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Proceedings of the Quebec Regional Peer Review on the Assessment of the Gulf of St. Lawrence (4RST) Atlantic Halibut Stock

February 27, 2013
Maurice Lamontagne Institute

Chairperson: Bernard Sainte-Marie

Rapporteur: Sonia Dubé

Maurice Lamontagne Institute
Fisheries and Oceans Canada
850, Route de la Mer, P.O. Box 1000
Mont-Joli, Quebec G5H 3Z4

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Foreword

The purpose of these Proceedings is to document the activities and key discussions of the meeting. The Proceedings may include research recommendations, uncertainties, and the rationale for decisions made during the meeting. Proceedings may 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.

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SUMMARY

This document contains the proceeding from the meeting held within the regional assessment process of the Gulf of St. Lawrence (4RST) Atlantic halibut Stock. This review process was held on February 27th, 2013 at the Maurice Lamontagne Institute in Mont-Joli. This meeting gathered about thirty participants from sciences to management to industry. This proceeding contains the essential parts of the presentations and discussions during the meeting and relates the recommendations and conclusions that were presented during the review.

SOMMAIRE

Ce document renferme le compte rendu de la réunion tenue dans le cadre du processus régional d'évaluation du stock de flétan atlantique du golfe du Saint-Laurent (4RST). Cette revue, qui s'est déroulée le 27 février 2013 à l'Institut Maurice-Lamontagne à Mont-Joli, a réuni une trentaine de participants des sciences, de la gestion et de l'industrie. Ce compte rendu contient l'essentiel des présentations et des discussions qui ont eu lieu pendant la réunion et fait état des recommandations et conclusions émises au moment de la revue.

INTRODUCTION

The Quebec Region of the Department of Fisheries and Oceans (DFO) is responsible for assessing the stocks of several exploited fish and invertebrate species in the Estuary and Gulf of St. Lawrence. Most of these stocks are assessed periodically within a regional advisory process, which is conducted at the Maurice Lamontagne Institute in Mont-Joli. This document consists of the proceedings of the meeting held on February 27, 2013, on the assessment of the Gulf of St. Lawrence (4RST) Atlantic Halibut stock.

The objective of the review was to determine whether there were any changes in the resource's status and whether adjustments were required to the management plans based on the chosen conservation approach, the ultimate goal being to provide scientific advice on managing the Atlantic Halibut stock in the Gulf of St. Lawrence (4RST) for the 2013 and 2014 fishing seasons.

These proceedings report on the main points discussed in the presentations and deliberations stemming from the activities of the stock assessment regional committee. The regional review is a process open to all participants who are able to provide a critical outlook on the status of the evaluated resources. In this regard, participants from outside DFO are invited to take part in the committee's activities within a defined framework for this review (Appendices 1 and 2). The proceedings also focus on recommendations made by the meeting participants.

CONTEXT

Meeting chairperson Bernard Sainte-Marie welcomes the participants. He reviews the scientific review's objectives and agenda and introduces the terms of reference. After introductions around the table, assessment biologist Diane Archambault highlights the contribution of collaborators and presents the outline of the meeting. Some components of the species' biology and ecology, along with some management elements, are revealed.

The data used in the assessment of the 4RST Atlantic Halibut stock come mainly from the commercial fishery and research surveys: the DFO summer bottom trawl survey and the summer mobile sentinel survey in the northern Gulf, and the DFO summer bottom trawl survey and the mobile sentinel survey in the southern Gulf.

- It is pointed out that observer data are also taken into consideration.

ASSESSMENT OF THE RESOURCE

INDICATORS

Ms. Archambault reviews the key stock status monitoring indicators: landings (commercial fishery), spatial distribution (surveys and the commercial fishery), abundance and biomass (surveys), catch rate and effort (commercial fishery) and size structures (surveys and commercial fishery).

- A concern is raised about halibut bycatches in other directed fisheries, especially the Greenland Halibut gillnet fishery.

- With regard to the distribution of catch rates in the northern Gulf mobile sentinel survey, an industry representative is surprised that very few Atlantic Halibut were caught in the Strait of Belle Isle area, according to the information presented. He participated in sentinel fisheries and remembered a few major catches. Upon verification, three Atlantic Halibut catches were reported in the strata with depths of less than 20 fathoms in the Strait of Belle Isle. However, these strata are not considered for the analyses in this review.
- With regard to the abundance and biomass indices from the DFO northern Gulf survey, it is pointed out that the data were also analyzed by including new strata implemented in the Estuary in 2008. However, this addition does not explain the increase observed in the indices' value.
- Some issues and clarifications are brought up on the procedure for standardizing CPUEs from the commercial fishery, especially on the standards used, one of which is the choice of a representative unit area as a baseline. Some participants believe that there would be a seasonal effect and a soak time effect on CPUEs. However, these effects are already taken into account in the standardization procedure.
- The graph illustrating catch rates based on effort in 4T shows a decrease in CPUEs in 2011 and 2012 for the same level of effort. An industry representative says that that does not correspond to what he observes in his fishing area. The industry raised the possibility that the recent cap observed in commercial CPUE indices may be due to longline gear saturation, but the Science representatives doubted this.
- Some participants note a decrease in modal size between 2011 and 2012 in port sampling. Several hypotheses are raised to explain this decline: presence of recruitment, fishery that targets smaller sizes to protect reproductive potential, and market-related reasons.
- Some industry representatives believe that the survival of halibut released back into the water would be good, especially in the case of very large individuals released without being "gaffed." This survival would be less certain in halibut that are near the legal size and must be measured, therefore "gaffed."
- It is reiterated that halibut bycatches are significant in the directed turbot gillnet fishery and it is believed that mortality associated with discards of sub-legal size halibut is high. However, Management says that measures were taken to reduce these bycatches: modification of the size of the gillnet mesh, improved monitoring of vessels in problem areas, awareness and closer individual monitoring. This is a very real Management concern.
- It is reiterated that halibut of legal size caught by turbot fishers can be kept. They are counted and deducted from their quota. However, halibut that are caught and released are not counted.

YIELD PER RECRUIT MODEL

The purpose of adapting a yield per recruit model to the Gulf halibut stock was to assess the impact of an increase in minimum legal size on the yield per recruit and the spawning stock biomass per recruit. Ms. Archambault presents the approach and outcomes.

- The main item discussed concerns the mortality rates upon release back into the water used in the model. They are taken from Scotian Shelf Atlantic Halibut and Pacific Halibut

studies. Several participants consider that these rates do not correspond to reality. Halibut are very robust fish and mortality rates after release would be much lower. For halibut ≥ 93.5 cm that fishers will decide to release, some industry representatives say that they are able to assess the fish's size without gaffing it, thereby reducing mortality, whereas for halibut < 81 cm, dehooking would limit mortality.

- The participants agree that it is difficult to draw conclusions from the model presented. They feel that mortality rates upon release will have to be reviewed. Note that there is significant variability in the conditions surrounding catch and release from one region to another.

DETERMINATION OF INDICATOR THRESHOLDS FOR THE SCIENTIFIC ADVICE REOPENING DURING YEARS WITHOUT STOCK ASSESSMENT

Indicators to follow during years without stock assessment are numbers per unit effort (NPUE), catches per unit effort (CPUE), and median size. These come from DFO surveys in the northern and southern Gulf and from mobile sentinel fisheries in the northern Gulf. To determine these indicator thresholds to be able to decide on scientific advice reopening during years without stock assessment, Ms. Archambault suggests an approach with limit reference points and upper stock reference points.

- There is some confusion among participants between what is presented (an approach for establishing indicator thresholds for scientific advice reopening between assessment years or a precautionary approach). This confusion arises from use of the term "reference point," which should be limited to the precautionary approach.
- Participants then feel it is too early to be working with thresholds. They agree that determining thresholds or criteria for scientific advice reopening requires further reflection that would apply to a set of species.
- They consider that the recommendation made should be valid for the establishment of a multi-year TAC (2013 and 2014), unless there is a major change in the monitoring indicators from the surveys (NPUE, CPUE, median size). Updating these indicators therefore remains essential.

RESEARCH IDENTIFICATION AND PRIORITIZATION

A list of priority research activities is presented and concerns:

- implementation of a scientific longline survey for the entire Gulf to obtain new indicators and improve the few currently used to assess stock status;
- study of the genetic structure of Atlantic Halibut in the southern Gulf vs. those in the northern Gulf;
- study of the movements, migrations (tagging) and life cycle (otolith microchemistry – complementary to the genetic study);
- "pop-up" electronic tagging;
- review of the conversion factor: whole halibut vs. eviscerated halibut;
- determination, for the Gulf stock, of spawning sites and periods, the planktonic phase and growth of young fish.

Some comments are made:

- This work is considered necessary, but participants recommend against reinventing the wheel by first making maximum use of the information that already exists.
- It is pointed out that the tagging study includes the concern about mortality rates.

CONCLUSION

ASSESSMENT OF STOCK STATUS AND PERSPECTIVES FOR 2013–2014 AND 2014–2015

Ms. Archambault summarizes the positive and negative points regarding stock status. Based on this assessment, she proposes a TAC increase of about 25% for the 2013–2014 and 2014–2015 fishing seasons. The participants discuss this proposal.

- Some industry representatives feel that the estimates of halibut caught in gillnets and released are rather high (these estimates are from the observer sampling program) and are not representative of all fleets. It seems that some of the observers were directed to problem cases, which would increase the estimate.
- With regard to the proposal to increase the TAC by about 25%, Science agrees that stock status indicators are relatively positive and stable, but, as a precaution, does not think that they should exceed 20% of the total (for the two years of the duration of the advice). Gulf halibut reach sexual maturity at a long size and an older age (92 cm, 8–9 years for males and 130 cm, 12–13 years for females).
- However, industry representatives have a more positive opinion. They believe that the stock has reached an unprecedented level, so much so that the abundance indices based on the commercial fishery could peak. They also believe that assessment tools and fishing techniques do not take into account the stock's "explosion."
- Some believe that remaining more qualitative in the recommendation is essential—by not proposing an exact percentage—but others think that establishing guidelines is important to avoid creating too much flexibility.
- Lastly, based on current indices, Science suggests a TAC increase that should not exceed a maximum total of 20% for the next two fishing years. However, the fishers' view remains much more optimistic.

HIGHLIGHTS

The highlights of the assessment are presented and participants share their comments.

- In the first highlight (landings), it is agreed to remove the sections about background information on increases in legal size and about quota reconciliation.
- Regarding the highlight about the values of the abundance and biomass indices in the scientific trawl surveys, it is agreed that they are high and stable. Removing the north-south median size comparison is suggested.
- With regard to the CPUE highlight, it is agreed that CPUEs are quite high and stable in 4RST, but no details will be given about the situation in each division.

- In the highlight on the modal size measured dockside, presenting the mean value for the last two years (2011 and 2012) is suggested. It is also important to indicate that the majority of fish are immature and to present L_{50}s for each sex.
- Participants decide to remove the highlights about the yield per recruit model and halibut discards.

RECOMMENDATION

In light of this assessment, the species' long life cycle and late maturity age, and the lack of information on the stock's productivity, caution should be exercised when deciding to increase catches. Increasing the TAC by a maximum total of 20% for the next two years is therefore suggested.

However, industry stakeholders disagree with this recommendation. In their opinion, the stock is still growing. They consider that the TAC increase should be higher.

APPENDICES

1- PARTICIPANTS LIST

Name	Affiliation
Archambault, Diane	DFO – Science
Ball, Donald	DFO – Fisheries management
Bernier, Denis	DFO – Science
Bourdages, Hugo	DFO - Science
Castonguay, Martin	DFO – Science
Chabot, Denis	DFO – Science
Couillard, Catherine	DFO – Science
Courtemanche, David	DFO – Fisheries management
Courtney, Robert	Fisher (North of Smokey)
Cyr, Charley	DFO – Science
Dallaire, Jean-Paul	DFO – Science
Denis, Marcel	ACPG
Dubé, Sonia	DFO – Science
Dubé, Steeve	RHMCN
Duplisea, Daniel	DFO – Science
Dwyer, Shelley	Newfoundland Governement
Gauthier, Johanne	DFO – Science
Grégoire, François	DFO – Science
Hedderson, Carl	Fisher (Newfoundland)
Lambert, Yvan	DFO – Science
Lambert Koizumi, Catherine	AGHAMM
Légaré, Benoît	DFO – Science
Lemelin, Dario	DFO – Fisheries management
MacDonald, Michael	PEIFA
Maltais, Domynick	DFO – Science
Michaud, Marie-Claire	DFO – Management
Moyen, Emmanuel	UPM Tracadie
Robert, Dominique	CFER – Memorial University
Sainte-Marie, Bernard	DFO – Science
Schwab, Philippe	DFO – Science
Spingle, Jason	FFAW – CAW, TN

2- TERMS OF REFERENCE

Assessment of the Gulf of St. Lawrence (4RST) Atlantic halibut

Regional Peer Review - Quebec Region

February 27, 2013
Mont-Joli, Québec

Chairperson: Bernard Sainte-Marie

Context

The Atlantic halibut commercial fishery in the Gulf of St. Lawrence began at the end of the 19th century. During the first half of the 20th century, this resource was exploited by American and Canadian fleets. Beginning in the second half of the 20th century, exploitation was almost exclusively carried out by the Canadian fleet from the four Atlantic Provinces as well as Quebec. From over 600 t during the 1960s, landings have steadily decreased until the early 80s, totalling 90 t in 1982. Landings increased again in the late 90s and now total 720 t, which is near the level observed 45 years ago.

The directed Atlantic halibut fishery is practiced on a competitive basis and is carried out by longliners. Atlantic halibut represent a by-catch for other fleets, in particular the gillnet Greenland halibut fleet. Overall, landings of Atlantic halibut bycatch in the Gulf were, in 2010, about 11% of total landings of this species.

The resource assessment is done every two years in order to highlight changes in the status of the resource that would justify adjustments to the conservation measures and management plan.

Objectives

Provide scientific advice on the management of the Atlantic halibut stock status in NAFO Divisions 4RST for the 2013 and 2014 fishing seasons. This advice shall include:

- An assessment of the status of the Atlantic halibut stock, based on:
    - commercial fishery statistic following the 2011 and 2012 fishing seasons for the management unit 4RST and NAFO sub-area 3Pn (overall distribution of landings and breakdown by division, fishing gear and month);
    - fishing effort and catch rates for the directed fishery on Atlantic halibut by the longline fleet;
    - commercial sampling data (size structure), including a breakdown by fishing gear (fixed versus mobile gear) and by size group (legal and sub-legal);
    - catch data (distribution, abundance and biomass) and biological data (size), from DFO research surveys conducted in the Gulf of St. Lawrence and from mobile sentinel surveys;

- The conclusions of the yield per recruit model developed for the Gulf Atlantic halibut stock.

- The identification and prioritization of research projects to be considered for the future.

- The determination of indicator thresholds for the Scientific advice reopening for years without stock assessment.

- Perspectives for 2013 and 2014 based on the assessment of the trends of fishery and biological indicators.

Expected Publications

- Canadian Science Advisory Secretariat (CSAS) Science Advisory Report on Atlantic halibut in the Gulf of St. Lawrence (4RST);
- CSAS Proceedings summarizing the discussion.

Participation

- DFO Science and Fisheries Management
- Fishing industry
- Provincial representatives
- Aboriginal Communities / Organizations