

*Science, Service, Stewardship*



# Assessment of the arrowtooth flounder stock in the Gulf of Alaska

Ingrid Spies

November 15, 2018

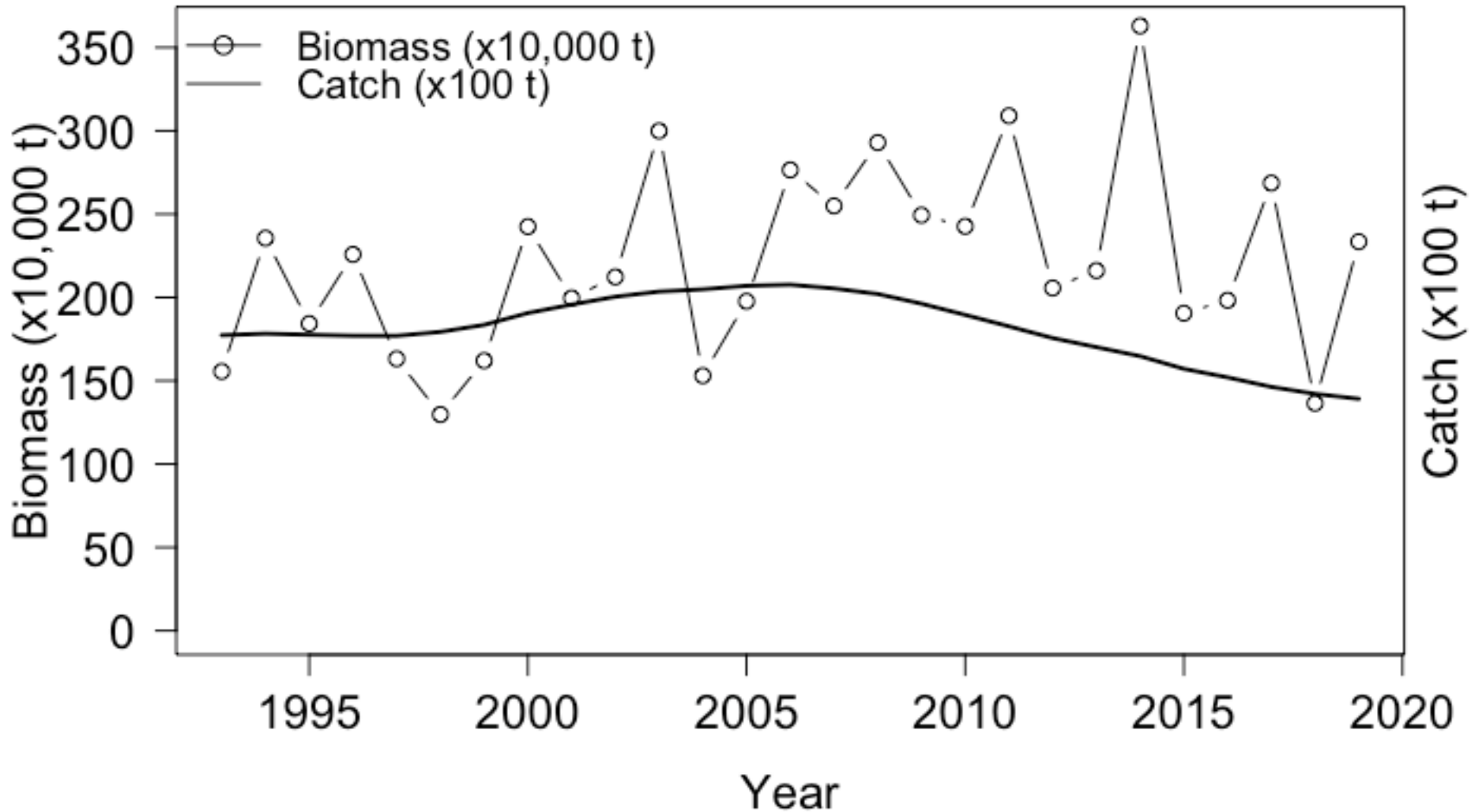
**NOAA  
FISHERIES  
SERVICE**

NOAA

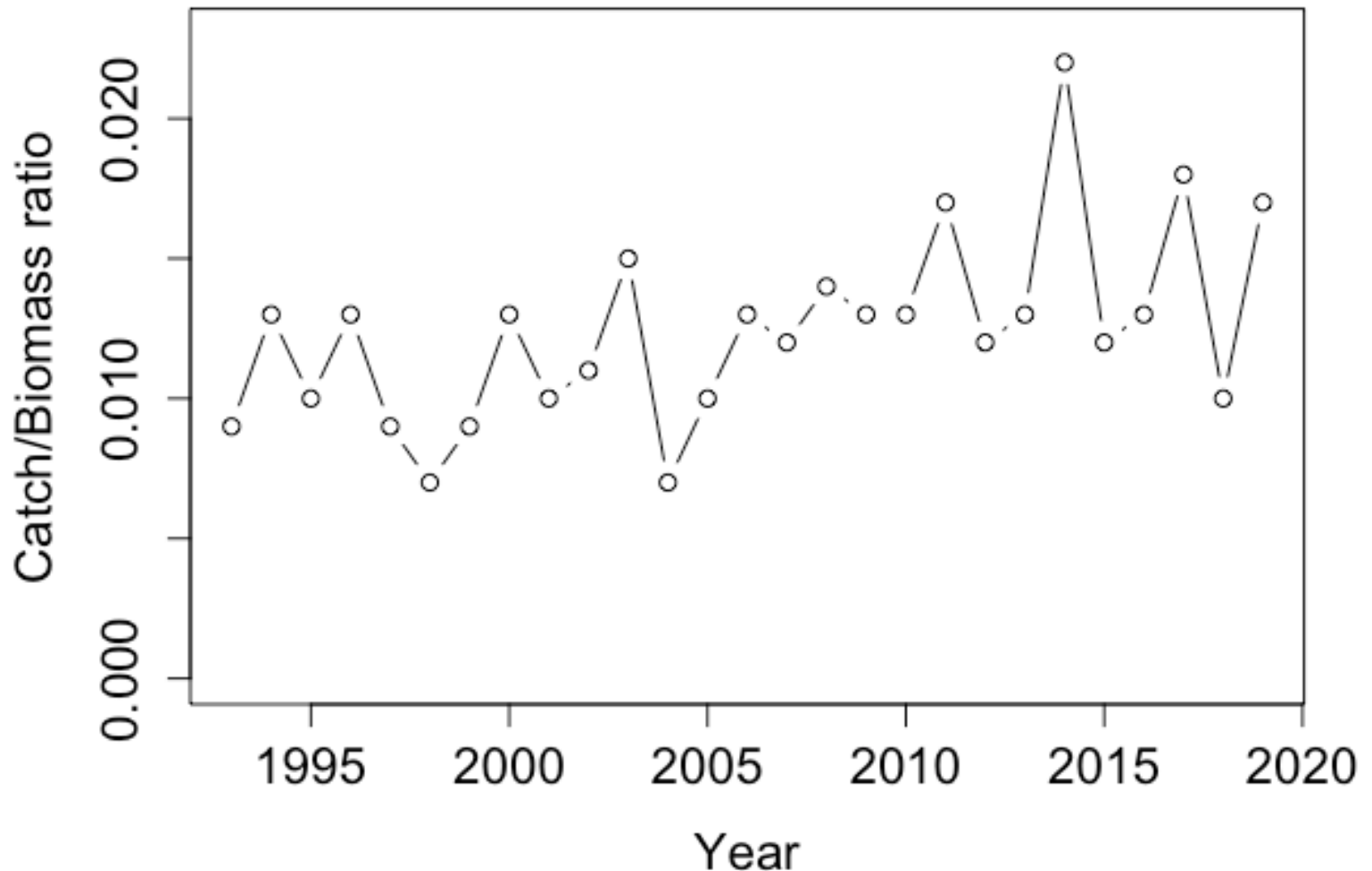
# Changes in the input data

- New input data for the projection model consisted of the total catch for 2017 (26,865 t) and the current catch for 2018 (13,376 t as of October 8, 2018).
- The final catch for 2018 was estimated by calculating the average proportion of the catch between October 9 and December 31 from the previous five years (2013-2017) and adding that proportion to the 2018 catch through October 8, 2018 for a total of 13,649 t.
- The 2019 catch was estimated as the average catch over the past five years (2014-2018, utilizing the full year's catch estimate for 2018), for an estimate of 23,347 t. .

# Catch and Biomass for arrowtooth flounder in the Gulf of Alaska 1993-2018



# Catch to biomass ratio for Gulf of Alaska arrowtooth flounder 1993-2019\*.



\*Values for 2019 are based on projected estimates.

# Plan Team and SSC Comments

- The Team recommends documenting the survey design and spatial distribution of tows in the 1961 and 1975 surveys in order to evaluate comparability with recent surveys.
- The Team also recommends evaluating the cooperative US-Japan longline surveys, and this may provide information on stock trends from 1979 – 1992.
- The SSC supports the Plan Team's recommendation that the assessment authors continue to reevaluate the use of these early survey data. In addition, the SSC recommends that the authors look into the availability of ADF&G bottom trawl surveys in the central and western Gulf of Alaska to see if any of them span the years in question.

## Authors' response

- This will be considered in the 2019 full assessment.

# Summary

<b>Quantity</b>	As estimated or <i>specified last year for:</i>		<i>*As estimated or recommended this year for:</i>	
	2018	2019	2019	2020
$M$ (natural mortality rate)**	0.35, 0.2	0.35, 0.2	0.35, 0.2	0.35, 0.2
Tier	3a	3a	3a	3a
Projected total (age 1+) biomass (t)	1,421,306	1,384,292	1,391,460	1,367,620
Projected Female spawning	873,789	835,009	869,399	810,159
$B_{100\%}$	924,644	924,644	924,644	924,644
$B_{40\%}$	369,858	369,858	369,858	369,858
$B_{35\%}$	323,625	323,625	323,625	323,625
$F_{OFL}$	0.238	0.238	0.238	0.238
$maxF_{ABC}$	0.196	0.196	0.196	0.196
$F_{ABC}$	0.196	0.196	0.196	0.196
OFL (t)	180,697	173,872	174,598	168,634
maxABC (t)	150,945	145,234	145,841	140,865
ABC (t)	150,945	145,234	145,841	140,865
<b>Status</b>	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2016	2017	2017	2018
Overfishing	no	n/a	no	n/a
Overfished	n/a	no	n/a	no
Approaching overfished	n/a	no	n/a	no

# Apportionment by Gulf of Alaska region

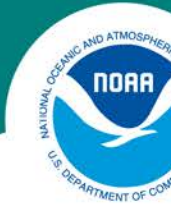
	Western	Central	West Yakutat	East Yakutat/SE	Total
2017 Area Apportionment	24.68%	48.68%	10.91%	15.73%	100%
2019 ABC (t)	35,994	70,995	15,911	22,941	145,841
2020 ABC (t)	34,765	68,573	15,368	22,158	140,865

# Questions?

<b>Quantity</b>	As estimated or <i>specified last year for:</i>		<i>*As estimated or recommended this year for:</i>	
	2018	2019	2019	2020
$M$ (natural mortality rate)**	0.35, 0.2	0.35, 0.2	0.35, 0.2	0.35, 0.2
Tier	3a	3a	3a	3a
Projected total (age 1+) biomass (t)	1,421,306	1,384,292	1,391,460	1,367,620
Projected Female spawning	873,789	835,009	869,399	810,159
$B_{100\%}$	924,644	924,644	924,644	924,644
$B_{40\%}$	369,858	369,858	369,858	369,858
$B_{35\%}$	323,625	323,625	323,625	323,625
$F_{OFL}$	0.238	0.238	0.238	0.238
$maxF_{ABC}$	0.196	0.196	0.196	0.196
$F_{ABC}$	0.196	0.196	0.196	0.196
OFL (t)	180,697	173,872	174,598	168,634
maxABC (t)	150,945	145,234	145,841	140,865
ABC (t)	150,945	145,234	145,841	140,865
<b>Status</b>	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2016	2017	2017	2018
Overfishing	no	n/a	no	n/a
Overfished	n/a	no	n/a	no
Approaching overfished	n/a	no	n/a	no



# NOAA FISHERIES SERVICE



Year	Biomass	Catch	Catch/Biomass Ratio
1993	1,773,450	15,559	0.009
1994	1,782,690	23,560	0.013
1995	1,776,230	18,428	0.010
1996	1,770,270	22,583	0.013
1997	1,769,730	16,319	0.009
1998	1,793,380	12,975	0.007
1999	1,835,310	16,207	0.009
2000	1,906,500	24,252	0.013
2001	1,957,130	19,964	0.010
2002	2,004,400	21,231	0.011
2003	2,035,310	29,994	0.015
2004	2,048,680	15,304	0.007
2005	2,069,910	19,770	0.010
2006	2,076,580	27,653	0.013
2007	2,054,040	25,494	0.012
2008	2,020,760	29,293	0.014
2009	1,962,540	24,937	0.013
2010	1,895,200	24,268	0.013
2011	1,826,620	30,903	0.017
2012	1,756,300	20,565	0.012
2013	1,701,770	21,612	0.013
2014	1,647,660	36,294	0.022
2015	1,571,460	19,054	0.012
2016	1,520,290	19,828	0.013
2017	1,463,110	26,865	0.018
2018	1,421,306	13,649*	0.010
2019**	1,391,460	23,347	0.017