CHAPTER 12

Assessment of Pacific ocean perch in the Bering Sea/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 Pacific ocean perch (POP) in the BSAI area will be conducted. The 2010 full assessment can be found at http://www.afsc.noaa.gov/REFM/docs/2010/BSAIpop.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 2010 and a new catch estimate for 2011.

Updated ABC, OFL, Catch and Projection

The new information for this update is the final estimate of 2010 catch and a revised estimate of 2011 catch. The 2010 catch was 17,851 t, 5.3% lower than the estimate of 18,860 t that was used in the 2010 projection. The 2011 catch through October 8th, 2011 was 17,981 t. The estimated 2011 catch of 20,604 t is obtained by summing the total 2011 through September (17,872 t) and the average catch from Oct-Dec from 2007 – 2010 (2,732 t).

The 2011 ABC was set to a value lower (24,700 t) than that obtained from the Tier 3 control rule as a precautionary measure in response to the large increase in the estimated biomass in the 2010 assessment. This value was also used as the estimated catch for 2012 and 2013. A summary of the updated projection model results is shown below.

Quantity	As estimated or *specified last* year for: 2011	2012	As estimated or *recommended this* year for: 2012	2013
M (natural mortality rate)	0.062	0.062	0.062	0.062
Tier	3a	3a	3a	3a
Projected total (age 3+) biomass	600,609	582,741	593,624	583,496
Female spawning biomass (t)				
Projected	224,589	215,932	221,265	213,840
$B_{100\%}$	393,856	393,856	393,856	393,856
$B_{40\%}$	157,542	157,542	157,542	157,542
$B_{35\%}$	137,849	137,849	137,849	137,849
F_{OFL}	0.074	0.074	0.074	0.074
$maxF_{ABC}$	0.061	0.061	0.061	0.061
F_{ABC}	0.061	0.061	0.061	0.061
OFL (t)	36,276	34,265	35,009	33,728
maxABC (t)	30,442	28,755	29,379	28,302
ABC (t)	24,700	24,700	24,700	28,302
Status	As determined *last* year 2009	2010	As determined *this* year 2010	2011
Overfishing	No	n/a	No	n/a
Overfished	n/a		n/a	No
Approaching overfished	n/a		n/a	No

BSAI POP was not subjected to overfishing in 2010, and is not overfished or approaching an overfished condition.

Area Apportionment

In recent years, the POP ABC has been partitioned among subareas in the BSAI management area based upon the weighted averages of the most recent three surveys. The weighted biomass estimated by area are shown below; these values differ by a small amount from those used in the 2010 assessment due to changes to the survey data.

	Area			
	WAI	CAI	EAI	EBS
Weighted average biomass (t)	321,349	191,174	215,391	218,757
Proportion of biomass	33.9%	20.2%	22.8%	23.1%

Responses to the comments of the Scientific and Statistical Committee

General SSC comments from the December, 2010, meeting

For assessments with multiple models, the SSC requests that status determination criteria (Tier, two-year biomass projections, ABC's, and OFL's) be arrayed by stock assessment authors in a table in the assessment chapter so that the Plan Team and SSC can consider choosing alternative models. If the number of models being presented is very large, the authors may use their discretion to select a subset of desirable models for this summary.

For greater consistency in the way the terminal year catch is specified, the SSC requests that authors incorporate their best estimate of total landings that will occur for the entire year. This information will be used to generate projections and should be incorporated into BSAI and GOA specification tables.

The request for a table summarizing multiple model runs will be addressed in the 2012 full assessment. A slightly altered methodology was used in this update to improve estimates of terminal year catch.

SSC comments for BSAI POP from the December, 2012, meeting

SSC recommendations to the author:
1) Explore alternative selectivity patterns for the fishery;
2) Evaluate alternate selectivity time periods and state the rationale;
3) Consider increasing the number of age bins and evaluate model sensitivities.

These issues will be addressed in the 2012 full assessment for BSAI POP.

Data Gaps and Research Priorities

Although Pacific ocean perch may be considered a “data-rich” species relative to other rockfish, little information is known regarding most aspects of their biology, including reproductive biology and the distribution, duration, and habitat requirements of various life-history stages. Information on proportion mature by age was collected in 2010 (Spencer and TenBrink 2010) and will be incorporated into the 2012 full stock assessment. Given the relatively unusual reproductive biology of rockfish and its importance in establishing management reference points, data on reproductive capacity should be collected on a periodic basis.

Summaries for the Plan Team

Year	Biomass[1]	OFL	ABC
2010	403,061	22,400	18,900
2011	600,609	36,300	24,700
2012	593,624	35,000	24,700
2013	583,496	33,700	28,300

[1] Total biomass from age-structured projection model.

	Western AI	Central AI	Eastern AI	EBS	Total
Area apportionment for 2012-2013	33.9%	20.2%	22.8%	23.1%	100%
OFL (2010)					22,400
ABC (2010)	6,540	4,270	4,220	3,830	18,860
TAC (2010)	6,540	4,270	4,220	3,830	18,860
Catch (2010)	6,234	4,033	4,038	3,547	17,851
OFL (2011)					36,300
ABC (2011)	8,370	4,960	5,660	5,710	24,700
TAC (2011)	8,370	4,960	5,660	5,710	24,700
Catch (2011)[1]	8,182	4,768	4,104	928	17,981
OFL (2012)					35,000
ABC (2012)	8,380	4,990	5,620	5710	24,700
OFL (2013)					33,700
ABC (2013)	9,610	5,710	6,440	6,540	28,300

[1]Catch through Oct 8th, 2011

References

Spencer, P.D. and T. TenBrink. 2011. Maturity of Pacific ocean perch (*Sebastes alutus*), northern (*S. polyspinis*), blackspotted (*S. melanostictus*), rougheye (*S. aleutianus*) and shortraker (*S. borealis*) rockfish in the Aleutian Islands: filling critical life-history data gaps for data-poor commercially important rockfishes. North Pacific Research Board Final Report 907, 50 p.