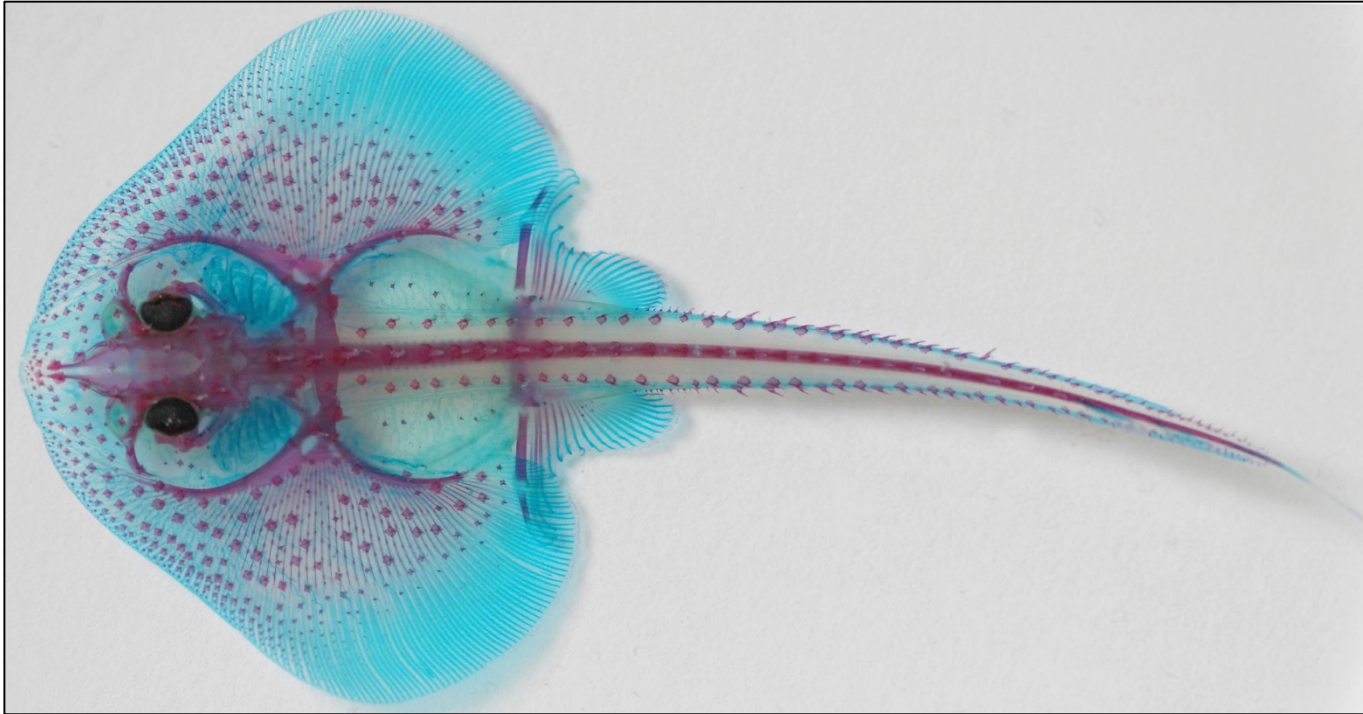


BSAI skate complex (partial assessment)

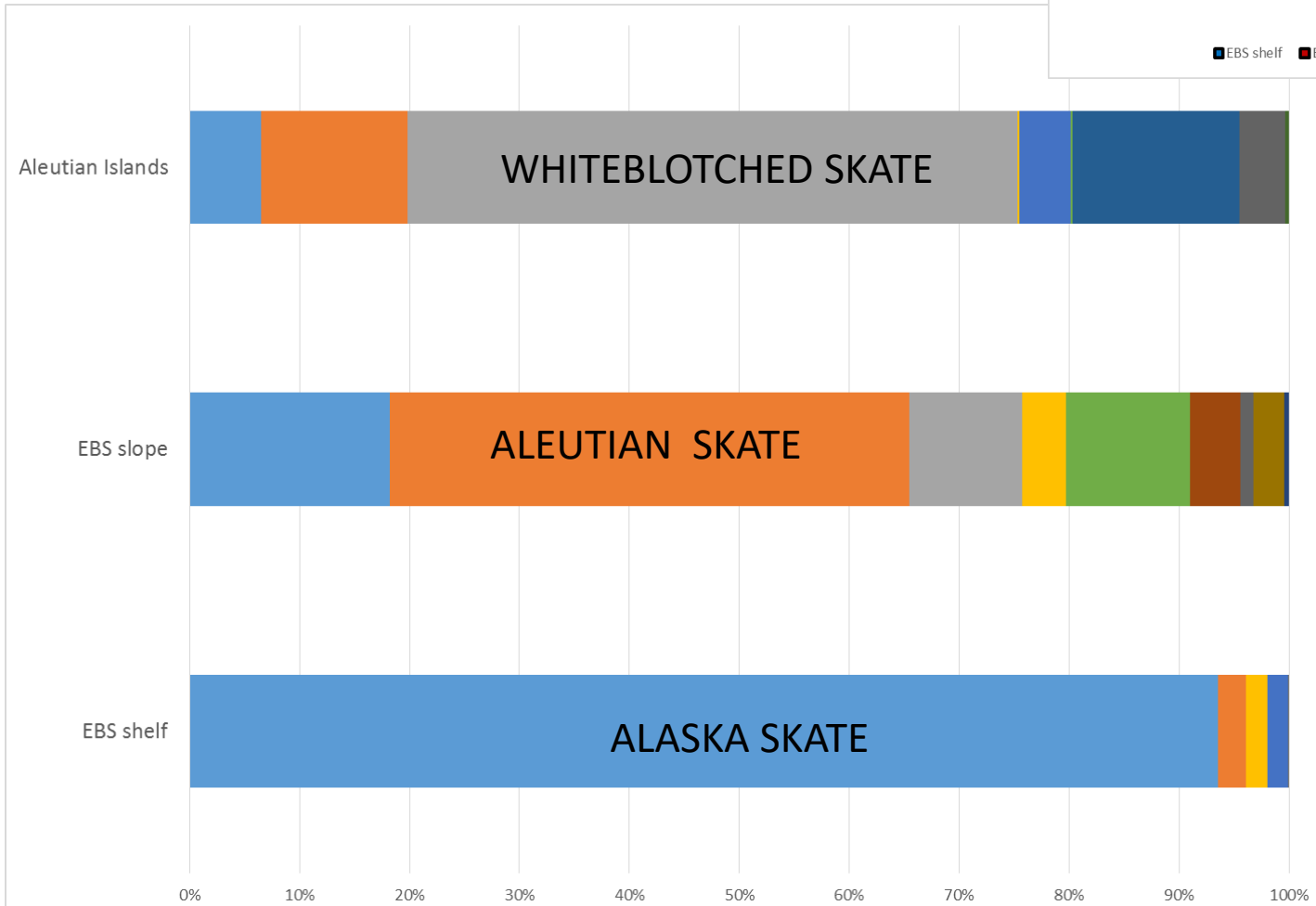
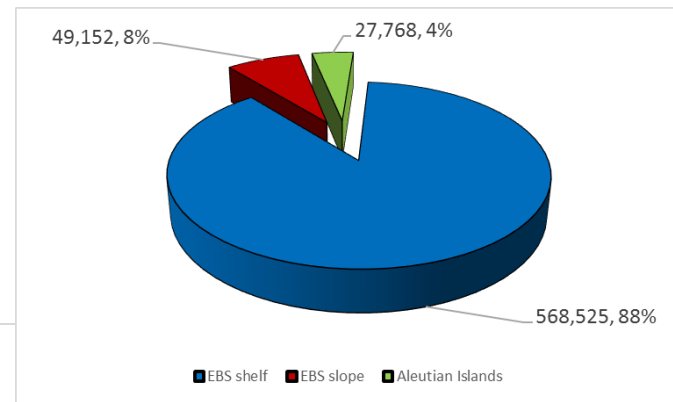


**Olav A. Ormseth
Alaska Fisheries Science Center
NPFMC Groundfish Plan Team meeting, November 2019**

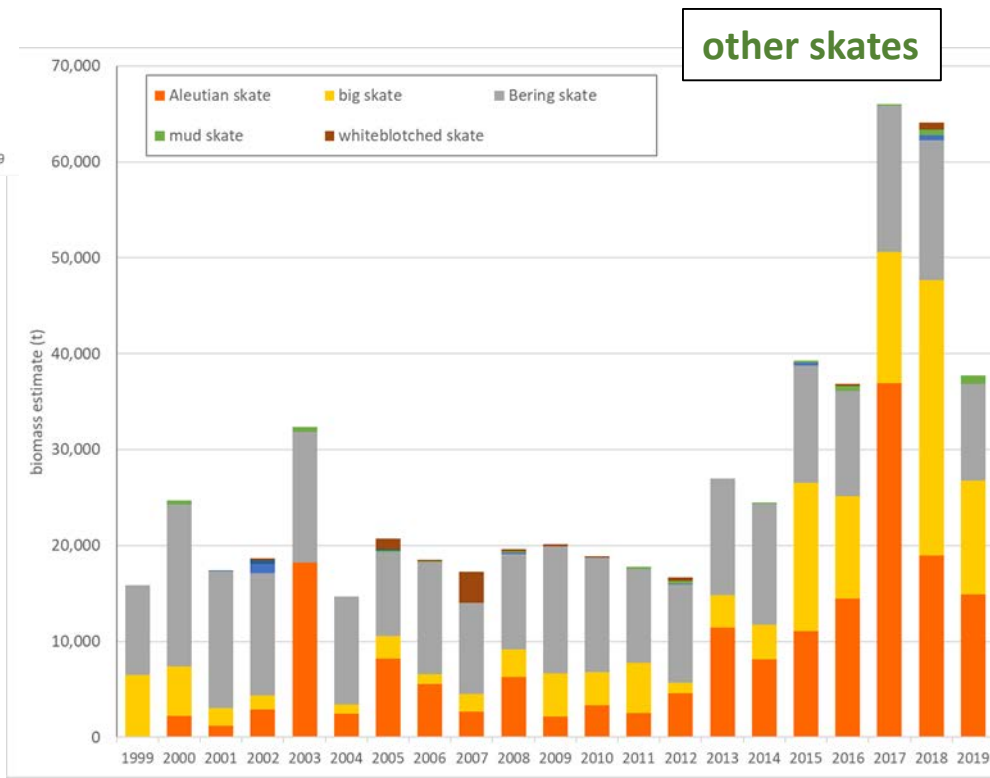
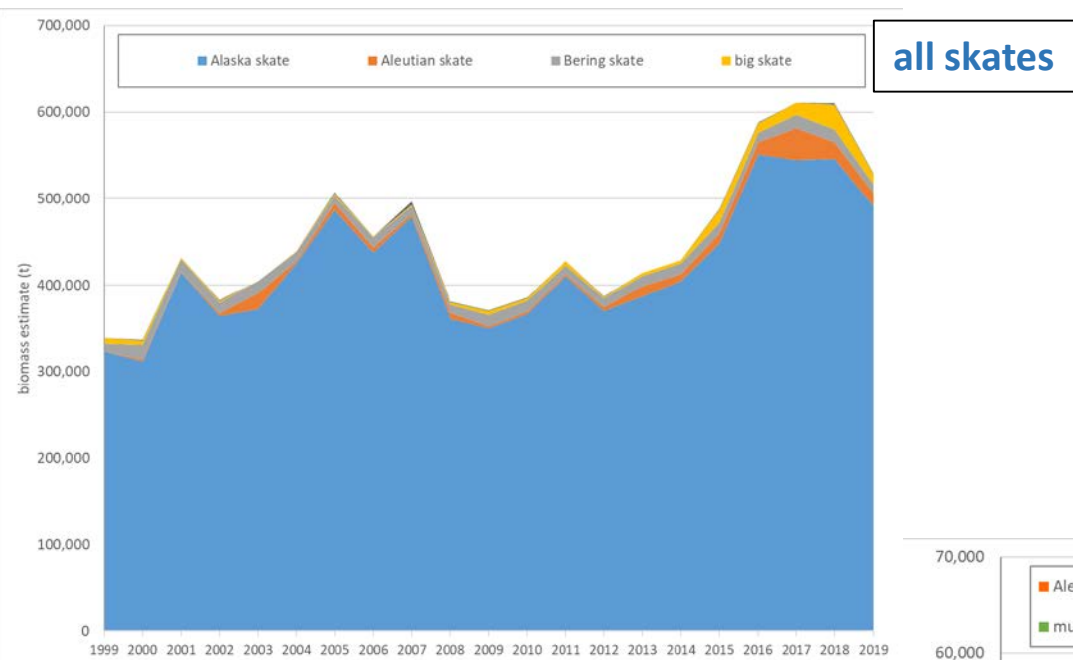
overview

- **biomass trends (including NBS)**
- **catch data**
- **harvest recommendations**

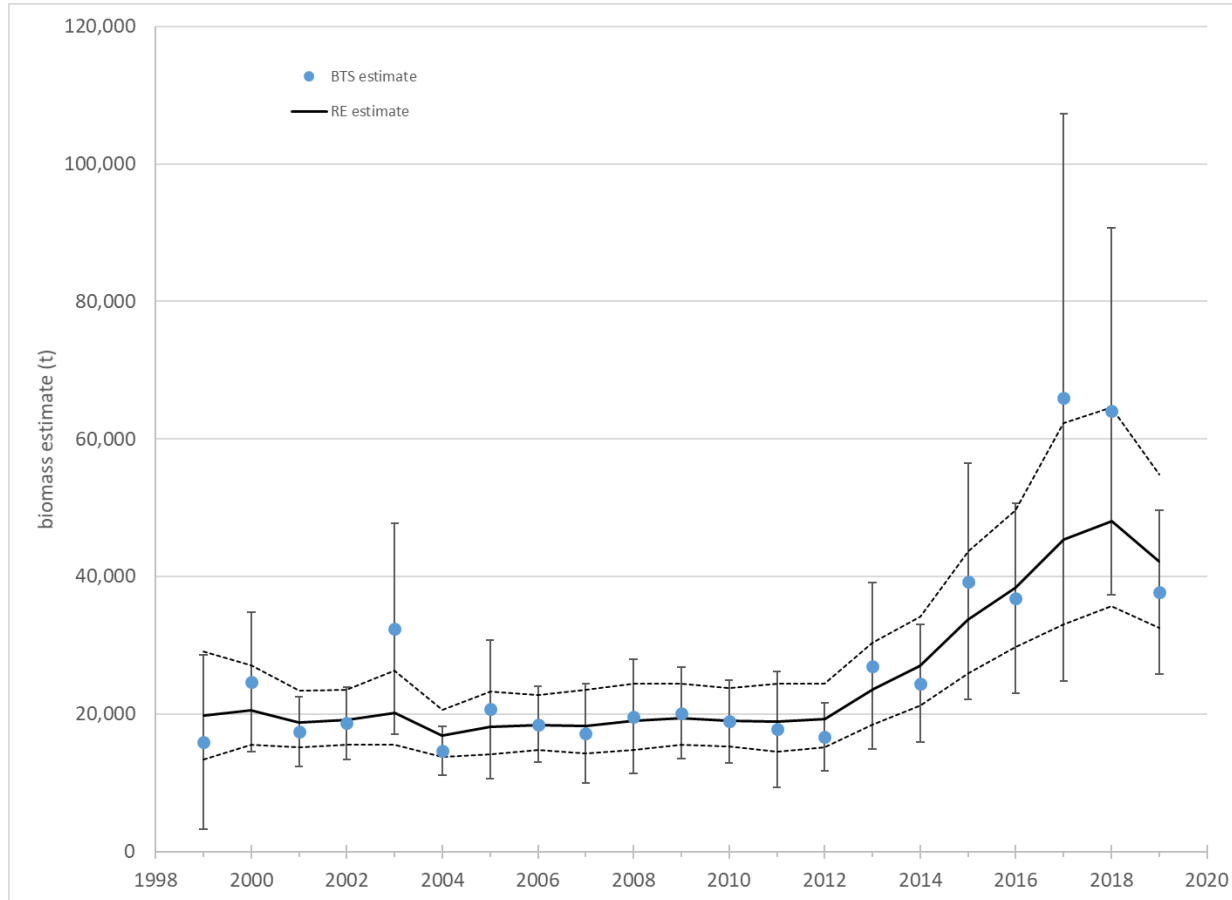
BSAI species composition



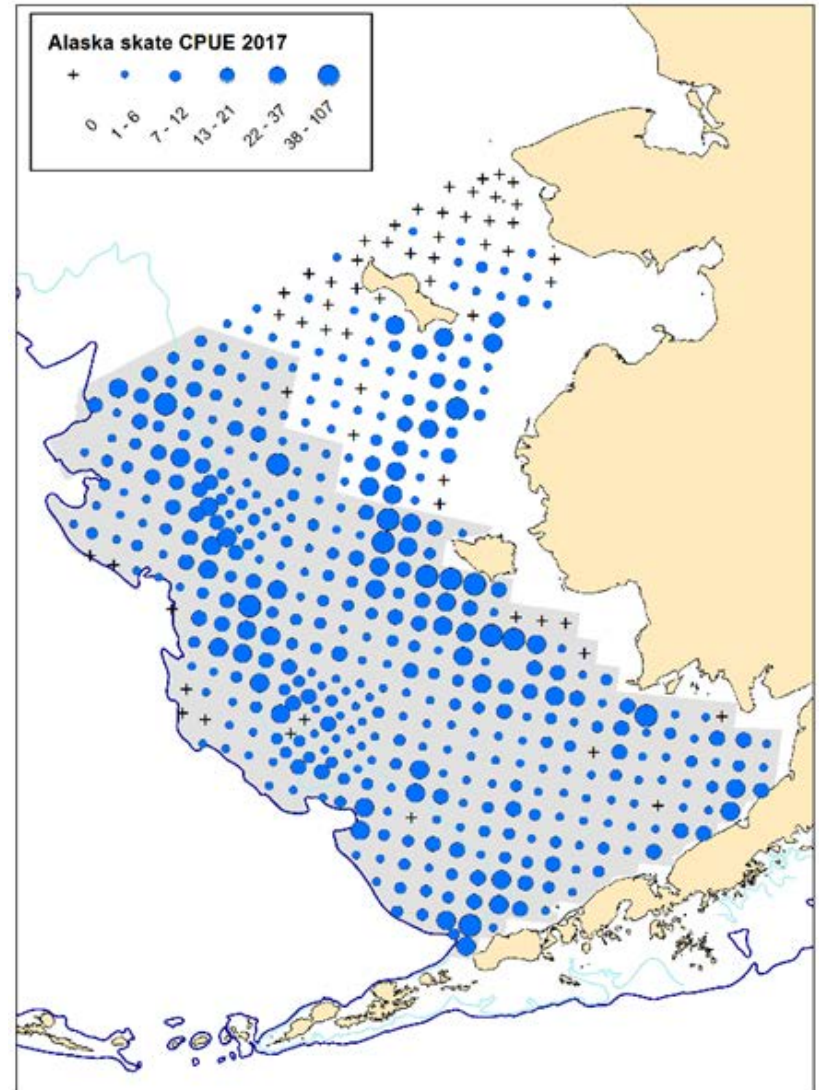
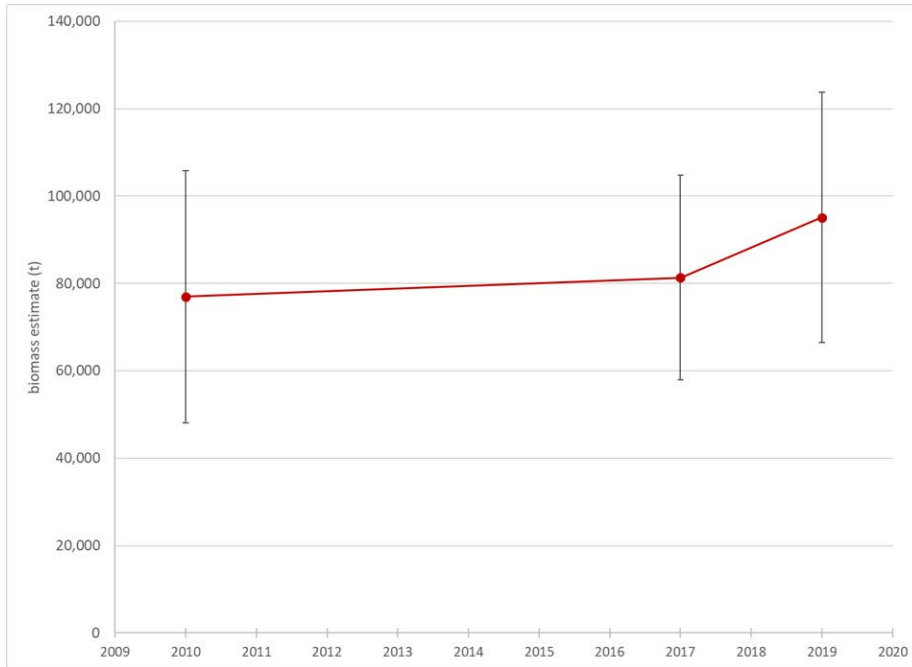
skate biomass – EBS shelf trawl survey



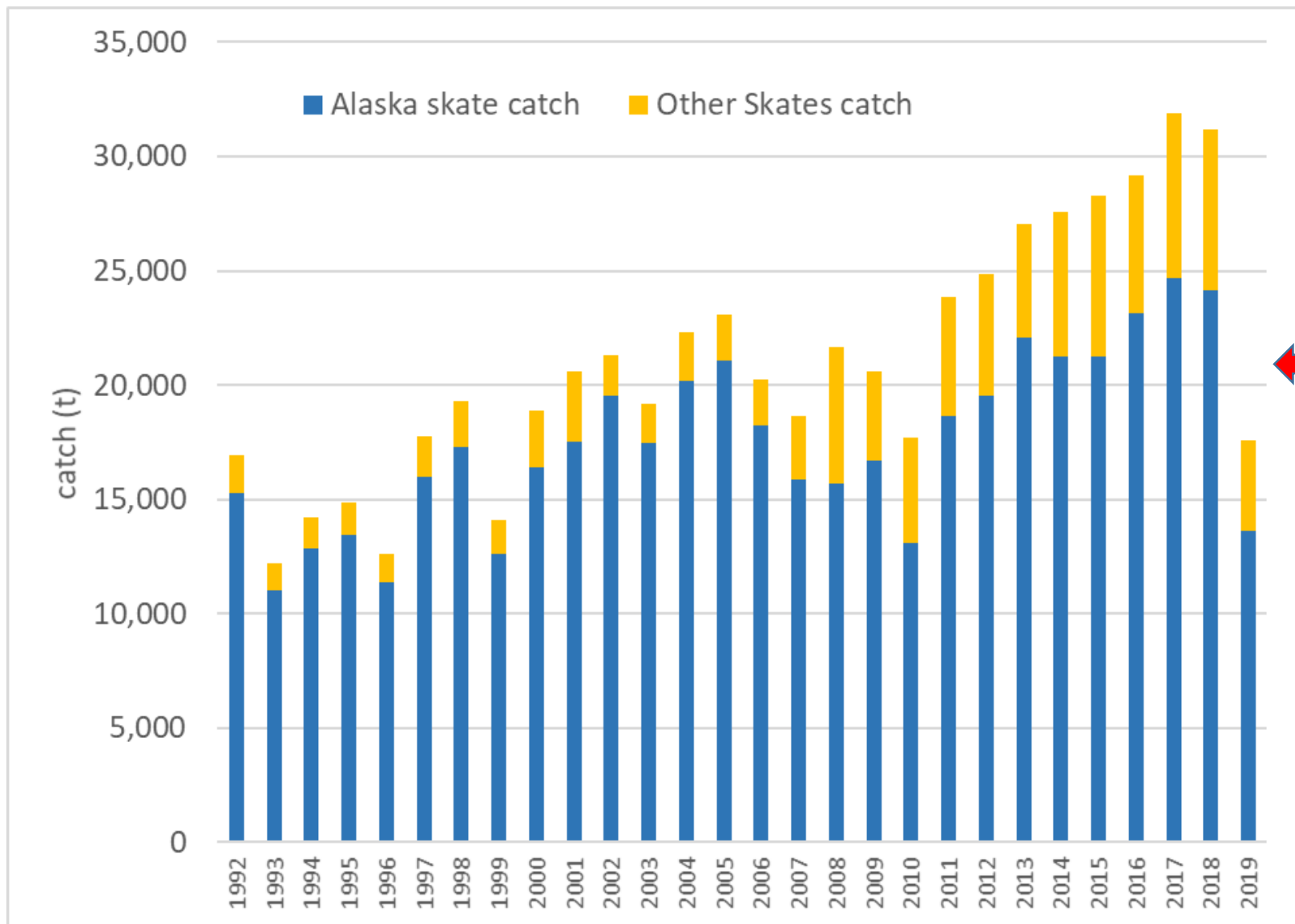
other skates biomass – RE model



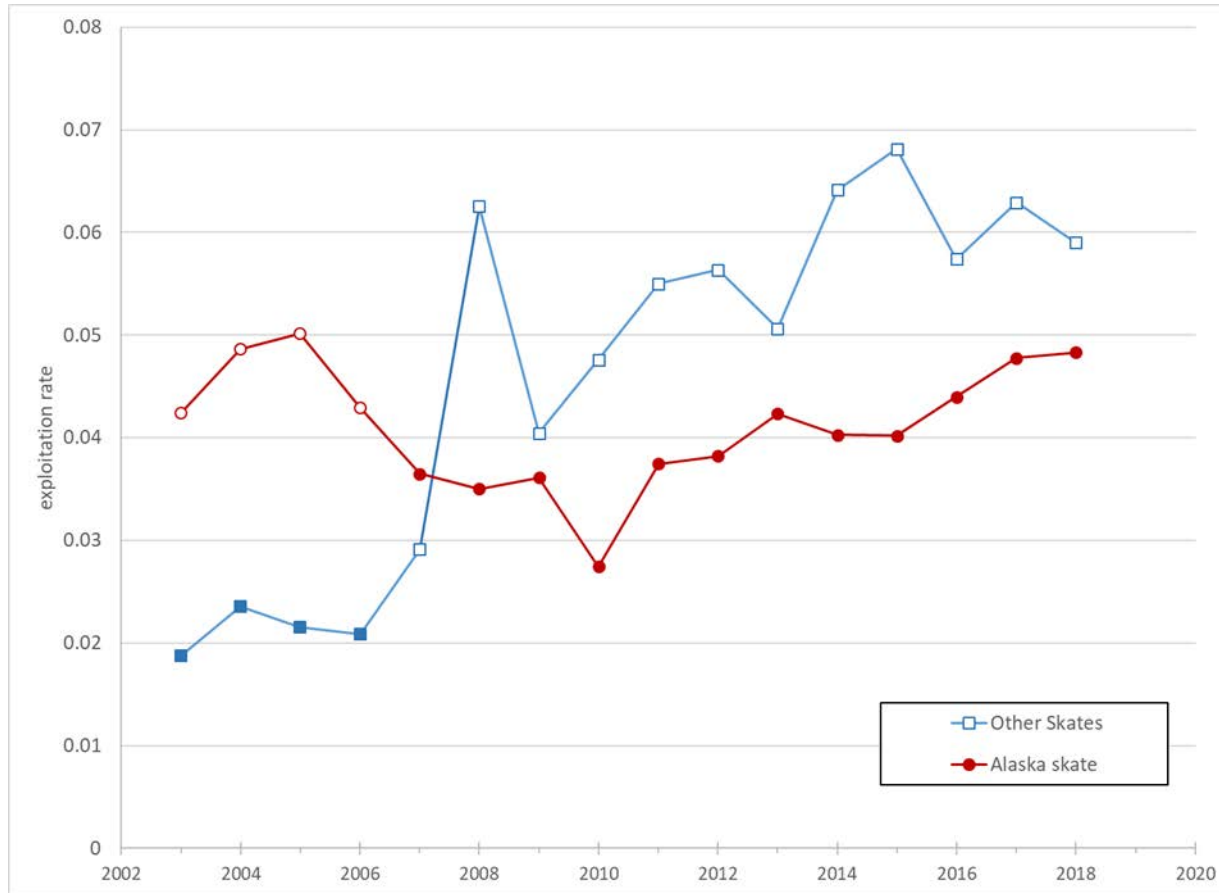
Alaska skate – NBS biomass estimates



BSAI skate catches



exploitation rates



harvest recommendations

Alaska skate harvest recommendations				
Quantity	As estimated or specified <i>last year</i> for:		As estimated or recommended <i>this year</i> for:	
	2019	2020	2020*	2021*
<i>M</i> (natural mortality rate)	0.13	0.13	0.13	0.13
Tier	3a	3a	3a	3a
Projected total (age 0+)	504,551	481,653	491,974	478,477
Female spawning biomass (t)				
Projected	115,957	114,010	117,973	114,985
<i>B</i> _{100%}	177,761	177,761	177,761	177,761
<i>B</i> _{40%}	71,105	71,105	71,105	71,105
<i>B</i> _{35%}	62,217	62,217	62,217	62,217
<i>F</i> _{OFL}	0.094	0.094	0.094	0.094
max <i>F</i> _{ABC}	0.081	0.081	0.081	0.081
<i>F</i> _{ABC}	0.081	0.081	0.081	0.081
OFL (t)	39,173	36,965	37,813	36,310
maxABC (t)	33,730	31,829	32,559	31,264
ABC (t)	33,730	31,829	32,559	31,264
Status	As determined <i>last year</i> for:		As determined <i>this year</i> for:	
	2017	2018	2018	2019
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

harvest recommendations

other skate harvest recommendations				
Quantity	As estimated or specified last year for:		As estimated or recommended this year for:	
	2019	2020	2020	2021
<i>M</i> (natural mortality rate)	0.1	0.1	0.1	0.1
Tier	5	5	5	5
Biomass (t)	119,787	119,787	119,787	119,787
F _{OFL}	0.10	0.10	0.10	0.10
maxF _{ABC}	0.075	0.075	0.075	0.075
F _{ABC}	0.075	0.075	0.075	0.075
OFL (t)	11,979	11,979	11,979	11,979
maxABC (t)	8,984	8,984	8,984	8,984
ABC (t)	8,984	8,984	8,984	8,984
Status	As determined <i>last</i> year for:		As determined <i>this</i> year for:	
	2017	2018	2018	2019
Overfishing	No	n/a	No	n/a

aggregate harvest recommendations for the BSAI complex				
Quantity	As estimated or specified <i>last</i> year for:		As estimated or recommended this year for:	
	2018	2019	2019	2020
OFL (t)	51,152	48,944	49,792	48,289
maxABC (t)	42,714	40,813	41,543	40,248
ABC (t)	42,714	40,813	41,543	40,248