

# Terms of Reference

## Transboundary Resources Assessment Committee (TRAC) Assessment of Eastern Georges Bank Cod, Eastern Georges Bank Haddock, and Georges Bank Yellowtail Flounder

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St. Andrews, NB  
Canada

Chairpersons: Liz Brooks (United States of America) and Kirsten Clark (Canada)

### Objectives

The Transboundary Resources Assessment Committee (TRAC) annually obtains requests for harvest advice on transboundary resources from the Transboundary Management Guidance Committee (TMGC). For the following resources: Eastern Georges Bank Cod, Eastern Georges Bank Haddock, and Georges Bank Yellowtail Flounder:

#### Cod:

- Evaluate potential implications of the delayed 2016 RV spring survey on the 2017 cod assessment.
- Describe and document the monitoring and reporting systems in the US and Canada. Describe ongoing and future work that could evaluate potential errors in US and Canadian catch (landings and discards).
- Update the following biological and fishery indicators of the state of cod in the eastern GB management area with 2016-2017 data: mean weight at age, condition, total biomass indices, age 1 and age 2 abundance indices, relative F, and total mortality (Z).
- Update projection performance for VPA [dome and flat PR] and ASAP since the benchmark meeting in 2013 using 2016-2017 information.
- Update the benchmark VPA and ASAP models and the consequence analysis table.
- Apply the empirical approach developed in 2016.
- Provide catch advice in consideration of all scientific analytical results that have been presented and discussed. Describe the rationale for how the catch advice was chosen, recognizing that it may depart from the approach outlined in the 2013 Benchmark Proceedings. Similar to the catch advice approach used for other stocks, to the extent possible, the catch advice should cover a range from a low to neutral (higher) risk of exceeding the fishing mortality reference and/or from a higher probability of a stock increase to a lower probability of a stock increase.
- Report on any factors and risks that should be considered in interpreting the catch advice provided.

#### Haddock:

- Evaluate potential implications of the delayed 2016 RV spring survey on the 2017 haddock assessment.
- Apply the benchmark assessment for haddock to report on the status of the stock, updating results for the latest information from fisheries, including discard estimates and research surveys, and characterize the uncertainty of estimates.

- Describe any adjustments to benchmark assessment model applied during the TRAC including impacts on advice given to TMGC.
- Evaluate and quantify, if possible, scientific uncertainty of the assessment output (stock status determination and catch projection), discussing current practices of characterization and alternative methods of evaluation.
- Provide sensitivity analyses to account for retrospective bias on stock biomass and fishing mortality estimates for haddock, if appropriate.
- For a range of total catch values in 2018 and 2019, estimate the risk that the respective fishing mortality rate would exceed  $F_{ref} = 0.26$  for haddock. Include a table showing the 2018 and 2019 catches corresponding to low (25%), neutral (50%), and high (75%) probability that the  $F$  would exceed  $F_{ref} = 0.26$  for haddock.
- For a range of total catch values in 2018 and 2019, estimate the risk that the biomass at the beginning of 2019 and 2020 would not achieve a 0%, 10% or 20% increase compared to the beginning of 2018 and 2019 for haddock.
- Compare contemporary estimates of  $F_{40\%}$  and  $F_{0.1}$  to current  $F_{ref}$ .
- Consider how updating this assessment with 2015-2016 data (i.e. what would have been used for the VPA assessment for 2016 TRAC) informs the 2016 Haddock Interim Report; suggest revisions to the Interim Report if necessary.

#### **Yellowtail Flounder:**

- Apply the benchmark assessment (i.e., empirical approach) for yellowtail flounder, update results for the latest information from fisheries, including discard estimates and research surveys, and characterize the uncertainty of estimates.
- Conduct a sensitivity analysis to evaluate basing catch advice on using multiple years of biomass estimates (e.g., a three year moving average).
- Report on catchability studies for flatfish, and review analyses of catchability to determine if a new estimate of  $q$  for yellowtail is appropriate to be incorporated into the assessment.
- Provide catch advice for 2018 based on the empirical approach for a range of exploitation rates and, if appropriate, any other approach (e.g., constant quota) that includes catch advice for 2018. Catch advice based on the empirical approach should consider information on survey catchability.
- Describe any adjustments to benchmark assessment models applied during the TRAC, including impacts on the advice given to TMGC.
- Evaluate and quantify, if possible, scientific uncertainty of the assessment output (catch projection), discussing current practices of characterization and alternative methods of evaluation.

#### **Allocation Shares:**

- Evaluate potential implications of the delayed 2016 RV spring survey on the 2017 allocation shares assessment.
- Review the biomass distribution relative to the U.S./Canada boundary, update results with the 2016 survey information, and apply the allocation shares formula.

#### **Other:**

- Draft terms of reference for the 2018 TRAC assessment of Eastern Georges Bank Atlantic Cod, Eastern Georges Bank Haddock, and Georges Bank Yellowtail Flounder.
- For information, describe potential modeling approaches that could be considered in future assessment of Georges Bank stocks.
- Other matters [[ongoing intercessional review of CSAS/SARC process, review those results at TRAC]].

## **Expected Publications**

- **TRAC Transboundary Status Reports** for the Eastern Georges Bank Atlantic Cod, Eastern Georges Bank Haddock and Georges Bank Yellowtail Flounder management units.
- **TRAC Reference Documents** for Allocation Shares, and Eastern Georges Bank Atlantic Cod, Eastern Georges Bank Haddock and Georges Bank Yellowtail Flounder management units.
- **TRAC Proceedings** of meeting discussion.

## **Participation**

- DFO Maritimes scientists and managers
- NMFS Northeast Region scientists and managers
- Canadian and U.S. fishing industry
- U.S. State and Canadian Provincial (NB and NS) representatives
- NEFMC representatives
- Scientific and Statistical Committee (SSC) representatives
- Public and stakeholders