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**Proceedings of the zonal peer review meeting of the Assessment of Redfish
stocks (*Sebastes mentella* and *S. fasciatus*) in Units 1 and 2**

**January 20-22, 2020
Mont-Joli, Quebec**

**Chairperson: Hugues Benoit
Editor: Sonia Dubé**

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

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 proceedings from the meeting held within the zonal assessment process on redfish in Units 1 and 2. This review process was held on January 20-22, 2020 at the Maurice Lamontagne Institute in Mont-Joli. This meeting gathered about sixty participants from science, management and industry. These Proceedings contain the essential parts of the presentations and discussions held, and report the recommendations and conclusions that were presented during the review.

INTRODUCTION

The Quebec and Newfoundland and Labrador Regions of Fisheries and Oceans Canada (DFO) are responsible for assessing several stocks of fish and invertebrate species harvested in the Estuary and Gulf of St. Lawrence. Most of these stocks are periodically assessed as part of a regional or zonal advisory process. This document consists of the proceedings of the zonal meeting held on January 20-22, 2020, on the assessment of the Units 1+2 redfish stocks held at the Maurice Lamontagne Institute in Mont-Joli, QC.

The objective of the review was to determine whether there are any changes in resource status and whether management plans need to be adjusted based on the chosen conservation approach, the ultimate goal being to formulate a Science Advisory Report on the assessment of Units 1+2 redfish stocks.

These Proceedings report on the main points of the presentations and deliberations during the zonal stock assessment. Appendices 1, 2 and 3 detail the Terms of Reference for the review, the meeting participants and the agenda respectively. The Proceedings also list the recommendations made by meeting participants.

CONTEXT

The meeting chair, Hugues Benoit, reviewed the peer review objectives and process, and noted that Dominique Robert would act as external reviewer. One of the two biologists who had conducted the review, Caroline Senay, began her presentation with a description of the terms of reference. She then outlined a few key elements of Redfish biology: distribution, habitat, growth, reproduction and recruitment. The two Redfish species are distributed according to depth. *Sebastes fasciatus* dominates at depths of less than 300 m (except in the Laurentian Fan where it occurs in deeper waters), and is found along the slopes of channels and on banks, while *Sebastes mentella* predominates mostly in the main channels, at depths of 200 m to 400 m.

Several presentations were then given. Geneviève Parent outlined the preliminary results of her work on the genetic structure of populations. In addition to the two known ecotypes of *S. mentella* (deep-water and shallow water), her work had confirmed the presence of a new Gulf ecotype (Units 1 and 2) and had revealed the existence of an unknown group of Redfish, as well as gene flow between the shallow-water and Gulf ecotypes. At least five *S. fasciatus* populations had been identified, with gene flow occurring between the populations. Tom Bermingham described the method used to separate the catch by species based on the anal fin ray (AFR) count, a simple, effective, low-cost approach. Jordan Ouellette-Plante briefly discussed his work on Redfish diet, presenting the methodology used and results obtained. Small Redfish consume mainly zooplankton and other invertebrates and, as they grow, feed primarily on shrimp and fish. Significant differences in prey species were noted between the 1990s and 2015-2019, including a higher proportion of capelin in the diet in the 1990s and increased consumption of Northern Shrimp in 2015-2019.

- All participants agreed on the importance of continuing the work on population genetics to obtain a more accurate picture of stock structure, particularly in *S. fasciatus*. It was also agreed that sampling of *S. fasciatus* was still extremely limited, although a stock structure was clearly present.
- The hypothesis that juveniles or larvae migrate through the Strait of Belle Isle was put forward to explain the gene flow between the shelf and Gulf ecotypes of *S. mentella*.

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- In *S. mentella*, a specific signature is observed that includes a legacy of introgressive hybridization passed down from generation to generation.
 - There is good agreement between the AFR count results and the microsatellite marker results. In the spring of 2019, field training was given on the AFR count method and on separation of catch by species in the fishery, not just in research surveys.
 - The increased shrimp consumption by Redfish is currently linked to the larger size of Redfish and the habitat overlap of the two species. This is the case primarily in the northwestern Gulf. Industry representatives would like the impact of Redfish on shrimp to be more explicitly addressed. Concerns were raised about this issue. It was noted that efforts were under way to better document the situation.

RESOURCE ASSESSMENT

DESCRIPTION OF THE FISHERY

Caroline Senay described the fishery in Unit 1. In the current 2019-2020 management year (preliminary data dated December 2019), 592 t of Redfish have been landed in Unit 1, under a combined TAC for the index fishery (2,000 t) and experimental fishery (3,950 t). From 2017 to 2019, the catch per unit effort (CPUE) index in Unit 1 increased by a factor of 6.7, reaching the highest value recorded since 1980.

Bob Rogers described the fishery in Unit 2. A decline in CPUE values has been observed since 2014, and the 2018 and 2019 values are the lowest in the time series. However, significant problems were raised about the analysis of fishery data in this unit, and it was not considered reliable for this assessment. In particular, discrepancies were noted in landing figures for recent years.

Recent results from the Unit 1 experimental fishery were also presented. In July 2019, a selectivity experiment using a covered cod end was conducted in Unit 1 to compare the size composition of catches using a traditional regulation 90 mm diamond mesh cod end and three T90 mesh cod ends (90 mm, 100 mm and 110 mm). The results, presented by Paul Winger, showed that the traditional cod end design is not size selective, capturing over 97% of individuals in all size classes available. The T90 cod end appears to reduce the retention of small Redfish to 30%, but also resulted in a significant increase in the number of Redfish gilled in the mesh. The traditional design likely results in higher mortality of small Redfish, but such mortality is easier to quantify and can be managed. Another project presented by Erin Carruthers, which began in 2018, was aimed at examining various strategies for minimizing catches of small fish and bycatch in the Redfish fishery, taking account of a range of factors (gear, season, region and depth).

- Some participants suggested that landings (and CPUE) in Unit 2 did not reflect reality, particularly in recent years. They felt that they were underestimated.
- In both units, fishing effort appears to have been limited by several factors, including market conditions and fishery closures due to catches of small fish and bycatch. Participants were reminded that Unit 1 is still under moratorium and that it is difficult to reach the TAC under these conditions.
- It was clearly stated that the CPUE data would not be used for the indicators in the stock assessment.

-
- Industry representatives suggested that an increased harvest in Unit 1 would provide the data required for a more accurate picture of the situation.

Bycatch represented 8.8% of total landings in the index and experimental Redfish fisheries in Unit 1 from 2000 to 2019. The main bycatch species were Greenland Halibut, White Hake, Atlantic Cod and Atlantic Halibut. According to historical data (1986-1990) and preliminary analyses—which aimed to identify means to minimize undesirable bycatch—bycatch and catches of small Redfish could be reduced by opting for midwater trawls rather than other fishing gear, fishing at depths of over 300 m and not fishing in the Laurentian Channel in winter. However, reducing bycatch of a number of species could be difficult. As with total landings, discrepancies were noted for bycatch data in Unit 2 and were deemed inadequate to use in this assessment.

- Given that the time period used in the analyses (1986-1990) was extremely limited and that the abundance of the different bycatch species had changed since 1990, it is risky to generalize to the current situation. Participants noted that the results should be interpreted with caution.
- Participants expressed concern, however, about the potential impact of increasing the fishing effort for Redfish on bycatch of a number of species.

OCEANOGRAPHIC CONDITIONS

Peter Galbraith provided a brief overview of oceanographic conditions. He reported that deep-water temperatures in the Gulf of St. Lawrence were increasing. The bottom area covered by waters warmer than 6°C remained quite high in 2018 in Anticosti Channel, Esquiman Channel and the central Gulf, and increased sharply to record levels in the northwest Gulf.

- Positive anomalies (warm events) similar to those in the 1980s were observed and could explain the increase in recruitment.
- It was noted that a project was underway to assess thermal stress tolerance in Redfish.
- It was reported that the warming trend in surface-water and cold-intermediate-layer temperatures could affect Redfish larvae.
- The warming observed was expected to continue in the coming years.

RESEARCH SURVEYS

Research survey indices were calculated by unit and by species. In Unit 1, after 30 years of low recruitment, the 2011 to 2013 cohorts were the most abundant ever observed in the research surveys. The individuals in these cohorts consisted mainly of *S. mentella*, with the genetic signature of the Gulf of St. Lawrence population, and were distributed throughout Unit 1.

In Unit 1, the total minimum trawlable biomass in the 2019 research survey was estimated at 4,365,000 t for *S. mentella*, the highest observed in the time series (which began in 1984). Redfish over 22 cm (minimum legal size) accounted for 3,044,000 t of this amount, and those over 25 cm accounted for 497,000 t. The total minimum trawlable biomass of *S. fasciatus* in the 2019 research survey was estimated at 78,000 t, suggesting a decline relative to 2017. Of this amount, 57,000 t corresponded to individuals over 22 cm and 18,000 t to those over 25 cm. In the summer of 2019, the modal size of 2011 to 2013 Redfish cohorts was 23 cm. If the anticipated growth of these cohorts continues, 51% of individuals in the 2011 cohort should be over 25 cm by 2020.

With respect to Unit 2, concerns were raised about the analysis of the research survey data, as they had been for the fishery data. It therefore appears to be difficult to adequately assess the status of Redfish stocks in Unit 2 at this time.

- It was agreed that the Science Advisory Report would cover only the stock assessment of the two Redfish species in Unit 1.
- The massive increase in *S. mentella* could have significant repercussions for the ecosystem, mainly through increased predation on Northern Shrimp, particularly in Unit 1.
- With reference to the decline of *S. fasciatus* in Unit 1 and 2, participants wondered if the species had possibly migrated outside the Gulf, as was observed in the 1980s. Alternatively, they raised the possibility that the corrections made to the abundance calculations to compensate for the lack of sampling of certain strata during the 2019 Unit 1 survey may not have adequately corrected for a potential bias towards *S. fasciatus*. They also wondered whether the decline could be due to species attribution errors in the counts. These questions remain unanswered for the time being.
- Several hypotheses were proposed to explain the strong recruitment from 2011 to 2013 in Units 1 and 2, including a good match between larval development and the presence of calanoid copepods, larger females producing better-quality larvae, and an ice-free winter.

PRECAUTIONARY APPROACH

A Limit Reference Point (LRP) and a proposed Upper Stock Reference (USR) were estimated for both species in Management Units 1 and 2, based on surveys in Unit 1. For *S. mentella*, the estimated LRP and USR were 43 kt and 265 kt, respectively, and for *S. fasciatus*, they were 25 kt and 168 kt, respectively. The reference points for both species are based exclusively on Unit 1 data since the time series for survey data for this area (1984-present) is much more extensive than that for Unit 2 (2000-present; conducted biennially), and includes periods of both high and low abundance for these stocks.

In 2019, according to empirical reference points, *S. mentella* was well above the proposed USR and therefore was considered to be in the healthy zone. Estimates of adult abundance for 2019 were greater than or equal to the levels that preceded the declines that began in the mid-1980s and that had prompted the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) to characterize the designatable unit in the Gulf of St. Lawrence and Laurentian Channel (equivalent to Units 1 and 2) as Endangered in 2010. In 2019, based on empirical reference points, *S. fasciatus* was located between the LRP and proposed USR, and therefore considered to be in the cautious zone.

- Participants were reminded that the two Redfish populations in Units 1 and 2 have been designated by COSEWIC (*S. mentella* as Endangered and *S. fasciatus* as Threatened). Based on empirical reference points, the spawning stock biomass of *S. mentella* is well above the USR. Given the stock's current status, participants believe that COSEWIC should reassess its status designation.
- Given that biomass at the maximum sustainable yield (B_{msy}) is unknown for both species and given the sporadic and unique nature of Redfish recruitment, it appears that it would be difficult to apply the concept of recruitment overfishing to determine reference points.
- With respect to the LRP, which was estimated as being the lowest level of spawning stock biomass (SSB) from which a recovery of the stock occurred (B_{rec}), in this case the geometric mean of the SSB of 2010-2012 in the Unit 1 surveys, some participants were still perplexed about the reference to post-collapse biomass. Some believe that a series of exceptional

circumstances allowed the stock to recover. However, the use of B_{rec} is considered acceptable for species with recruitment dynamics similar to those of Redfish (e.g., scallops).

- A USR was proposed and determined based on data from the Unit 1 survey, which were conducted during a period of relatively high landings and SSB (1984-1990 for *S. mentella* and 1984-1992 for *S. fasciatus*). The USR was estimated at 80% of the geometric mean of the SSB during these periods. Some participants wondered why 80%. This figure appears to be a convention. In addition, current environmental conditions differ from those found during the reference periods. However, it is believed that these SSB values provide a defensible baseline for what was previously considered to be a “healthy” stock.
- The survey in Unit 2 was not used to define reference points. This survey started in 2000, after the target period used to define the USRs. Proposed reference points will need to be revised in the near term once new information is accumulated on the recruitment and dynamics of the Redfish species in Unit 2.
- Consequently, the proposed reference points would have to be reviewed in the medium term once new information became available.

WINTER FISHERY

Caroline Senay gave a brief update on Redfish spawning and movements towards NAFO divisions 3Pn and 4Vn and provided advice on the merits of maintaining the closure of the winter fishery.

- The point was made that the recent increase in Redfish might suggest that the closure of the winter fishery is not necessary for the species’ recovery. However, the closure could be beneficial in limiting bycatch.
- According to some industry representatives, it is time to examine what is happening in winter, in order to get a clearer picture of the situation.
- It was reported that DFO in Quebec would conduct new winter surveys, which would provide very useful information in this regard.

CONCLUSION

ONGOING PROJECTS

- FSCP reproduction: Develop a visual chart and update the maturity ogive.
- Catch monitoring: Perform AFR counts through the at-sea observer and sampler programs to monitor commercial catches by species.
- Bycatch: Continue spatial analyses of bycatch.
- Ecophysiological experiments: Metabolism, growth, temperature tolerance, pH, genetic identification, etc.
- Acoustic index: Develop acoustic biomass indices derived from data obtained from midwater trawls.

INTERIM YEAR AND NEXT ASSESSMENT YEAR

The next assessment is scheduled for the winter of 2022. Presently there is no established process for interim year updates for Redfish in Units 1 and 2. The possibility of updating the

indicators from the DFO and AGC (Atlantic Groundfish Council, previously GEAC) surveys in the winter of 2021 was discussed but not committed to as interim year advice has not been solicited by fisheries management.

SCIENCE ADVISORY REPORT REVIEW

Participants briefly reviewed the draft of the Science Advisory Report in plenary. The main comments made are summarized by section.

Context: In addition to the note on Unit 2, it should be stated that the reference points for both species in Units 1 and 2 have been identified.

Genomic structure of stocks: Indicate that the sample size from the Laurentian Fan region used in the new genomic analyses could neither confirm nor refute the previous conclusions concerning a distinct *S. fasciatus* population in this region.

Recruitment: Where reference is made to the genetic analyses of the 2011 and 2012 cohorts, remove 2012.

Ecosystem: Regarding the estimate of the quantity of Northern Shrimp consumed annually by Redfish, indicate that this estimate remains unreliable.

Bycatch: Add the statement that the data used were limited to 1986-1990; revise the colour code for Figure 9 to make it clearer.

Winter closures: At the end of this section, emphasize the fact that the effectiveness of fishery closures in reducing bycatch of vulnerable species should be reassessed.

Reference points: Provide additional context to justify the choice of reference points; indicate that data from the Unit 2 survey were not used in setting reference points and why.

Sources of uncertainty: Other sources of uncertainty have been identified (target period used to establish reference points, environmental changes, stock structure and lack of information on Redfish movements and distribution outside the summer period and on the winter diet).

Conclusions: Address the two species separately; add that the full implementation of the precautionary approach (PA) will require the definition of a limit reference point and harvest control rules for the fishery, and that it is important to take information from Units 1 and 2 into account to ensure that the PA represents all the stocks of both Redfish species.

SUMMARY

The key points of the assessment were presented and commented on by participants. Only comments on the content are reported:

- In the point on Unit 1 landings, the following should be specified: “under a combined TAC for the index fishery (2,000 t) and experimental fishery (3,950 t).”
- With respect to the Unit 1 CPUE, it should be indicated that it increased by a factor of 6.7 between 2017 and 2019, reaching the highest value recorded since 1980.
- In terms of the minimum trawlable biomass during the research survey, it is suggested that separate key points be drafted for each species and that information be provided for fish over 22 cm (minimum legal size) and fish over 25 cm. For *S. mentella*, the fact that it is the highest value of the series will be mentioned and, for *S. fasciatus*, the decline relative to 2017 will be mentioned.

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- The key point on reference points should be divided into three separate sentences to improve clarity. The first should present LRP and USR values by species. The second and third should describe adult abundance in 2019 in relation to the LRP and USR values, first for *S. mentella* and then for *S. fasciatus*.
 - In the next key point, it should be stated that the relative biomass of Redfish is unprecedented and could have major ecological impacts on other species, without specifying the species in question.
 - In the key point on bycatch and the presence of small Redfish in the catches, it should be stated that the information reflects historical knowledge and the results of the preliminary analyses. Participants were very concerned about this issue.
 - It was decided that the key point on the winter fishery should be removed. It will be addressed in the body of the report.
 - After discussion, it was also decided that the key point on outlook will be removed.

Participants agreed that the biologist Caroline Senay and meeting chair would review the report in light of the comments made at the meeting and that a penultimate version in both official languages would be distributed to participants the following week for final comments.

APPENDIX 1- TERMS OF REFERENCE

Assessment of Redfish stocks (*Sebastes fasciatus* and *S. mentella*) in Units 1 and 2 in 2019

Zonal Peer Review – Quebec and Newfoundland & Labrador Regions

January 20-22, 2020

Mont-Joli, Qc

Chairperson : Hugues Benoît

Context

Redfish in Units 1 and 2 consists of two different stocks: *Sebastes mentella* and *S. fasciatus*. These stocks are distributed in the Gulf of St. Lawrence, as well as in the Laurentian Channel and Laurentian Fan Regions south of Newfoundland and northeast of Nova Scotia. The lack of substantial recruitment and a significant decrease in stock biomass led to the establishment of a moratorium in 1995 in Unit 1. An index fishery has been authorized since 1998 and the total allowable catch is 2 000 tons (t) per year since 1999. In Unit 2, the total allowable catch have been at 8 500 t per year since 2006.

From 2011 to 2013, the recruitment of three large cohorts was observed. In recent years, the abundance and biomass has risen above the historical average, *S. mentella* being in the healthy zone and *S. fasciatus* in the cautious zone according to a Management Strategy Evaluation completed in 2018. In Unit 1, an experimental fishery was then established with an additional TAC of 2 500 t for 2018-2019 and 3 950 t for 2019-2020. In both Units, total allowable catches have not been completely collected in recent years. The imminent approach to recruitment of these fish into the commercial fishery therefore requires a review of available data to facilitate decision-making by fisheries management.

Objectives

Provide scientific advice on the status of Units 1 and 2 Redfish stocks. Whenever possible, assess separately the status of each species, namely *S. mentella* and *S. fasciatus*. This advice will include:

- Description of the biology and distribution of Redfish;
- Summary of oceanographic and ecosystem conditions;
- Provide an update on movement of Redfish into 3Pn, 4Vn and reproduction, and advice on the merit of continuing the current fishery winter closure;
- Description of Redfish fishery including landings, fishing effort, catch per unit effort; biological data, and bycatch of other species in the Redfish fishery;
- Update of abundance and biomass indices from industry and DFO surveys, including size structure and geographic distribution of catches;
- Identification of Limit Reference Point and proposal of Upper Reference Point in accordance with the precautionary approach, as well as stock status relative to the reference points for each stock;
- Determination of the process to provide advice during the interim years, including a description of conditions or indicators that may warrant a full stock assessment earlier than originally planned;
- Short-term stock perspectives based on available indicators;
- Progress and results of experimental projects carried out in 2018 or in progress in 2019;
- Identification of gaps that would guide experimental projects in upcoming years.

Expected Publications

- Science Advisory Report
- Proceedings
- Research Document(s)

Participation

- Fisheries and Oceans Canada (DFO) (Science and Ecosystems and Fisheries Management sectors)
- Aboriginal Communities/Organizations
- Provincial Representatives
- Fishing Industry
- Academics and Other External Experts

References

Senay, C., Gauthier, J., Bourdages, H., Brassard, C., Duplisea, D., et Ouellette-Plante, J. 2019. [Redfish \(*Sebastes mentella* and *S. fasciatus*\) stocks status in Unit 1 in 2017](#). DFO Can. Sci. Advis. Sec. Res. Doc 2019/002. *viii* + 63 p.

APPENDIX 2- LIST OF PARTICIPANTS

Name	Affiliation	Jan 20	Jan 21	Jan 22
Archibald, Devan (tel)	Oceana Canada	X	X	X
Bayes, Shannon (tel)	Marine Institute, Memorial Univ.	X	X	X
Beauieu, Jérôme	DFO – Fisheries management	X	X	X
Benoît, Hugues	DFO – Science	X	X	X
Bermingham, Tom	DFO – Science	X	X	X
Bernier, Denis	DFO – Science	X	-	-
Bond, Marc Olivier	Fisher	X	-	-
Bond, Réal	Fisher	X	-	-
Bordeleau, Xavier	DFO – Science	X	X	-
Boudreau, Mathieu	DFO – Science	X	X	X
Boudreau, Paul	Madelipêche	X	X	X
Bouchard, Éline	DFO – Fisheries management	X	X	X
Bourdages, Hugo	DFO – Science	X	X	X
Bourdages, Yan	ACPG	X	X	X
Bottke, Lauren	DFO – Fisheries management	X	X	X
Bruneau, Benoît	DFO – Science	X	-	-
Brassard, Claude	DFO – Science	X	X	X
Brown-Vuillemin, Sarah	ISMER/UQAR	X	X	-
Burns, Corinne	ISMER/UQAR	X	X	X
Carruthers, Erin (tel)	FFAW	X	X	X
Castonguay, Martin	DFO – Science	X	X	-
Chabot, Denis	DFO – Science	X	X	X
Chamberland, Jean-Martin	DFO – Science	X	X	X
Cormier Baldwin, Johanne (tel)	MAAF – NB	X	X	X
Cottier, Delphine	DFO – Science	X	X	-
Coussau, Lola	ISMER/UQAR	X	X	-
Dennis, Bill	FLR – NL	X	X	X
D'entremont, Alain	Mersey Seafoods	X	X	X
Desgagnés, Mathieu	DFO – Science	X	X	X
Dubé, Sonia	DFO – Science	X	X	X
Duplisea, Daniel	DFO – Science	X	X	X
Dupuis, Vincent	ACPG	X	X	X
Élément, Patrice	ACPG	X	X	X
Faille, Geneviève	DFO – Science	X	X	-
Ferguson, Annie (tel)	MAAF – NB	X	X	X
Gauthier, Johanne	DFO – Science	X	X	X
Gumez, Santiago	ISMER/UQAR	X	-	-
Isabel, Laurie	MPO – Sciences	X	X	X
Karbowski, Chelsey	Oceans North	X	X	X
Krohn, Martha (tel)	DFO – Science	X	X	X
Labbé-Giguère, Stéphanie	DFO – Fisheries management	X	X	X
Lacroix-L, Claudie	DFO – Science	X	-	-
Lanteigne, Jean	FRAPP	X	X	X
Lapierre, Daniel	DFO – Fisheries management	X	X	X
Leblanc, Guy	Fisher	X	-	-
Lussier, Jean-François	DFO – Science	X	X	-
Marquis, Marie-Claude	DFO – Science	X	-	-
Martinez, Maria	ISMER/UQAR	X	-	-
Menimo, Tonka	MAPAQ	X	X	X
Méhot, Chantal	DFO – Science	X	X	X
Montagnac, Valentin (tel)	Mérinov	X	X	X

Name	Affiliation	Jan 20	Jan 21	Jan 22
Nilo, Pedro	DFO – Science	X	X	-
Nozères, Claude	DFO – Science	-	-	X
Ouellette-Plante, Jordan	DFO – Science	X	X	X
Plourde, Stéphane	DFO – Science	X	X	X
Parent, Geneviève	DFO – Science	X	X	X
Pomerleau, Corinne	DFO – Science	X	X	X
Quillet, Étienne	ISMER/UQAR	X	X	X
Robert, Dominique	ISMER/UQAR	X	X	X
Robichaud, Roger	DAAF – NB	X	X	X
Rogers, Bob (tel)	DFO – Science	-	X	X
Roussel, Eda	ACAG/FRAPP	X	X	X
Sandt-Duguay, Emmanuel	AGHAMM - GMRC	-	X	X
Saunders, Jennifer	DFO – Fisheries management	X	X	X
Scallon-Chouinard, Pierre-Marc	DFO – Science	X	X	-
Senay, Caroline	DFO – Science	X	X	X
Smith, Andrew	DFO – Science	X	X	X
Spingle, Jason	FFAW	X	X	X
Tourangeau, Jean-Daniel	DFO – Science	X	-	-
Vadboncoeur, Émile	DFO – Science	X	-	-
Vascotto, Kris	GEAC	X	X	X
Voutier, Jan	Kalebay Seafood	X	X	X
Winger, Paul (tel)	Marine Institute, Memorial Univ.	X	X	X

APPENDIX 3- AGENDA

Redfish stocks assessment in Units 1 and 2

January 20-22, 2020

Maurice Lamontagne Institute, Mont-Joli, Room A-582

Chairperson : Hugues Benoît

January 20, 2020 – Monday

1 pm	Chair note	Chair
	Terms of reference	
	Redfish biology	C. Senay
	Stocks genetic structure	G. Parent
	Species identification	T. Bermingham
	Redfish diet	J. Ouellette-Plante
3 pm	Break	
3:15 pm	Commercial fishery	C. Senay, B. Rogers
	Bycatch	C. Senay

January 21, 2020 – Tuesday

Ench	Summary day 1	Chair
8:30 am	Commercial fishery discussion (if needed)	All
	Ecosystem changes	P. Galbraith
	Experimental fishery	FFAW, P. Winger, S. Bayse
	Research surveys	C. Senay, B. Rogers
10:15 am	Break	
10:30 am	Research surveys (continued)	C. Senay, B. Rogers
	Growth projection	C. Senay
12:00 am	Lunch	
1 pm	Reference points	C. Senay
	Fishery closures	C. Senay
3 pm	Break	
3:15 pm	Ongoing research projects	C. Senay
	Advice review	All

January 22, 2020 – Wednesday

8:30 am	Chair note	Chair
	Advice review (continued)	All
10:15 am	Break	
10:30 am	Process for the next advice	
