

Chapter 15

Assessment of Thornyheads of the Gulf of Alaska

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 the availability of survey data. A full assessment was presented in 2009 which included data from the 2009 GOA bottom trawl and 2009 longline surveys. On alternate (even) years we 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 and TAC levels are sufficient to provide for a directed fishery, they are only 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 2009 GOA trawl survey biomass estimate of 78,795 t was used to represent exploitable biomass for thornyhead rockfish. Under Tier 5, $F_{OFL} = M = 0.03$, and maximum permissible $F_{ABC} = 0.75 \times M = 0.0225$. The 2010 (and 2011) ABC was determined by multiplying the exploitable biomass by $\max F_{ABC} = 0.0225$ giving 1,770 t. The corresponding Gulf wide OFL was 2,360 mt. The Council set the 2010 OFL at 2,360 t, and the TAC equal to the ABC for thornyheads at 1,770 t. Last year's full assessment is available on the web (Lowe et al. 2009, <http://www.afsc.noaa.gov/refm/docs/2009/GOAthorny.pdf>).

15.2 New information and projection

New catch information includes updated 2009 and 2010 catches by area as of 23, October 2010 (http://www.fakr.noaa.gov/2010/car110_goa.pdf).

Gulf of Alaska thornyhead catches (t) by region

	Western	Central	Eastern	Total
2009	230	274	152	656
2010	129	274	149	552

New information from the 2010 longline survey indicates increases of 22 and 29% respectively, in the relative population numbers and weight of thornyheads relative to the 2009 survey. The 2010 values are more similar to the 2008 values. The nature of the interaction between sablefish and thornyheads in the longline survey and the impacts on thornyhead RPN and RPW indices are unclear. Therefore, it is difficult to interpret trends in the longline survey indices for thornyheads.

Gulf of Alaska thornyhead relative population number (RPN) and weight (RPW) from the longline survey, 2008-2010 (Chris Lunsford, NMFS, Auke Bay Lab, pers. comm.).

Year	RPN	RPW
2008	88,033	43,344
2009	76,205	34,472
2010	93,285	44,536

There is no new information incorporated into the projection. For the 2011 (and 2012) fishery, we recommend an ABC of 1,770 t. This ABC is equivalent to last year's ABC for 2010 (and 2011). The corresponding reference values for thornyheads are summarized below.

Quantity/Status	Last year		This year	
	2010	2011	2011	2012
M (natural mortality)	0.03	0.03	0.03	0.03
Specified/recommended Tier	5	5	5	5
Biomass	78,795	78,795	78,795	78,795
F_{OFL} ($F=M$)	0.03	0.03	0.03	0.03
$maxF_{ABC}$ (maximum allowable = $0.75x F_{OFL}$)	0.0225	0.0225	0.0225	0.0225
Specified/recommended F_{ABC}	0.0225	0.0225	0.0225	0.0225
Specified/recommended OFL (t)	2,360	2,360	2,360	2,360
Specified/recommended ABC (t)	1,770	1,770	1,770	1,770
Is the stock being subjected to overfishing?	No	No	No	No
(for Tier 5 stocks, data are not available to determine whether the stock is in an overfished condition)				

15.3 Area apportionment

The apportionments are based on the biomass distribution from the most recent survey (in this case the 2009 survey). 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 2011 and 2012.

	Western	Central	Eastern	Total
Area Apportionment	24%	36%	40%	100%
Area ABC (t)	425	637	708	1,770

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)	2009	84,775	2,540	1,910	1,910	656
	2010	78,795	2,360	1,770	1,770	552 ¹
	2011	78,795	2,360	1,770		
	2012	78,795	2,360	1,770		

Stock/ Assemblage	Area	2010				2011		2012	
		OFL	ABC	TAC	Catch ¹	OFL	ABC	OFL	ABC
Thornyheads	W	--	425	425	129		425		425
	C	--	637	637	274		637		637
	E	--	708	708	149		708		708
	Total		2,360	1,770	1,770	552 ¹	2,360	1,770	2,360

1/ Current as of 23 October, 2010 (http://www.fakr.noaa.gov/2010/car110_goa.pdf).

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