Use of Catch Efficiency Study Data in 2019 Goundfish Stock Assessments

Count	Stock	Level of Assessment Review	Lead Assessment Scientist	Description (Use of Catch Efficiency)	Catchability Score[1]	Chapter[2]
1	Gulf on Maine Cod	3	Charles Perretti	Not a flatfish	5	2
2	Georges Bank Cod	1	Chris Legault	Not a flatfish	5	3
3	Gulf of Maine Haddock	2	Charles Perretti	Not a flatfish	5	5
4	Georges Bank Haddock	2	Liz Brooks	Not a flatfish	5	4
5	Cape Cod /Gulf of Maine Yellowtail Flounder	2	Larry Alade	Catchability estimate was directly compared with the experimental estimate for use as a diagnostic	4	6
6	Southern New England/Mid-Atlantic Yellowtail Flounder	2	Larry Alade	Experimental catchability-corrected, swept area biomass was directly incorporated into the analytical assessment as the biomass data stream in a series of sensitivity runs. But not in the accepted base model	2	7
7	Goerges Bank Winter Flounder	2	Lisa Hendrickson	Length composition of experimental WF did not match length comp of GB WF	5	8
8	American Plaice	2	Larry Alade	Model's derived catchability estimate was directly compared with the experimental estimate for use as a diagnostic	4	9
9	Witch Flounder	1	Susan Wigley	Catch efficiency Directly incorporated into the biomass estimate	1	10
10	White Hake	2	Kathy Sosebee	Not a flatfish	5	11
11	Pollock	2	Brian Linton	Not a flatfish	5	12
12	Halibut	1	Dan Hennen	No estimate available; too few fish	5	13
13	Gulf of Maine/Georges Bank Windowpane	2	Toni Chute	Catchability was central to Plan B; but Plan A was accepted	2	14
14	Southern New England/Mid-Atlantic Windowpane	1	Toni Chute	Catchability was central to Plan B; but Plan A (AIM model) worked well	2	15

[1] Catchability Score: The fitness of the use of the catchability study data on a fish stock (1 =best fit, 5= worst fit).

[2] Reference 'Special Comments' section of chapter in 'Operational Assesment of 14 Northeast Groundfish Stocks, Updated through 2018'

Assessment Review Levels

1 Direct Delivery: A Level 1 management track assessment is essential a simple update the previously approved assessment with new data. This level of assessment update will be delivered directly from the NEFSC to the appropriate Council or Commission technical body (e.g., SSC) and will not undergo peer review beyond that conducted by those technical bodies.

2 Expedited Review: A Level 2 management track assessment can involve a little more flexibility for deviations from the previously accepted assessment, but that flexibility is limited to allow for efficient peer review of multiple assessments in one peer review meeting, similar to what previously had been carried out for the groundfish operational assessments for the NEFMC. Level 2 assessments will undergo a formal, but expedited (1-2 hour maximum), peer review by a small panel of SSC members from the relevant Council(s), along with additional external experts if desired, before submission to the appropriate Council or Commission body.

3 More Formal Peer Review: A Level 3 management track assessment will permit more extensive changes than a level 2 assessments and therefore requires a more extensive peer review (one-half to a one full day). The flexibility in level 3 provides an opportunity to make progress within the management track toward the Next Generation Assessments envisioned in the Stock Assessment Improvement Plan, by including more detailed spatial, temporal, environmental and species interactions within existing model frameworks.

Language On Use Of Catch Efficiency Study Data

Reference: 'Special Comments' section of each chapter in 'Operational Assesment of 14 Northeast Groundfish Stocks, Updated through 2018'

Stock	Language
All 14 Stocks	Methods to estimate relative catch efficiency, and its uncertainty, for rockhopper and chainsweep gears for the NEFSC bottom trawl survey and generate calibrated swept area numbers at length and biomass estimates are described in Miller 2013; Miller et al. 2017a,b; Miller 2018. The data came from studies carried out in 2015, 2016, and 2017 aboard the F/V Karen Elizabeth twin trawl vessel and focused primarily on flatfish species. Models took into account body size and diel effects on relative efficiency. The best performing model was used to convert bottom trawl survey numbers at length into predicted catches using chainsweep gear, followed by estimation of calibrated stratified mean swept area numbers at length and calibrated biomass estimates.
Gulf on Maine Atlantic Cod	The experimental catchability data were not applicable to the Gulf of Maine Atlantic cod stock assessment because the catchability experiments were focused on flatfish species.
Georges Bank Atlantic Cod	The experimental catchability data were not applicable to the Georges Bank Atlantic cod stock assessment because the catchability experiments were focused on flatfish species.
Gulf of Maine Haddock	The experimental catchability data were not applicable to the Gulf of Maine haddock stock assessment because the catchability experiments were focused on flatfish species.
Georges Bank Haddock	The experimental catchability data were not applicable to the Georges Bank haddock stock assessment because the catchability experiments were focused on flatfish species.
Cape Cod /Gulf of Maine Yellowtail Flounder	In this Cape Cod-Gulf of Maine yellowtail flounder assessment, the model derived catchability estimate was directly compared with the experimental estimate for use as a diagnostic. Averages of the NEFSC spring and fall survey values were calulated to account for inter-survey variation and also to provide an estimate that could be considered for the start of the calendar year. The catchability corrected average survey biomass for January 2018 (14,110 mt) is approximately 140% higher than that predicted from the VPA model (5,888mt).
Southern New England/Mid-Atlantic Yellowtail Flounder	No major changes, other than the addition of recent years of data, were made to the Southern New England-Mid Atlantic yellowtail flounder assessment for this update. However, additional model explorations were carried out to examine the influence of the catchability estimates from the Cooperative Research chain sweep experiment in the ASAP model. In this Southern New England-Mid Atlantic yellowtail flounder assessment, experimental catchability-corrected swept area biomass was directly incorporated as the biomass data stream in a series of sensitivity runs (See the supplemental document for additional details) Miller 2018.
Georges Bank Winter Flounder	The catch efficiency studies were not focused on this stock and were not applicable to the 2019 assessment of Georges Bank Winter Flounder. As a result, the winter flounder length composition from the studies does not reflect the length composition of the Georges Bank stock (i.e., the studies included few fish > 38 cm total length).
American Plaice	In this Gulf of Maine-Georges Bank American plaice assessment the model's derived catchability estimate was directly compared with the experimental estimate for use as a diagnostic. Averages of the NEFSC spring and fall survey values were calculated to account for inter-survey variation and also to provide an estimate that could be considered for the start of the calendar year. The 2018 VPA predicted January-1 biomass (25,475 mt) was only 5% lower than the average survey biomass (26,8440 mt) and well within the confidence bounds of the chain sweep study biomass estimates. This suggests that there is some consistency between the VPA model and the chain sweep study results.
Witch Flounder	In the 2019 assessment of witch flounder, the catch efficiency analyses were directly incorporated into the assessment model. Estimates of population biomass used revised catchability coefficients that varied by year; the revised catchability coefficients had a minor impact on catch advice in 2020. The 2018 NEFSC fall survey stratum 30 was not sampled; survey indices were not adjusted because this stratum represents less than 1% of total expanded catch weight and has negligible impact on survey indices and swept area biomass.
White Hake	The experimental catchability data were not applicable to the white hake stock assessment because the catchability experiments were focused on flatfish species.
Pollock	The experimental catchability data were not applicable to the pollock stock assessment because the catchability experiments were focused on flatfish species.
Halibut	In the 2019 Atlantic halibut assessment, the catch efficiency studies and data were not used because not enough Atlantic halibut were caught to provide a comparison between the gear types and produce an estimate of catchability.
Gulf of Maine/Georges Bank Windowpane	In this Gulf of Maine - Georges Bank windowpane flounder assessment, experimental catchability estimates were used to calculate a survey swept area biomass for the alternative Plan B assessment. The primary AIM assessment provides only relative indices of abundance and fishing mortality, and so catchability estimates would not have affected those results.
Southern New England/Mid-Atlantic Windowpane	In this southern New England - mid-Atlantic windowpane flounder assessment, experimental catchability estimates were used to calculate a survey swept area biomass for the alternative Plan B assessment. The primary AIM assessment provides only relative indices of abundance and fishing mortality, and so catchability estimates would not have affected those results.