

Stock/ Assemblage	Area	2016		2017	
		OFL	ABC	OFL	ABC
Other rockfish	EBS		695		695
	AI		555		555
	Total	1,667	1,250	1,667	1,250

BSAI Sharks

The BSAI shark complex includes Pacific sleeper shark, spiny dogfish, salmon shark and other/unidentified sharks. This was an off-year in the assessment cycle. This stock is managed as a Tier 6 complex, with an OFL based on maximum historical catch from 1997-2007 and ABC set at 75% of the OFL. The author included an updated catch time series and noted that the catches exceeded the TAC in 2014 and 2015. There were no changes to the proposed ABC/OFL for 2016 and 2017. **The SSC concurs with the author and PT recommended harvest specifications from the status quo approach (see table).**

Stock/ Assemblage	Area	2016		2017	
		OFL	ABC	OFL	ABC
Shark	BSAI	1,363	1,022	1,363	1,022

BSAI Skates

This chapter was presented in executive summary format as a scheduled off-year assessment. The model was updated with 2014 catch data and preliminary 2015 catch data. **The SSC concurs with the author and the PT that the Alaska skate stock should be managed as a Tier 3a stock and the other skates complex as a Tier 5 stock. The SSC accepts PT recommendations for ABC and OFL of the skate complex as a whole (see table).**

Stock/ Assemblage	Area	2016		2017	
		OFL	ABC	OFL	ABC
Skate	BSAI	50,215	42,134	47,674	39,943

BSAI Sculpins

The BSAI sculpin complex is assessed as a Tier 5 stock, in which a natural mortality rate is applied to a biomass estimate in order to obtain harvest reference points. For this complex, the natural mortality rate is a biomass-weighted natural mortality rate for the six most abundant sculpins. The current natural mortality estimate is $M = 0.29$. This was an off-year assessment and there were no changes to assessment inputs or methodology. The 2016 and 2017 OFL and ABC values are identical to those produced for last year. **The authors and PT recommend the status quo approach, and the SSC concurs.**

Stock/ Assemblage	Area	2016		2017	
		OFL	ABC	OFL	ABC
Sculpin	BSAI	52,365	39,725	52,365	39,725

BSAI Squid

Harvest recommendations for BSAI squid have been based on the average catch from 1978 through 1995 in the past. In 2014 and 2015, substantial increases in squid catch acted as a constraint on the EBS pollock fishery. In both years, a voluntary closure was put in place to reduce squid catches, and possibly

interfered with the fleet's ability to avoid salmon and herring PSC. The 2015 BSAI squid catch to date has exceeded the ABC and is approaching the OFL. The catch also approached the ABC in 2014. Given the recent high catch rates, the SSC and PT requested the author review the analytic approach and develop a set of harvest recommendations that better reflect "sustainable removal levels of squid". A large set of alternative approaches were explored that included spawning escapement approaches, alternative historical catch scenarios, and modified Tier 5 approaches using the $F = M$ method modified with the Baranov equation to account for mortality during the year. Based on this analysis, the author recommended a change in the representative time period, from the status quo of 1978 - 1995 to 1977 - 1981. OFL is calculated as the average catch from this time period. The PT supported this approach.

The SSC appreciates the author's efforts to address the difficulties surrounding assessing BSAI squid, especially during an "off-year" assessment. These difficulties center on the concept of developing a reasonable approach that results in a sustainable catch of BSAI squid, given the available data. After some discussion, **the SSC accepted the author and PT recommended OFL and ABC (see table) for several reasons.** First, the assessment author, the PT, and the SSC are in agreement that it is highly unlikely that current catch levels or catches approaching the revised harvest specifications would result in a conservation concern for BSAI squid. Second, among the alternatives presented and explored in the past, these specifications seem reasonable given the caveats of the available data. The SSC notes that the resultant OFL and ABC are intermediate among the alternatives presented. These new specifications would allow for incidental catch, while still limiting the development of a large targeted fishery. Third, 2014 and 2015 catch levels are close to those from 2001-2008, so there is a precedent for the current catch levels. Finally, the Council is moving forward with an analysis to potentially move squid to an Ecosystem Component species, which the SSC has supported exploring in the past. The SSC believes these harvest specifications could serve as a bridge until this analysis is completed.

An important assumption for using Tier 6 methods is that the years used for calculation represent sustainable catches. The PT believed the decline in historical catches was the result of decreased effort from the foreign fleet, and not indicative of a population decline. The SSC supported the author and PT recommended Tier 6 method and time period this year, dependent upon this assumption, but would like to see the results of this examination in 2016. **The SSC supports the PT recommendation to examine the cause behind the dramatic decline in catch in the early 1980s for the 2016 assessment. The SSC supports the PT recommendation for the author to consider whether certain environmental conditions may be correlated with squid catch and abundance in the surveys.**

Stock/ Assemblage	Area	2016		2017	
		OFL	ABC	OFL	ABC
Squids	BSAI	6,912	5,184	6,912	5,184

BSAI Octopus

There are seven species of octopus that are managed under the BSAI octopus complex, the most common of which is the giant Pacific octopus, which is found on the shelf and dominates the incidental catches from commercial fisheries. Catch of octopus in 2014 was relatively high (422 tons) and exceeded the TAC. Catch so far in 2015 is 335 tons. BSAI trawl surveys produce biomass estimates but these are highly variable and there are continued concerns that the surveys do not adequately sample octopus. Bering Sea shelf survey biomass estimates were low in 2014 (2,351 tons) but 2015 estimates are much higher (5,363 tons). The catches in 2014 and 2015 were well under the ABC.

BSAI octopus was pulled out of the "Other species" complex in 2010. Catch limits in 2011 and 2012 were set using Tier 6 methods based on the maximum historical incidental catch. In 2012, a new methodology was developed to set harvest specifications based on the consumption of octopus by Pacific cod. The geometric mean of all annual estimates of predation mortality by Bering Sea cod on octopus is