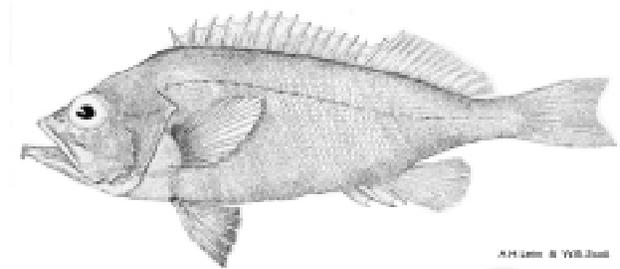


1998 CONSERVATION REQUIREMENTS FOR REDFISH UNITS 1, 2, 3 AND 30



REPORT TO THE MINISTER
OF FISHERIES AND OCEANS

FRCC.97.R.7
November 1997

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CHAPTER 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 redfish stocks in Units 1, 2, and 3 and in division 3-0.

Every year the 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 Halifax, Nova Scotia on October 24 to discuss redfish. We also received some written briefs which are noted in appendix 2.

CONSERVATION ISSUES

During our consultations many concerns were raised about the state and health of redfish 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 high-light some of these concerns and draw particular attention to certain problems.

SCIENCE AND INFORMATION

The Council recognizes the challenge involved in assessing redfish stocks, and the advances made to date by the Department of Fisheries and Oceans (DFO) Science Branch. The FRCC welcomes the adoption of the zonal assessment approach to redfish, the establishment of the multidisciplinary program on redfish, and the greater involvement of the industry through programs such as the sentinel fishery. Nevertheless, everyone — including scientists, industry and the Council — remains frustrated by the difficulty of obtaining abundance indices on redfish stocks. In particular, only one indicator of abundance is currently available for Unit 1 redfish, and there are concerns in the industry that this indicator, from the general groundfish survey, may not accurately reflect redfish stock status. In Unit 2, there is now an accepted indicator of abundance, but no connection has yet been made between this indicator and those used in the past, as well as with commercial catch rate trends, so that it is difficult to assess the relative status of the resource. In Unit 3, concerns are also present about the reliability of the survey index, and limitations on the sampling

locations used. In 3-0, the survey seems to measure the abundance of primarily small redfish, so that there is no reliable indicator of adult biomass. In many cases, the survey index is considered an under-estimate of abundance, and Council recommends that if possible, some clear conclusions be drawn, through additional research if necessary, to quantify this under-estimation, so that historical, current and potential (e.g. F0.1) exploitation rates can be more accurately determined.

The division between Unit 1 and 2 continues to be a problem for Redfish. Catches of Unit 2 fish are taking place close to the division of the two stocks and there are strong industry suspicions that some of this catch is Unit 1 fish. Science has indicated at the consultation that there is little they can do to tell these two stocks apart. Continuing efforts to resolve this problem are crucial.

Council feels that greater participation by scientists, industry and other interested parties in the Regional Advisory Process (RAP) for redfish would be beneficial. An expanded number of scientists (including non-redfish scientists) would broaden the discussion of assessment methodologies and results. Greater participation by industry, by the provinces and by others is also important. To accomplish this, the RAP session must be fully publicized. In addition, the possibility could be explored of having the redfish RAP held together with a regional RAP, such as that of the Scotian Shelf - Bay of Fundy, as a way to facilitate more involvement by other scientists and industry. It should be noted that in making these comments, the FRCC is not advocating moving away from a zonal assessment on redfish.

The FRCC is concerned about the possibility that DFO may move the research vessel redfish survey in Unit 2 from an annual to a bi-annual cycle. It should be noted that, east of Halifax, this fishery is among the few groundfish fisheries that remain open and redfish is very important to the overall value of the groundfish fishery. On the other hand, Council understands the relatively slower-changing nature of redfish. If the redfish survey is to be bi-annual then the Council recommends that it should cover both Units 1 and 2 using the same vessel, the same gear and the same trawl. At least for the immediate future, the existing RV index for Unit 1 redfish, as derived from the regular summer/fall Gulf groundfish surveys, should also be continued.

FISHERIES MANAGEMENT AND ENFORCEMENT:

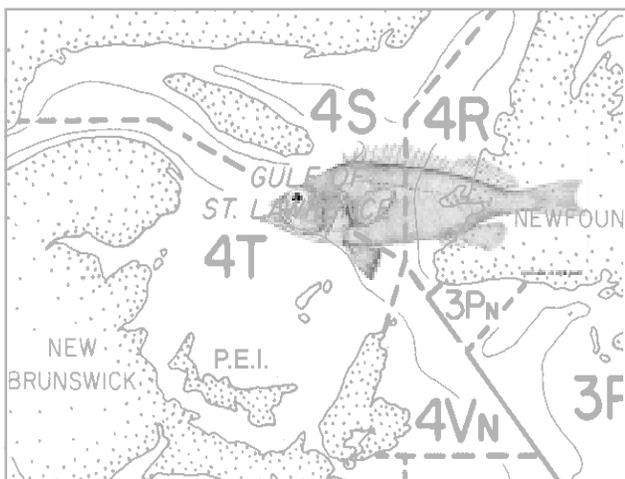
The FRCC is encouraged by the use of conservation tools such as restricted areas like the “Bowtie” in Unit 3 and the adoption of Small Fish Protocols. However, the FRCC remains concerned about the waste involved in continued fishing on small redfish. If this continues, we will find ourselves in a position where we can not reach the long-term potential of the spawning stocks. Research and experimental work should be expedited to address this serious problem. In addition, **the Council urges that sampling programs, at-sea and in-port, be fully applied to ensure that small fish protocols and discard regulations can be rigorously enforced.**

A further concern of the Council about the effectiveness of enforcement in this fishery relates to the adequacy of the Dockside Monitoring Program (DMP). Specifically, the Council recommends that all landings be monitored under the Program.



CHAPTER 2: STOCK-BY-STOCK RECOMMENDATIONS

1. REDFISH UNIT 1- 4RST + 3PN (JAN-MAY) + 4VN (JAN-MAY)



fishery as much as practical during the January to June period. The Minister considered the FRCC TAC recommendation but concluded that no fishery for Unit 1 redfish should occur in 1995. Further to the Council's recommendation for a joint industry/science initiative for redfish, a multi-disciplinary research program was developed jointly with industry stakeholders and DFO in an attempt to address key questions related to redfish biology, stock definition and migrations, and stock status. For 1996, and again in 1997, the FRCC recommended continuing the moratorium and minimizing the by-catch of redfish in other fisheries. In 1997, the FRCC also recommended that cooperative industry science surveys take place but to date this has not occurred.

HISTORY OF FRCC

RECOMMENDATIONS:

In November 1993, the Council expressed its concern about this stock and recommended that the 1994 TAC be set at 30,000 t (a 50% reduction) with the view to keeping it at this level for the following two years, if at all possible, to achieve stability.

In its 1994 report, the Council recommended, for Unit 1 redfish, that current scientific work be strengthened and elaborated in co-operation with the industry so as to clarify redfish management units, as well as to better understand migration patterns and stock status and that the 1995 TAC be set at 7,500t. As well, the Council recommended that a small fish protocol be established to protect juvenile redfish; and that Fisheries and Oceans, in consultation with industry stakeholders, limit the

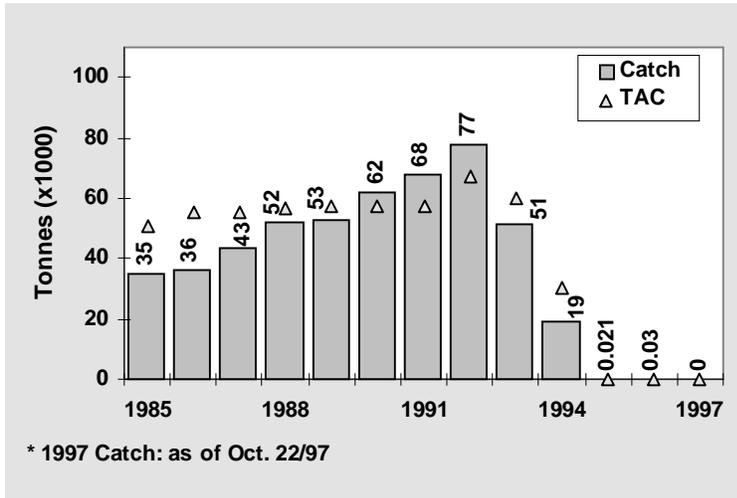
1997 CONSULTATIONS:

The Council held a special consultation on redfish stocks on October 24, 1997. Industry expressed strong concerns about the continuing decline of the biomass in this stock and the lack of available information in the absence of a commercial fishery. Industry again asked for specific sentinel surveys in this fishery and expressed their concerns with using the Needler groundfish surveys as the main indicator of stock status. Comments at consultations and in written briefs noted that no biomass estimate was available in the Stock Status Report (SSR) and added that some minimal catch should be allowed to increase the amount of information available for this

RECOMMENDATION # 1:

The FRCC recommends that:

- 1.1 no directed commercial fishery take place in 1998; and
- 1.2 a joint industry science sentinel survey be established, on an ongoing basis, to include both a fully scientific component and a component to re-establish the commercial catch rate index.
 - a) The level of quota allowed for this should not exceed 1000t.
 - b) Participation in this sentinel fishery should emphasize those who have historically fished this stock and whose catches were used to determine the commercial catch rate index. This will allow the new index to be compared with the old.



stock. As in previous years, the division between Units 1 and 2 was questioned and concerns were expressed about the fishing of Unit 1 redfish in Unit 2.

ANALYSIS:

The 1997 DFO Stock Status Report indicates:

- no sign of incoming recruitment
- biomass at very low levels
- recovery can only occur 7-9 years after significant recruitment has occurred.

The Council remains very concerned about the status of this stock and notes that there is still no apparent improvement in the state of the stock despite the moratorium. Council also feels it is important to gather more information on this stock through joint industry science initiatives, in particular, obtaining a viable and useful substitute for the commercial fishery index. We note that this is the only major fishery currently under moratoria for which there is no sentinel survey.

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator: appears very low

Compared to average

Spawning Biomass: low

Total Biomass: low

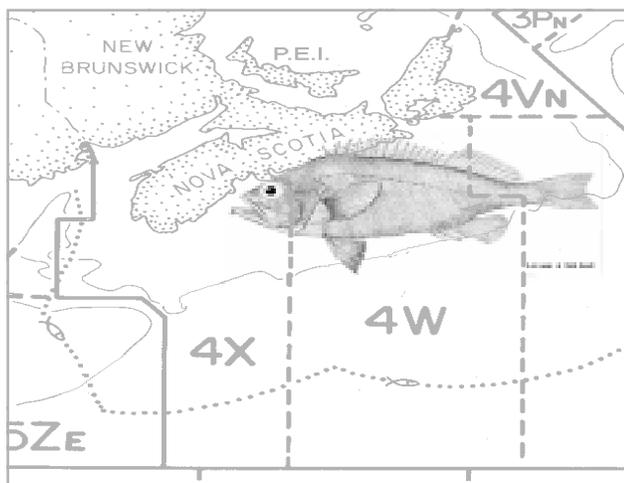
Recruitment: very low

Growth and Condition: no particular observation

Age Structure: poor

Recent Exploitation Level: moratorium

2. REDFISH UNIT 2 - 3Ps4Vs4WFG + 3PN4VN (JUN-DEC)



1. The Minister reduced the TAC to 14,000t for 1995 and implemented measures to avoid catching Unit 1 redfish when they could be mixed with redfish from Unit 2.

The Council recommended a TAC reduction to 10,000t for 1996 with: rigid small fish protocols, no fishing in 3Pn and 4Vn during November and December, and limiting, as much as possible, fishing from January to June. In 1997, the FRCC recommended that the TAC remain at 10,000 t, small fish protocols be continued and, DFO and Industry discuss the merits of protecting the 1988 year-class.

HISTORY OF FRCC

RECOMMENDATIONS:

In November 1993, the Council recommended that the TAC for Unit 2 redfish be reduced from 28,000t to 25,000t in 1994. In November 1994, the Council recommended that the TAC be set at 20,000t for 1995 and that a small fish protocol be established to protect juvenile redfish. The Council also recommended that no fishing be permitted in 3Pn and 4Vn during November and December and that scientific work clarify redfish management units and develop a better understanding of migration patterns and stock status. The Council recommended that the fishery be limited as much as practical during the January through June period to avoid taking fish that may, in fact, be fish from Unit

1997 CONSULTATIONS:

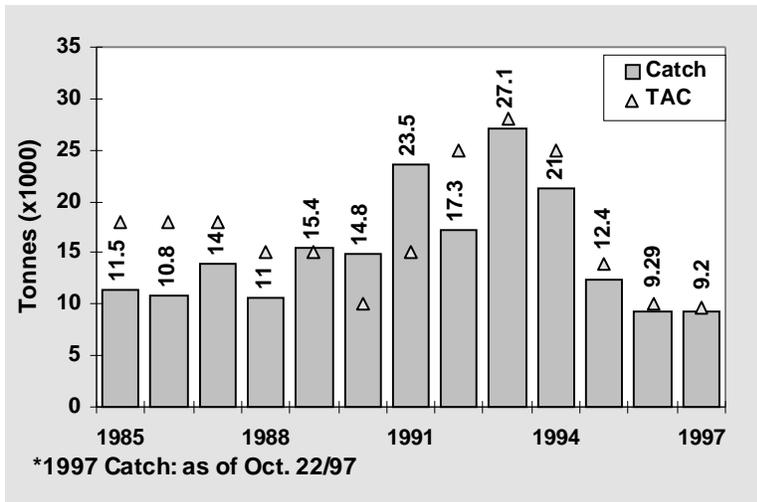
The Council held a special consultation on redfish stocks on October 24, 1997. Many industry participants questioned the number associated with the F0.1 level for this stock as indicated in the SSR. Some noted that the F0.1 level could be as high as 15,000t. All those who participated in consultations felt this stock was in healthy condition and advocated some quota increase.

Many indicated that the problems associated with the capture of small redfish can be avoided by staying away from areas such as the Stone Fence. Some noted that gear selectivity is not the answer to the problems with small redfish.

RECOMMENDATION # 2:

The FRCC recommends that:

- 2.1 the TAC for 1998 be set at 11,000 t;
- 2.2 seasonal and area closures be continued;
- 2.3 the small fish protocol be continued and rigorously enforced and DFO and industry discuss the merits of continuing to protect the 1988 year-class and measures to do this, such as new closed areas or adjustments to the minimum size in the small fish protocol; and
- 2.4 DFO Science should seek to determine:
 - a) the long term potential for this stock, and
 - b) the historical profile of exploitation rates.



ANALYSIS:

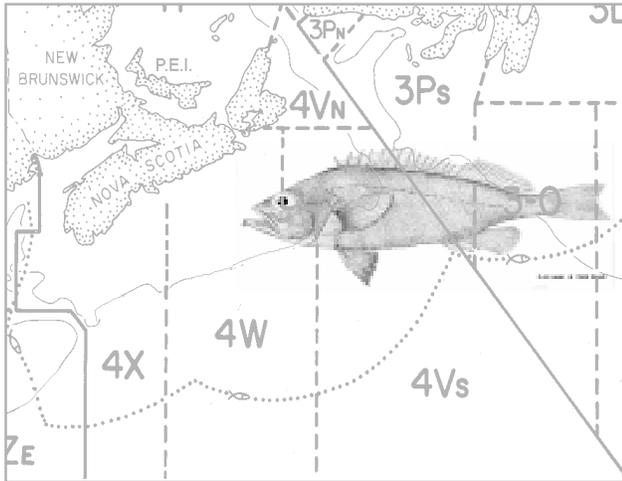
The 1997 DFO Stock Status Report indicates that:

- The stock size remains stable.
- There are some tentative signs of good recruitment subsequent to the 1988 year-class (1994 year class)
- A catch of 10,000 t in 1998 would generate an exploitation rate of about 10% or less (below the F0.1 level).

While the Stock Status Report notes stability in the stock, it does not provide an analysis of how the level of the biomass in this stock relates to the long-term average. The changes in the commercial catch rate index over the past decade, and some current survey results, could be interpreted as suggesting that this stock may not be fully re-built. The Council remains focused on a rebuilding strategy for this stock and remains cautious with any quota recommendations. The Council notes that the 1988 year class is not fully sexually mature, and the 1994 year class cannot yet be counted on and thus, will need to be carefully monitored to determine its strength. The Council believes that the 1988 year class must continue to be protected. If this is done, and if stock indicators remain positive, the Council is optimistic that the rebuilding potential for this stock can be realized and it will be possible to increase TAC's over time, toward a long-term level. In the absence of a more precise number from the assessment, the Council believes that a working hypothesis of approximately 15,000 t as a target for sustainable catches in the long term is not unreasonable.

COUNCIL'S VIEWS ON STOCK STATUS:	
Overall Stock Indicator:	stable
	<i>Compared to average</i>
Spawning Biomass:	stable
Total Biomass:	stable
Recruitment:	good: strong 1988 and 1994 year-classes
Growth and Condition:	no particular observation
Age Structure:	improving
Distribution:	no particular observation
Recent Exploitation Level:	likely below F0.1

3. REDFISH UNIT 3 - 4WDEHKLX



1997 CONSULTATIONS:

Industry noted that fishing effort has increased on this stock over the past year as larger companies who have not fished their quota in the past few years are now doing so with smaller vessels. Some participants indicated to the Council that there is a need for more enforcement in this fishery.

Others noted that the Bowtie area north of Brown's Bank is a significant nursery area and must be protected, through continuation and refinement of the closure there.

ANALYSIS:

The 1997 DFO Stock Status Report indicates that:

- the abundance of Unit 3 redfish had shown no trend since the late 1980's.
- there are indications of an improvement in recruitment in recent years.
- Catches of 10,000 t in 1998 would approximate the F0.1 level.

There is no clear absolute estimate of abundance for this stock. However, the Council notes that since this stock has shown no trend in stock size over the long term, a quota around the F0.1 level seems appropriate. We also note that there is a good range of year classes and good age structure in this stock.

The FRCC is pleased to note that efforts are underway between DFO and the industry to further establish and refine closed areas as a solution to the small fish problems.

HISTORY OF FRCC

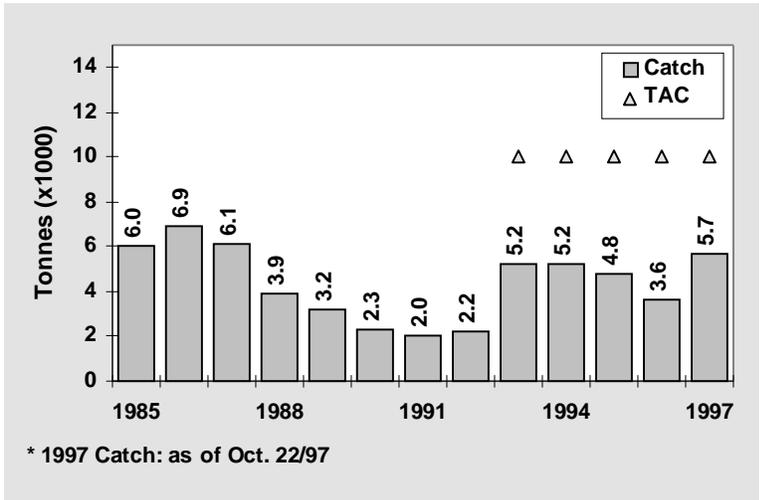
RECOMMENDATIONS:

In November 1993 and November 1994, the Council recommended that the 1994 TAC for Unit 3 redfish be set at 10,000t. The Council also recommended in 1994 that the incidence of small fish be monitored in 1995 and that the area be closed to fishing when the incidence of small fish has reached an appropriate predefined level. In November 1995, the Council reiterated that there was a need for maintaining for 1996 the same small fish closure provisions as recommended in 1994, with a 1996 TAC of 10,000t. For 1997, the Council recommended that the TAC for Unit 3 redfish remain at 10,000t. The Council also recommended that the small fish protocol be consistently applied and enforced, and other measures to avoid small fish should be evaluated, including increased mesh size.

RECOMMENDATION # 3:

The FRCC recommends that:

- 3.1 the 1998 TAC for Unit 3 redfish be set at 10,000t;
- 3.2 the small fish protocol should be consistently applied and rigidly enforced;
- 3.3 the closed area known as the Bowtie should be redefined to optimize protection of small fish; in particular consideration should be given to including Western Hole and parts of Brown's Bank; and
- 3.4 DFO Science should seek to determine more precisely the sustainable catch level for this stock.



COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator: no trend, near average

Compared to average

Spawning Biomass: no trend, near average

Total Biomass: no trend, near average

Recruitment: improving

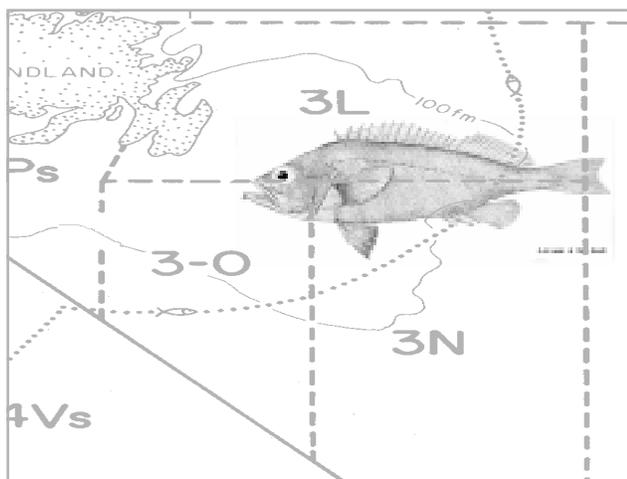
Growth and Condition: average

Age Structure: improving

Distribution: no particular observation

Recent Exploitation Level: below F0.1

4. REDFISH 3O



HISTORY OF FRCC RECOMMENDATIONS:

In November 1993, the Council recommended reduction of the TAC to 10,000t for 1994. In November 1994, the Council expressed its concern over the uncertainties related to the origin and abundance of small redfish in this Division. The Council recommended that the 1995 TAC be set at 10,000t, that a small fish protocol be established to protect juvenile redfish and that research be accelerated to determine the origin of the small fish found in this Division. The Council recommended a 1996 TAC at 10,000t and continuation of small fish protocols.

For 1997, Council recommended a TAC of 10,000 and further recommended that small fish protocols remain in place and apply to all fleets harvesting the resource throughout the range of the stock. The FRCC also indicated that modifications to gear should be examined to reduce the catch of small fish while minimizing post selection mortality.

1997 CONSULTATIONS:

The Council held a special consultation on redfish stocks on October 24, 1997. Industry expressed their concern with the fishery in shallow waters in this area. Some participants noted vessels less than 100 feet fishing for 3-0 redfish captured large amounts of juvenile redfish and significant by-catches of other species. Some suggested that a line be drawn at the 100 fathom mark and no fishing be allowed in waters more shallow than this. Concerns were also expressed with respect to the lack of adequate enforcement in this fishery.

ANALYSIS:

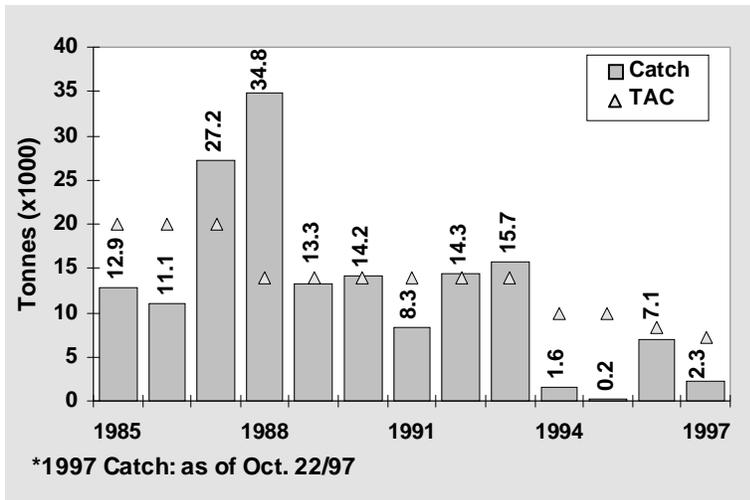
The 1997 DFO Stock Status Report indicates that:

- larger fish found were in deeper waters but generally untrawlable areas.
- it is not possible to describe overall trends in total stock size or to estimate the current size of the fishable portion of the population.
- catches at the 10,000 t level are unlikely to be harmful to the resource.

RECOMMENDATION # 4:

The FRCC recommends that:

- 4.1 the 1998 TAC for 3O redfish be set at 10,000 t;
- 4.2 further scientific effort be applied to determine sustainable levels of harvesting for this stock;
- 4.3 small fish protocols remain in place, apply to all fleets harvesting the resource throughout the range of the stock, and be rigorously enforced; and
- 4.4 a DFO-industry workshop be established to address the issues associated with the capture of juvenile redfish, including the definition of closed or restrictive areas, with results of this workshop to be included as part of the CHP for all fleets in this fishery for 1998.



The Council is concerned about two consecutive low survey results and other signs of a lack of recruitment and small fish. This situation will need to be carefully monitored.

COUNCIL'S VIEWS ON STOCK STATUS:

Overall Stock Indicator: stable
Compared to average

Spawning Biomass: uncertain

Total Biomass: likely increasing

Recruitment: poor

Growth and Condition: no particular observation

Age Structure: improving

Distribution: no particular observation

Recent Exploitation Level: likely below F0.1

APPENDIX 1:

**LETTER TO STAKEHOLDERS AND
QUESTIONS FOR DISCUSSION AT
CONSULTATION**

APPENDIX 1: LETTER TO STAKEHOLDERS

October 10, 1997

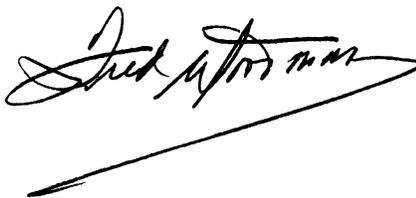
To Redfish Stakeholders:

The Fisheries Resource Conservation Council (FRCC) will hold a public consultation

at 10AM on Friday, October 24 at the **Bedford Holiday Inn Express in Halifax, NS to gather information on Redfish in Units 1,2,3 & 3-0. This will assist the Council in making recommendations to the Minister of Fisheries and Oceans for 1998 conservation requirements for these groundfish stocks.**

Stakeholders are invited to make public presentations or to provide 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 FRCC CONSULTATION

1. In keeping with the Fisheries Resource Conservation Council (FRCC) mandate to re-build stocks the FRCC has recommended reduced quotas, closures, increased mesh size and small fish protocols over the past four years. Keeping in mind the Council's mandate, have these measures been adequate/effective in re-building stocks?
2. The FRCC in its letter to the Minister of Fisheries and Oceans on science priorities called for better cooperation between the regions on redfish research. Are there specific issues you feel that need to be addressed, as research priorities, for redfish?
3. Last year the FRCC requested that initiatives (e.g. sentinel fishery, tows for science) be undertaken to improve and expand the information on redfish stocks, particularly in Unit 1 where there has been moratorium in place since 1995. Has this been adequate to address the concerns? Should more be done in future?
4. Does the scientific information provided for Units 2 and 3 and NAFO Division 3 O compare with your experience in fishing these stocks over the past few years? If not, how does it differ?
5. This year, it has been reported that fishing for redfish had improved in Unit 2. Is this consistent with your observations? Is a 10,000 t TAC offering stability in this fishery, is it allowing for rebuilding, or are stocks still continuing to decline? Are other measures needed to protect the 1988 year class?
6. There have been reports of significant catches of small redfish in Unit 3. Has the small fish protocol been effective and have landings of small redfish been adequately monitored? Should we expand the size of the closed area for juvenile redfish to include other areas such as Western Hole?
7. Last year the FRCC recommended gear modifications to reduce the capture of small redfish in 3 O. Has this happened? What are the results you have observed from gear modifications?
8. There have been reports of increased fishing effort on 3 O redfish. This area has always been noted for small redfish, especially in shallow waters. What measures do you recommend to eliminate the capture of small redfish? Is increased mesh size the answer, should there be water depth restrictions or the establishment of a closed area?

APPENDIX 2:

**BRIEFS RECEIVED FOR THE
REDFISH CONSULTATIONS**

APPENDIX 2: BRIEFS RECEIVED FOR THE REDFISH CONSULTATIONS

FRCC.97.GR-RF.1 Brian Giroux, Scotia Fundy Mobile Gear Fisherman's Assoc., Yarmouth, N.S.

FRCC.97.GR-RF.2 Groundfish Enterprise Allocation Council, Gloucester, ON