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Sciences des écosystèmes
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Canadian Science Advisory Secretariat (CSAS)

Proceedings Series 2019/004

Quebec Region

Proceedings of the regional peer review meeting on the Saguenay Fjord Winter Recreational Groundfish Fishery

**November 21, 2018
Mont-Joli, QC**

**Chairperson: Charley Cyr
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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.

Published by:

Fisheries and Oceans Canada
Canadian Science Advisory Secretariat
200 Kent Street
Ottawa ON K1A 0E6

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csas-sccs@df0-mpo.gc.ca](http://www.dfo-mpo.gc.ca/csas-sccs/csas-sccs@df0-mpo.gc.ca)



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ISSN 1701-1280

Correct citation for this publication:

DFO. 2019. Proceedings of the regional peer review meeting on the Saguenay Fjord Winter Recreational Groundfish Fishery; November 21, 2018. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2019/004.

Aussi disponible en français :

MPO. 2019. Compte rendu de l'examen régional par des pairs sur la pêche récréative hivernale aux poissons de fond dans le fjord du Saguenay ; 21 novembre 2018. Secr. can. de consult. sci. du MPO, Compte rendu 2019/004.

SUMMARY

This document contains the proceeding from the meeting held within the regional assessment process of the Saguenay Fjord Winter Recreational Groundfish Fishery. This review process was held on November 21, 2018 at the Maurice Lamontagne Institute in Mont-Joli. This meeting gathered about thirty participants from sciences, management, province of Quebec and industry. This proceeding contains the essential parts of the presentations and discussions held and relates the recommendations and conclusions that were presented during the review.

INTRODUCTION

The Quebec Region of Fisheries and Oceans Canada (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 November 21, 2018, on the Saguenay Fjord Winter recreational groundfish fishery.

The objective of the meeting 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 Saguenay Fjord Winter recreational fishery for the 2019 and 2020 fishing seasons.

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

CONTEXT

Meeting chairperson Charley Cyr welcomes the participants. He goes over the scientific review's objectives and agenda. After the participants introduce themselves, the biologist in charge of the review, Johanne Gauthier, highlights the contribution of his collaborators. She describes the meeting plan and the Terms of Reference.

She also reviewed the highlights of the last science advisory report produced in 2017.

Mr. Peter Galbraith provided an overview of the circulation and renewal of the waters of the Saguenay Fjord with the new oceanographic data as background information. The waters that renew the Saguenay River are a mixture of waters from the Saguenay itself and from the Estuary. A new temperature and salinity signature caused by the spring flood was observed, along with the replacement of a large portion of the waters of the fjord in less than 2 months (6 months for the head of the fjord). The waters sampled in the fjord's first basin at low tide consisted of waters from the sill exhibiting some of the lowest salinity values ever observed during a tidal cycle and surface waters from the Saguenay. This mixture renews the upper and intermediate layers of water in the fjord's inner basin. The salinity range of the waters at the sill corresponds fairly well to that of the waters 100 km farther away in the St. Lawrence Estuary at depths between 20 and 70 m. Following this presentation, the participants considered the impact of climate change on the oceanographic conditions in the Saguenay Fjord as well as the effect of large tides and the different regimes observed on the influx of larvae and juveniles.

Ms. Gauthier briefly discussed the connectivity between groundfish populations in the Saguenay Fjord and those in the northern Gulf of St. Lawrence. Recruitment in several groundfish species present in the Saguenay Fjord is dependent on the influx of juveniles from the St. Lawrence Estuary. Strong year-classes of redbfish (*Sebastes mentella*) (2011, 2012, and 2013) have been observed in the Estuary, and their abundance is higher than at any time in the last 30 years. Their presence in the Saguenay Fjord has been observed since 2013. Some participants questioned the larval survival rate in relation to spawning by groundfish in the Saguenay Fjord, which appears to be zero for redbfish and cod.

RESOURCE ASSESSMENT

RECREATIONAL FISHERY

Description

Ms. Gauthier presented the context of the winter recreational fishery in the Saguenay region, including the fishing sites, the main groundfish species caught (redfish, Atlantic cod, Greenland cod, turbot), fishing techniques, regulations, and conservation measures. Ice fishing is still very popular in the Saguenay region. In the 2017 and 2018 fishing seasons, an average of 1,376 cabins were set up on the ice between Saint-Fulgence and L'Anse-Saint-Jean. This represents a decrease of nearly 100 cabins compared to the average for the period 1998–2016.

Recreational fishery sampling

Ms. Gauthier briefly described the recreational fishery sampling that has been conducted since 1995 by index fishers, including general guidelines, information collected (biological data, catch per unit effort), sampling coverage by fishing season, and the number of visits per site per year.

Effort

The method used to estimate the total effort deployed on an annual basis was briefly described. Fishing effort, estimated in number of fishermen-days, has decreased over the last 3 years at the La Baie sites and increased in the Saguenay–St. Lawrence Marine Park, more specifically in the town of L'Anse-Saint-Jean. In 2017–2018, the estimated number of fishermen-days for the entire Saguenay region was below the average for the 1996–2016 time series.

Catch rate

Standardized catch rates for the fishery were presented by species and by sector (Saguenay, Baie des Ha!Ha!, Marine Park). Redfish catch rates in the recreational fishery experienced a steep decline before 2007, and then stabilized at a low level and have remained below the historical average since then. The catch rates for Atlantic cod, Greenland cod, and turbot are generally low. However, since 2013, there has been an increase in recreational fishery catch rates for Atlantic cod and turbot, with above-average values for the series.

Total catches

Total catches were presented for each species. In the 2017 and 2018 winter recreational fishery, redfish, Atlantic cod, Greenland cod and turbot accounted for 76%, 14%, 2%, and 8% of the total groundfish catches, respectively.

Fishing success

Since 2004, more than 95% of the fishermen surveyed have not reached the daily catch limit of five groundfish.

- It was mentioned that fishing activity is still ongoing at the time the survey data are collected. In addition, fishing activities in the evening are not covered.
- With the increase in the size of redfish, fishermen believe that fishing success will be better in the coming years. Awareness efforts are being carried out with the aim of limiting catches of small redfish.

Logbooks

The use of logbooks is an initiative encourage in recent years (2015–2018). This approach provides additional information and new data on effort, fishing success, and catch rates. According to logbook data, recreational fishery catch rates have remained stable for all four groundfish species.

- Fishing success is definitely better with the use of sonar.
- Some participants suggested presenting catch rates by site, as is done for sampling.
- According to fishermen, the noise generated in ice fishing villages affects fishing success.
- Fishing outside such a village is not very popular, but some fishermen report good results when they do so. In addition, fishing success in summer is apparently negligible.

RESEARCH SURVEY

Description

A description of the gillnet research survey conducted between 2000 and 2018 was provided. The study area, the CTD profiles and the number of individuals caught annually, by species, were presented.

Estimation of catch rates

Research survey catch rates were used to estimate harvest levels in the recreational fishery. The catch rates show a significant decrease until 2007, followed by stabilization at a low level and below-average values since then. Catch rates for Atlantic cod, Greenland cod, and turbot are generally low.

- According to the participants, the redfish situation is expected to improve in the coming years with the arrival of small redfish.

SIZE STRUCTURE AND BIOLOGICAL PARAMETERS

For each species, the size structures from the DFO science and recreational fisheries survey were presented. The other parameters that were briefly discussed are growth (redfish, turbot, Atlantic cod), condition index (cod) and stomach contents (turbot and cod). Redfish is a slow-growing species that has a long lifespan. Recent redfish cohorts are slowly beginning to recruit to the recreational fishery. In the winter of 2018, their modal size was 20 cm and they accounted for nearly 10% of catches.

- It should be noted that, at the same age, redfish in the Saguenay are smaller than those in the Gulf of St. Lawrence.
- It was mentioned that the cod in the Saguenay appear to be in better condition than those in the northern Gulf of St. Lawrence.

CONCLUSION

FREQUENCY OF ADVISORY REPORTS AND INTERIM YEAR

With regard to the frequency of advisory reports, a science review is held every two years, but indicators are not updated in the interim.

RESEARCH

The following research studies (current and future) were identified:

- NSERC Research Project – Turbot 2015–2018. Genomic variation and connectivity.
 - Estimate the contribution of the various spawning stocks to Greenland halibut nursery areas in the St. Lawrence.
 - Define the population structure of the species in eastern Canada through the use of a new molecular protocol.
 - Determine the genetic connectivity between Greenland halibut in Canadian waters and those off West Greenland.
 - Test the temporal stability of the observed structure.
 - Use otolith chemistry analyses to study the connectivity of Greenland halibut populations and nursery areas in the northwest Atlantic (Saguenay Mission 2016).
- Genomic study on cod
- Genetics – redfish from new cohorts in the Saguenay

SUMMARY AND RECOMMENDATION

The key points of the assessment were presented. Only the most significant comments are covered here.

- From the first key point, it should be noted that this activity is still very popular despite the management measures put in place.
- After this key point, it was decided to add a key point on fishing effort, although the data are uncertain.
- In the key point concerning fishing success based on logbook data, the validity of the increase observed between 2016 and 2018 (12% to 28%), which is considered high, was questioned. Instead, it was decided that the catch rate, which seems to better reflect reality, would be presented. This resulted in a stable situation.
- The wording of the recommendation was adjusted to ensure that it accurately reflected the views of all participants.

Accordingly, the recommendation was worded as follows:

As the groundfish living in the Saguenay are part of a unique ecosystem, protecting the populations is justified in keeping with the precautionary principle. The outlook for winter recreational fishing for redfish in the Saguenay Fjord is encouraging. However, since the new redfish cohorts have not yet fully recruited to the fishery, maintaining a level of effort similar to that of recent years is appropriate for the 2019 and 2020 fishing seasons.

APPENDIX 1 – TERMS OF REFERENCE

The Saguenay Fjord Winter Recreational Groundfish Fishery

Regional Peer Review – Quebec Region

November 21, 2018

Mont-Joli, QC

Chairperson : Charley Cyr

Context

The winter recreational fishery in the Saguenay Fjord is unique in Quebec by its magnitude and the variety of species captured. The main species are redfish, Atlantic and Greenland cod and Greenland halibut. The fishery is currently managed through a fishing season and daily catch limits.

The status of this fishery was last assessed in November 2016. This review will provide scientific advice related to the conservation and management of fishery resources harvested during the winter recreational fishery in the Saguenay Fjord.

Objective

Provide scientific advice on Redfish, Greenland halibut, Atlantic cod and Greenland cod stock status of the Saguenay Fjord. This advice shall include:

- Description of the biology of these species in relation to their habitat;
- Analysis of winter recreational fishery data including catches, fishing effort, catch per unit effort and biological data;
- Analysis of data from the DFO gillnet research including catches, fishing effort and biological data;
- Analysis of logbooks data, a new initiative put in place in 2015;
- Perspectives for the 2019 and 2020 fishing seasons based on available indicators;
- The determination of the monitoring process of these populations during the interim years;
- Identification and prioritization of research projects to be considered for the future.

Expected publications

- Science Advisory Report
- Proceedings
- Research document

Participation

- Fisheries and Oceans Canada (DFO) (Science and Fisheries Management sectors)
- Parks Canada
- Provincial representatives
- Recreational Fishing industry
- Academia

APPENDIX 2 – LIST OF PARTICIPANTS

Name	Affiliation
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