

8. Assessment of the Flathead Sole Stock in the Gulf of Alaska (Executive Summary)

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8.1 Introduction

In 2006, the Gulf of Alaska flathead sole (*Hippoglossoides elassodon*) stock was moved to a biennial stock assessment schedule to coincide with new survey data. A discussion at the September 2006 Groundfish Plan Team meetings concluded the following two important points for updating information in off-year assessments:

- 1) Anytime the assessment model is re-run and presented in the SAFE Report, a full assessment document **must** be produced.
- 2) The single-species projection model **may** be re-run using new catch data without re-running the assessment model.

Thus, on alternate (even) years, parameter values from the previous year's assessment model and total catch information for the current and previous year are used to make projections via the single species projection model for the following two years and to recommend ABC levels for those years.

Because no new survey data was available this year, option 2 above was followed to update information for the 2010 stock assessment. Thus, the single species projection model was run using parameter values from the accepted 2009 assessment model (the base model, Stockhausen et al. 2009¹), together with updated catch information for 2009 and 2010, to predict stock status for flathead sole in 2011 and 2012 and to make ABC recommendations for those years.

8.2 Updated catch and projection

Flathead sole is in Tier 3a. New information available to update the projection model consists of the total catch for 2009 (3,658 t) and the current catch for 2010 (2,965 as of Sept. 25, 2010). To run the projection model to predict ABC's for 2011 and 2012, estimates are required for the total catches in 2010 and 2011. The final catch for 2010 was estimated by dividing the current catch by the ratio of the catch in the same week in 2009 as the current catch (week 39) to the final 2009 catch. The estimated final catch for 2010 (3,778 t) was also used as the estimate for the final 2011 catch. Based on the updated projection model results, the recommended ABC's for 2011 and 2012 are 49,133 t and 50,591 t, respectively, while the OFL's are 61,412 t and 63,202 t. The new ABC recommendation and OFL for 2011 are similar to those developed using the 2009 full assessment model (49,286 t and 61,601 t). The principal reference values are shown in the following table, with the recommended values in bold:

¹Stockhausen, W., M. Wilkins and M. Martin. 2009. 8. Assessment of the Flathead Sole Stock in the Gulf of Alaska. In: Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska. North Pacific Fishery Management Council, PO Box 103136, Anchorage, AK. <http://www.afsc.noaa.gov/REFM/docs/2009/GOAflathead.pdf>.

Quantity/Status	Last year (2009 Assessment)		This year (2010 Update)	
	2010	2011	2011	2012
M (natural mortality)	0.2	0.2	0.2	0.2
Specified/recommended tier	3a	3a	3a	3a
Total biomass (Age 3+; t)	328,862	325,922	325,357	321,355
Female Spawning Biomass (t)	110,387	113,717	113,406	115,427
$B_{100\%}$	111,884	111,884	111,884	111,884
$B_{40\%}$	44,754	44,754	44,754	44,754
$B_{35\%}$	39,159	39,159	39,159	39,159
$F_{OFL} = F_{35\%}$	0.530	0.530	0.530	0.530
$max F_{ABC} = F_{40\%}$	0.406	0.406	0.406	0.406
<i>recommended</i> F_{ABC}	0.406	0.406	0.406	0.406
Specified/recommended OFL (t)	59,295	61,601	61,412	63,202
Specified/recommended ABC (t)	47,422	49,286	49,133	50,591
Is the stock being subjected to overfishing?	no	no	no	no
Is the stock currently overfished?	no	no	no	no
Is the stock approaching a condition of being overfished?	no	no	no	no

8.3 Area Apportionment

The recommended area apportionment percentages are identical to last year because there is no new survey information. The following table shows the recommended area apportionments for 2011 and 2012:

	West				Total
	Western	Central	Yakutat	Southeast Outside	
Area Apportionment	35.5%	57.2%	4.2%	3.1%	100.0%
2011 ABC (t)	17,442	28,104	2,064	1,523	49,133
2012 ABC (t)	17,960	28,938	2,125	1,568	50,591

8.4 Research Priorities

The assessment model is being revised to incorporate length-based approaches to fishery and survey selectivity, as well as alternative forms for the selectivity function in addition to the standard logistic function. The utility of potential environmental predictors of recruitment or catchability (e.g., temperature) are also being investigated.

8.5 Summaries for Plan Team

Species	Year	Biomass ¹	OFL ²	ABC ²	TAC ²	Catch ³
Flathead sole	2009	323,937	57,911	46,464	11,181	3,658
	2010	328,611	59,213	47,355	10,411	2,965
	2011	325,357	61,412	49,133		
	2012	321,355	63,202	50,591		

¹Age 3+ biomass from the full assessment model (2009) or the updated projection model (2010-2012).

²As published in the Federal Register or as recommended based on the projection model (2011-2012).

³As of Sept. 25, 2010.

Stock/ Assemblage	Area	2010				2011		2012	
		OFL ¹	ABC ¹	TAC ¹	Catch ²	OFL ³	ABC ³	OFL ³	ABC ³
Flathead sole	W	--	16,857	2,000	275	--	17,442	--	17,960
	C	--	27,124	5,000	2,690	--	28,104	--	28,938
	WYAK	--	1,990	1,990	0	--	2,064	--	2,125
	SEO	--	1,451	1,451	0	--	1,523	--	1,568
	Total		59,295	47,422	10,411	2,965	61,412	49,133	63,202

¹As published in the Federal Register. ²As of Sept. 25, 2010. ³Based on the updated projection model.

Values published in the Federal Register are available through the following links:

2009: http://www.fakr.noaa.gov/sustainablefisheries/specs09_10/goatable1.pdf

2010: http://www.fakr.noaa.gov/sustainablefisheries/specs10_11/goatable1.pdf

2011: http://www.fakr.noaa.gov/sustainablefisheries/specs10_11/goatable2.pdf

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