4. Assessment of the Shallow Water Flatfish complex in the Gulf of Alaska (Executive Summary)

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Introduction

Assessment for the shallow water flatfish complex has been moved to a biennial schedule to coincide with the expected receipt of new survey data. Usually, on alternate (even) years we will present an executive summary with last year's key assessment parameters and projections for this year. 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.

The shallow water complex is comprised of northern rock sole, southern rock sole, yellowfin sole, butter sole, starry flounder, English sole, sand sole and Alaska plaice. Northern and southern rock sole are in Tier 3a while the other species in the complex are in Tier 5. For further information regarding the shallow water flatfish complex, please see the last full stock assessment (Turnock et al. 2011, http://www.afsc.noaa.gov/refm/docs/2011/GOAshallowflat.pdf).

Summary of changes in the Assessment Inputs

Changes in the input data: The new information available concerning the shallow water flatfish complex are the updated 2013 catch of 5,522 t and the partial 2014 catch of 3,917 t through October 11. Projected catch to the end of 2014 using the same fraction of catch to October 11 that occurred in 2013 (87.6%) would be 4,472 t.

Changes in the assessment methodology: There are no changes to the assessment methodology. The 2013 survey data have been used for the Tier 5 calculations, while northern and southern rock sole are in Tier 3 (See A'mar et al 2014). Biomass, OFL and ABC values for northern and southern rock sole are estimated using projections from the 2014 assessment model with catches updated for 2013 and 2014.

Summary of Results

The 2013 and 2014 catches by species are presented in the following table:

Species		
Shallow-water flatfish	2013 Catch	2014 Catch[1]
Northern rock sole	2,047	2,660
Southern rock sole	2,010	760
Yellowfin sole	2	14
Butter sole	1,237	239
Starry flounder	131	143
English sole	79	91
Sand sole	13	5
Alaska plaice	1	4

Total shallow-water	5,522	3,917

[1]Through Oct. 11, 2014.

Area Apportionment

The recommended apportionment are estimated using the 2013 survey biomass for the shallow water flatfish complex by management areas.

	Western	Central	Yakutat	Southeast
Proportions	0.499	0.437	0.050	0.014
ABC	20,376	17,813	2,039	577

Research Priorities

More aging data is needed to improve estimates of natural mortality for Tier 5 species.

Summaries for Plan Team

Species/Assemblage	Year	Biomass	OFL[1]	ABC[1]	TAC[1]	Catch[2]
Shallow water flatfish	2007	365,766	62,418	51,450	19,972	8,788
	2008	436,591	74,364	60,989	22,256	7,390
	2009	436,591	74,364	60,989	22,256	8,483
	2010	398,961	67,768	56,242	20,062	5,534
	2011	398,961	67,768	56,242	20,062	3,974
	2012	329,217	55,943	45,802	37,029	4,022
	2013	433,869	55,680	45,484	37,077	5,515
	2014	384,134	50,007	40,805	33,679	3,917
	2015	287,534	54,207	44,205		
	2016	260,234	44,205	39,205		

The recommended 2014 and 2015 shallow-water flatfish ABC and OFL levels with tier 3a estimates from projections run with the 2014 model and updated with 2013 and 2014 catches for northern and southern rock sole (see A'mar et al 2014):

Stock/		**2014**				**2015**		**2016**	
Assemblage	**Area**	**OFL[1]**	**ABC[1]**	**TAC[1]**	**Catch[2]**	**OFL**	**ABC**	**OFL**	**ABC**
Shallow water flatfish	W	--	20,376	13,250	232	--	22,074	--	19,577
	C	--	17,813	17,813	3,683	--	19,297	--	17,114
	WYAK	--	2,039	2,039	1	--	2,209	--	1,959
	SEO	--	577	577	1	--	625	--	554
	Total	50,007	40,805	33,679	3,917	54,207	44,205	44,205	39,205

[1]As published in the Federal Register. [2]As of Oct. 11, 2014.

Note: Tables of ABCs, OFLs, and TACs published in the Federal Register are available for:
2013: http://alaskafisheries.noaa.gov/sustainablefisheries/specs13_14/goatable1.pdf
2014: http://alaskafisheries.noaa.gov/sustainablefisheries/specs13_14/goatable2.pdf

The recommended shallow-water flatfish ABC and OFL levels are:

Quantity	As estimated or *specified last* year for: 2014	2015	As estimated or *recommended this* year for: 2015	2016
M (natural mortality rate)[1]	0.2	0.2	0.2	0.2
Tier	3a and 5	3a and 5	3a and 5	3a and 5
Biomass (t)	384,134	362,534	287,534	260,234
F_{OFL}	*	*	*	*
$maxF_{ABC}$	*	*	*	*
F_{ABC}	*	*	*	*
OFL (t)	50,007	46,207	54,207	48,407
maxABC (t)	40,805	37,505	44,205	39,205
ABC (t)	40,805	37,505	44,205	39,205
Status	As determined *last* year for: 2012	2013	As determined *this* year for: 2013	2014
Overfishing	No	No	No	NA

* See following table and A'mar et al 2014 for values by species
[1] Northern rock sole male M=0.251, southern rock sole male M= 0.259, all other M=0.2.

Calculations of the 2015 and 2016 shallow-water flatfish ABC and OFL levels by species including values for Tier 3a for northern and southern rock sole (See A'mar et al 2014) are:

Species					As *specified last* year for:				As *recommended this* year for:			
					2014		2015		2015		2016	
Shallow-water flatfish	Tier	FABC	FOFL	Biomass[1]	ABC	OFL	ABC	OFL	ABC	OFL	ABC	OFL
Northern rock sole	3a	0.374	0.374	80,000	9,400	11,000	8,300	9,700	14,300	17,000	11,900	14,200
Southern rock sole	3a	0.204	0.243	119,500	18,200	21,400	16,000	18,900	16,700	19,600	14,100	16,600
Yellowfin sole	5	0.15	0.2	23,016	3,452	4,603	3,452	4,603	3,452	4,603	3,452	4,603
Butter sole	5	0.15	0.2	8,122	1,218	1,624	1,218	1,624	1,218	1,624	1,218	1,624
Starry flounder	5	0.15	0.2	30,028	4,504	6,006	4,504	6,006	4,504	6,006	4,504	6,006
English sole	5	0.15	0.2	18,121	2,718	3,624	2,718	3,624	2,718	3,624	2,718	3,624
Sand sole	5	0.15	0.2	703	105	141	105	141	105	141	105	141
Alaska plaice	5	0.15	0.2	8,044	1,207	1,609	1,207	1,609	1,207	1,609	1,207	1,609
Total shallow-water					40,805	50,007	37,505	46,207	44,205	54,207	39,205	48,407

[1] 2013 survey biomass estimates except northern and southern rock sole age 3+ 2015 model estimates from Amar, et al 2014

Responses to SSC and Plan Team Comments specific to this assessment

The Team recommends a full assessment for the Tier 5 contribution to the SWF complex including in-depth consideration of relative catch by fishery and survey biomass estimates by area.

This will be addressed in the next full assessment for SWF in 2015.

4.6 Literature Cited

A'mar, Z.T. and W. Palsson. 2013. Assessment of the northern and southern rock sole (*Lepidopsetta polyxystra and bilineata*) stocks in the Gulf of Alaska for 2014. In: Stock Assessment and Fishery Evaluation Report for Groundfish Resources in the Gulf of Alaska. North Pacific Fishery Management Council, Anchorage, AK, USA.

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