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[Adopted]

38TH ANNUAL MEETING - SEPTEMBER 2016

**Revise the Workplan for the
Greenland halibut (GHL) Management Strategy Evaluation (MSE) Review**

Noting that In accordance with the NCEMS, the current MSE-based plan for GHL will be in place until the end of 2017, i.e. the current Harvest Control Rule is to be applied in 2017;

Recognizing the critical importance of completing the review of the GHL MSE plan in time for the 2017 Annual Meeting to enable it to be implemented for the 2018 fishing season;

Highlighting the need for Contracting Parties to commit the necessary resources to undertake this high priority work;

Recalling that the April 2016 WG on RBMS established a workplan for the review of the MSE that identified a stock assessment to be completed during the June SC and the workplan noted that this timeline may require adjustment;

Noting that Scientific Council has advised that the completion of a stock assessment was not possible at its 2016 June meeting;

Further noting that due to amount of work required, Scientific Council is unable to complete stock assessments for both 3M Cod and 2+3KLMNO Greenland halibut in April, 2017;

Recognizing that in order to complete the GHL MSE Review within the timeline previously agreed to by Fisheries Commission in 2014 that the 3M Cod benchmark assessment will have to be delayed until 2018;

Recognizing that ongoing work to update the PA Framework may inform the development of a new Harvest Control Rule for Greenland halibut but does not preclude the work on the review from being completed;



To maintain the commitment to implement a new GHM MSE plan for 2018 fishing season, it is proposed that the MSE workplan be revised as follows:

Revised Workplan for the GHM MSE Review (September 2016)

At the 2015 NAFO Annual Meeting, the Fisheries Commission instructed the *Joint FC-SC Working Group of Risk Based Management Strategies* to undertake discussions on finalizing an approach and work plan to enable the comprehensive review of the 2+3KLMNO Greenland halibut MSE scheduled for 2017.

Below is an overview of the proposed key steps to be undertaken in completing this review. It should be noted that the steps are not considered prescriptive and there is possible flexibility in their sequencing, and/or some steps may take place concurrently.

Step I - NAFO Annual Meeting - September 2016

1. Contracting Parties identify MSE Expertise / Commit resources necessary to undertake the review
2. Adoption of a revised workplan

Step II - October/November 2016

1. Greenland halibut catch for period 2011-15 agreed upon by Scientific Council
2. Scientific Council / CPs to make fishery and survey data available for MSE review

Step III - FC-SC RBMS WG - [January - February 2017]

1. Review/Discussion of elements which were the basis of current MSE (e.g. management objectives, performance statistics, HCR including constraints, etc.) [see Annexes 5.I and 5.II]
2. Possible identification of candidate HCRs

Step IV - Scientific Council - April 2017

1. Greenland halibut stock assessment
2. Feedback on performance of existing management strategy, including identification of possible deficiencies / areas for improvement (i.e. lessons learned)
3. Agreement on final data set / input data to be applied in the MSE

Step V - Scientific Council - June 2017

1. SC review and confirmation of final set of operating models

Step VI FC-SC-RBMS WG - August 2017¹

1. Review MSE Results/ Performance of Candidate HCRs
2. Consider possible refinements to management objectives, performance statistics, and/ or HCR formulations

Step VII FC-SC WG-RBMS - Prior to Annual Meeting in 2017

1. Recommendation to FC on Adoption/ Updates to GHM HCR

Step VIII - NAFO Annual Meeting - September 2017

1. Adopt new/ updated Management Strategy / HCR
2. TAC decision for 2018

¹ RBMS to reconvene as necessary to refine HCR

Annex 5.I – Overview of Key Inputs from Initial GHL MSE formulation

Management Objective – ‘An exploitable biomass of 5+ year classes of 140 000 tonnes on average ...’ [NCEMs Article 10.2]

Milestone - Average exploitable biomass for the period 1985-1999 with associated timeline of 2031

Performance Statistics

1. The probability of the decline of 25% or more in terms of exploitable biomass from 2011 to 2016 is kept at 10% or lower (with the caveat that should the risk tolerance level of 10% unduly constrain the tuning of the Harvest Control Rule such that a rule cannot be developed to satisfy this or other constraints, then flexibility is provided to consider a risk tolerance level of up to 25%);
2. a) The probability of annual TAC variation of greater than 15% be kept at 25% or lower and
b) The probability of variation of TAC more than 25% over any period of 3 years should be kept at 25% or lower. If the conditions a) and b) are not met, then an alternate performance target should be considered as follows: c) The TAC should not be below 10 000 t for the period 2011-2015 in any one year with a probability of 25% on a year by year basis;
3. The magnitude of the average TAC in the short, medium and long term should be maximized;
4. The probability of failure to meet or exceed a milestone within a prescribed period of time should be kept at 25% or lower.

Annex 5.II – Adopted Harvest Control Rule (2010-17)

$$\text{TAC}_{y+1} = \text{TAC}_y (1 + \lambda \times \text{slope})$$

where:

slope = is based on the average trend in biomass from three survey indices (the Canadian Autumn Div. 2J3K index (“F2J3K”), the Canadian Spring Div. 3LNO index (“S3LNO”), and the EU Flemish Cap index covering depths from 0-1400m (“EU1400”)) over the previous five years.

λ = is an adjustment variable for the relative change in TAC to the perceived change in stock size. The value of λ is 2 if the average slope is negative, and 1 when the slope is positive.