

20. Assessment of the Shark stock complex in the Bering Sea and Aleutian Islands (Executive Summary)

Cindy A. Tribuzio, Katy Echave, Cara Rodgveller, Peter Hulson
November 2013

Executive Summary

The shark complex (Pacific sleeper shark, spiny dogfish, salmon shark and other/unidentified sharks) in the Bering Sea and Aleutian Islands (BSAI) is assessed on a biennial stock assessment schedule. BSAI sharks are a Tier 6 complex with the OFL based on maximum historical catch between the years 1997 – 2007 (ABC is 75% of OFL). For this off-year summary, we have updated the time series of catch through Oct 24, 2013 to reflect any changes that might have occurred in the Catch Accounting System (for the years 2003 – 2013). Any changes in historical catch did not result in new estimates of maximum historical catch during 1997 – 2007 and thus did not change the proposed ABC/OFL. For further information regarding the assessment, please refer to last year’s full stock assessment, which is available online (Tribuzio et al. 2012, <http://www.afsc.noaa.gov/REFM/Docs/2012/BSAIs shark.pdf>). A full stock assessment document with updated survey and catch estimates will be presented in next year’s SAFE report.

Summary of changes in Assessment Inputs

Changes in the input data: There were no changes made to the assessment inputs since this was an off-cycle year. However, it should be noted that the estimated catch for 2013 is based on the restructured observer program data. Swept area biomass estimates from the 2012 Eastern Bering Sea shelf survey were not available for the last full assessment and have been updated here. The survey only caught one Pacific sleeper shark with an estimated biomass of 267 t and a CV of 100%.

Changes in assessment methodology: There were no changes in assessment methodology.

Summary of Results

For 2013 we recommend the maximum allowable ABC of 1,022 t and an OFL of 1,363 t for the shark complex. Catch in 2012 was 95 t and in 2013 was 71 t (as of October 24). The stock complex was not subject to overfishing last year, and data do not exist to determine if the species in the complex are overfished.

Shark Complex Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2013	2014	2014	2015
Tier	6	6	6	6
OFL (t)	1,360	1,360	1,363*	1,363
maxABC (t)	1,020	1,020	1,022	1,022
ABC (t)	1,020	1,020	1,022	1,022
Status	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2011	2012	2012	2013
Overfishing	No	n/a	No	n/a

*The small discrepancy between the author recommendations and the specifications is due to the Plan Teams recommending and the SSC accepting the use of a rounded value. These values have not changed since 2010.

Summaries for Plan Team

Species	Year	Biomass ¹	OFL	ABC	TAC	Catch ²
Shark Complex	2012	Unknown	1,363	1,020	50	95
	2013	Unknown	1,363	1,020	100	71
	2014		1,363	1,020		
	2015		1,363	1,020		

¹Swept area biomass estimates are calculated for the BSAI surveys, but are not reliable for the shark species. They are not used for ABC/OFL calculations and are not included here.

²Catch as of Oct 24, 2013

SSC and Plan Team Comments on Assessments in General

“The Teams recommend that the whole time series of each category of “other” catches be made available on the NMFS “dashboard,” so that they may be listed in all SAFE chapters.” (Plan Team, Nov 2012)

SSC and Plan Team Comments Specific to this Assessment

“Thus the Team requests that the authors and Regional Office staff review whether the incidental catch estimates should be included in the official time series of historic catch for Tier 6 stock complexes.” (Plan Team, Nov 2012)

“The SSC continues to encourage authors to pursue studies to collect life history information for sharks and to identify methods for estimating abundance of species that are rarely captured in standard surveys. The SSC remains concerned that the LL RPNs for Pacific sleeper shark stock remain low.” (SSC 2012)

“The SSC encourages the authors to explore the possibility of advancing Pacific sleeper shark to a Tier 5 status. To accomplish this, the authors need to understand the absence of mature Pacific sleeper sharks in the surveys and fishery observations.” (SSC 2012)

CIE Review of Non-Target Assessments, comments specific to this assessment

“Until recommendation 6 is addressed (review of bottom trawl survey) the bottom trawl surveys as combined are not generally useful as an absolute estimate of stock biomass; and further should not be used for management purposes until these issues (i.e. trawl survey review) are successfully resolved.”

“If using the Tier 5 methods, investigate appropriate means of converting survey biomass to absolute biomass (i.e. catchability) and alternative Fmsy proxies besides $F=M$.”

“That all shark stocks in the BSAI/GOA area are split to have separate OFL/ABC by species and region, and that the OFL be based on the Tier 6 approach as the average catch of each species individually.”

“Using the maximum or average catch for Tier 6 may not be appropriate, alternatives could be to use an upper bound of a one-sided 95% or 99% confidence interval.”

*“Dogfish: Clearly, there is some connection to the stock of dogfish residing the Pacific Northwest region just to the south. The connection with the assessed unit to the south should be explored further. One method of doing so would be to simply treat the BSAI through the NWP as a single unit. In the interim, average catch in the 1997-2007 should be feasible for both components. It is recognized that the GOA dogfish uses a biomass*M approach. However, in keeping with conclusion 1 the average catch is probably a more robust measure.”*

“Salmon shark: they might be better off being assessed outside of the AFMC jurisdiction as a highly migratory species. Regardless, catches and encounters with inshore fisheries needs to be addressed sooner rather than later for this stock. In the interim, average catch can serve as a good proxy, but that suggestion is made grudgingly given how little is known about this stock.”

“Pacific sleeper shark: What data are available is disturbing. While most of the individuals encountered are juvenile, the overall fishery dependent and independent data suggests a declining trend. As such, while average catch is probably the only measure available for informing an OFL, SSC and managers should be aware that more precaution is warranted until further information is gathered.”

“It is appropriate to base the assessment of shark on Tier 6, and not Tier 5, since the AFSC bottom trawl surveys are directed at groundfish species. Also, the bottom trawl surveys do not necessarily cover the spatial range of many shark species as suggested by the large interannual variability in CPUEs, and therefore do not provide reliable biomass estimates.”

Responses to Comments and Research Priorities

Responses to the previously listed SSC, Plan Team and CIE Comments will be provided in next year’s full stock assessment report. To address several of these comments, we plan to continue studies to investigate stock structure of Pacific sleeper sharks and further investigate methods for assessing size and maturity for sharks caught in both survey and commercial fishing operations.

Literature Cited

Tribuzio, C.A., K.B. Echave, C. Rodgveller, and P. Hulson. 2012. Assessment of the Shark Stock Complex in the Bering Sea and Aleutian Islands. *In* Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea and Aleutian Islands for 2012. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306, Anchorage, AK 99501. Pgs. 1771 – 1848.

(This page intentionally left blank)