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Proceedings of the Zonal Advisory Meeting for the Recovery Potential Assessment (RPA) of Roundnose Grenadier

February 11, 2010

Battery Hotel and Conference Centre
St. John's, NL

Meeting Chairperson
Kim Houston

Editor
D.B. Atkinson

Compte rendu de la réunion de consultation scientifique zonale sur l'évaluation du potentiel de rétablissement (EPR) du grenadier de roche

Le 11 février 2010

Hôtel Battery et Centre des congrès
St. John's, T.-N.-L.

Présidente de la réunion
Kim Houston

Rédacteur
D.B. Atkinson

Fisheries and Oceans Canada / Pêches et Océans Canada
Science Branch / Direction des sciences
PO Box/C.P. 5667, 80, chemin East White Hills Road
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September 2010 | **Septembre 2010**

Canada

Foreword

The purpose of these Proceedings is to document the activities and key discussions of the meeting. The Proceedings include research recommendations, uncertainties, and the rationale for decisions made by the meeting. Proceedings also document when data, analyses or interpretations were reviewed and rejected on scientific grounds, including the reason(s) for rejection. As such, interpretations and opinions presented in this report individually may be factually incorrect or misleading, but are included to record as faithfully as possible what was considered at the meeting. No statements are to be taken as reflecting the conclusions of the meeting unless they are clearly identified as such. Moreover, further review may result in a change of conclusions where additional information was identified as relevant to the topics being considered, but not available in the timeframe of the meeting. In the rare case when there are formal dissenting views, these are also archived as Annexes to the Proceedings.

Avant-propos

Le présent compte rendu a pour but de documenter les principales activités et discussions qui ont eu lieu au cours de la réunion. Il contient des recommandations sur les recherches à effectuer, traite des incertitudes et expose les motifs ayant mené à la prise de décisions pendant la réunion. En outre, il fait état de données, d'analyses ou d'interprétations passées en revue et rejetées pour des raisons scientifiques, en donnant la raison du rejet. Bien que les interprétations et les opinions contenues dans le présent rapport puissent être inexactes ou propres à induire en erreur, elles sont quand même reproduites aussi fidèlement que possible afin de refléter les échanges tenus au cours de la réunion. Ainsi, aucune partie de ce rapport ne doit être considérée en tant que reflet des conclusions de la réunion, à moins d'indication précise en ce sens. De plus, un examen ultérieur de la question pourrait entraîner des changements aux conclusions, notamment si l'information supplémentaire pertinente, non disponible au moment de la réunion, est fournie par la suite. Finalement, dans les rares cas où des opinions divergentes sont exprimées officiellement, celles-ci sont également consignées dans les annexes du compte rendu.

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SUMMARY

A Meeting for the Recovery Potential Assessment (RPA) of Roundnose Grenadier was held on February 11, 2010 at the Battery Hotel and Conference Centre, St. John's, NL. The requirement for a RPA is triggered when COSEWIC recommends an aquatic species as Threatened or Endangered. The purpose of the RPA is to provide information that will a) support development of scenarios for evaluating costs of recovery, b) inform public consultations, c) inform the decision on whether or not to list a species on Schedule 1 of SARA and d) assist the Recovery Team in developing a Recovery Strategy and/or Action Plan for the species if the listing recommendation is accepted.

Participants included DFO staff from Science (NL, Maritimes, Gulf and National Capital regions), Fisheries and Aquaculture Management (NL region) and Policy and Economics (NL Region). An official of the fishing industry (FFAW) was also present. The meeting rapporteur was D.B. Atkinson.

These proceedings contain a summary of working papers, PowerPoint presentations and other documentation available during the meeting as well as summaries of the related discussions. Also included as appendices are the agenda, list of participants, research recommendations, a list of all working papers, PowerPoint presentations and other documentation made available during the meeting.

Additional information on this RPA is available in the CSAS Research Document series and the Science Advisory Report.

SOMMAIRE

Une réunion sur l'évaluation du potentiel de rétablissement (EPR) du grenadier de roche a eu lieu le 11 février 2010 à l'Hôtel Battery et au Centre des congrès de St. John's, T.-N.-L. Une EPR doit être produite lorsque le COSEPAC recommande qu'une espèce aquatique soit désignée comme étant menacée ou en voie de disparition. Le but de l'EPR est de fournir de l'information qui servira : a) à soutenir l'élaboration de scénarios permettant d'évaluer les coûts liés au rétablissement; b) à documenter les consultations publiques; c) à éclairer le processus décisionnel menant à l'inscription ou non de l'espèce à l'annexe 1 de la LEP; d) à aider l'équipe de rétablissement à élaborer un programme de rétablissement ou un plan d'action pour l'espèce si celle-ci est inscrite à la liste de la Loi.

Parmi les participants, mentionnons du personnel des Sciences (Régions de T.-N.-L., des Maritimes, du Golfe et de la Capitale nationale), de Gestion des pêches et de l'aquaculture (Région de T.-N.-L.) et de la Direction des politiques et de l'économie (Région de T.-N.-L.) du MPO. Un représentant de l'industrie de la pêche (FFAW) était également présent. Le rapporteur de la réunion était D.B. Atkinson.

Le présent compte rendu résume les documents de travail, les présentations PowerPoint ainsi que les autres documents présentés pendant la réunion et synthétise les discussions tenues à propos de ceux-ci. L'ordre du jour, la liste des participants, les recommandations en matière de recherche, la liste de l'ensemble des documents de travail, présentations PowerPoint et autres documents présentés à la réunion figurent en annexe du compte rendu.

De plus amples renseignements sur la présente EPR se trouvent dans les séries de documents de recherche et d'avis scientifiques du SCCS.

INTRODUCTION

A Meeting for the Recovery Potential Assessment (RPA) of Roundnose Grenadier was held on February 11, 2010 at the Battery Hotel and Conference Centre, St. John's, NL. The requirement for a RPA is triggered when COSEWIC recommends an aquatic species as Threatened or Endangered. The purpose of the RPA is to provide information that will a) support development of scenarios for evaluating costs of recovery, b) inform public consultations, c) inform the decision whether or not to list a species on Schedule 1 of SARA and d) assist the Recovery Team in developing a Recovery Strategy and/or Action Plan for the species if the listing recommendation is accepted.

The process followed the guidelines of the Government of Canada for producing sound and effective advice and was conducted following specific RPA Guidelines provided by DFO's Canadian Science Advisory Secretariat (CSAS).

The meeting began at 0900 on February 11, 2010. Participants were welcomed by Chair Kim Houston (Science Branch, DFO, Ottawa). Introductions were then carried out around the table and an attendance sheet was then circulated.

The Chair reminded attendees to use the microphones when speaking as the meeting was being recorded.

The tentative agenda (Appendix II) was introduced and comments invited. The Chair noted that Daphne Themelis from Scotia-Fundy Region had a presentation regarding commercial catches and survey results pertaining to roundnose grenadier off the Scotian Shelf that had not been identified in the Tentative Agenda. She indicated that this presentation would be made after the Review of Survey Indices by Mark Simpson.

The list of participants is given in Appendix III. Not all participants attended all sessions of the meeting.

Research Recommendations are addressed in Appendix IV and a list of working papers, Powerpoint presentations, Excel spreadsheets and other documents available during the meeting is provided in Appendix V.

MEETING PROCEEDINGS

The meeting proceeded with presentations as per the agenda followed by associated discussions. This document has followed the ordering as outlined in the agenda.

REVIEW OF RPA PROCESS

Presentation Title: *Zonal Advisory Process Recovery Potential Assessment of Roundnose Grenadier by Kim Houston*

ABSTRACT

Because the Roundnose Grenadier RPA is the first RPA conducted by the NL Region, the background information surrounding RPA's is presented. The context, available guidelines and requirements are described. The objectives of the meeting are: a) review current scientific knowledge of Roundnose Grenadier (in the NW Atlantic) in relation to the components of a

Recovery Potential Assessment, b) document conclusions and recommendations and identify knowledge gaps and c) produce a Recovery Potential Assessment Science Advisory Report (SAR).

Presenter – Kim Houston (DFO – Science)

DISCUSSION

It was pointed out that it is important to remember that the focus of the process is on science so discussions should not deviate from this. It is reasonable however, to contemplate implications outside of science where appropriate. Attendees were also reminded that the discussion of the merits of the COSEWIC designation were beyond the scope of the meeting.

Participants were reminded that if the designation is accepted, any research recommendations must be carried out so it is important to restrict these to realistic items rather than what might be 'dreams'.

It was questioned how any necessary re-runs of the modelling exercises might be handled with a meeting of only one day as these usually require some time. The Chair responded that this will be dealt with as necessary as the meeting progresses.

REVIEW OF BIOLOGY/LIFE HISTORY OF GRENADIER IN RELATION TO RPA CRITERIA

Presentation Title: Biology and Life History of Roundnose Grenadier by Jennifer Mercer

ABSTRACT

Roundnose Grenadier belongs to the Macrouridae family. They have a long whip-like tail and a short compressed head with a soft rounded nose hence the reason they are called Roundnose Grenadier. They are medium brown to grey in colour and can reach total lengths of up to 100cm. They are found along the continental slope of the north Atlantic at depths of 180 to 2200 m and temperatures of 3.5 – 4.5 ˚C. They feed primarily on pelagic crustaceans such as: shrimp, amphipods, mysids and a variety of fish and invertebrates. The females produce between 8,700 to 56,000 eggs and they are iteroparous, have group synchronous ovarian development and are batch spawners. It is believed that they spawn many times throughout the year depending upon location. The eggs are about 2.3 to 2.4 mm in diameter and are fertilized at the time of spawning. Calculating total length of Roundnose Grenadier can be challenging because their tails are often missing or damaged during trawl hauls. Pre-anal length (PAL) was chosen as the length measurement and equations were developed to convert PAL to total length. Roundnose Grenadier is known as a low productivity species. They are long lived (up to 60 years of age), slow growing, and late to mature with a natural mortality of less then 0.2 with an estimated generation time of 17 years. They are poor swimmers and as a consequence they become vulnerable to population disturbances, predation and to targeted or incidental fishing.

Presenter – Jennifer Mercer (DFO – Science)

DISCUSSION

A comment was made that previously there has been debate regarding the population structure with some arguing that in the Northwest Atlantic the roundnose grenadier is a 'sink' population that is present due to egg and larval drift from Iceland while others believe it is self sustaining in

the NW Atlantic. The presenter indicated that there is nothing new and the assumption is the same as COSEWIC in that there is one population from Davis Strait south.

It was noted that while some argue there is migration back to Iceland, the body shape of roundnose grenadier is such that this would seem unlikely.

Regrettably, during research vessel surveys, only the sex is recorded, not the maturity.

It was suggested that perhaps the situation is similar to that with Greenland halibut; until more information from deeper waters was available, it was believed that they migrated to the area of Disko Island to spawn. Only when information from deeper waters became available was it realized that they spawn all along the shelf edge.

The consensus was that people are comfortable with the notion of one independent population existing in the NW Atlantic.

It was suggested that there may be information regarding maturing females in some of the older observer data, and there may be some information in the published literature. Both of these should be checked.

It was questioned whether spawning takes place every year. This is unknown. Also, it is unknown if the species may hold multiple clutches and spawn when conditions are right.

It was clarified that the oldest ages (60) were based on otolith determinations.

There was no further discussion.

REVIEW OF SURVEY INDICES

Presentation Title: Survey Indices by Mark Simpson

ABSTRACT

In 2008, Roundnose Grenadier (*Coryphaenoides rupestris*) was designated as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), based on declines in the Fisheries and Oceans Canada (DFO) fall research vessel survey in NAFO Divisions 2J3KL. Roundnose Grenadier also has life history traits, such as late maturity and being long lived, which can contribute to this species being unable to respond quickly to reductions in population size.

In this presentation, all available survey data is presented to investigate trends in abundance, distribution and area occupied by Roundnose Grenadier in NAFO subareas 0-3. Data sources include Canadian Research vessel surveys, Canada Greenland Co-operative Surveys, EU-Spain surveys and Russian surveys. It was concluded that based on indices of abundance from Fall DFO-NL bottom trawl surveys in NAFO Divisions 2J3K, Roundnose Grenadier abundance potentially declined from the late 1970's to early 1990's. Subsequently, the survey indices from 1995 to present have fluctuated without trend, with recent surveys indicating potential increases in abundance. No change in the distribution of Roundnose Grenadier, nor area occupied was observed.

Presenter – Mark Simpson (DFO – Science)

DISCUSSION

It was pointed out that the indices should be for the entire population and not just for that portion found in Canadian waters. The author noted that SARA only applies to Canadian waters. The survey data were looked at in a variety of ways: all available data; all data from Canadian waters only; and index strata (in Canadian waters) where there were a minimum of two sets every year of the time series. It was suggested that the EU-Spain surveys as well as those that have taken place in Davis Strait and Baffin Bay also be considered. The Chair noted that these should be looked into to the extent possible.

It was argued that the increase in the index seen in 2009 must be a year effect since populations don't change that rapidly. It was noted that these rapid changes in survey estimates have also been seen off West Greenland and it is speculated that they result from the fish moving into and out of the survey area. It was speculated that they may be temperature effects as warmer waters in recent years may be making more habitat available in shallower waters.

It was also noted that some of the old Soviet literature describes teaching fishermen to fish on ledges where these grenadier seemed to aggregate. Perhaps the 2009 survey fished on one of these locations and caught more fish as a result.

Considerable discussion centred around the use of index strata. It was suggested that just because certain strata were fished consistently didn't mean they are the 'right' strata for the species. The author agreed and noted that there was a greater tendency to drop deeper strata because they were fished more inconsistently. It was suggested that, because roundnose grenadier are a deep water species, it would be worthwhile to relax the two sets per stratum rule to include these deep strata sets. If a single stratum was missed then perhaps information from surrounding years could be used to fill in the missing information (a multiplicative model approach). Also, alternative analyses that don't require two sets in each stratum could be used. It was suggested that a comparison with the indices used by COSEWIC might be useful. The author responded that the indices presented here and those used by COSEWIC have similar outcomes.

It was noted that based on the literature, catchability (q) is greater at night. It was questioned if the survey data could be adjusted for this since they are conducted on a 24-hour basis. It was noted that this could perhaps be examined but at present the assumption is that there is no bias over time in the survey results due to diel changes in q.

It was noted that based on the information provided, the Campelen trawl appears to be a much better sampling gear than the Engel. The limitation is that the Canadian surveys only cover depths to 1500 m whereas roundnose grenadier are known to be distributed deeper.

It was questioned whether the commercial catch-per-unit-effort (CPUE) data had been examined. The author responded that this had not been considered. It was suggested that the series published back in 1995 could be examined and compared with the research survey information as had been done by COSEWIC.

It was questioned whether anyone had looked at the length distributions of the small fish captured by the Campelen trawl in any detail; specifically looking to see if there is any observable size differences from north to south. It was suggested that this sort of information

may help sort out the argument regarding population structure and egg and larval drift. The author responded that this had not been done but would be a good idea.

It was suggested that an examination of the depth distribution of fishing sets in the observer database may be helpful in interpreting the survey results with regard to depth distributions.

There were no further comments.

SCOTIAN SHELF SURVEY AND COMMERCIAL CATCH INFORMATION

Presentation Title: Roundnose Grenadier by Daphne Themelis

ABSTRACT

All available research survey and commercial landings data for NAFO Divisions 4VWX were examined for trends in distribution and abundance by Roundnose Grenadier associated with the Scotian shelf. The surveys include annual summer, spring and fall research surveys sampling depths of 50-900 m (1970-2009), and two research surveys sampling 200 m strata between 900-1800 m depths along the shelf edge south of Browns, LaHave, Western and Banquereau banks in 1994 and 1995. Small Roundnose grenadier are taken infrequently in tows from depths of 360-900 m. The deep sampling surveys caught them in all depth strata and sampling locations, with highest catches (237 kg per hour tow) at 1080-1260 depths. A commercial fishery for Roundnose grenadier from 1993-1997 was concentrated in 4X in an area south of LaHave Bank. Catches declined from 980 (1993) to 68 mt (1997). There has been no commercial fishery since 1997, and annual bycatch in other fisheries has averaged 0.3 mt.

Presenter – Daphne Themelis (DFO – Science)

DISCUSSION

It was clarified that the summer surveys were to 720 m but the spring surveys were only to 540 m. As well, the few redfish surveys that were included in the analysis were to 900 m. The commercial catches declined as a result of National Sea Products selling off their fleet and should not be interpreted as reflecting a depletion of the fish in the area. There are no recent commercial data available.

There was no further discussion.

REVIEW OF FISHERY STATISTICS AND LANDINGS IN RELATION TO "THREATS"

Presentation Title: Commercial Fishery Removals of Roundnose Grenadier 1960 – 2008 by Carolyn Miri

ABSTRACT

Commercial fishery removals of Roundnose Grenadier were investigated for 1960-2008. NAFO-reported catches for Subareas 0, 1, 2, and 3 were summarized on an annual basis by Division for 1967-2008, using the NAFO STATLANT-21A database. NAFO-reported catches for all areas in 1967-1979 averaged 31,000 t; with a peak of 56,998 t for Subarea 2 in 1971. Division 3K, Subareas 2, 1, and 0 represented the highest catches; in decreasing order. Except for a mode averaging 3,475 t for Div. 3LMN in 2001-2006, NAFO-reported catches for all areas

decreased from a 5,400-ton average in the 1980s to a 373-ton average in 2007-2008. Roundnose Grenadier are still taken as bycatch outside Canada's 200-mile limit; mainly in the Greenland Halibut fishery with otter trawls and gillnets. Canadian reported landings within Canada's 200-mile limit in Subareas 2 and 3 were also summarized on an annual basis by Division for 1986-2008, using the DFO ZIFF database. Usually taken as bycatch in other Canadian fisheries, Roundnose Grenadier was caught primarily by otter trawls, with a peak of 1,261 tons in 1993. Reported landings for gillnets averaged 66 t in 1990-1996; then decreased to zero after 1997. Longline gear rarely caught Roundnose Grenadier during this period. At-sea discarding and catches of Roundnose Grenadier by other countries in Canada's EEZ were investigated for 1985-2008, using the Canadian Fisheries Observer database. Observed discards aboard Canadian vessels averaged 26 t during this period, while observed catches by other countries in Canadian waters averaged 2,394 t in 1985-1989; then declined to zero by 1994. In 1997, the directed fishery for this species came under moratorium in Canada's EEZ.

Presenter – Carolyn Miri (DFO – Science)

DISCUSSION

It was clarified that recent recent commercial catches have only been from outside Canada's EEZ as there is currently a moratorium within Canada, but the presentation included all catch information, both inside and outside Canadian waters over the time series.

The point was made that while some argue that separation of roudnose and roughhead grenadiers is simple, others consider the opposite to be true. As such, there may be misidentifications and the catch information provided by observers actually represents a mix of roundnose and roughhead grenadiers. The two species are reported separately during research surveys. It was noted that there is some information on this issue in NAFO Scientific Council research documents, especially the assessment documents for roughheads. The Scientific Council has recognized the problem and uses its own estimates of catches of the two species. It was suggested that we should consider using the Scientific Council estimates, where available, rather that the STATLANT 21A data as the Council estimates are likely more accurate.

In response to a question regarding possible bycatches of roundnose grenadier in the Canadian gillnet fishery for Greenland halibut, it was clarified that any bycatch would only have happened after the mid-1990's when the fishing moved into waters > 400 fathoms deep.

There are three sources of information on catches inside the Canadian EEZ; Zonal Interchange Format (ZIF) data, observer data and the NAFO statistics. It was cautioned that the ZIF data will only contain information for Canadian vessels and not for those foreign vessels fishing in Canadian waters after extension of jurisdiction. Also, the observer data are only for observed vessels and no extrapolations have been made for unobserved vessels. The Chair commented that the information in the NAFO documents should be examined.

It was clarified that the moratorium in Canadian waters has been in place since 1997and this includes Subarea 0.

There was no further discussion.

REVIEW OF POPULATION MODELS

Presentation Title: RPA Presentation by Jason Bailey

ABSTRACT

Not available.

Presenter – Jason Bailey (DFO – Science)

DISCUSSION

There was considerable discussion regarding the model formulation. This centred around such things as using the estimate of biomass as a proportion, not including catches for 1981-1984, constraints on catchability (q) and the approach to using the research survey data. The author pointed out that his approach was to bring this formulation for discussion and get feedback on how to proceed with refinements.

It was suggested that all catches going back to 1967 should be included and the commercial catch per unit effort (CPUE) series should be included as another index.

It was suggested that the graphs of biomass over time in the presentation would be better served by not joining the biomass trend lines because they represent two series and joining them could give a false impression of a jump in biomass. It needs to be made clear that the plot is only showing the model fit to the survey indices and does not represent stock biomass trends. One needs to look at what the population is doing rather that at 'fits' and this is especially important for projections.

It was suggested that the biomass figures on slide 5 seemed quite high and these should be checked.

The Chair concluded that because of the numerous points raised, additional runs should be attempted and discussion would return to this topic later in the meeting.

Later there was further discussion of the modelling issue. It was agreed that work could not be completed during the meeting but would be done over the next few weeks with assistance from a variety people. It was noted that just because there is a model, it doesn't necessarily mean it will work and give reasonable results. The Chair considered that if that is the case, then the SAR should state the situation but will confirm this with Ottawa.

It was agreed that while the modelling work is going on, the remainder of the SAR draft will be completed and circulated for comment. Once the modelling is completed, it will be determined whether the RPA can be finalized by e-mail or conference call or whether another meeting will be required.

It was noted that before a final model run can be done the issue of catches needs to be sorted out.

DISCUSSION AND REVIEW OF RPA PROTOCOL POINTS (SAR DRAFTING)

Document Title: *Recovery Potential Assessment For Roundnose Grenadier (Coryphaenoides rupestris) Draft SAR*

DISCUSSION

The Chair noted that due to issues surrounding the model formulation, it will not be possible to discuss model outputs including trends. Nonetheless, other sections of the draft SAR could be discussed and completed. She also pointed out that it is important to incorporate the data from Scotia-Fundy. She also questioned whether the SAR should comment on the COSEWIC use of M=0.5 since it seems quite high for a species that lives to age 60+. This issue was addressed generally in the SAR by noting that actual mortality is probably closer to the lower end of the range of 0.1 to 0.2.

Wordsmithing followed along with some discussion on various items.

It was clarified that mesh regulations outside the Canadian EEZ are not specific for roundnose grenadiers. It was agreed to add bullets regarding incomplete survey coverage and past trends based on research vessel survey and commercial CPUE data.

It was suggested that since the RPA is for the entire stock, it would be less confusing to have the figure of research survey trends for the entire survey rather than broken out by division. Also, a plot showing juveniles and adults separated would be useful.

It was agreed that survey terminology should be standardized throughout the SAR document. It was also agreed that there should be more survey information included in the document; USSR/Russia, EU-Spain, Scotia-Fundy and information from Subareas 0+1. Some of this will require additional digging into published documentation.

Discussion took place regarding what a recovery target should be. Presumably it should be some past abundance level but the problem is that the current situation can't be compared to the past due to difference in survey gears. As such, perhaps a trajectory or increase rate might be more appropriate. The Chair noted an example where "protect and maintain the current population size" was used. She suggested that this type of approach might be appropriate in this situation. The classification by COSEWIC was based on the decline rate and not the population size.

Modelling may be able to help with the target issue assuming the models are considered acceptable.

It was pointed out that National guidance suggests that the goal is to see the down-listing or de-listing of a species from the current threatened or endangered status. It is considered that if the population is maintained at its current level for three generations it will no longer be listed as endangered.

It was noted that the new template doesn't include a clear area where the fisheries can be described. It was unclear where that information should now be included. This was not clarified.

The Chair clarified that the 'Threat" section is included because it is part of SARA and a 'threat' is any activity that has potential to impact recovery but that may not necessarily cause further declines

It was agreed that until the modelling exercise is complete, the section on "Abundance (Trends and Projections)" cannot be completed. Also, at this point it is not necessary to identify critical habitat.

There was discussion regarding the distribution of roundnose grenadier specifically pertaining to its distribution both inside and outside Canada's EEZ. COSEWIC considered the Designated Unit (DU) to include both inside and outside but SARA only applies to areas within the EEZ. As such, analyses of population issues should be for the COSEWIC DU and the SARA recommendations and actions will focus on areas within the EEZ only. However, there was agreement that, if activities outside Canada's EEZ have potential to cause further declines or impact the recovery of the species, then recommendations on how to address those issues would be considered appropriate.

Only longevity of the species and life history characteristics were identified as "Limiting Factors" to the recovery of the roundnose grenadier.

The Chair suggested that at this point the only thing that can be said regarding threats is mortality beyond natural mortality and it may be necessary to find ways of reducing this. The only mortality that can be controlled is fishing mortality but there may not be a need to mitigate this depending what the model outputs suggest.

It was agreed that for future RPA's there needs to be more consideration of the modelling and the fact that re-runs are probable. It was suggested that perhaps there should be a pre-meeting on modelling alone because the re-runs couldn't necessarily be done overnight during an extended RPA meeting. It was pointed out that delays in development of the RPA have 'downstream' implications in that all follow-on work is delayed as well. The Chair agreed that these were good recommendations for future meetings.

CLOSING

The Chair thanked everyone for their contributions during the meeting and the presenters for their preparatory work and presentations during the meeting. She reiterated that it will be decided as things develop whether the RPA and associated SAR can be completed via e-mail conference call or another meeting.

The meeting adjourned at 1645 on February 11, 2010.

APPENDIX I – Terms of Reference

Zonal Advisory Meeting Recovery Potential Assessment of Roundnose Grenadier

February 11, 2010 Northwest Atlantic Fisheries Center, St. John's, NL

Chair: Kim Houston

Background

In November 2008, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated the Roundnose Grenadier as Endangered. Their designation was based on the survey data indices of adult numbers showing declines of 98% from 1978 to 1994 with a further decline from 1995 to 2003. The species is long-lived (60 yr) and matures late (around 10 yr) which makes it susceptible to human-caused mortality. Commercial catches were high in the 1960s and 1970s but have since declined, although harvest still occurs.

Fisheries and Oceans Canada (DFO) Science has been asked to undertake a Recovery Potential Assessment (RPA) for the Roundnose Grenadier. DFO Science developed the RPA framework to provide the information and scientific advice required for the Department to meet various requirements of the SARA including listing decisions, authorizations to carry out activities that would otherwise violate the SARA and development of recovery strategies. The advice in the RPA may be used to inform both scientific and socioeconomic elements of the listing decision, as well as development of a recovery strategy and action plan, and to support decision-making with regards to the issuance of permits, agreements and related conditions, as per section 73, 74, 75, 77 and 78 of SARA.

This advisory meeting is being held to assess the recovery potential of Roundnose Grenadier. The resulting RPA Science Advisory Report will summarize the current understanding of the distribution, abundance and trend of this species in the Atlantic and Arctic zones, along with recovery targets and times to recovery while considering various management scenarios. The current state of knowledge about habitat requirements, threats to both habitat and Roundnose Grenadier, and measures to mitigate these impacts, will also be included in the SAR.

Objectives

The intent of this meeting is to assess the recovery potential of the Roundnose Grenadier. It is a science-based peer review of the designatable unit assigned by COSEWIC and the 17 steps in the RPA framework outlined in the Summary section of the Revised Protocol for Conducting Recovery Potential Assessments (available at: http://www.dfo-mpo.gc.ca/csas/Csas/status/2007/SAR-AS2007_039_e.pdf). The advice will be provided to the DFO Minister for her consideration in meeting various requirements of SARA for this species.

Products

CSAS Science Advisory Report
CSAS Proceedings of meeting
CSAS Research Document (based on submitted working papers)

Participants

- Department of Fisheries and Oceans
- Other Federal Departments
- Provincial Governments
- Industry representatives
- Aboriginal groups
- Academia
- ENGOs

References

COSEWIC. 2008. COSEWIC assessment and status report on the Roundnose Grenadier *Coryphaenoides rupestris* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 42 pp. http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_roundnose_grenadier_0809_e.pdf

DFO. 2005. A framework for developing science advice on recovery targets for aquatic species in the context of the Species at Risk Act. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2005/054 (http://www.dfo-mpo.gc.ca/csas/Csas/status/2005/SAR-AS2005_054_e.pdf)

DFO. 2007a. Revised Protocol for Conducting Recovery Potential Assessments. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2007/039.(http://www.dfo-mpo.gc.ca/csas/Csas/status/2007/SAR-AS2007_039_e.pdf)

DFO. 2007b. Documenting habitat use of species at risk and quantifying habitat quality. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2007/038. (http://www.dfo-mpo.gc.ca/csas/Csas/status/2007/SAR-AS2007_038_E.pdf)

Shelton, P.A., B. Best, A. Cass, C. Cyr, D. Duplisea, J. Gibson, M. Hammill, S. Khwaja, M. Koops, K. Martin, B. O'Boyle, J. Rice, A. Sinclair, K. Smedbol, D. Swain, L. Velez-Espino and C. Wood, 2007. Assessing recovery potential: long-term projections and their implications for socio-economic analysis. DFO Can. Sci. Advis. Sec. Res. Doc. 2007/045 (http://www.dfo-mpo.gc.ca/csas/Csas/Publications/ResDocs-DocRech/2007/2007_045_e.htm

APPENDIX II – Agenda

Zonal Advisory Meeting
Recovery Potential Assessment of Roundnose Grenadier

February 11, 2010
Battery Hotel and Conference Centre, St. John's, NL

Chair:
Kim Houston, Science Branch, Ottawa

0900	Opening Remarks	Kim Houston
0915	Review of RPA process	Kim Houston
0930	Review of biology/life history of Grenadier in relation to RPA criteria	Jennifer Mercer
0945	Review of survey indices	Mark Simpson
1015	Scotian Shelf survey and commercial catch information	Daphne Themelis
1030	***Health break***	
1045	Review of fishery statistics and landings in relation to "Threats"	Carolyn Miri
1130	Review of population models	Jason Bailey
1200	***Lunch***	
1300	Discussion and review of RPA protocol points (SAR drafting)	Kim Houston ALL
1430	***Health break***	
1445	Discussion and review of RPA protocol points (SAR drafting)	Kim Houston ALL
1645	Closing Remarks	

APPENDIX III – Attendees

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APPENDIX IV – Recommendations

There were no research recommendations arising from the meeting. However, the following suggestions were noted to enhance the understanding of Roundnose Grenadier populations and ecology:

1. To address the uncertainty regarding population structure, and egg and larval drift, it is recommended that the length distributions of the small fish captured by the Campelen trawl be reviewed in detail; specifically to see if there is any observable size differences from north to south.

2. There may be information regarding maturing female roundnose grenadier in some of the older observer data, and there may be some information in the published literature. It is recommended that both of these possible sources of information should be examined.

3. The EU-Spain surveys as well as those that have taken place in Davis Strait and Baffin Bay may also contain information regarding roundnose grenadier. It is recommended that these data sources should be looked into to the extent possible.

4. Scientific Council estimates of catches of roundnose grenadier, where available, are likely more accurate than the STATLANT 21A data. It is recommended that the reports of the NAFO Scientific Council be examined for information regarding commercial catches of roundnose grenadier.

APPENDIX V – List of Working Papers, PowerPoint Presentations, Excel Spreadsheets and Other Documents Available During the Meeting

Bailey, J. RPA Presentation. Powerpoint Presentation.

COSEWIC. 2008. COSEWIC assessment and status report on the Roundnose Grenadier *Coryphaenoides rupestris* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 42 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

DFO, 2005. A Framework for Developing Science Advice on Recovery Targets for Aquatic Species in the Context of the Species At Risk Act. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2005/054.

DFO, 2007. Documenting Habitat Use of Species at Risk and Quantifying Habitat Quality. DFO Sci. Advis. Rep. 2007/038.

DFO, 2007. Revised Protocol for Conducting Recovery Potential Assessments. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2007/039.

DFO. SAR-AS2009_Grenadier Draft.

Houston, K. Zonal Advisory Process Recovery Potential Assessment of Roundnose Grenadier. Powerpoint Presentation.

Mercer, J. Biology and Life History of Roundnose Grenadier. Powerpoint Presentation.

Miri, C. Commercial Fishery Removals of Roundnose Grenadier 1960 – 2008. Powerpoint Presentation.

Miri, C. NAFO raw data_RN Grenadier 1960-2008. EXCEL Spreadsheet.

Miri, C. RN Grenadier STRAP1 FALL 2J3K juv&adult_C.Miri. EXCEL Spreadsheet.

Shelton, P.A. (Editor), Barb Best, Al Cass, Charley Cyr, Daniel Duplisea, Jamie Gibson, Mike Hammill, Saba Khwaja, Marten A. Koops, Kathleen A. Martin, Robert O'Boyle, Jake C. Rice, Alan Sinclair, Kent Smedbol, Douglas P. Swain, Luis A. Vélez-Espino and Chris C. Wood. 2007. Assessing recovery potential: Longterm projections and their implications for socio-economic analysis. Can. Sci. Advis. Sec. Res. Doc. 2007/045.

Simpson, M. Survey Indices. Powerpoint Presentation.

Simpson, M.R., C.M. Miri, J.M. Mercer, J. Bailey, D. Power. 2010. Recovery potential assessment of Roundnose Grenadier (*Coryphaenoides rupestris* Gunnerus, 1765) in Northwest Atlantic Waters. Can. Sci. Advis. Sec. Res. Doc. 2010/xxx. (Tabled as a Working Paper).

Swain, D. rnd_comm_crate. EXCEL Spreadsheet.

Themelis, R. Roundnose Grenadier. Powerpoint Presentation.