

## 18 Southern windowpane flounder

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*This assessment of the southern windowpane flounder (*Scophthalmus aquosus*) stock is an operational assessment 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 89-90). Retrospective adjustments were not made to the model results. 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 55: 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 56: 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
Overfishing	No	No
Overfished	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? (A major retrospective pattern occurs when the adjusted SSB or  $F_{Full}$  lies outside of the approximate joint confidence region for SSB and  $F_{Full}$ ; see Table 8).

*The model used to estimate status of this stock does not allow estimation of a retrospective pattern.*

- 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 effect 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 4 years of new NEFSC fall bottom trawl survey data and 4 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  $\ln(\text{replacement ratio})$ , which is a measure of the relationship between catch and survey index values, is significant ( $p = 0.002$ .)*

- Are there other important issues?

*None.*

## 18.1 Reviewer Comments: Southern windowpane flounder

**Recommendation:** The panel concluded that the updated assessment was acceptable as a scientific basis for management advice. Four new years of fall bottom trawl survey data and U.S commercial landings and discard data were added (2011-2014). The criteria for survey tow quality changed from SHG to TOGA, which had no impact on the biomass index for 2014. The model fit is presently good. A randomization test suggests that the negative relationship between the replacement ratio (survey indices) and relative F (catch/survey) due to chance alone is less than 0.002.

**Alternative Assessment Approach:** Not applicable

**Sources of Uncertainty:** Since 2000, an average of 8% additional estimated discards (1% —19%, 5 —65mt) has come from the general category scallop dredge fleet. These should be added to the catch for model input. The general category dredge fleet is more active in the southern windowpane stock area. The GARM III benchmark indicated that projections should not be made based on discards. This is a data-limited assessment, and as such, results are limited.

**Research Needs:** Research needs include the addition of the estimated discards from the general category scallop dredge fleet into the next update or benchmark for consistency with management, ageing data, and the development of a more advanced, analytical model.

**References:**

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. [CRD12-06](#)

Northeast Fisheries Science Center. 2008. Assessment of 19 Northeast Groundfish Stocks through 2007: Report of the 3<sup>rd</sup> 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. [CRD08-15](#)

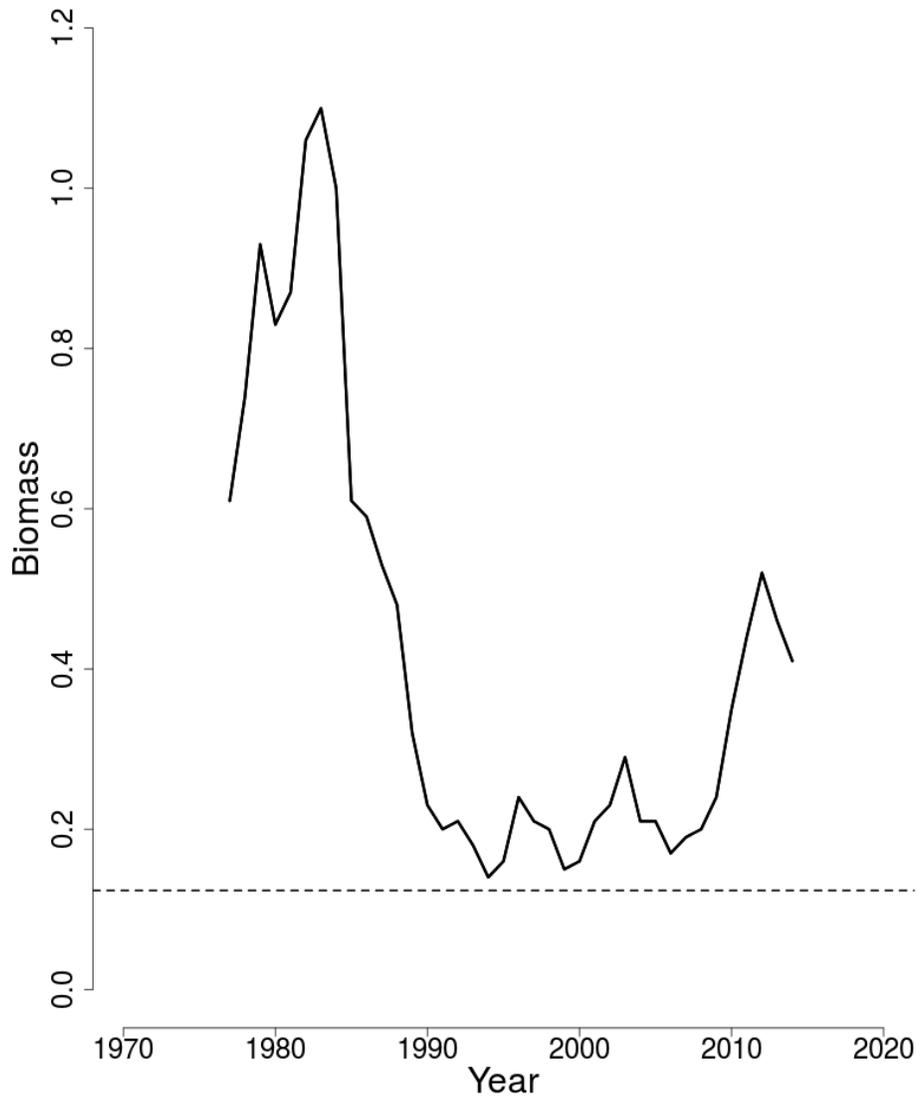


Figure 89: Trends in the biomass index (a 3-year moving average of the NEFSC fall bottom trawl survey index) of southern windowpane flounder between 1975 and 2014 from the current assessment, and the corresponding  $B_{Threshold} = \frac{1}{2} B_{MSY} proxy = 0.123$  kg/tow (horizontal dashed line).

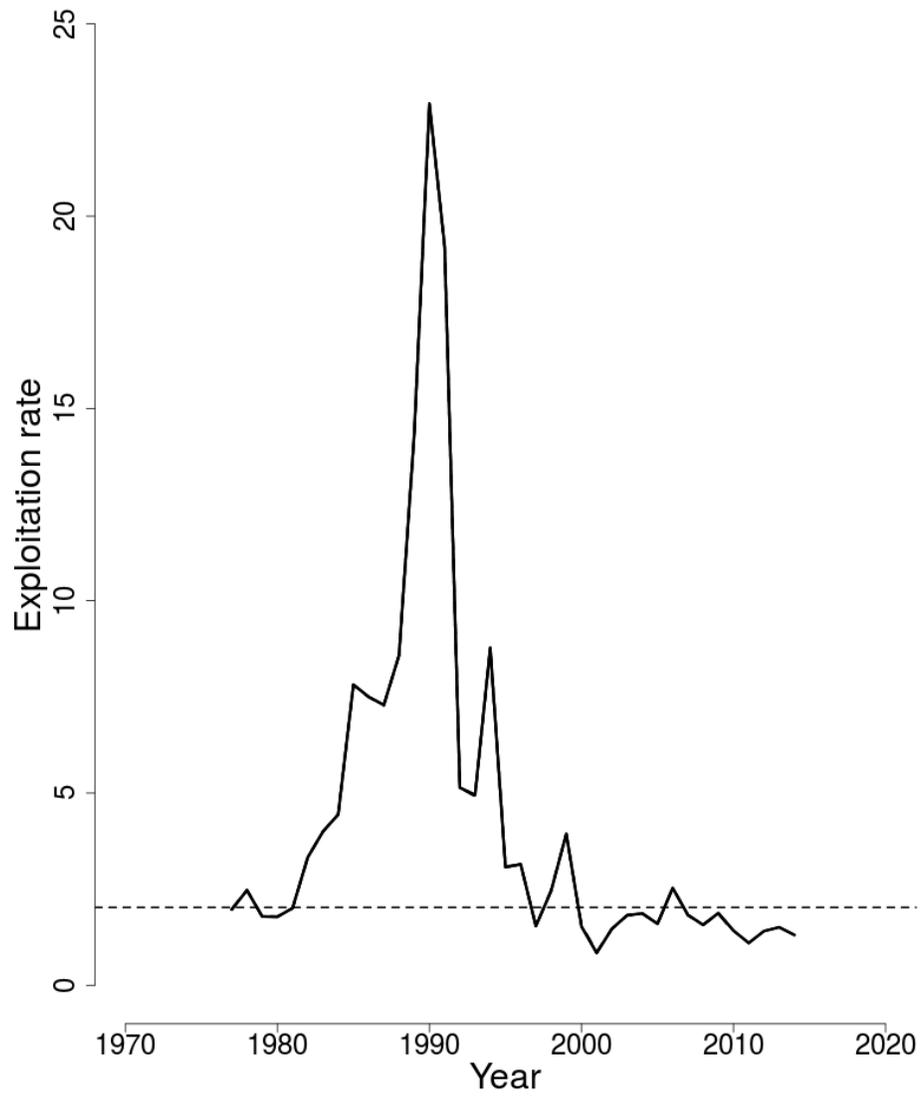


Figure 90: Trends in relative fishing mortality of southern windowpane flounder between 1975 and 2014 from the current assessment, and the corresponding  $F_{MSY}$  proxy=2.027 (horizontal dashed line).

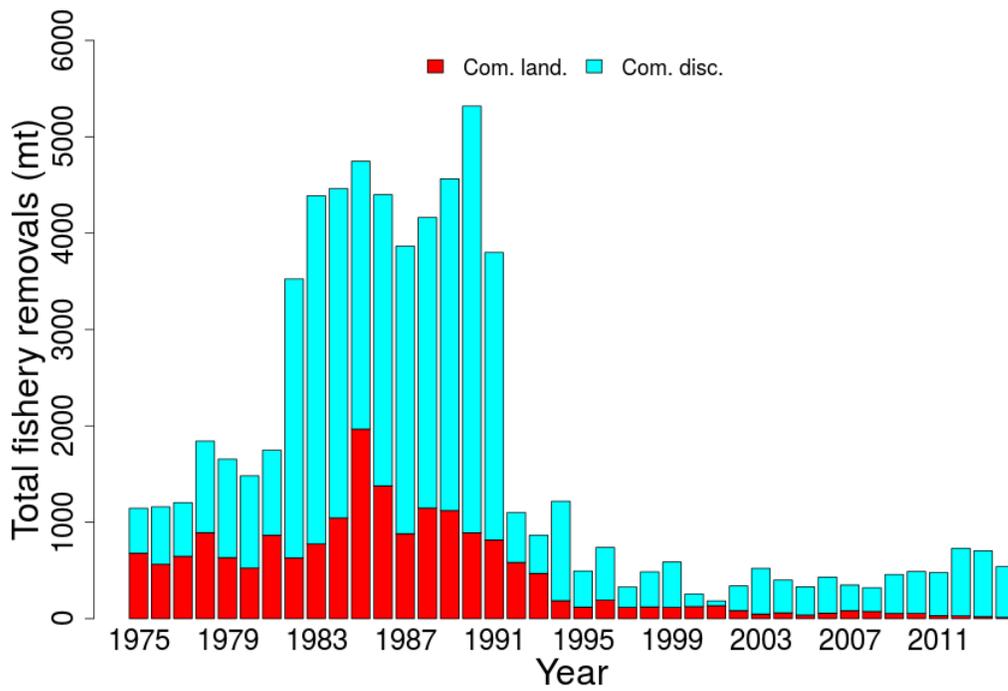


Figure 91: Total catch of southern windowpane flounder between 1975 and 2014 by disposition (landings and discards).

### NEFSC Fall bottom trawl survey

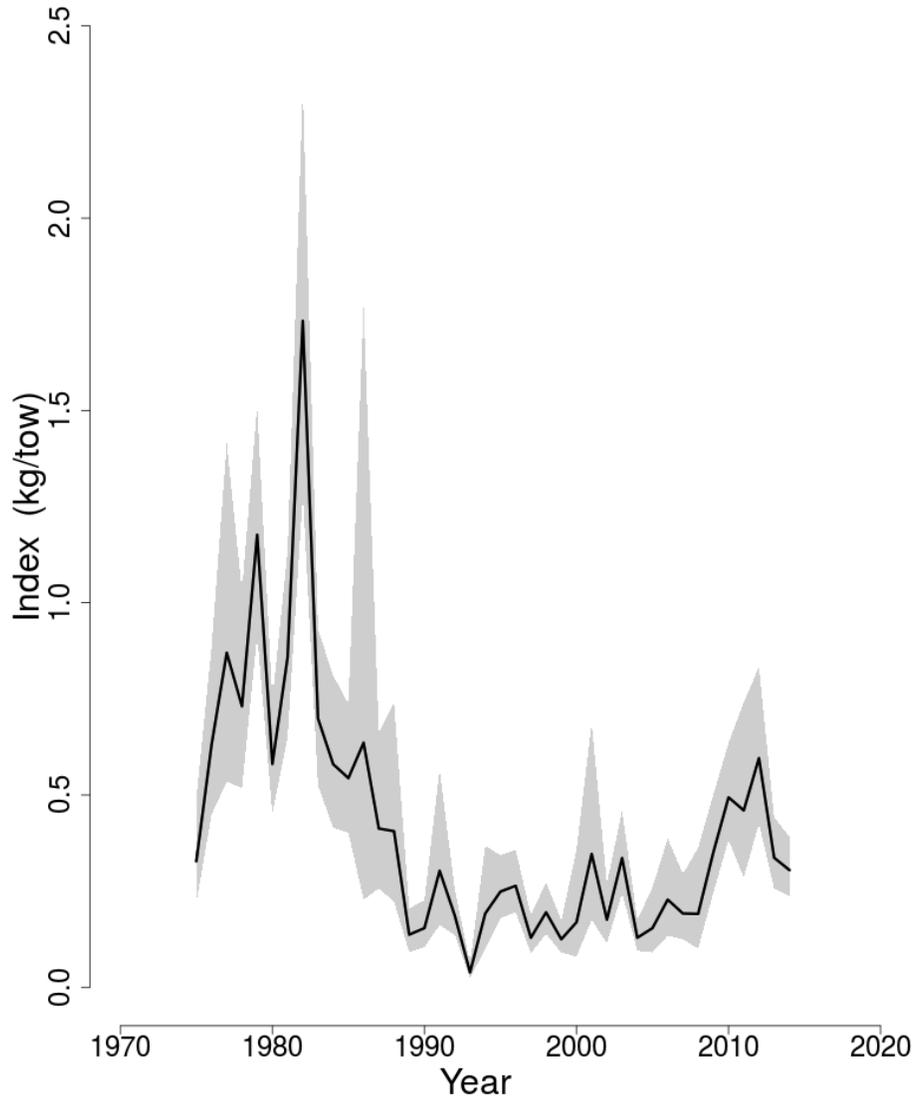


Figure 92: NEFSC fall bottom trawl survey indices in kg/tow for southern windowpane flounder between 1975 and 2014. The approximate 90% lognormal confidence intervals are shown.