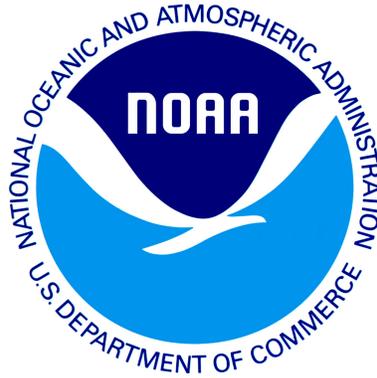


draft working paper for peer review only



Georges Bank Yellowtail Flounder

2015 Assessment Update Report

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled August 2015

This assessment of the Georges Bank Yellowtail Flounder (*Limanda ferruginea*) stock was reviewed during the July 2015 TRAC meeting (Legault et al. 2015). It is an operational update of the existing 2014 update assessment (Legault et al. 2014). Based on the previous assessment the stock status was unknown, but stock condition was poor. This assessment updates commercial fishery catch data through 2014 (Table 1, Figure 3), and updates research survey indices of abundance and the empirical approach assessment through 2015 (Figure 4). No stock projections can be computed using the empirical approach.

State of Stock: Based on this updated assessment, Georges Bank Yellowtail Flounder (*Limanda ferruginea*) stock status is unknown due to a lack of biological reference points associated with the empirical approach, but stock condition is poor. The average survey biomass in 2015 (the arithmetic average of the 2015 DFO, 2015 NEFSC spring, and 2014 NEFSC fall surveys) was estimated to be 2,241 (mt) (Figure 1). The 2014 exploitation rate (2014 catch divided by 2014 average survey biomass) was estimated to be 0.071 (Figure 2).

Table 1: Catch and model results table for Georges Bank Yellowtail Flounder. All weights are in (mt). The average survey biomass in year y is the arithmetic average of the year y DFO, year y NEFSC spring, and year y-1 NEFSC fall surveys. The exploitation rate is the catch divided by the average survey biomass. Model results are from the current updated empirical approach assessment.

	2010	2011	2012	2013	2014
<i>Data</i>					
US landings	654	904	443	130	70
US discards	289	192	188	49	74
Canadian landings	17	22	46	1	1
Canadian discards	210	53	48	39	14
Other catch	0	0	0	0	0
Catch for Assessment	1,170	1,171	725	218	159
<i>Model Results</i>					
Average Survey Biomass	19,117	7,328	9,921	4,938	2,240
Exploitation Rate	0.061	0.16	0.073	0.044	0.071

Table 2: Comparison of reference points estimated in an earlier assessment and from the current assessment update.

	2014	Current
F_{MSY} proxy	NA	NA
SSB_{MSY} (mt)	NA	NA
MSY (mt)	NA	NA
<i>Overfishing</i>	Unknown	Unknown
<i>Overfished</i>	Unknown	Unknown

Projections: Short term projections cannot be computed using the empirical approach. Application of an exploitation rate of 2% to 16% to the 2015 average survey biomass (2,241 mt) results in catch advice for 2016 of 45 mt to 359 mt.

Special Comments:

- What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

The largest source of uncertainty is the estimate of survey catchability, which currently relies on literature values for other species in other regions of the world using different gear. The survey catchability affects the expansion of the stratified mean catch per tow for each survey and is inversely related to the catch advice. Other sources of uncertainty include the appropriate exploitation rate to apply to this stock, which has seen continued decrease in survey biomass despite low exploitation rates.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major?

This assessment approach does not allow for a retrospective pattern to occur.

- Based on this stock assessment, are population projections well determined or uncertain?
Population projections for Georges Bank Yellowtail Flounder are not computed. Catch advice is derived from applying an exploitation rate to the current estimate of survey biomass.

- Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the affect these changes had on the assessment and stock status.

The 2014 NMFS spring survey value was changed from 2,684 mt to 2,763 mt due to using preliminary data during the 2014 TRAC meeting. However, this has no impact on the 2015 stock status or 2016 catch advice in this update assessment.

- If the stock status has changed a lot since the previous assessment, explain why this occurred.

The stock status of Georges Bank Yellowtail Flounder remains unknown and stock condition continues to be poor.

- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

The Georges Bank Yellowtail Flounder assessment could be improved with studies on NMFS and DFO survey catchability for flatfish.

- Are there other important issues?

None.

References:

- Legault, C.M., L. Alade, W.E. Gross, and H.H. Stone. 2014. Stock Assessment of Georges Bank Yellowtail Flounder for 2014. TRAC Ref. Doc. 2014/01. 214 p.
- Legault, C.M., L. Alade, D. Busawon, and H.H. Stone. 2015. Stock Assessment of Georges Bank Yellowtail Flounder for 2015. TRAC Ref. Doc. 2015/01. 66 p.

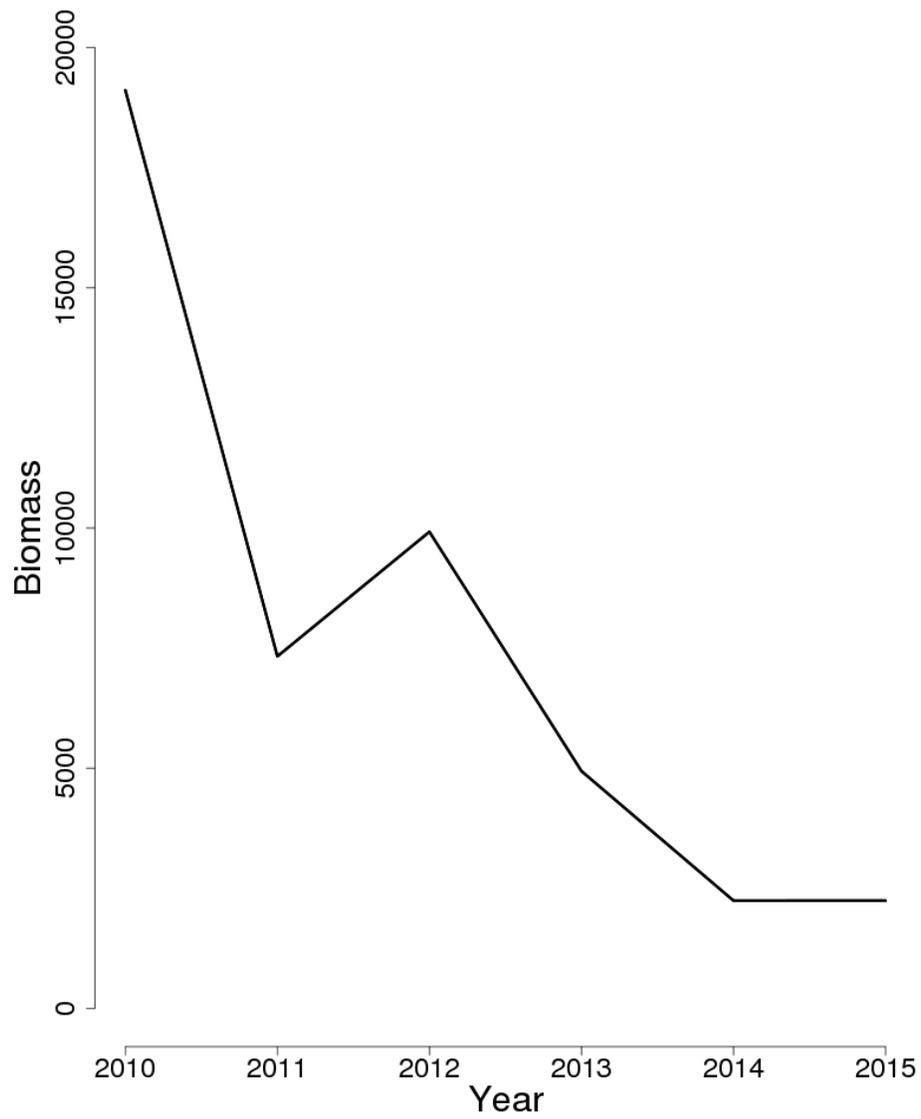


Figure 1: Trends in average survey biomass (mt) of Georges Bank Yellowtail Flounder between 2010 and 2015 from the current assessment.

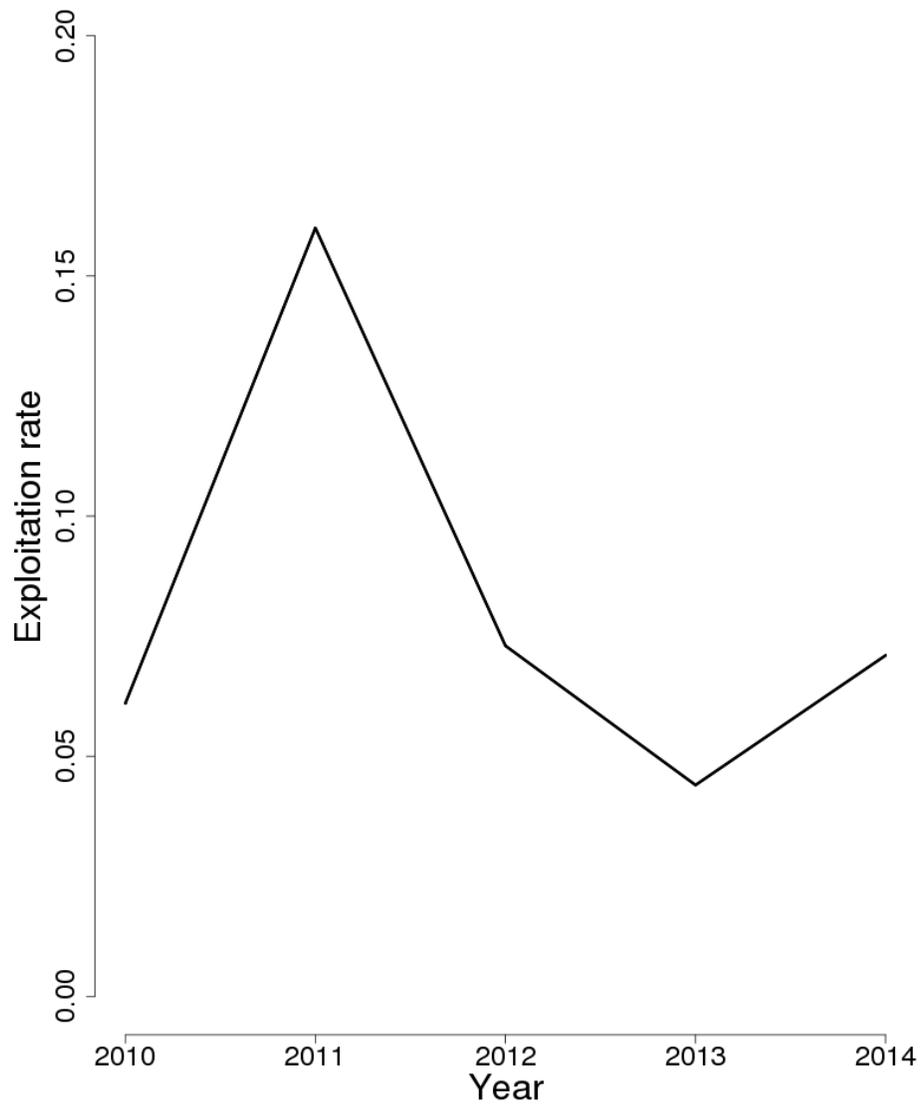


Figure 2: Trends in the exploitation rate (catch/average survey biomass) of Georges Bank Yellowtail Flounder between 2010 and 2014 from the current assessment.

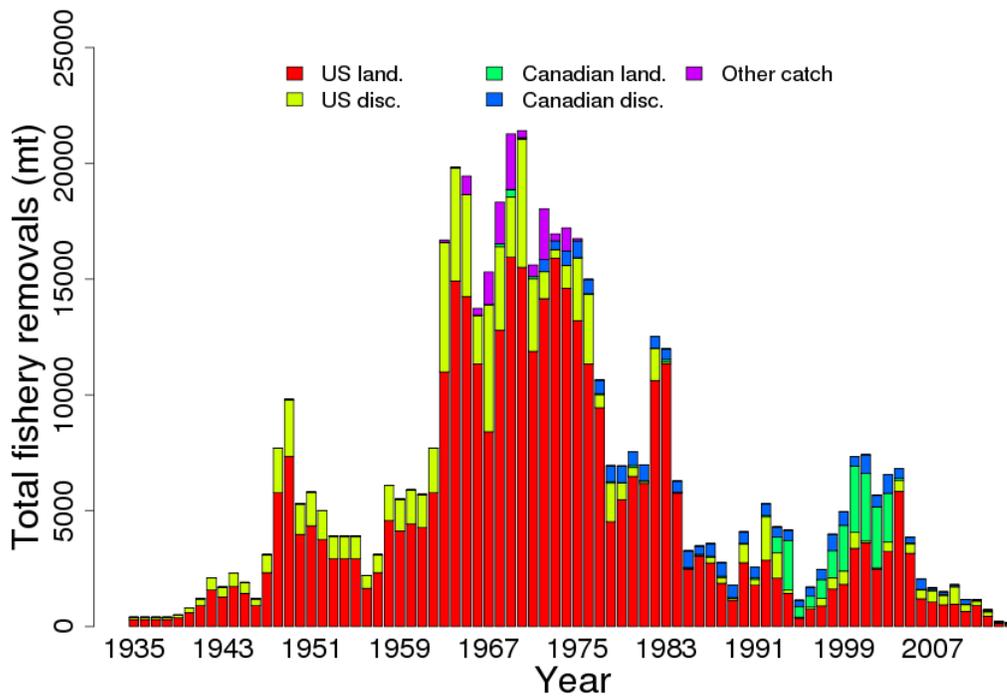


Figure 3: Total catch of Georges Bank Yellowtail Flounder between 1935 and 2014 by fleet (US, Canadian, or Other) and disposition (landings or discards).

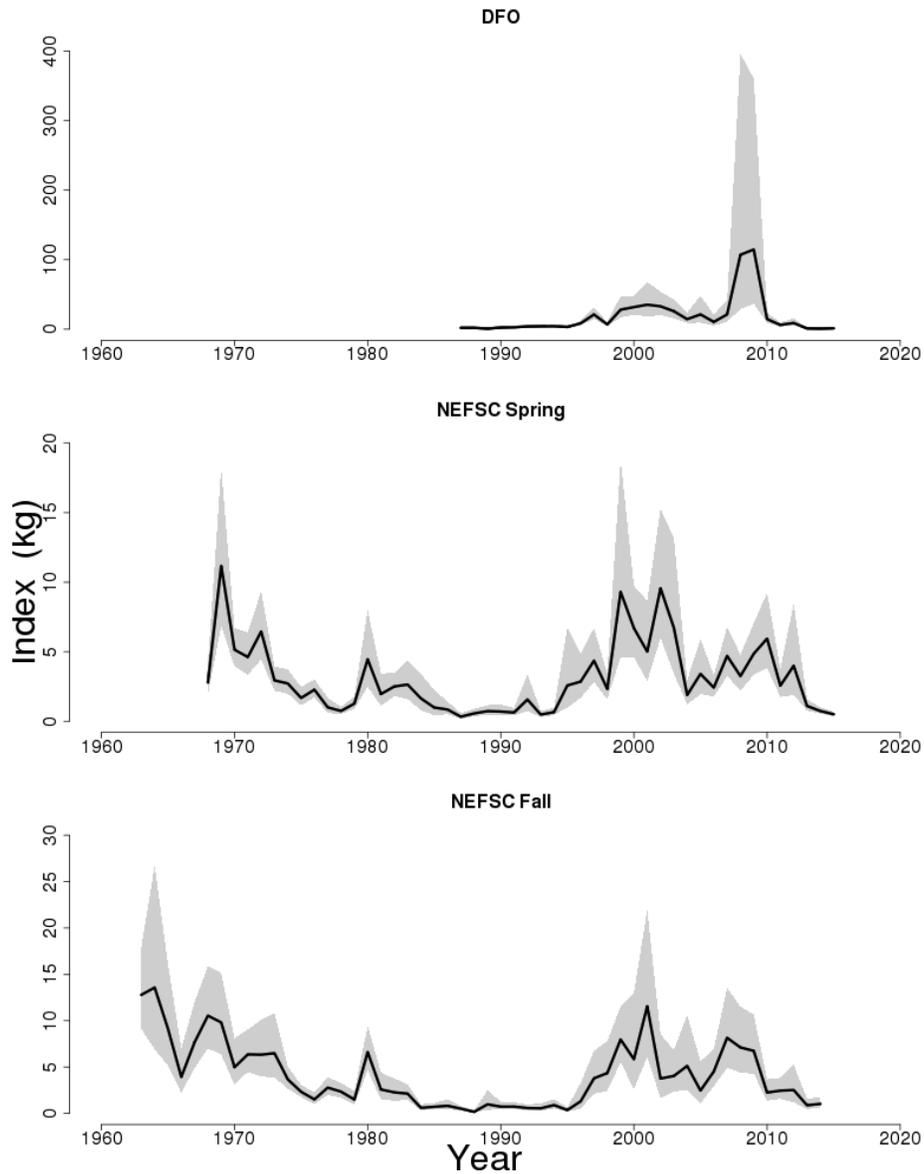


Figure 4: Indices of biomass for the Georges Bank Yellowtail Flounder between 1963 and 2015 for the Canadian DFO and Northeast Fisheries Science Center (NEFSC) spring and fall bottom trawl surveys. The approximate 90% lognormal confidence intervals are shown.