CHAPTER 13

Assessment of the Blackspotted and Rougheye Rockfish Complex in the
Eastern Bering Sea and Aleutian Islands

by

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Introduction

In 2005, BSAI rockfish were moved to a biennial assessment schedule to coincide with the frequency of trawl surveys in the Aleutian Islands (AI) and the eastern Bering Sea (EBS) slope. These surveys occur in even years, and for these years a full assessment of blackspotted and rougheye rockfish in the BSAI area will be conducted. The 2008 full assessment can be found at http://www.afsc.noaa.gov/refm/docs/2008/BSAIrougheye.pdf. In years without a scheduled Aleutian Islands survey, an "update" is produced by revising the recent catch data and re-running the projection model using the results from the previous full assessment as a starting point. Therefore, this update was produced by running the projection model with a revised catch estimate for 2008 and a new catch estimate for 2009.

Updated catch and projection

The blackspotted/rougheye complex is currently assessed with an Aleutian Islands model, which is applied to fishery and survey data from the AI management area. The new information for this update is the final estimate of 2008 AI catch and a revised estimate of the 2009 catch. The 2008 AI catch was 185 t, identical to the estimate of 185 t that was used in the 2008 projection. The 2009 AI catch through October 17th, 2009 was 148 t, with catches still occurring in the fall of 2009. Thus, the estimated 2009 AI catch is set to 180 t, which is close to the total annual catch in recent years.

The BSAI ABC and OFL levels are obtained from combining the results of the AI model to those for EBS blackspotted/rougheye, which are obtained with Tier 5 methods. The available survey biomass estimates for EBS blackspotted/rougheye rockfish includes the southern Bering Sea portion of the AI survey, and the 2002, 2004, and 2008 EBS slope survey estimates. For each survey, weighted averages are used to give more weight to more recent survey data. The estimates of ABC and OFL for the EBS rougheye/blackspotted rockfish differ slightly from the 2008 values due to a slight change in the 2008 survey biomass estimate, and the use of the model estimate of natural mortality (0.032), rather than a fixed value of 0.03, for the proxy for F_{abc}.

For 2010, we recommend a maximum permissible BSAI ABC of 547 t based upon the updated projection. This value is nearly equivalent to the 2008 projection for 2010 (522 t). The increase results from the assumption in the 2008 projection that the full ABC would be harvested in 2009. Based upon the observed catch in 2009 through Oct 17, it is expected that the 2009 catch will be lower than the ABC. Therefore, the value used for the 2009 catch in the projection model is lower than the ABC and lower that the value assumed in the 2008 projection. The stock is not overfished nor approaching an overfishing status. Stock size and fishing rate reference values for the AI blackspotted/rougheye rockfish, and recommended harvest levels for the BSAI area, are shown in the following table:

	2008 Projection		2009 Projection	
	2009	2010	2010	2011
M	0.032	--	0.032	--
Tier	3b	--	3b	--
B100% (mt)	16,808	--	16,808	--
B40% (mt)	6,723	--	6,723	--
B35% (mt)	5,883	--	5,883	--
SSB (mt)	6,535	6,427	6,571	6,482
Total Biomass (mt)	18,978	19,093	19,415	19,530
Max Fabc	0.038	0.038	0.039	0.038
Fofl	0.047	0.046	0.047	0.046
ABC (BSAI)	539	522	547	531
OFL (BSAI)	660	640	669	650
ABC (AI)	499	482	505	489
ABC (EBS)	40	40	42	42
OFL (AI)	607	587	613	594
OFL (EBS)	53	53	56	56

Responses to the comments of the Statistical and Scientific Committee

From the minutes of the December, 2008 meeting of the SSC:

"The BSAI Plan Team recommended that all authors of stocks managed in Tiers 1 through 3 should estimate the probability of the spawning stock biomass falling below $B_{20\%}$. The recommended time frame for this projection was 3-5 years. The SSC agrees with this recommendation and encourages authors to provide estimates of the probability of falling below biologically relevant thresholds such as $B_{20\%}$"

This issue will be addressed in the full assessment of blackspotted/rougheye in 2010.

"The SSC encourages the author to consider the implications of adopting area-specific ABCs"

The age-structured assessment model for blackspotted/rougheye was accepted by the BSAI Plan Team in 2008. At that time, the ABCs which would result from a single BSAI model as well as an AI-only model were presented, as well as information on stock structure and a comparison of potential area-specific ABCs to recent area-specific catches. More progress has been made on the issue of stock structure in 2009, including: 1) a symposium at the February, 2009 SSC meeting on genetic techniques pertaining to stock structure; 2) the formation of an SSC-Plan Team working group charged with developing guidelines for determining stock structure; and 3) the presentation of the report of the working group at the September, 2009 Plan Team meeting. The working group report identified various types of data to be considered when evaluating stock structure. The current status is that the template outlined in the working

group report will be applied to BSAI blackspotted/rougheye and presented to the Plan Team in September, 2010.

Research Priorities

Little information is known regarding most aspects of the biology of blackspotted and rougheye rockfish, particularly in the Aleutian Islands. One of the most pressing issues is identifying blackspotted rockfish from rougheye rockfish in the field. The ability for field identification has been examined during recent AFSC trawl surveys and compared with the identification obtained from genetic techniques. Once a reliable set of external characteristics has been identified, this information should be communicated to the North Pacific Groundfish Observer Program in order to begin identification of the fishery catch.

Summary table for BSAI Blackspotted/Rougheye Rockfish for the Plan Team

Year	Biomass[1]	OFL	ABC	TAC	Catch
2008	10,782	269	202	202	213
2009	20,753	660	539	539	159[2]
2010	21,178	669	547		
2011	21,293	650	531		

[1] Total biomass from AI age-structured projection model, and survey biomass estimates from EBS.
[2] BSAI catch as of October 17, 2009.

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