DRAFT Atlantic Cod Stock Structure Working Group (ACSSWG)

Last update: 16 May 2016

Request Feedback on:

- General Framework
- Objectives
- Potential WG participants
- Balance between Cod experts and Stock ID experts (50:50? 20:80? 80:20?)
- Draft Terms of Reference
- Timing – Propose finalizing in May-June 2016

Objectives of ACSSWG:

1. Determine the most appropriate representation of Atlantic Cod biological stock structure for use in NEFSC Stock Assessments based on currently available information. Most appropriate is defined as having the greatest scientific support and that can be accurately captured in currently available data and assessment model frameworks.
2. Identify high priority research that would contribute significantly to the issue of cod stock structure.
3. Make recommendation for stock/management units for use in assessment before running assessment models
4. Subsequent potential benchmark assessment, reference determination and quota setting explicitly not part of this Working Group
5. ACSSWG would encourage a transparent process (e.g., industry members on WG, public meetings)

   Based largely on:

   A Proposed Process for the Evaluation of the Stock Structure of Atlantic Cod (Gadus morhua) in NAFO Divisions 4X, 5YZ and 6ABCD

   And

   A Meeting among Loretta O'Brien, Mike Palmer, Mark Terceiro, and Jon Hare 11 Feb 2016

Step 1 Draft documents for WG to use (Palmer, O'Brien, Hare)

- stock define the term
- studies to review

- criteria for evaluating studies
- criteria for weight-of-evidence approach
- criteria for data evaluation
- criteria for model evaluation
- criteria for addressing differences of opinion in WG

Step 2 Contact DFO about participation

Step 3 - Form WG (follow SAW/SARC process)

- Palmer, O'Brien, and Hare - NEFSC reps
- publish request for WG applications following the (SAW/SARC process); other experts - identify specific expertise based on expertise of Canadian scientists (if participating)
    - desired expertise: genetics, otolith microchemistry, tagging, oceanography, phenotypic traits, interdisciplinary approach
    - Specific people to ask: DFO co-chair/ Jamie Cournane / Jake Kritzer / Lisa Kerr
- Others to specifically encourage?
- Include invitations to industry for representation as Cod experts
- GARFO Observer / NEFMC Observer

Jon Hare spoke briefly with Lisa Kerr at the Maine Fishermen's Forum re: the ICES Stock ID Working Group. The WG is composed of technical experts, not species experts. For example, a geneticists with expertise in stock structure studies not necessarily and cod genetics researcher. Balance between these two approaches.

Step 4 - Initial WG Meeting (NEFSC draft and then provide to WG)

- review WG ToRs
- develop WG definition for "stock"
    - use draft from Step 1 as starting point
- identify studies to review
    - use draft from Step 1 as starting point
- develop criteria for evaluating studies
    - use draft from Step 1 as starting point
- identify weight-of-evidence criteria for evaluating stock structure alternatives
    - use draft from Step 1 as starting point
- identify criteria for evaluating data and modeling pro's and con's
    - use draft from Step 1 as starting point
- discuss how differences in opinion will be incorporated into the WG processes

- use draft from Step 1 as starting point

Step 5 - Review stock structure studies

- identify types of information used
- determine stock structure hypothesis supported
- evaluate strength of information based on specified criteria
- identify strengths and weaknesses of each study
- identify research gaps and rank gaps by importance and ability to address over the short and long-term. Gaps that can be addressed in the short-term (1 year or less) should be completed before step 3.

Step 6 - Develop stock structure alternatives

- develop weight-of-evidence metric for each stock structure alternative

Step 7 - Evaluate assessment modeling challenges presented by each stock structure alternative

- define pro's and con's from a data and modeling perspective
- develop data / assessment metric for each stock structure alternative
- this does not involve using various alternatives in stock assessment models; rather this is an evaluation of the ability of current data and models to support use of each stock structure alternative defined
- identify data and modeling gaps that constrain the use of stock structure alternatives

Step 8 – Scientific Peer-review of ACSSWG Efforts To Data

- a review of the science
- evaluation of alternatives and weight-of-evidence

  WG can make changes, adjust, and add too based on peer-review (e.g., not a pass / fail, but a constructive review)

Step 9 - Working group defines preferred alternative(s) stock/management units

- Goal would a consensus alternative or set of alternatives
- If consensus is not reached, multiple alternatives or sets of alternatives would be developed

Step 10 - make research recommendations / make recommendations for changes or additions to data collection

- Define research that the WG feels is REQUIRED before moving forward
- Define research that the WG feels is needed to better resolve stock structure in the future

Step 11 - Peer review WG recommendations (SSC or CIE)

- what kind of review; I think we should also draft a paper
- choose best option
- not driven by stock status and outcome of subsequent modeling

Step 12 - Management decision to accept WG recommendations or not

- NEFMC, TBGC, NEFSC/NMFS/GARFO
- how best to move forward with assessment?

DRAFT Terms of Reference

1. Inventory and summarize all information presented at the GMRI Workshop on Stock Structure of Atlantic Cod. Evaluate the relative importance of the information with respect to developing a holistic understanding of Atlantic cod stock structure.

2. Identify and evaluate any new or existing data, including the effects of environmental conditions, on the stock structure of Atlantic cod in NAFO Divs. 4X, 5 and 6 not considered at the GMRI Workshop. Integrate any additional information into the inventory developed in TOR 1.

3. Using a holistic approach, synthesize all available information (TOR 1 and 2) and develop set of possible biological stock structures and develop metric of weight-of-evidence supporting each possibility. In developing alternative stock structures, consider the temporal stability of stock structure and how the available information can inform the knowledge of stock structure over time.

4. Evaluate the historical and contemporary fisheries-dependent and -independent data collection programs and evaluate current modeling techniques relative to the alternatives developed in ToR3. Summarize the practical limitations for each alternative.

5. Select the preferred stock structure alternative(s) for the next assessment.

6. Identify any major information gaps in the existing research with respect to cod stock structure. Develop a prioritized list of research recommendations to address these gaps. Comment on the feasibility and time horizon (e.g., short-term, long-term) of the proposed research recommendations.

7. Identify any major data collection and modeling gaps that limit the use of stock structure alternative.