch, to protect incoming recruitment and allow rebuilding
- likely some linkage with stocks to south and west

Winter flounder:

- some decline in <30cm fish; little change in >30cm fish, but decline in >40cm fish
- industry notes decline in abundance, which is consistent with decline in catch rates

Plaice:

- decline in <30cm fish since 1994, little change in >30cm fish, clear decline in >40cm fish
- no significant new recruitment

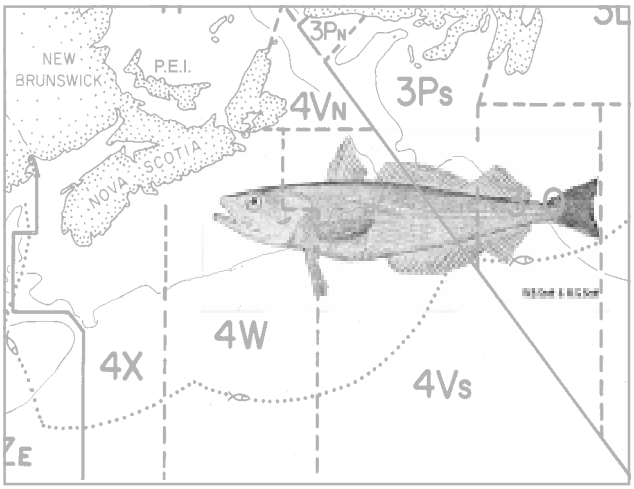
Council's views on Stock Status (Flatfish except Witch):

Overall Stock Indicator:	**Low-Medium**
	Compared to average
Spawning biomass:	**uncertain: low-average**
Total biomass:	**uncertain: low-average**
Recruitment:	**poor**
Growth/Condition:	**No particular observation**
Age structure:	**Reduced age range for all three species**
Distribution:	**Species specific**
Recent exploitation:	**Effort considered too high**

Council's views on Stock Status (Witch Flounder):

Overall Stock Indicator:	**Low, but rebuilding**
	Compared to average
Spawning biomass:	**low**
Total biomass:	**average**
Recruitment:	**strong**
Growth/Condition:	**No particular observation**
Age structure:	**Good for pre-recruits; older ages lowest observed**
Distribution:	**average**
Recent exploitation:	**Effort considered too high**

8. Silver Hake - 4VWX



History Of FRCC Recommendations:

In June 1994, the NAFO Scientific Council calculated that the catch at F0.1 for 1995 would be 79,000t. However, they noted that this calculation could be overestimated by as much as 20,000t. The Council recommended that the 1995 TAC for 4VWX silver hake be set at 60,000t. In order to reduce by-catches, the Silver Hake Box was redrawn in 1994 to move its northern boundary into deeper waters. Mandatory use of the Nordmore grate was also imposed in 1994. In November 1995, the Council recommended that the 1996 TAC for 4VWX silver hake remain at 60,000t. In October 1996 the FRCC recommended that the 1997 TAC for 4VWX silver hake be reduced to 50,000t.

1997 Consultations:

Questions concerning; ages, escapement of younger year classes, and by-catch of Gadoids when directing for Silver hake were raised. A member of the Silver hake Advisory, stated any Gadoid by-catch was “minuscule”.

Industry have fished this stock for the past three years, and saw better results in 1997 over the previous two years.

Analysis:

The NAFO assessment of this stock indicates that:

- stock size about average relative to 1970-96 period, rebuilding from lows of early 1990s
- catch rates, adjusted for the effect of using of separator grates, have dropped from 1984-89 to low levels in 1992-96
- recruitment: 1995 year class about average, 1996 year class more than twice the geometric mean, based on an early estimate
- commercial mean weights at age have declined sharply since 1992, now stabilized at lower levels

The projection at F- 0.1 is estimated to be +/-55,000 MT. There is no risk analysis but 55,000 is the F0.1 for this stock after recruitment was adjusted downward to reflect an expected overestimation of age 1 fish.

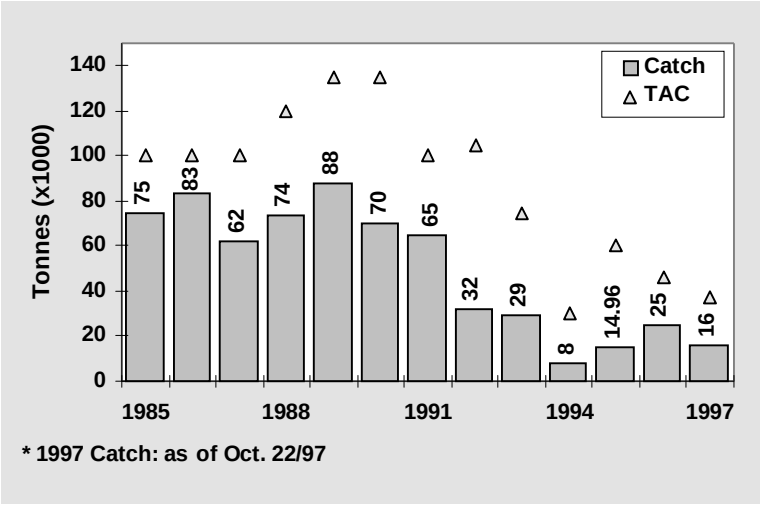
Recommendation # 8:

The FRCC recommends that:

8.1. the 1998 TAC for 4VWX Silver Hake be set at 55,000t;

8.2. the by-catch of groundfish should continue to be monitored to ensure there is no adverse impact on these resources; and

8.3. the decrease in condition factor be monitored.

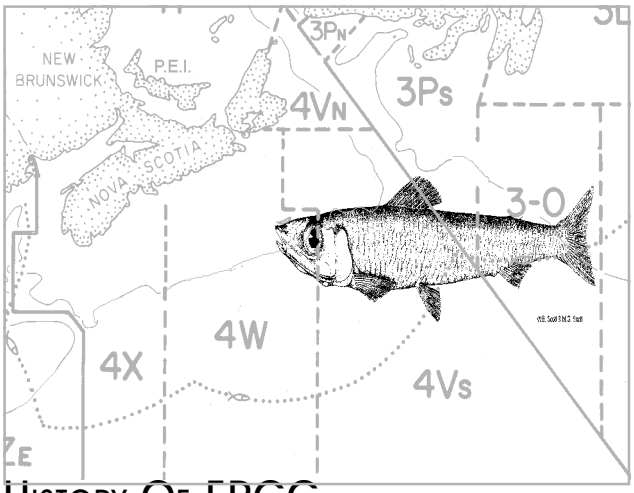


DFO has conducted analysis subsequent to that found in the NAFO assessment, adjusting for consistent over-estimating of abundances, determining an F0.1 catch level of 55,000 tonnes (rather than the 65,600 tonnes in the NAFO assessment).

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator:	**Medium**
	Compared to average
Spawning biomass:	**average, increasing**
Total biomass:	**average, increasing**
Recruitment:	**95 year class average, 96 year class above average but uncertain**
Growth/Condition:	**lower weights at age than in the past**
Age structure:	**Few year-classes but typical for this species**
Distribution:	**No particular observation**
Recent exploitation:	**below F0.1**

9. Argentine 4VWX



History Of FRCC Recommendations:

Catches from this stock, which are taken as by-catch in the silver hake fishery, have not exceeded 360t since 1983.In November 1993, the Council recommended that, as a precautionary measure, the 1994 TAC for argentine in 4VWX be set at 1,000t. The TAC was set at that level for 1994. In 1994, the Council recommended that the 1995 TAC for 4VWX argentine be set at 1,000t and this recommendation was repeated for 1996 and 1997.

1997 Consultations:

Fishers indicated that they don't fish this species and see very few in their catch except for the vessels conducting the ITQ survey.

Analysis:

Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information is from the 1996 Stock Status Report.

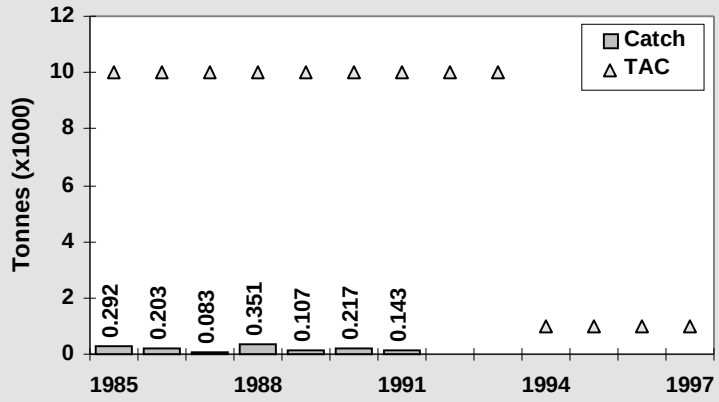
The 1996 DFO Stock Status Report indicates that there is too little known about this stock component to generate sufficient data for analytical purposes. Given the by-catch nature of this fishery and the low catches in recent years, the Council believes that the 1997 TAC can continue to be set at 1,000t, as a precautionary measure.

Recommendation #9:

The FRCC recommends that:

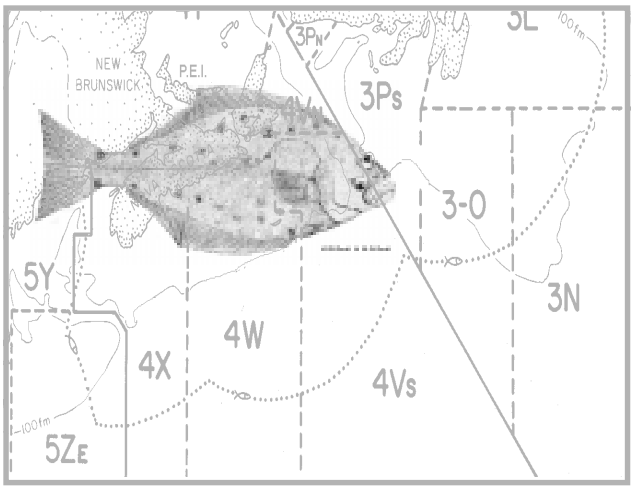
9.1. the 1998 TAC for 4VWX Argentine be set at 1,000t; and

9.2. if this fishery is persued in a commercial fashion, there be a requirement for a scientifically based data collection component to improve knowledge about the resource.



*** 1997 Catch: as of Oct. 22/97**

10. Atlantic Halibut 3NOPs4VWX5Zc



History of FRCC Recommendations:

In November 1993, the Council recommended that the 1994 TAC for 3NOPs4VWX5Zc Atlantic halibut be set at 1,500t as a precautionary measure. The Council also recommended that the mandatory landing provisions be reviewed with the aim of allowing halibut smaller than 81 cm (32 inches) to be released. This was implemented in 1994 and remains a critical component of the FRCC recommendation for this stock.In 1994, the Council recommended that the 1995 TAC for 3NOPs4VWX5Zc Atlantic halibut be set at 850t as a precautionary measure. The Council recommended also that mandatory landing provisions be reviewed regarding the discarding of incidental catches of halibut smaller than 32 inches. In November 1995, the Council recommended that the 1996 TAC for Atlantic halibut remain at 850t with the same small halibut release provision.

In October 1996, the FRCC recommended that the 1997 TAC for 3NOPs4VWX5Zc Atlantic halibut be set at 850t, and that the provision for the release of halibut smaller than 81cm be maintained. In addition to this recommendation the Council asked that a joint DFO/industry study be conducted to assist in the overall assessment process, such as appropriate biological sampling, a tagging/movement component, identification of stock sub-components and identification of alternative survey indices.

1997 Consultations:

During consultations, DFO Science pointed out that reasonable restrictive measures to permit rebuilding are required. Many industry members noted that misreporting was problem in 1995-96, i.e. halibut landed as other species.

The Atlantic halibut fishery was seen by fishers as an important economic contributor to fishers income and it would be a hardship to curtail effort. Fishers felt there could/should be a slight increase in the current TAC. Today, with modern, nylon “rope” backline, floats, and circle hooks, these fishermen are enjoying the best catch rates ever. There is no historic pattern(s), catch rates, or CUPE data, with which to compare.

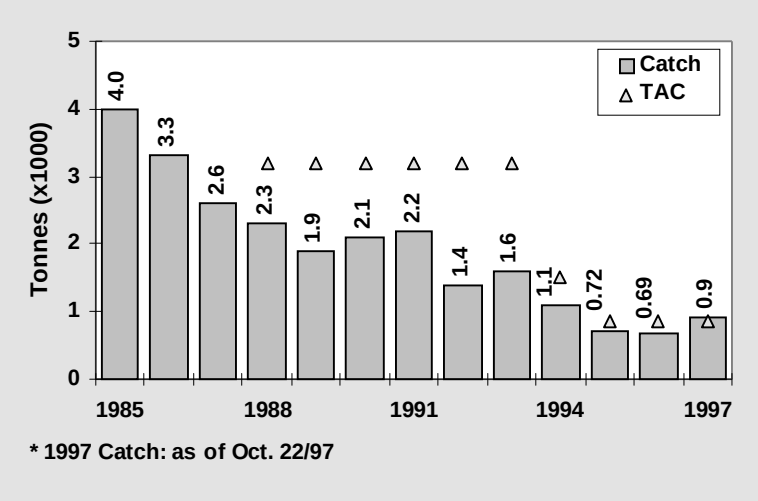
Fishers reported that on one vessel, fishing Banquereau Bank, could catch his maximum halibut allocation in 8 hours. The fixed gear sector has been under restrictions since 1993 and a decline in longliner catch rates was noted.

Recommendation #10:

The FRCC recommends that:

10.1. the 1998 TAC for 3NOPs4VWX5Zc Atlantic Halibut be set at 850t and that the provision for the release of halibut smaller than 81 cm be maintained; and

10.2. a joint DFO/industry study be conducted to assist in the overall assessment process such as appropriate biological sampling, a tagging/movement component, identification of stock sub-components and identification of alternative survey indices. Tonnages required for this work are to be determined by DFO science and allocated for this purpose only upon approval of a comprehensive plan. An evaluation of the study is to be conducted upon completion of its year of implementation. These catches are to be in addition to TAC.



*** 1997 Catch: as of Oct. 22/97**

Analysis:

The 1997 Stock Status Report indicates that:

- abundance is low compared to past years; declines have been more evident for southern Grand Banks than Scotian Shelf
- total mortality (fishing and natural) seems to have increased
- there is a reduced range of sizes in the population
- halibut-directed CPUE down since 1988; some indications of increase in 1996
- "present restrictive measures should be continued"

The stock status report and the information from fishermen are diametrically opposed for this stock. The former paints a picture of a very depleted stock, while the latter indicates a healthier and growing stock. Using a precautionary approach, it would not be prudent to increase the commercial TAC at this point, but it is important for a scientifically-designed fishermen-operated survey/index fishery to commence, to deal with the great uncertainty in the status of this resource.

Fishers questioned the difference between the RV Survey/ DFO Science opinion of this stock and that of the industry. One fisher stated that CHP's were more the cause of apparent problems than were scientific indicators. Many industry representatives made points concerning the regional aspects of the conduct of the Atlantic Halibut fishery. It was mentioned that experienced (halibut specific) fishermen, on enterprise allocation longliner vessels fishing 3Ps and 3NO were not experiencing declining catch rates. They have a long history of similar fishing patterns, and no major change in gear technology. Fishers reported a dramatic increase in 4VsW Halibut catches this past year.

In 4X, Atlantic halibut is primarily a by-catch fishery, and 24" to 40" fish are the predominate sizes. There were recommendations from industry to set the Atlantic halibut TAC at 1994 catch levels. One Industry member suggested that the Atlantic halibut TAC in 4VsW should be increased, and it would be in order to let some of the Nova Scotian boats, with their experience and expertise, into 3Ps and 3NO, to conduct a test fishery.

The fishermen are reporting an increased abundance of halibut stock in South West Nova Scotia with sizes ranging from 8 to 75 pounds. Some fishers commented that more undersized halibut has been released this year than in previous years.

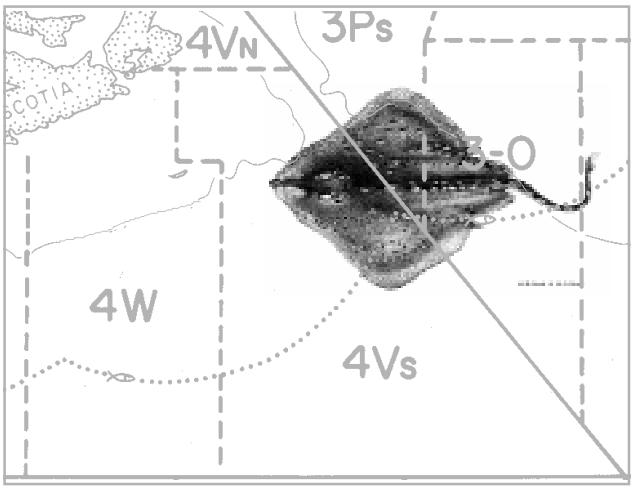
Vessels have experienced improved halibut catches along the Scotian Shelf and in 3Ps and 3NO in each of the last two years. Many industry participants noted that halibut is a strongly recovering stock for South West Nova Scotia.

All recommendations suggested either status quo or an increase in the halibut TAC for 1998 with the majority supporting an increase.

Council's views on Stock Status:

Overall Stock Indicator:	**low**
	Compared to average
Spawning biomass:	**low, very uncertain**
Total biomass:	**low, very uncertain**
Recruitment:	**Indications of incoming recruitment**
Growth/Condition:	**No reliable information**
Age structure:	**Reduced age range in southern area; unknown for northern area**
Distribution:	**Decline more pronounced for southern Grand Banks**
Recent exploitation:	**Too high in recent years**

11. Skates 4VsW



History Of FRCC Recommendations:

This is the second time that the Council has had an opportunity to view information on this fishery and to formulate recommendations for its conservation.In 1994, a combination of closures of traditional groundfish fisheries on the Scotian Shelf and openings in the markets for skate wings resulted in the development of a directed Canadian skate fishery.In 1994, a preliminary TAC of 1,200t was established with an additional 800t allocated to joint industry/science surveys. The 1994 catch accounted for 3,100mt, including by-catch in non-directed fisheries. The 1995 directed fishery was regulated by 1,600t TAC, with an additional 20% by-catch allowed in the directed flatfish fishery. In 1996, the TAC was lowered to 1200t, with an additional 20% by-catch allowed in the directed flatfish fishery. In October 1996, the FRCC recommended that the 1997 TAC for 4VsW skates be again set at 1,200t, including by-catch and measures be implemented to diversify size and species of skate in the catch.

1997 Consultations:

It was noted at consultations that discards of skates are far less than in previous years. DFO Science representatives noted that the TAC represents a fairly large part of local biomass and that skate have a low fecundity. Industry participants felt that the current experimental fishery should be continued and many observed that this stock seems to be at a somewhat lower level than in the past for the larger fish, while there seems to be more small skates.

Analysis:

Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information here is from the 1996 Stock Status Report.

The biomass index of skates from annual summer surveys has shown a general decline since 1982. In 1995, DFO scientists indicated that the low reproductive rate of skates, combined with declining biomass, and the need to limit by-catch of traditional species in some areas, all indicated the need for a continuation of a conservative approach to harvesting. Given the low reproductive rate common to skate and the current practice of selective removal of large individuals, a reduction in the reproductive potential of the stock is possible.

Measures should be implemented to diversify the size and species of skate to maintain a viable fishery.

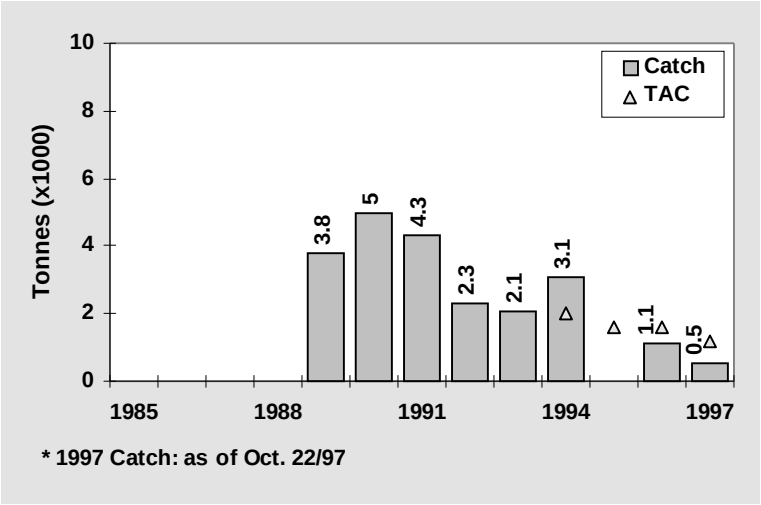
Recommendation # 11:

The FRCC recommends that:

11.1. the 1998 TAC for 4VsW skates be set at 1,200, including bycatch;

11.2. the experimental fishery should continue at a similar level of fishing effort in 1997 to increase our understanding of the resource and to provide the basis for improved assessment and management in the future; and

11.3. measures be implemented to diversify size and species of skate in the catch.



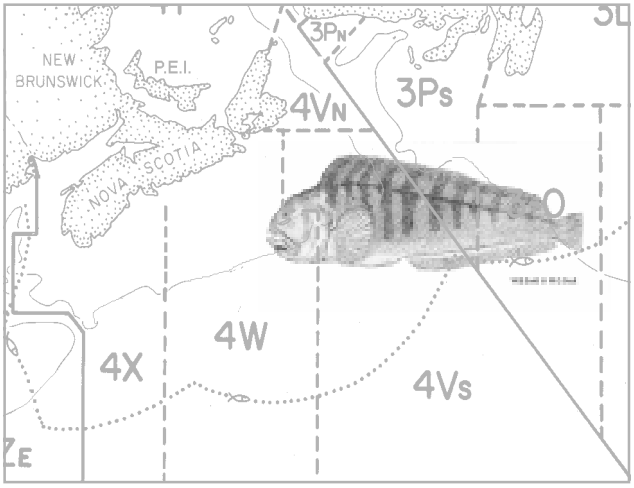
Council's views on Stock Status:

Overall Stock Indicator:

	Compared to average
Spawning Biomass:	**no particular observation**
Total Biomass:	**below average (Thorny Skates)**
Recruitment:	**below average**
Growth and Condition:	**average**
Age Structure:	**below average**
Distribution:	**below average**

Recent Exploitation Level: average

12. Wolffish 4VWX



History Of FRCC Recommendations:

This is the second year that the Council has had an opportunity to review information on this fishery and to formulate recommendations for the conservation of this resource. With the limited information available in 1995 on which to base a firm recommendation, the Council recommended a precautionary TAC for 1996 at 600t.

In October 1996, the FRCC recommended that catches should be limited to the historical levels consistent with the truly by-catch nature of this fishery, with sufficient flexibility to avoid closing traditional directed groundfish fisheries.

1997 Consultations:

At the FRCC consultation in Yarmouth there was discussion of a possible link between catfish and lobster. Most believe that the stomach contents of catfish indicate they prey on lobster. Anecdotal information reveals that when catfish are high in abundance, lobsters are low.

This stock is rebounding in the 4X area with good catches on the edge of Brown's Bank. This fish is seen as a predator of more valuable species such as lobster and scallop and many feel that less protection should be exercised for this species.

Analysis:

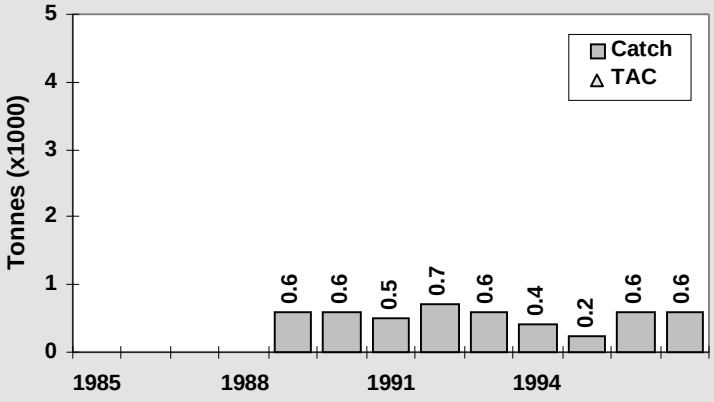
Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information here is from the 1996 Stock Status Report.

It appears that the concentrated fishing effort in 4X on this species, has likely contributed to overall decline. As well, scientists believe that catches in excess of 600t in 1997 would not likely be sustainable.

Recommendation # 12:

The FRCC recommends that:

12.1 catches of 4VWX Wolffish should be limited to historical levels consistent with the truly bycatch nature of this fishery, with sufficient flexibility to avoid closing traditional directed groundfish fisheries.



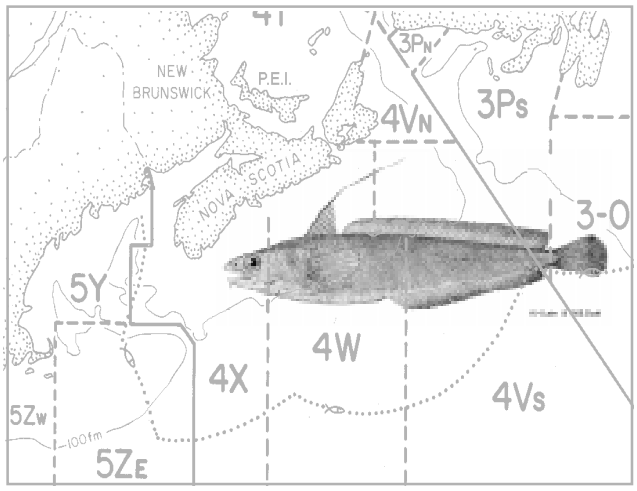
* 1997 Catch: as of Oct. 22/97

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator: **Low**

	Compared to average
Spawning Biomass:	**low, declining in 4VWX**
Total Biomass:	**low, declining in 4VWX**
Recruitment:	**near average, small fish in 4X**
Growth and Condition:	**below average**
Age Structure:	**poor**
Distribution:	**average**
Recent Exploitation Level:	**no particular observation**

13. White Hake 4VWX5Zc



History Of FRCC Recommendations:

This is the second time that the Council has had an opportunity to review information on this fishery and to formulate recommendations for its conservation. In November 1995, the Council recommended that the 1996 TAC for 4VWX white hake be set at 2,500t.

In October 1996, the FRCC recommended that the 1997 TAC for 4VWX+5Zc white hake be increased to 3,500t with flexibility to avoid closing traditional directed groundfish fisheries. The Council added that, for assessment purposes, separation of management units 4VW and 4X+5Zc should be implemented and, given the belief that the western stock (4X+5Zc) is transboundary, this stock be included in the bilateral consultations on groundfish with the U.S. with the objective of developing a joint management strategy.

1997 Consultations

Many commented that there has been a shift of fishing effort up into the inner Bay of Fundy on this stock. Industry TAC recommendations ranged from 2,800t in 4X, to status quo, to establishing a non rigid target for this species.

Analysis:

Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information here is from the 1996 Stock Status Report.

The 1996 Stock Status Report indicates that the existing management units used to describe this stock are not consistent with the distribution of this species. Separation of management units to 4VW, and 4X and 5 should be considered. The Council notes that commercial landings of white hake from the Scotian Shelf are largely from 4X (70%) and 4W (10-20%).The biomass of white hake on the Scotian Shelf is estimated to be much lower than the levels reached in the early 1980s and is now approaching the low levels observed in the 1970s. The Council feels that annual catches of the order of 3,500t would be more consistent with the

Recommendation # 13:

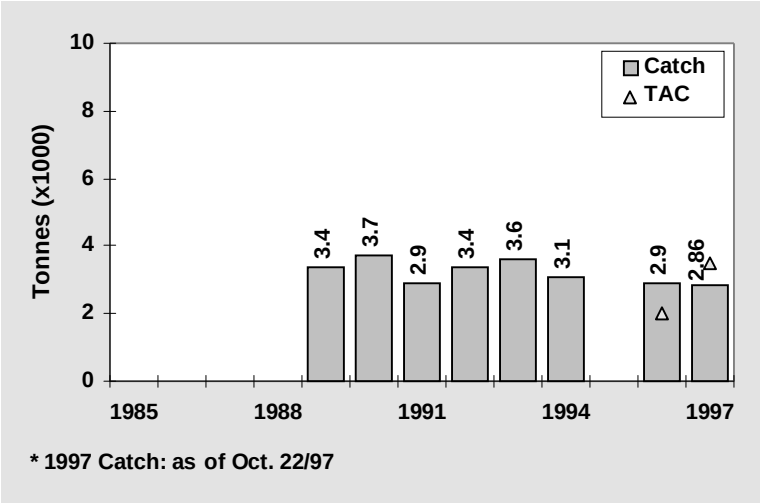
The FRCC recommends that:

13.1. the 1998 TAC for 4VWX5Zc White Hake be set at 3,500t;

13.2. for assessment purposes, separation of management units 4VW and 4X+5Zc should be implemented;

13.3. this stock be included in the bilateral consultations on groundfish with the U.S., given the belief that the western stock (4X+5Zc) is transboundary, with the objective of developing a joint management strategy; and

13.4. as an immediate priority, DFO Management/Science be tasked to update data on the shift in effort from eastern 4X to western 4X (particularly to the inner Bay of Fundy). If the result of this review indicates potential adverse affect on local aggregations or spawning components, measures should be put in place to protect this resource.



status of the stock based on long term averages. The assessment indicates that the 4VW stock component is declining and this should be taken into consideration in developing and in assessing CHP's.

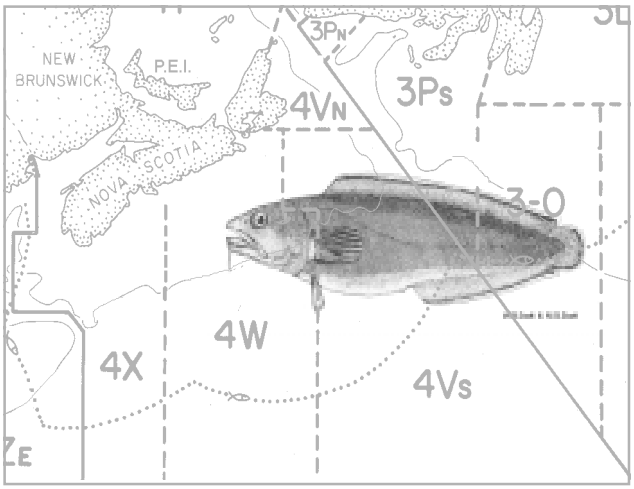
Council's views on Stock Status:

Overall Stock Indicator:

	Compared to average
Spawning Biomass:	**declining in 4VW, near average in 4X**
Total Biomass:	**average**
Recruitment:	**average**
Growth and Condition:	**average**
Age Structure:	**average**
Distribution:	**average**

Recent Exploitation Level: average

14. Cusk 4VWX



History Of FRCC Recommendations:

This is the second year that the Council had an opportunity to review information on this fishery and to formulate recommendations for the conservation of this resource. In November 1995, the Council recommended that the 1996 TAC for 4VWX cusk be set at 1500t.

In October 1996, the FRCC recommended that the 1997 TAC for 4VWX cusk should not exceed historical catch levels, with sufficient flexibility to avoid closing traditional directed groundfish fisheries.

1997 Consultations

Not many comments were received on this specie. However, there was an industry recommendation for a non rigid target to be established for cusk in 4VWX.

Analysis:

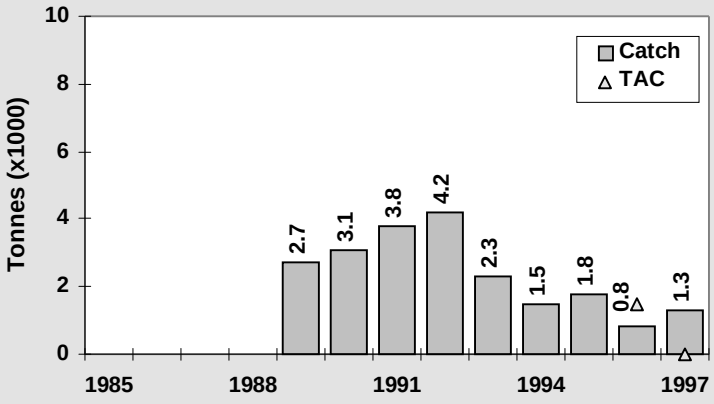
Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information here is from the 1996 Stock Status Report.

In the 1995 Stock Status Report, scientists indicated that the cusk biomass in both 4W and 4X has shown a gradual decline since groundfish surveys commenced in 1970. The 1996 Stock Status Report confirms this decline, adding that the 1995 estimate is amongst the lowest observed. The Report states that, given the estimate of low and declining biomass, catches should be restricted to below 2,000t. The 1997 survey indicates historical low abundance for this stock.

Recommendation # 14:

The FRCC recommends that:

14.1 the 1998 catch for 4VWX Cusk should not exceed historical catch levels, with sufficient flexibility to avoid closing traditional directed groundfish fisheries.

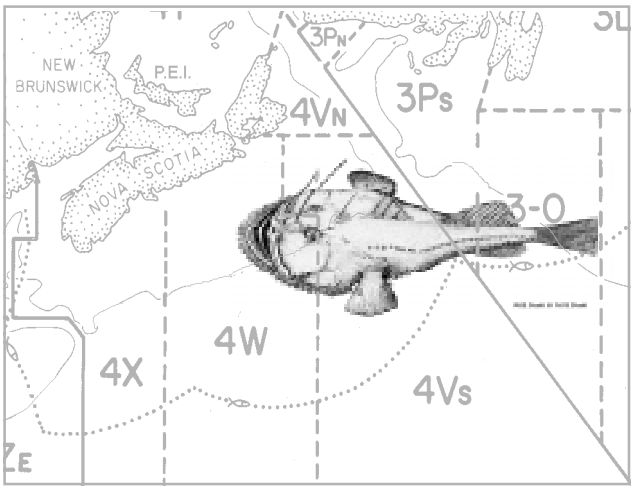


* 1997 Catch: as of Oct. 22/97

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator:	**low**
	Compared to average
Spawning Biomass:	**low**
Total Biomass:	**historical low**
Recruitment:	**no sign**
Growth and Condition:	**poor**
Age Structure:	**below average**
Distribution:	**similar to recent years (average)**
Recent Exploitation Level:	**no particular observation**

15. MONKFISH 4VWX



HISTORY OF FRCC RECOMMENDATIONS:

This is the second time that the Council has had an opportunity to review information on this fishery and to formulate recommendations for the conservation of this resource. In November 1995, the Council recommended that the 1996 TAC for 4VWX monkfish be set at 700t.

In October 1996, the FRCC recommended that the 1997 TAC for 4VWX monkfish should not exceed historical levels, with sufficient flexibility to avoid closing traditional direct groundfish fisheries. The Council also recommended that monkfish be treated as a by-catch in all other fisheries and the joint industry/DFO science five year program should be continued.

1997 CONSULTATIONS:

It was noted that from a scientific viewpoint, there is not a lot of data available on this stock. Industry reports less monkfish this year partly due to changes in fishing patterns and partly due to less availability of the species. Industry feels that fishing on this stock should be kept at by-catch levels.

ANALYSIS:

Since no assessment of this stock was done in 1997, a new stock status report was not produced. Scientific information here is from the 1996 Stock Status Report.

Historically, monkfish have been almost exclusively a by-catch fishing of groundfish and scallops ventures. Between 1992 and 1994, the less than 65 ft. mobile fleet has been directing for monkfish in 4X. Consequently landings in this area increased from just over 300t in 1991 to 1,100t in 1994. Abundance is highest in central Scotian Shelf and in the inshore areas of west of 4W. This is a shared resource with the U.S. where the fishery is essentially unregulated. The U.S. survey shows the resource is over exploited. There is no evidence of large scale migration of this stock and there appears to be discrete spawning components in Canadian waters. Consequently, the stock may be managed successfully by Canada with 5Zc included in the management area.

There is a joint industry/science five year program to improve knowledge of the resource being conducted by five-mobile gear vessels less than 65 feet. They are conducting a directed fishery in Georges Basin for 200t

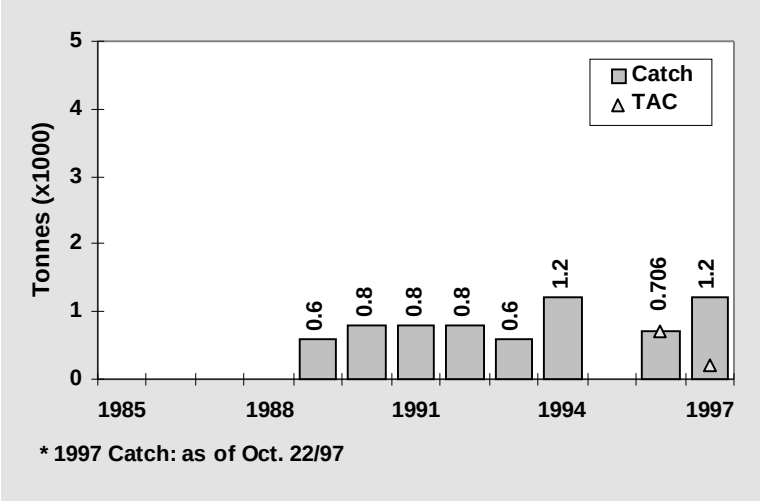
RECOMMENDATION # 15:

The FRCC recommends that:

15.1. the 1998 catch for 4VWX Monkfish should not exceed historical levels, with sufficient flexibility to avoid closing traditional directed groundfish fisheries;

15.2. monkfish should be treated as bycatch in all other fisheries; and

15.3. the joint industry/DFO science five year program be continued.



in co-operation with DFO. There is no biological basis to date for establishing a TAC. DFO Science recommends that catches be maintained at a low level and that the five-year research program be continued.

Scientists suggested that catches be limited to less than 800t, the average landing since 1988. The 1996 Stock Status Report confirms that the biomass remains low and catch level in the order of 800t continue to be suggested.

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator:	**below average**
	Compared to average
Spawning Biomass:	**below average**
Total Biomass:	**below average (declining)**
Recruitment:	**mixed average in 4X, below average in 4VW**
Growth and Condition:	**no particular observation**
Age Structure:	**no particular observation**
Distribution:	**average**

Recent Exploitation Level: above average

APPENDIX 1:

FRCC MANDATE AND MEMBERSHIP

APPENDIX 1: FRCC TERMS OF REFERENCE AND MEMBERSHIP

1. INTRODUCTION

The Government of Canada is committed to a more comprehensive approach to the conservation and management of our fisheries resource. This approach demands a better understanding of complex fisheries ecosystems - the interaction of fish with other species, predator-prey relationships, and also changes in the marine environment like ocean currents, water temperatures and salinity.

The Government of Canada is also committed to a more effective role in decision-making for those with practical experience and knowledge in the fishery.

The Minister of Fisheries and Oceans has established the Fisheries Resource Conservation Council (FRCC) as a partnership between government, the scientific community and the direct stakeholders in the fishery. Its mission is to contribute to the management of the Atlantic fisheries on a 'sustainable' basis by ensuring that stock assessments are conducted in a multi-disciplined and integrated fashion and that appropriate methodologies and approaches are employed; by reviewing these assessments together with other relevant information and recommending to the Minister total allowable catches (TACs) and other conservation measures, including some idea of the level of risk and uncertainty associated with these recommendations; and by advising on the appropriate priorities for science.

2. DEFINITION OF CONSERVATION

Fisheries conservation is that aspect of the management of the fisheries resource which ensures that its use is sustainable and which safeguards its ecological processes and genetic diversity for the maintenance of the resource. Fisheries conservation ensures that the fullest sustainable advantage is derived from the resource and that the resource base is maintained.

3. COUNCIL OBJECTIVES

3.1 To help the government achieve its conservation, economic and social objectives for the fishery.The conservation objectives include, but are not restricted to:

3.1.1 rebuilding stocks to their 'optimum' levels and thereafter maintaining them at or near these levels, subject to natural fluctuations, and with 'sufficient' spawning biomass to allow a continuing strong production of young fish; and,

3.1.2 managing the pattern of fishing over the sizes and ages present in fish stocks and catching fish of optimal size.

3.2 To develop a more profound understanding of fish-producing ecosystems including the inter-relationships between species and the effects of changes in the marine environment on stocks.

3.3 To review scientific research, resource assessments and conservation proposals, including, where appropriate, through a process of public hearings.

3.4 To ensure that the operational and economic realities of the fishery, in addition to scientific stock assessments, are taken into account in recommending measures to achieve the conservation objectives.

3.5 To better integrate scientific expertise with the knowledge and experience of all sectors of the industry and thus develop a strong working partnership.

3.6 To provide a mechanism for public and industry advice and review of stock assessment information.

3.7 To make public recommendations to the Minister.

4. Mandate and Scope

4.1 The Fisheries Resource Conservation Council will address these objectives by bringing together industry, DFO science and fisheries management, and external scientific and economic expertise in one body.

4.2 The Council will:

4.2.1 advise the Minister on research and assessment priorities;

4.2.2 review DFO data and advise on methodologies;

4.2.3 consider conservation measures that may be required to protect fish stocks;

4.2.4 review stock assessment information and conservation proposals, including through public hearings, where appropriate; and,

4.2.5 make written public recommendations to the Minister on TACs and other conservation measures.

4.3 The Council may recommend any measures considered necessary and appropriate for conservation purposes such as TACs, closure of areas to fishing during specific periods, approaches to avoid catching sub-optimal sized fish or unwanted species, and restrictions on the characteristics or use of fishing gears.

4.4 The Council's scope includes Canadian fish stocks of the Atlantic and Eastern Arctic Oceans. In the first instance, the Council will address groundfish, and then subsequently take on responsibility for pelagic and shellfish species.

4.5 The Council is also responsible for advising the Minister on Canada's position with respect to straddling and transboundary stocks under the jurisdiction of international bodies such as the Northwest Atlantic Fisheries Organization (NAFO).

5. Size, Structure and Make-Up

5.1 The Council will consist of not more than 14 members with an appropriate balance between 'science' and 'industry'.

5.2 Members are chosen on merit and standing in the community, and not as representatives of organizations, areas or interests.

5.3 'Science' members, are drawn from government departments, universities or international posts, and are of an appropriate mix of disciplines, including fisheries management and economics.

5.4 'Industry' members are knowledgeable of fishing and the fishing industry and understand the operational and economic impacts of conservation decisions.

5.5 All members of the Council are appointed by the Minister.

5.6 All members, including the Chairperson, are appointed for a three year term; terms can be renewed.

5.7 Members appointed from DFO serve 'ex officio'.

5.8 Members have to disclose any interest in the Atlantic or Eastern Arctic fishery and take appropriate measures so as to avoid potential or real conflict of interest situations during the term of appointment.

5.9 The four Atlantic Provinces, Quebec and the Northwest Territories may each nominate one delegate to the Council. These delegates have access to the Council's information, and may participate fully in meetings, but will not be asked to officially endorse the formal recommendations to the Minister.

5.10 The Council is supported by a small Secretariat, to be located in Ottawa. The Secretariat will:

5.10.1 provide administrative support for the functioning of the Council;

5.10.2 provide a technical science and fisheries management support;

5.10.3 organize Council meetings;

5.10.4 record decisions of the Council;

5.10.5 undertake a professional communications function for the Council, providing a central point for communications to and from the Council; and

5.10.6 undertake such other matters as from time to time might be appropriate.

5.11 The Chairman may appoint an Executive Committee, consisting of the Chairman, Vice-Chairman, and three other Members.

5.12 In addition, the Chairman may, from time to time, strike an 'ad hoc' committee to deal with a specific issue.

6. ACTIVITIES:

6.1 Reviews appropriate DFO science research programs and recommends priorities, objectives and resource requirements.

6.2 Considers scientific information - including biology, and physical and chemical oceanography, taking into account fisheries management, fishing practices, economics and enforcement information.

6.3 Conducts public hearings wherein scientific information is presented and/or proposed conservation measures/options are reviewed and discussed.

6.4 Recommends TACs and other conservation measures.

6.5 Prepares a comprehensive, long-term plan and a work plan for the Council which are reviewed annually at a workshop with international scientists and appropriate industry representatives.

6.6 Ensures an open and effective exchange of information with the fishing industry and contributes to a better public understanding of the conservation and management of Canada's fisheries resource.

FRCC MEMBERSHIP:

MEMBERS:

Fred Woodman, Chairman
Jean-Claude Brêthes, Vice-Chair
Michael Belliveau
Bruce Chapman
Tony Charles
Frank d'Entremont
Sam Elsworth
Sally Goddard
Jean-Claude Grégoire
Tom Hallett
Frank Hennessey
Paul LeBlond
Victorin Mallet
Trevor Taylor
Maureen Yeadon

PROVINCIAL DELEGATES:

Bruce Ashley, Northwest Territories
Rob Coombs, Newfoundland and Labrador
Yvon Chiasson, New Brunswick
David Gillis, Prince Edward Island
Dario Lemelin, Québec
Clarrie MacKinnon, Nova Scotia

EX OFFICIO:

Bill Doubleday
Dawn Nicholson-O'Brien
Barry Rashotte

SECRETARIAT:

Catrina Tapley, Executive Director
Linda Brisebois
Renée Brisson
Marny Brown
Debra Côté
Denis Rivard
Lisa Tenace

SCOTIAN SHELF AND BAY OF FUNDY FRCC GROUNDFISH ASSESSMENT TEAM:

Maureen Yeadon, Chair
Tony Charles
Sam Elsworth
Frank d'Entremont
Clarrie MacKinnon

APPENDIX 2:

LETTER TO STAKEHOLDERS AND QUESTIONS FOR DISCUSSION AT CONSULTATIONS

APPENDIX 2: LETTER TO STAKEHOLDERS

October 2, 1997

To Stakeholders:

The Fisheries Resource Conservation Council (FRCC) will hold public consultations to gather information on Scotian Shelf and Bay of Fundy groundfish stocks to assist the FRCC in making recommendations to the Minister of Fisheries and Oceans for 1998 conservation requirements for these groundfish stocks.

Consultations will take place at 1PM Tuesday, October 21, Mira Road Fire Hall in Sydney, and 10AM Wednesday, October 22 , Rodd Grand Hotel, Shelburne Room in Yarmouth and Thursday, October 23 at the Holiday Inn Express in Bedford. Discussion will center around the following stocks:

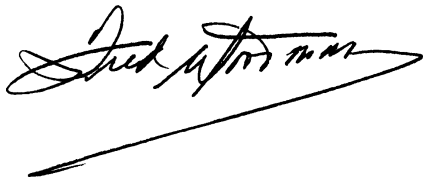
COD (4Vn,4X)
ATLANTIC HALIBUT (3NOPs,4VWX,5Zc)
HADDOCK (4TVW,4X)
POLLOCK (4VWX,5Zc)
SKATE (4VsW)
ARGENTINE (4VWX)
WOLFFISH (4VWX)
FLATFISHES (4VWX)
WHITE HAKE (4VWX)
SlLVER HAKE (4VWX)
CUSK (4VWX)
MONKFISH (4VWX)

Stakeholders with an interest in Redfish are invited to a separate FRCC consultation on Redfish in Units 1,2,3 & 3-0 at 10AM on Friday, October 24 at the Holiday Inn Express in Bedford.

Please note that the FRCC will provide separate advice to the Minister on cod stocks in 2J3KL, 3Ps, 4TVn, 4RS,3Pn, and 4VsW in March 1998. DFO Science will be conducting a full zonal assessment of these cod stocks in January 1998. This assessment will include the results of sentinel fisheries and fall and winter research surveys. The FRCC will give stakeholders an opportunity to comment on 4VsW cod prior to the Council forming its advice.

Stakeholders are invited to make public presentations by way of oral presentation or by providing a written brief: FRCC, P.O. Box 2001, Station D, Ottawa, ON K1P 5W3, phone (613) 998-0433, fax (613) 998-1146, internet www.ncr.dfo.ca/frcc.

The challenge for groundfish conservation and sustainability is great for all species. The Council bases its advice on sound conservation principles, and advocates a precautionary approach. The success of these consultations is of interest to all stakeholders. Your views are important and we hope you will participate fully.



Fred Woodman
Chairman

Questions For Discussion At Consultations

Based on your traditional knowledge of groundfish, are we at a comfortable level of biomass for key stocks and what rebuilding threshold should we be seeking to reach?

How can we best enhance rebuilding of the stocks, e.g. fish at (FO.1) or less, ensuring more spawners and larger fish are left to produce adequate recruitment, etc.?

With respect to the proper mix between cod and haddock, were last years FRCC recommendations appropriate to allow a clean fishery without discards and dumping, and what should "the mix" be this year?

Has there been a concentration of fishing effort to the Bay of Fundy in 4X, if so, what effect has this had on fishing grounds and what could this shift mean in relation to stock abundance.

What has your fishing experience been for pollock in the last year? Where is most of the effort concentrated? Have you any comments to make with respect to geographical distribution of the resource and fish size?

Recruitment is a problem in most Atlantic groundfish fisheries. Have you seen an increase with respect to juvenile fish?

In your opinion, are the flatfish stocks in decline?

There have been reports that Atlantic halibut abundance is increasing. Have you seen this in your area? What size of Atlantic halibut have you been catching?

APPENDIX 3:

BRIEFS RECEIVED FOR THE SCOTIAN SHELF AND BAY OF FUNDY GROUNDFISH CONSULTATIONS

APPENDIX 3: BRIEFS RECEIVED FOR THE SCOTIAN SHELF AND BAY OF FUNDY CONSULTATIONS

A. OCT. 21, l997 - Mira Road Fire Hall, Sydney, N.S.

B. OCT. 22, l997 - Rodd's Grand Hotel, Yarmouth, N.S.

FRCC. 97.GR-N.S.1	Inshore Fisheries Ltd, Middle West Pubnico Yar. Co., N.S.
FRCC.97.GR-N.S.2	Evan Walters, Scotian Fundy Inshore Fishermans Assoc., Barrington, N.S.
FRCC. 97.GR-N.S.3	Gary Dedrick, Shelbourne County Fixed Gear Quota Group, Shelbourne Co., N.S.
FRCC. 97.GR-N.S.4	G. Wendy Bellineau, Professional Fisherman's Cons. Assoc., Wood's Harbour, Shelbourne County, N.S.
FRCC.97.GR-N.S.5	Pamela R. Decker Shelbourne County Competitive Fisherman's Assoc., Lockeport, N.S. and, Ronnie A. Newell, South West Fisherman's Assoc., Clarks Harbour, N.S.
FRCC.97.GR-RF.6	Brian Giroux, Scotia Fundy Mobile Gear Fisherman's Assoc., Yarmouth, N.S.

C. OCT.22, 1997 - Holiday Inn, Halifax, N.S.

FRCC. 97.GR-N.S.7	Mark Buttler, Ecology Action Centre, Halifax N.S.
FRCC. 97.GR-N.S.8	Sarah A. Huskilson, Eastern Shelbourne Fisherman's Association, Shelburne, N.S.

D. <u>Briefs Recieved by Mail</u>

FRCC.97.GR-N.S.9	SWNB Fixed Gear Groundfish Management Board, St. George, N.B.
FRCC.97.GR-N.S.10	Capt. Hubert E. Saulnier, Digby Co., N.S.
FRCC.97.GR-N.S.11	Herbert F. Nash, Glace Bay, N.S.
FRCC.97.GR-N.S.12	W.A.Williams, SW Nova Fixed Gear Assoc., Lockeport, N.S.
FRCC.97.GR-RF.13	Groundfish Enterprise Allocation Council, Gloucester, ON
FRCC.97.GR-N.S.14	Fred Horner, Bay of Fundy Inshore Fishermen's Association, Sandy Cove, N.S.
FRCC.97.GR-N.S.15	Laurence Outhouse, Island's Inshore Fishermen's Association, Tiverton, N.S.