

Chapter 7

Assessment of the Kamchatka Flounder stock in the Bering Sea and Aleutian Islands

By

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Executive Summary

Bering Sea and Aleutian Islands (BSAI) Kamchatka flounder are assessed biennially according to the stock assessment prioritization schedule. A forward projecting age structured model is the primary assessment tool for BSAI Kamchatka flounder, which qualifies as a Tier 3 stock. The assessment model is not run during an off-cycle year. During odd years, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2022, information regarding the stock assessment model and results is available online (Bryan et. al, 2022; <https://www.fisheries.noaa.gov/resource/data/2022-assessment-kamchatka-flounder-stock-bering-sea-and-aleutian-islands>). A full stock assessment document with updated assessment and projection model results is scheduled for November, 2024

Description of Updated Catch

New data added to the projection model included an updated 2022 catch of 8,369 t and new catch estimates for 2023-2025. We estimated the 2023 catch by increasing the official catch as of September 27th, 2023 by an expansion factor. The expansion factors used was 1.046. The expansion factor represents the average fraction of catch taken after September 27th in the last five complete years (2018-2022). This resulted in an estimated catch for 2023 of 7,080 t. The 2023 preliminary catch was also used for the 2024 and 2025 catch values in the projection model.

Summary of results

Based on the projection model results, recommended ABCs for 2024 and 2025 are 7,498 t and 7,360 t. The recommended OFLs are 8,850 t and 8,687 t for 2024 and 2025, respectively. The new ABC and OFL recommendations for 2024 are similar to the 2023 ABCs and OFL developed using the 2022 full assessment model. The stock is not overfished, and is not approaching a condition of being overfished. The results are presented in the following table.

Survey biomass on the Eastern Bering Sea shelf continues to decline and declined by 16% in 2023 (Figure 7.1a). This year was an off-cycle year for the Aleutian Islands survey, but the time-series through 2022 is shown in Figure 7.1b. Exploitation slightly declined in 2023, but has been generally increasing since 2018.

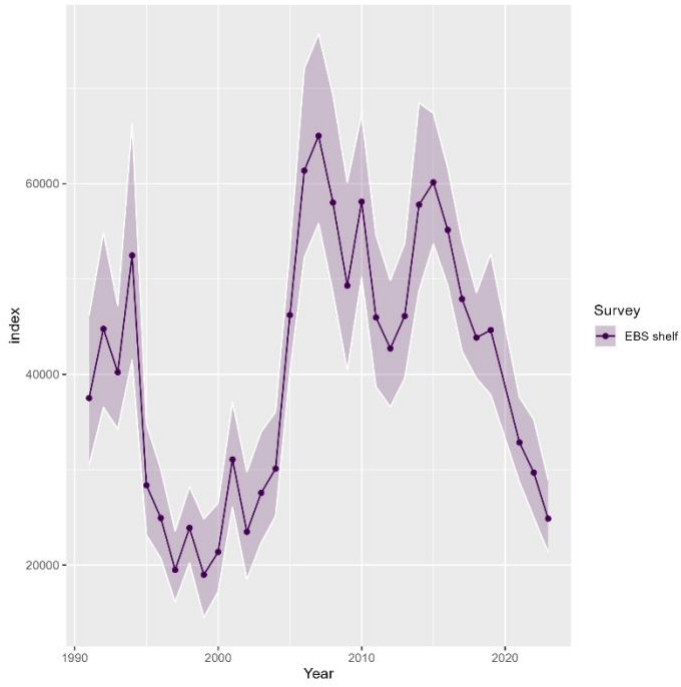
	Tier 3 assessment model			
	As estimated last year for		As estimated this year for	
Quantity	2023	2024	2024	2025
<i>M</i> (natural mortality rate)	0.11	0.11	0.11	0.11
Tier	3a	3a	3a	3a
Projected total (age 2+) biomass (t)	121,977	118,713	119,565	116,651
Projected female spawning biomass	47,877	47,387	47,849	47,330
Projected				
<i>B</i> _{100%}	94,370	94,370	94,370	94,370
<i>B</i> _{40%}	37,748	37,748	37,748	37,748
<i>B</i> _{35%}	33,029	33,029	33,029	33,029
<i>F</i> _{OFL}	0.103	0.103	0.103	0.103
<i>maxF</i> _{ABC}	0.086	0.086	0.086	0.086
<i>F</i> _{ABC}	0.086	0.086	0.086	0.086
OFL (t)	8,946	8,776	8,850	8,687
maxABC (t)	7,579	7,435	7,498	7,360
ABC (t)	7,579	7,435	7,498	7,360
Status	As determined <i>last</i> year for:		As determined <i>this</i> year for:	
	2021	2022	2022	2023
Overfishing	no	n/a	no	n/a
Overfished	n/a	no	n/a	no
Approaching overfished	n/a	no	n/a	no

*Projections are based on model 16.0b. Catch in 2022 was updated to 8,369 t and preliminary catches for 2023 - 2025 were set to 7,080 t. The preliminary catch was estimated as the product of an expansion factor and the reported catch as of September 27, 2023.

Table 7.1. Biomass estimates for Kamchatka flounder from the 2022 full assessment model, except 2023, which was generated by the single species projection model. *Catch data is from the NMFS AKRO BLEND/Catch Accounting System, except for 2023, which is an estimate based on an expansion factor of 1.046 and the reported catch as of September 27, 2023. Exploitation is the ratio between catch and total biomass.

Year	Total biomass (t)	Catch*	Exploitation
1991	154,935	1,951	0.013
1992	153,775	1,190	0.008
1993	152,881	930	0.006
1994	151,536	1,434	0.009
1995	148,982	928	0.006
1996	146,458	1,465	0.010
1997	143,327	1,047	0.007
1998	140,668	1,524	0.011
1999	137,820	1,138	0.008
2000	135,371	1,323	0.010
2001	132,893	1,406	0.011
2002	131,070	1,185	0.009
2003	130,819	1,325	0.010
2004	133,145	1,818	0.014
2005	136,104	1,424	0.010
2006	140,287	1,344	0.010
2007	144,898	1,192	0.008
2008	149,415	7,266	0.049
2009	147,318	12,558	0.085
2010	140,451	20,960	0.149
2011	124,950	10,053	0.080
2012	121,172	9,594	0.079
2013	117,876	7,836	0.066
2014	116,675	6,568	0.056
2015	117,051	5,072	0.043
2016	119,316	4,924	0.041
2017	121,490	4,582	0.038
2018	123,906	3,166	0.026
2019	127,363	4,581	0.036
2020	129,522	7,478	0.058
2021	127,701	6,667	0.052
2022	126,067	8,369	0.066
2023	122,321	7,081	0.058

a)



b)

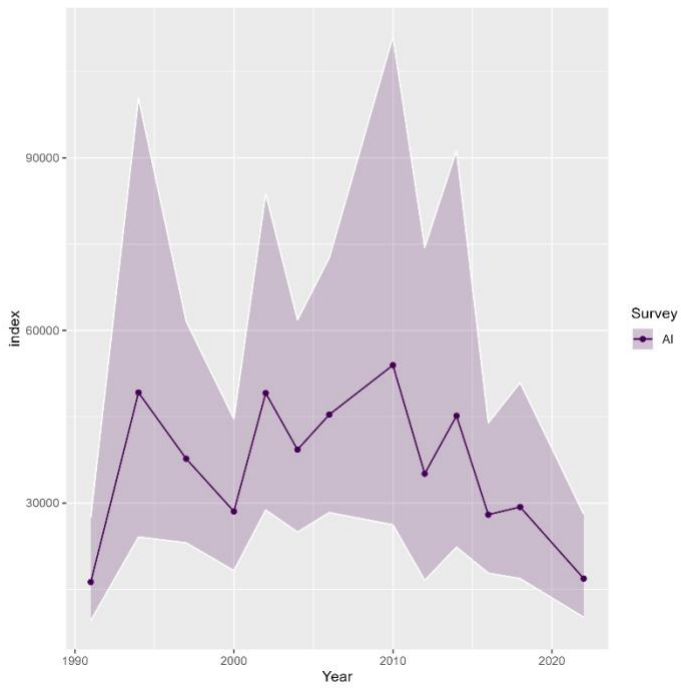


Figure 7.1. Biomass (t) estimates of Kamchatka flounder from the a) AFSC Eastern Bering Sea shelf bottom trawl survey and b) AFSC Aleutian Islands bottom trawl survey, 1991-2023, with 95% confidence intervals.

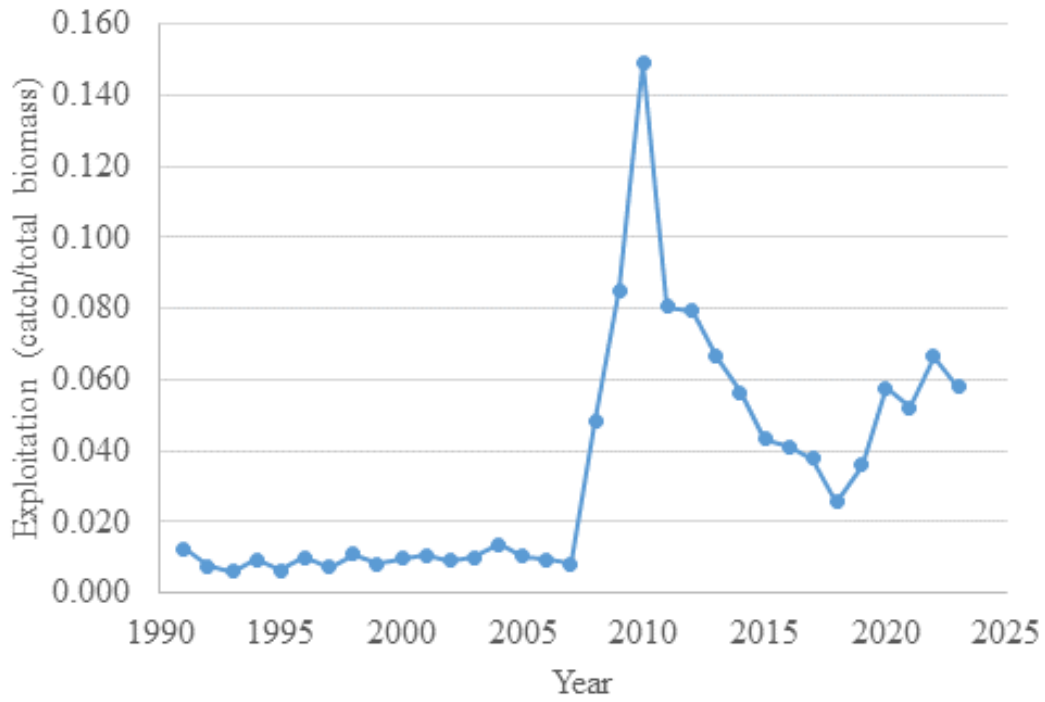


Figure 7.2. Catch to biomass ratio for BSAI Kamchatka flounder from 1977-2023. Value for 2023 was based on projected estimates.