



### Application of Gear Efficiency Studies and Peer Review Recommendations to 2017 Groundfish Operational Assessments

Here we summarize key findings from an independent expert peer review panel<sup>1</sup>, which was convened in July 2017 by the Northeast Fisheries Science Center (NEFSC) to evaluate cooperative field studies carried out in 2015 and 2016 to assess the net efficiency for various flatfish species of the standard gear used on NEFSC bottom trawl surveys. These findings informed NEFSC decisions regarding how the catchability estimates resulting from those studies will be used in the upcoming 2017 Groundfish Operational Assessments. This memorandum does not represent a comprehensive evaluation of the peer review panel report, rather it highlights key findings and assessment decisions.

#### Key Findings from Peer Review

1. **Data are sound and applicable:** Panelists indicated the cooperative research surveys were well designed, the results well-supported, and sample sizes were generally appropriate for use in estimating catchability for flatfish species in the 2017 Operational Assessments, with possible exceptions of windowpane and winter flounders.
2. **Biomass extrapolations should be based on wing spread:** Previous estimates for some stocks have been based on door spread, but the panel's review of evidence confirmed that wing spread should be used instead.
3. **Analytical procedures for estimating catchability are valid:** Individual panelists noted concerns with each procedure, but overall supported the analytical procedures presented

#### Application of Results to Operational Assessments

1. NEFSC assessment scientists will use updated catchability estimates and wing spread for flatfish stocks that use empirical approaches that rely on extrapolating survey data to biomass indices.
  - a. For windowpane and winter flounder, panelist concerns about sample size will be considered by assessment scientists. Preliminary evaluations suggest that windowpane data may be more representative than winter flounder.
  - b. Assessment scientists will consider other concerns raised by the panelists or issues that arise during analysis, and provide justification if updated estimates are not applied.
2. For existing "plan A" analytical assessments, updated catchability estimates will be provided to the operational assessment review panel, along with the assessment itself, and sufficient context to allow the panel to consider any implications of the empirical catchability estimate (e.g., in SARC62 comparison of an empirical catchability estimate to the model-estimated catchability value pointed to concerns about the underlying data or the appropriateness of the analytical model). Updated catchability estimates will not be used within the models because some models do not use such estimates and, for those that do, inserting an estimate derived outside of the model could require dramatic or untested changes to the model – beyond the scope of changes allowed within the Operational Assessment guidelines.
3. Panelists noted that additional gear efficiency studies have been conducted in the past. NEFSC will not be applying any catchability estimates from those earlier studies in the Operational Assessments. Those studies are not as directly applicable to the operational assessments, nor is there time for rigorous analyses of those data to make them applicable.
4. Catchability estimates will be derived using the Miller et al. 2017<sup>2</sup> approach, consistent with the approach applied recently in the US-Canadian (TRAC) assessment of Georges Bank yellowtail flounder. NEFSC recognizes the concerns raised by some panelists regarding this method, but the similarity in results between methods, the desire for consistency across assessments, and the value of statistical model selection capability led to the decision to continue to apply the Miller et al. 2017 approach.
5. NEFSC will continue to work through the Northeast Trawl Advisory Panel to develop a joint 6-12 month workplan for working groups focused on gear efficiency studies. That workplan may include efforts to further develop and evaluate the analytical approaches to estimating catchability that were reviewed by the gear efficiency peer review panel.

<sup>1</sup> Peer review documents available at <https://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/panel-review.html>, including terms of reference, working papers reviewed, and panel report.

<sup>2</sup> Miller et al. 2017. Some statistical approaches to combine paired observations of chain sweep and rockhopper gear and catches from NEFSC and DFO trawl surveys in estimating Georges Bank yellowtail flounder biomass. TRAC Working Paper 2017-xx. (see link above)