

# 19. Assessment of the sculpin complex in the Gulf of Alaska

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## Executive Summary

### Introduction

In 2012, the biennial AFSC trawl survey in the Gulf of Alaska (GOA) was not conducted. This document therefore consists of an executive summary because no new data are available. Last year's full assessment is available on the web (Spies *et al.* 2011, <http://www.afsc.noaa.gov/REFM/docs/2011/GOAsculpin.pdf>).

Gulf of Alaska sculpins have been managed as an independent complex with its own harvest specifications since 2010, when the North Pacific Fishery Management Council passed Amendment 87 to the GOA Fishery Management Plan, which separated the Other Species complex into its constituent species groups. Sculpins are currently a non-target species complex in the GOA, so sculpin catch depends solely on the TAC and spatial temporal limitations placed on target fisheries. Vulnerability analyses indicate that the individual species in the sculpin complex have a wide range of vulnerabilities to overfishing (largely as a result of differences in life history and thus productivity), which may suggest that two or more separate sculpin complexes could be considered.

### New information and projection

New catch information includes updated 2011 catch (691 t), and 2012 catch (804 t) as of October 20, 2012 ([http://www.fakr.noaa.gov/2012/car110\\_goa.pdf](http://www.fakr.noaa.gov/2012/car110_goa.pdf)). The 2012 catch of GOA sculpins is 14% of the 2012 TAC; the 2011 GOA sculpin catch was 13% of the TAC.

Quantity	As estimated or specified last year for:		As estimated or recommended this year for:	
	2012	2013	2013	2014
sculpin complex average mortality rate ( $M$ ) <sup>1</sup>	0.22	0.22	<b>0.22</b>	0.22
Tier	5	5	<b>5</b>	5
biomass	34,732	34,732	<b>34,732</b>	34,732
$F_{OFL}$ ( $F$ =complex mortality rate)	0.220	0.220	<b>0.220</b>	0.220
max $F_{ABC}$ (maximum allowable = $0.75 \times F_{OFL}$ )	0.165	0.165	<b>0.165</b>	0.165
$F_{ABC}$	0.165	0.165	<b>0.165</b>	0.165
OFL (t) <sup>2</sup>	7,641	7,641	<b>7,641</b>	7,641
maxABC (t)	5,731	5,731	<b>5,731</b>	5,731
ABC (t)	5,731	5,731	<b>5,731</b>	5,731
Status	As determined last year for:		As determined this year for:	
	2010	2011	2011	2012
Is the stock being subjected to overfishing?	n/a		<b>n/a</b>	

**(for Tier 5 stocks, data are not available to determine whether the stock is in an overfished condition)**

<sup>1</sup> The sculpin complex mortality rate is a biomass-weighted average of the instantaneous natural mortality rates for the four most abundant sculpins in the GOA: bigmouth (*Hemitripterus bolini*), great (*Myoxocephalus polyacanthocephalus*), plain (*Myoxocephalus jaok*), and yellow Irish lord (*Hemilepidotus jordani*).

### **Area apportionment**

There is no area apportionment for GOA sculpins which are managed for the entire GOA.

### **Responses to SSC and Plan Team Comments**

In December 2011, the SSC agreed with the use of the four most recent survey biomass estimates and the calculation of a weighted average  $M$  ( $= 0.22$ ) based on the four most abundant sculpin species captured in the NMFS bottom trawl survey.

In September 2012 the Plan Teams recommended that assessment authors retain status quo assessment approaches for the November 2012 SAFE report but also apply the Kalman filter or random effects survey averaging for Tier 5 stocks and summarize the analytical results for comparison purposes only.

Because this is an executive summary, the status quo assessment approach (4 most recent surveys) for averaging surveys for biomass was retained. Next year the full assessment will evaluate and apply the recommended survey averaging approach.

### **Summaries for Plan Team**

<b>Species</b>	<b>Year</b>	<b>Biomass</b>	<b>OFL</b>	<b>ABC</b>	<b>TAC</b>	<b>Catch</b>
Sculpin complex	2011	<b>33,307</b>	7,328	5,496	5,496	691
	2012	34,610	7,641	5,731	5,731	804 <sup>1</sup>
	2013	34,610	7,614	5,884		
	2014	34,610	7,614	5,884		

<sup>1</sup>/ Current as of October 19, 2012, Source: NMFS AKRO BLEND/Catch Accounting System.

### **Data Gaps and Research Priorities**

Data gaps exist in sculpin species life history characteristics, spatial distribution and abundance in Alaskan waters. Most importantly no data on maximum age exists for the four main sculpin species in the GOA. Therefore, collections for age data on yellow Irish lord, great sculpin, bigmouth sculpin and plain sculpin are needed from the GOA. Over 90% of all sculpins caught in the fisheries of the GOA in surveys from 2004-2012 were from the genera *Myoxocephalus*, *Hemitripterus*, and *Hemilepidotus*. Collecting seasonal food habits data (with additional summer collections) would help to clarify the role of both large and small sculpin species within the GOA ecosystem. In addition, there is a need for GOA specific research on natural mortality of sculpin species. These data are necessary to improve management strategies for non-target species.