

draft working paper for peer review only



Southern windowpane flounder

2015 Assessment Update Report

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National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

Compiled September 2015

This assessment of the southern windowpane flounder (Scophthalmus aquosus) stock is an operational update of the 2012 assessment which included updates through 2010 (NEFSC 2012). Based on the 2012 assessment the stock was not overfished, and overfishing was not occurring. This assessment updates commercial fishery catch data, survey indices of abundance, AIM model results, and reference points through 2014.

State of Stock: Based on this updated assessment, the southern windowpane flounder (*Scophthalmus aquosus*) stock is not overfished and overfishing is not occurring (Figures 1-2). The mean NEFSC fall bottom trawl survey index from years 2012, 2013, and 2014 (a 3-year moving average is used as a biomass index) was 0.413 (kg/tow) which is higher than the $B_{Threshold}$ of 0.123 (kg/tow). The 2014 relative fishing mortality was estimated to be 1.308 (kt per kg/tow) which is lower than the F_{MSY} proxy of 2.027 (kt per kg/tow).

Table 1: Catch and model results table for southern windowpane flounder. All landings and discard weights are rounded to the nearest metric ton. Biomass index is in units of kg/tow, and relative F is in units of kt per kg/tow.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<i>Data</i>										
Commercial landings	38	57	83	74	53	53	32	29	22	14
Commercial discards	293	374	266	246	405	435	445	701	681	525
Total catch	330	431	349	321	458	489	477	730	703	539
<i>Model Results</i>										
Biomass index	0.21	0.17	0.19	0.2	0.24	0.35	0.44	0.52	0.46	0.41
Relative F	1.6	2.53	1.83	1.57	1.88	1.42	1.1	1.41	1.51	1.31

Table 2: Reference points estimated in the 2012 assessment and in the current assessment update. F_{MSY} proxy is in units of kt per kg/tow.

	2012	Current
F_{MSY} proxy	2.088	2.027 (1.131 - 2.576)
B_{MSY} proxy (kg/tow)	0.240	0.247
MSY proxy (mt)	500	500
<i>Overfishing</i>	No	No
<i>Overfished</i>	No	No

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).

A source of uncertainty for this assessment is missing commercial discard estimates

from the general category scallop dredge fleet that should be added to the catch time series for model input.

- Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major?
N/A
- Based on this stock assessment, are population projections well determined or uncertain?
N/A
- 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.
No changes were made to the southern windowpane flounder assessment for this update other than the incorporation of four years of new NEFSC fall bottom trawl survey data and four years of new U.S. commercial landings and discard data (2011 - 2014).
- If the stock status has changed a lot since the previous assessment, explain why this occurred.
The stock status of southern windowpane flounder has not changed since the previous assessment.
- Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.
Estimates of discards from the general category scallop dredge fleet should be added to the catch time series for model input. However, the model fit is presently good with a randomization test indicating the correlation between $\ln(\text{relative } F)$ and $\ln(\text{replacement ratio})$, a measure of the relationship between catch and survey index values, is significant ($p = 0.002$.)
- Are there other important issues?
None.

References:

Most recent assessment update:

Northeast Fisheries Science Center. 2012. Assessment or Data Updates of 13 Northeast Groundfish Stocks through 2010. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 12-06; 789 p. Available online at <http://nefsc.noaa.gov/publications/>

Most recent benchmark assessment:

Northeast Fisheries Science Center. 2008. Assessment of 19 Northeast Groundfish Stocks through 2007: Report of the 3rd Groundfish Assessment Review Meeting (GARM III), Northeast Fisheries Science Center, Woods Hole, MA, August 4-8, 2008. US Dep Commer, NOAA Fisheries, Northeast Fish Sci Cent Ref Doc. 08-15; 884 p + xvii.

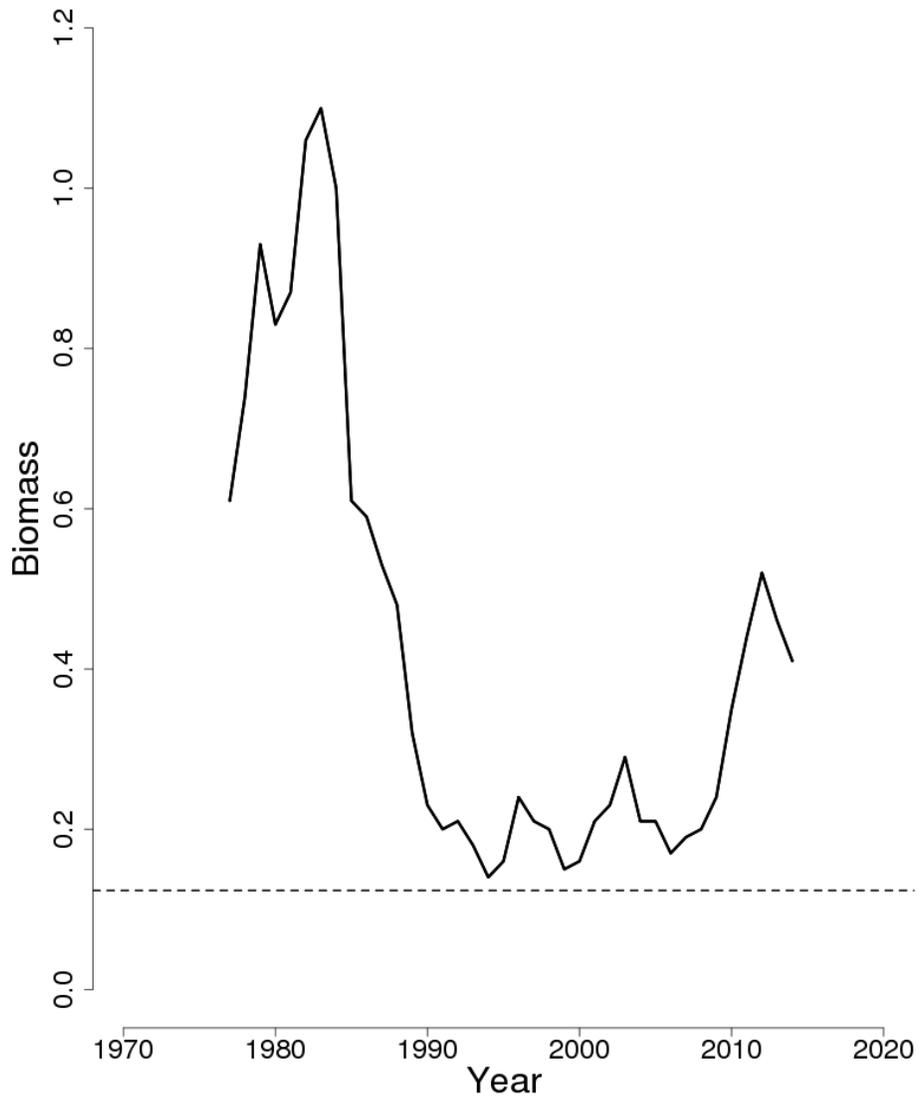


Figure 1: Trends in the biomass index (a 3-year moving average of the NEFSC fall bottom trawl survey index) of southern windowpane flounder between 1975 and 2014 from the current assessment, and the corresponding $B_{Threshold} = \frac{1}{2} B_{MSY} proxy = 0.123$ kg/tow (horizontal dashed line).

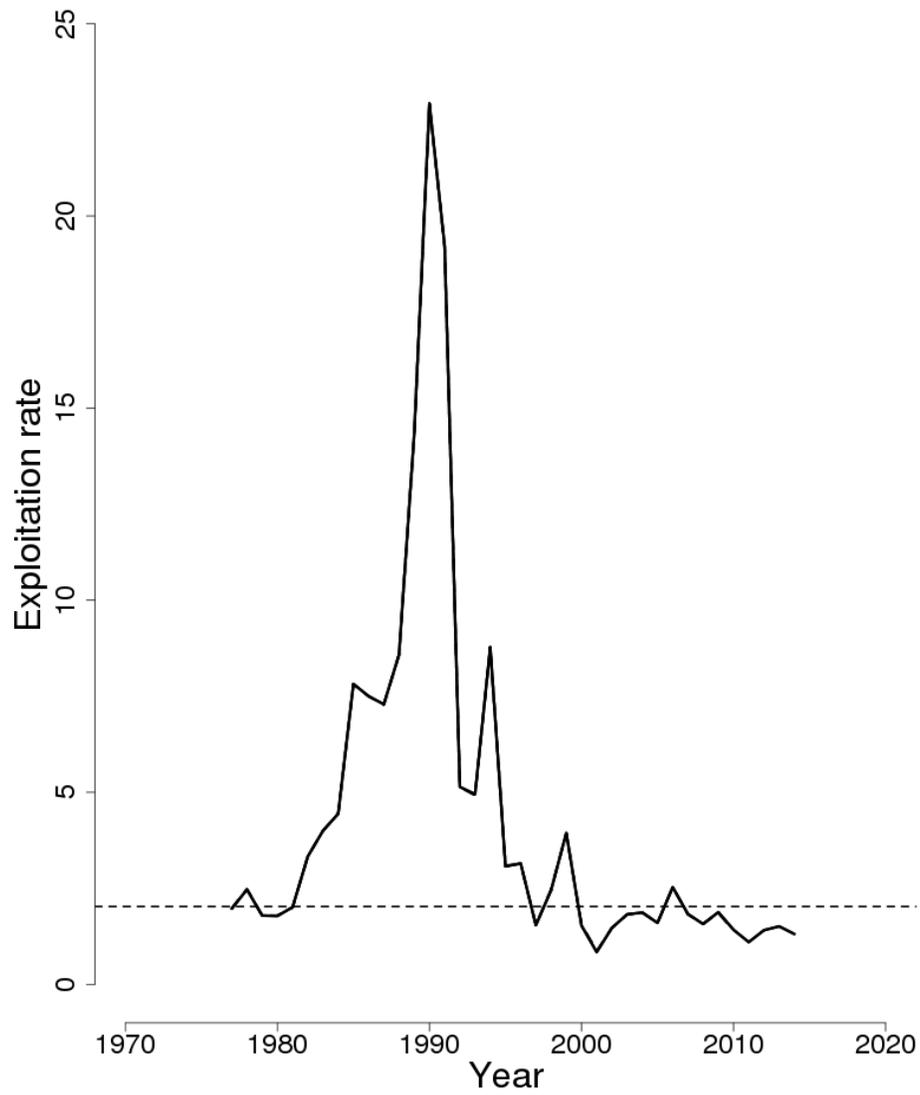


Figure 2: Trends in relative fishing mortality of southern windowpane flounder between 1975 and 2014 from the current assessment, and the corresponding F_{MSY} proxy=2.027 (horizontal dashed line).

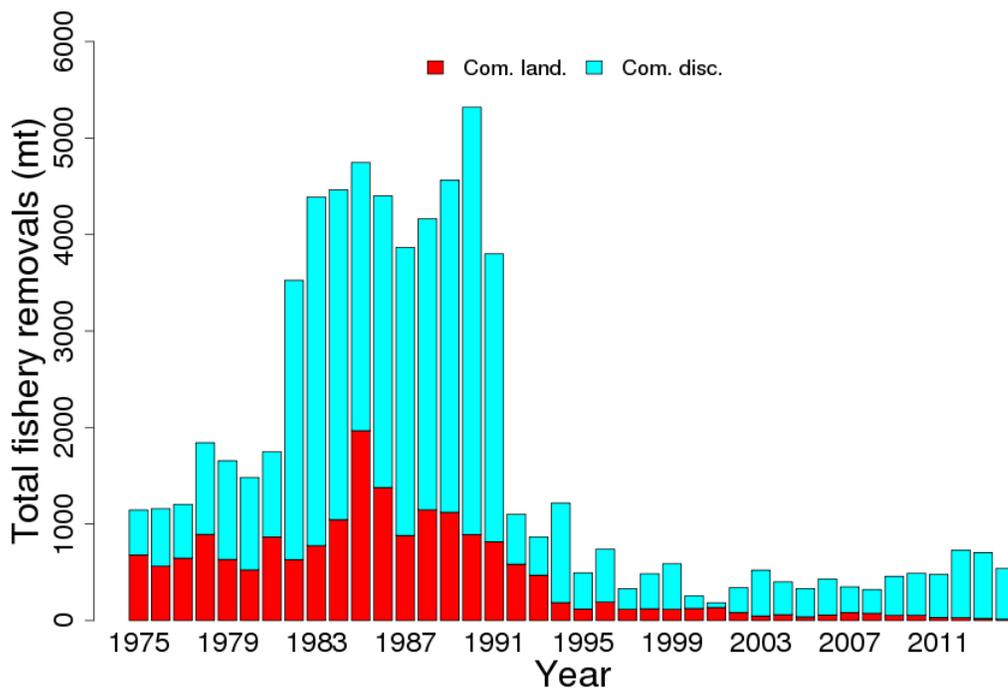


Figure 3: Total catch of southern windowpane flounder between 1975 and 2014 by disposition (landings and discards).

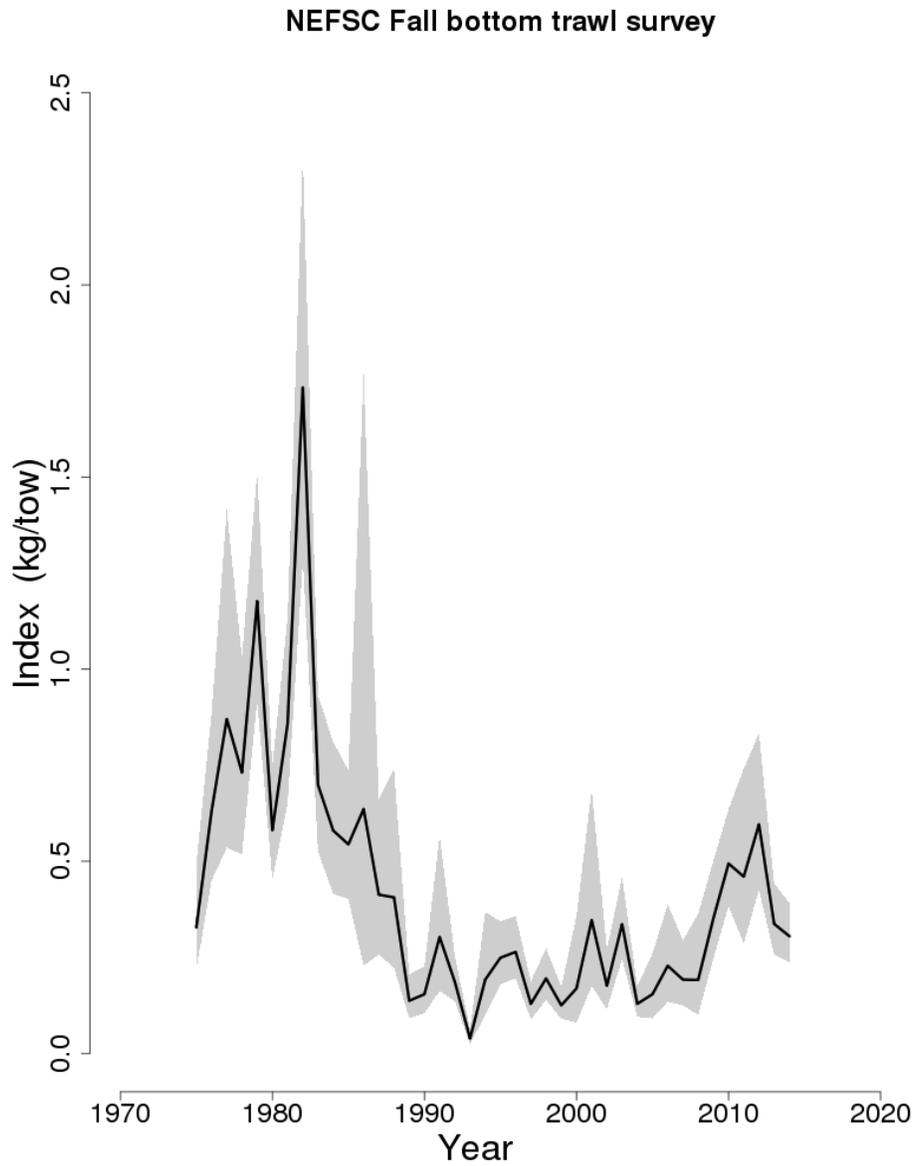


Figure 4: NEFSC fall bottom trawl survey indices in kg/tow for southern windowpane flounder between 1975 and 2014. The approximate 90% lognormal confidence intervals are shown.