Chapter 15

ASSESSMENT OF GULF OF ALASKA THORNYHEADS

EXECUTIVE SUMMARY

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15.1 Introduction

Gulf of Alaska (GOA) thornyheads has been moved to a biennial stock assessment schedule to coincide with new survey data. A full assessment was presented in 2007 which included data from the 2007 GOA bottom trawl and 2006 and 2007 longline surveys. On alternate (even) years we will present an executive summary with updated catch, last year's key assessment parameters, any significant new information available in the interim, and projections for this year.

While thornyhead rockfish are a commercially valuable species, there is no directed fishery because they are taken as incidental catch in other directed groundfish fisheries. Thornyheads are incidentally caught in directed fisheries for rockfish, flatfish and sablefish. Catch in recent years has been declining. The complex is dominated by shortspine thornyheads (*Sebastolobus alascanus*) with longspine thornyheads (*Sebastolobus altivelis*) making up a very minor component of the complex. Broadfin thornyheads (*Sebastolobus macrochir*) are rarely if ever encountered, and it is recommended that these be removed from the assemblage.

Since 2003, thornyhead rockfish have been assessed using Tier 5 criteria given the lack of age data available to support age structured modeling. The 2007 GOA trawl survey biomass estimate of 84,775 t was used to represent exploitable biomass for thornyhead rockfish. Under Tier 5, $F_{OFL} = M = 0.03$, and maximum permissible $F_{ABC} = 0.75 \text{ X } M = 0.0225$. The 2008 (and 2009) ABC was determined by multiplying the exploitable biomass by max $F_{ABC} = 0.0225$ giving 1,910 t. The corresponding Gulf wide OFL was 2,540 mt. The Council set the 2008 OFL at 2,540 t, and the TAC equal to the ABC for thornyheads at 1,910 t. Last year's full assessment is available on the web (Lowe et al. 2007, http://www.afsc.noaa.gov/refm/docs/2007/GOAthorny.pdf).

15.2 New information and projection

New catch information includes updated 2007 and 2008 catches by area as of November 8, 2008 (http://www.fakr.noaa.gov/2008/car110_goa.pdf).

Gulf of Alaska thornyhead catches (t) by region

	Western	Central	Eastern	Total
2007	341	197	163	701
2008	274	299	164	737

New 2008 longline survey information indicates a large increase in the relative population numbers and weight of thornyheads caught in the survey.

Relative population number (RPN) and weight (RPW) for GOA thornyheads from the longline survey, 2006-2008 (Chris Lunsford, NMFS, Auke Bay Lab, pers. comm.)

Year	RPN	RPW
2006	63,711	32,496
2007	67,199	32,258
2008	80,033	43,344

There is no new information incorporated into the projection. For the 2009 fishery, we recommend an ABC of 1,910 t. This ABC is equivalent to last year's ABC for 2008 (and 2009). The corresponding reference values for thornyheads are summarized below. Because thornyheads are managed in Tier 5, several of the values are not applicable (NA).

Tier 5	Last year's projection		This year's projection	
M = 0.03	2008	2009	**2009**	2010
$B_{40\%}$ (mt)	NA	NA	NA	NA
Female Spawning Biomass (mt)	NA	NA	NA	NA
Maximum permissible F_{ABC}	0.0225	0.0225	**0.0225**	0.0225
F_{ABC}	0.0225	0.0225	**0.0225**	0.0225
F_{OFL}	0.03	0.03	**0.03**	0.03
ABC (t yield at $F_{ABC} = 0.75M$)	1,910	1,910	1,910	1,910
OFL (t, yield at $F_{ABC} = M$)	2,540	2,540	2,540	2,540

15.3 Area apportionment

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

Area Apportionment	Western 14%	Central 45%	Eastern 41%	Total 100%
Area ABC (t)	**267**	**860**	**783**	**1,910**

15.4 Research priorities

Because fishing mortality in the GOA appears to be a larger proportion of adult thornyhead mortality than predation mortality, the highest priority for research should continue to be the direct effects of fishing on the shortspine thornyhead population. The most important component of this research is to fully evaluate the age and growth characteristics of GOA thornyheads and to develop an age structured population dynamics model with adequate information. More information on thornyhead habitat preferences would be useful to improve our understanding of Essential Fish Habitat (EFH), and improve our assessment of the impacts to habitat due to fishing. Better habitat mapping of the Gulf of Alaska would provide information for survey stratification and the extent of trawlable and untrawlable habitat.

We reiterate, as in the past, that it is critically important to the assessment of thornyheads that the GOA trawl surveys extend into deeper waters (>500 m) in order to cover the primary depth range of the shortspine thornyhead stock.

15.5 Summaries for the Plan Team

Species	Year	Biomass	OFL	ABC	TAC	Catch
Thornyhead (Gulfwide)	2007	98,158	2,945	2,209	2,209	701
	2008	84,775	2,540	1,910	1,910	737[1]
	2009	84,775	2,540	1,910		
	2010	84,775	2,540	1,910		

Stock/ Assemblage	Area	2008 OFL	ABC	TAC	Catch[1]	2009 OFL	ABC	2010 OFL	ABC
Thornyheads	W	--	267	267	274		267		267
	C	--	860	860	299		860		860
	E	--	783	783	164		783		783
	Total	2,540	1,910	1,910	737[1]	2,540	1,910	2,540	1,910

1/ Current as of November 8, 2008 (http://www.fakr.noaa.gov/2008/car110_goa.pdf).

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