6. Assessment of the Rex Sole Stock in the Gulf of Alaska (Executive Summary)

William T. Stockhausen
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6.1 Introduction

In 2006, the rex sole stock (*Glyptocephalus zachirus*) was moved to a biennial stock assessment schedule to coincide with the expected receipt of 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 2008. Thus, the single species projection model was run using parameter values from the accepted 2007 assessment model, together with updated catch information for 2007 and 2008, to predict stock status for flathead sole in 2009 and 2010 and to make ABC recommendations for those years. The 2007 assessment model is documented in Stockhausen et al. 2007[1].

6.2 Updated catch and projection

New information available to update the projection model consists of the total catch for 2007 (2,852 t) and the current catch for 2008 (2,514 as of Sept. 20, 2008). The recommended ABC and OFL in last year's assessment were based on Tier 5 calculations applied to the model estimate of adult biomass, because estimates of $F_{35\%}$, $F_{40\%}$ and $B_{40\%}$ were not considered reliable. A similar approach was used here[1]. The projection model was run to generate estimates of total adult biomass for 2008-2010. In order to do this, estimates for the total catches to be taken in 2008 and 2009 were required. Because the catch taken in 2008 through September was similar to that taken in 2007 during the same time frame (2,609 t), the total catch for 2008 was assumed to be identical to the catch in 2007. The largest catch over the past 5 years (2006: 3,294 t) was used as the catch that will be taken in 2009. ABC and OFL for 2009 and 2010 were then calculated as in Tier 5, using adult biomass from the projection model, the catch equation, and M = 0.17. Based on these calculations, the recommended ABC's for 2009 and 2010 are 8,996 t and 8,827 t, respectively. The new ABC recommendation for 2009 is similar to that recommended for 2009 using last year's full assessment model (8,468 t). The principal reference values are shown in the following table, with the recommended values in bold:

[1]Stockhausen, W., B. Matta, B. Turnock, M. Wilkins and M. Martin. 2007. 6. Gulf of Alaska Rex Sole Stock Assessment. 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/2007/GOArex.pdf.

	Last year's projection-not updated		This year's projection-updated	
	2008	2009	**2009***	2010
Total adult biomass (t)	82,801	76,782	81,572	80,037
F_{ABC} (maximum allowable= $0.75*M$)	0.128	0.128	**0.128**	0.128
F_{OFL} ($=M$)	0.17	0.17	**0.17**	0.17
ABC (t)	9,132	8,468	**8,996**	8,827
OFL (t)	11,933	11,065	**11,756**	11,535

6.3 Area Apportionment

The recommended apportionment percentages are identical to last year, because there is no new survey information. The following table shows the recommended apportionment for 2009-2010:

Area:	Western	Central	West Yakutat	Southeast Outside	Total
Apportionment (%)	11.2%	73.7%	5.7%	9.4%	100.0%
2009 Area ABC (t)	1,007	6,630	513	846	8,996
2010 Area ABC (t)	988	6,506	503	830	8,827

6.4 Research Priorities

The rex sole fishery is, at present, primarily a bycatch fishery that takes mainly older, larger fish. As a consequence, current estimates of optimum harvest levels based on Tier 3 calculations (e.g., at F_{ABC} harvest rates) are very large but highly uncertain. The rex sole fishery should be monitored to assess whether a directed rex sole fishery has developed because quantities such as F_{ABC} will be sensitive to the characteristics of the resulting fishery selectivity curves. Monitoring fishery size and age compositions will be crucial.

6.5 Summaries for Plan Team

Species	Year	Biomass[1]	OFL[2]	ABC[2]	TAC[2]	Catch[3]
Rex sole	2007	82,708	11,900	9,100	9,100	2,852
	2008	82,801	11,933	9,132	9,132	2,514
	2009	81,572	11,756	8,996	--	--
	2010	80,037	11,535	8,827	--	--

[1]Adult biomass from the age-structured model (2007-8) or the updated projection model (2009-2010). [2]As published in the Federal Register (2007, 2008) or as recommended based on Tier 5 calculations using adult biomass from the projection model (2009, 2010). [3]As of Sept. 20, 2008.

Stock/ Assemblage	Area	2008 OFL[1]	ABC[1]	TAC[1]	Catch[2]	2009 OFL	ABC	2010 OFL	ABC
Rex sole	W	--	1,022	1,022	148	--	1,007	--	988
	C	--	6,731	6,731	2,366	--	6,630	--	6,506
	WYAK	--	520	520	0	--	513	--	503
	SEO	--	859	859	0	--	846	--	830
	Total	11,933	9,132	9,132	2,514	11,756	8,996	11,535	8,827

[1]As published in the Federal Register. [2]As of Sept. 20, 2008. Values published in the Federal Register are available through the following links:
2007: http://www.fakr.noaa.gov/sustainablefisheries/specs07_08/goatable1.pdf
2008: http://www.fakr.noaa.gov/sustainablefisheries/specs08_09/goatable1.pdf
2009: http://www.fakr.noaa.gov/sustainablefisheries/specs08_09/goatable2.pdf