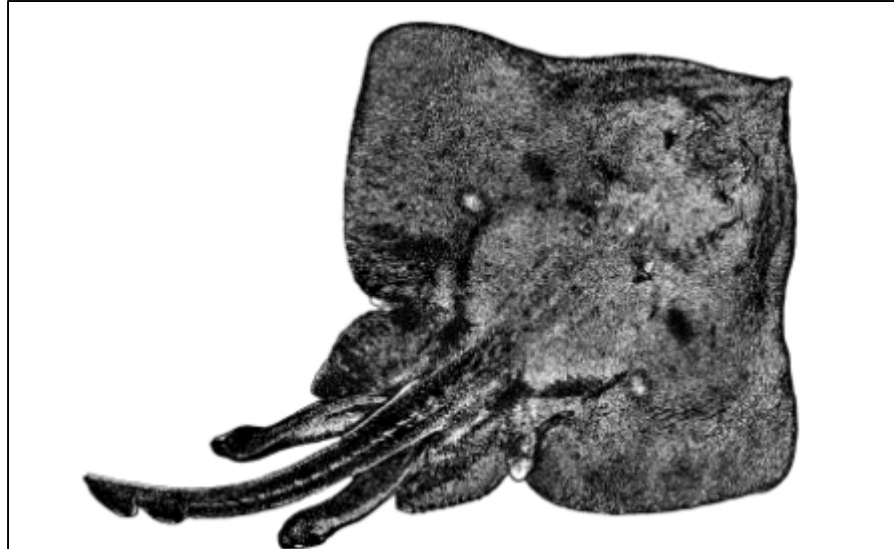


# **BSAI skate complex (partial assessment)**

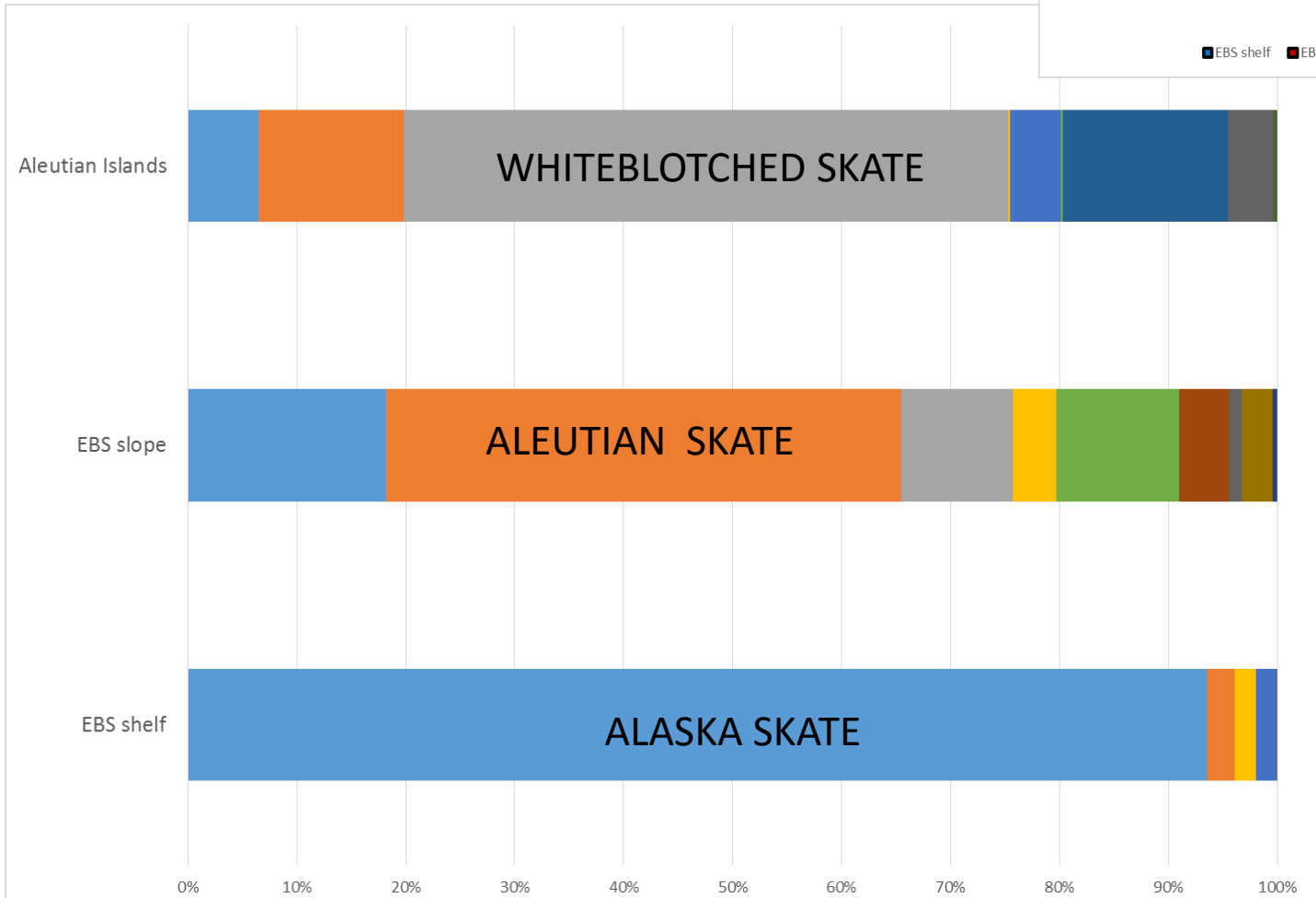
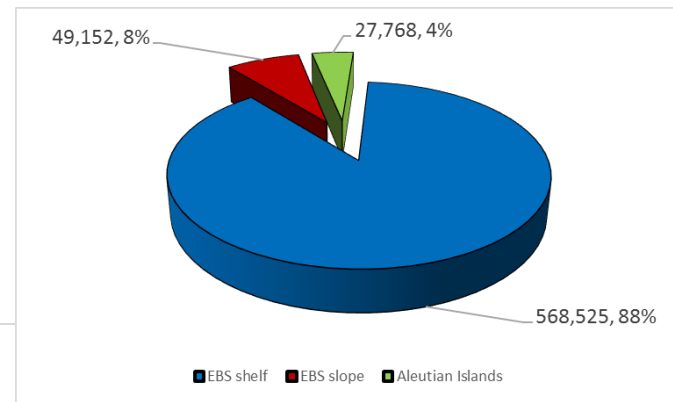


**Olav A. Ormseth  
Alaska Fisheries Science Center  
NPFMC Groundfish Plan Team meeting, November 2017**

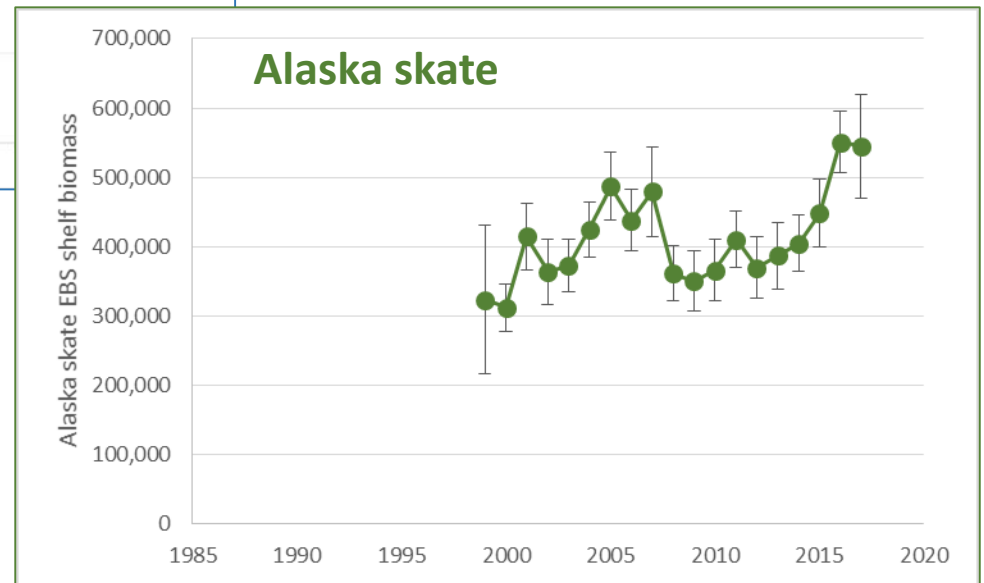
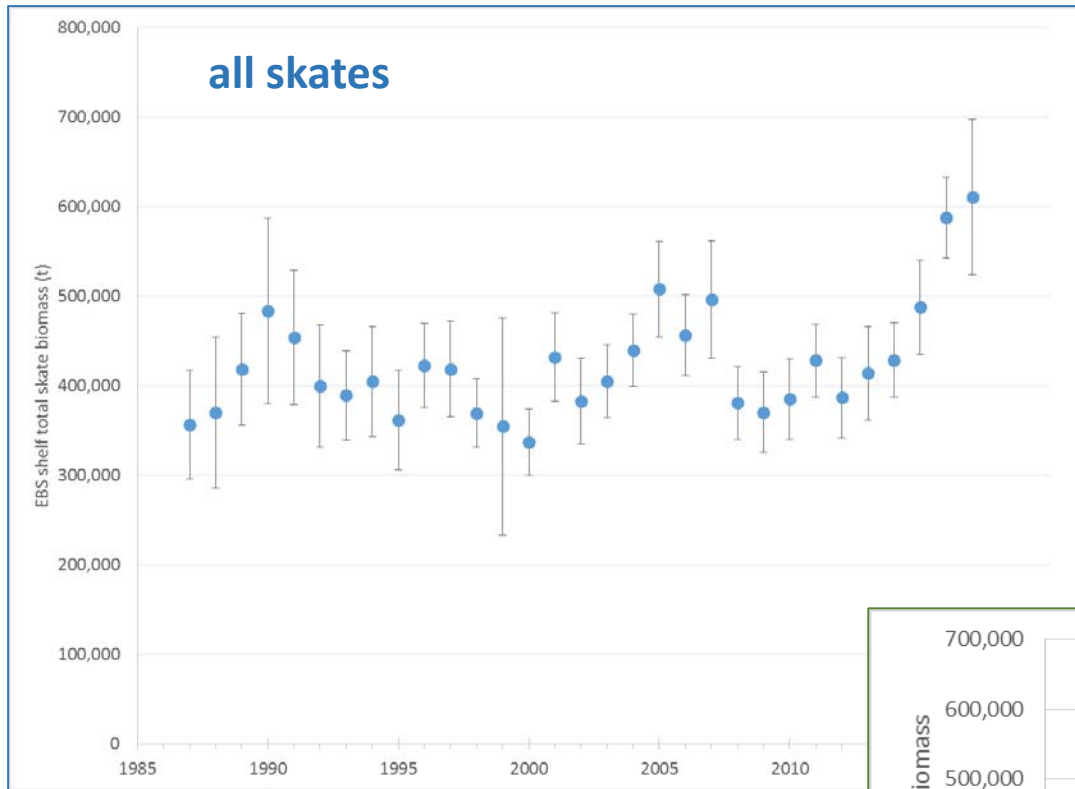
# overview

- **biomass trends (focus on big skates)**
- **catch data**
- **harvest recommendations**

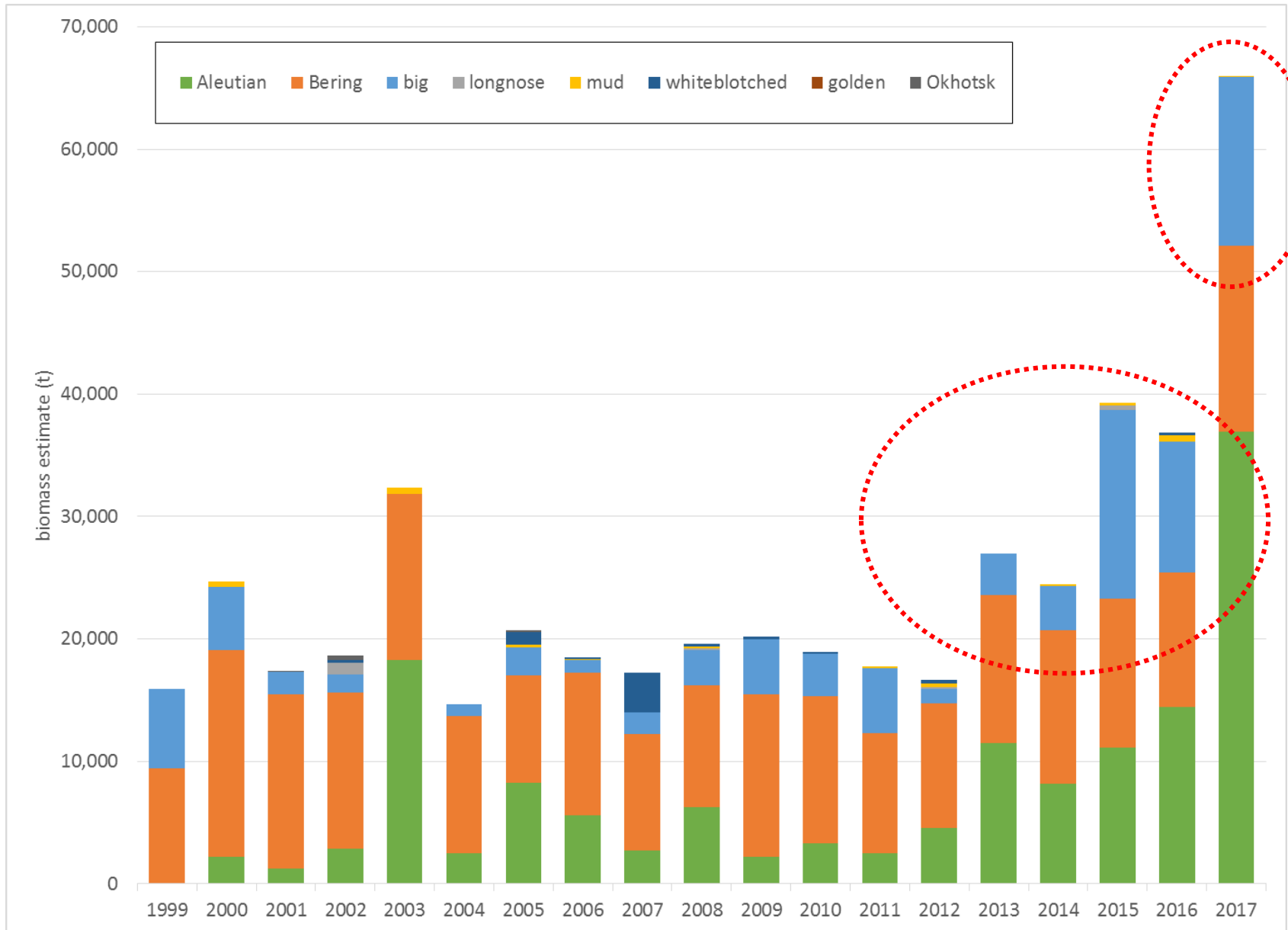
# BSAI species composition



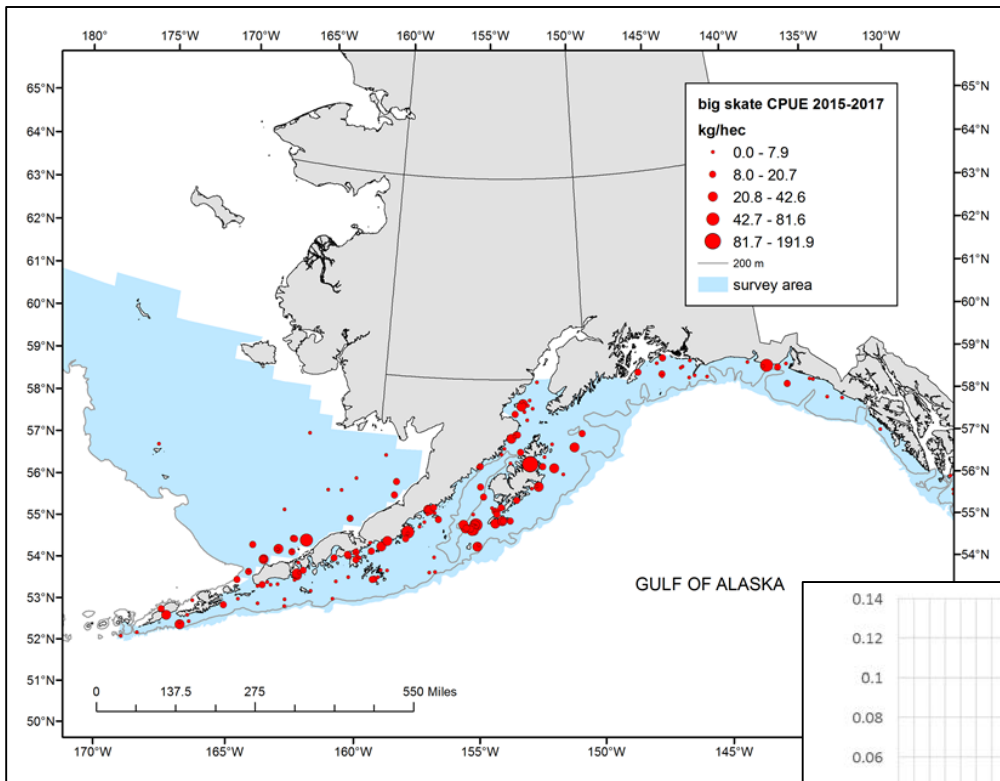
# skate biomass – EBS shelf trawl survey



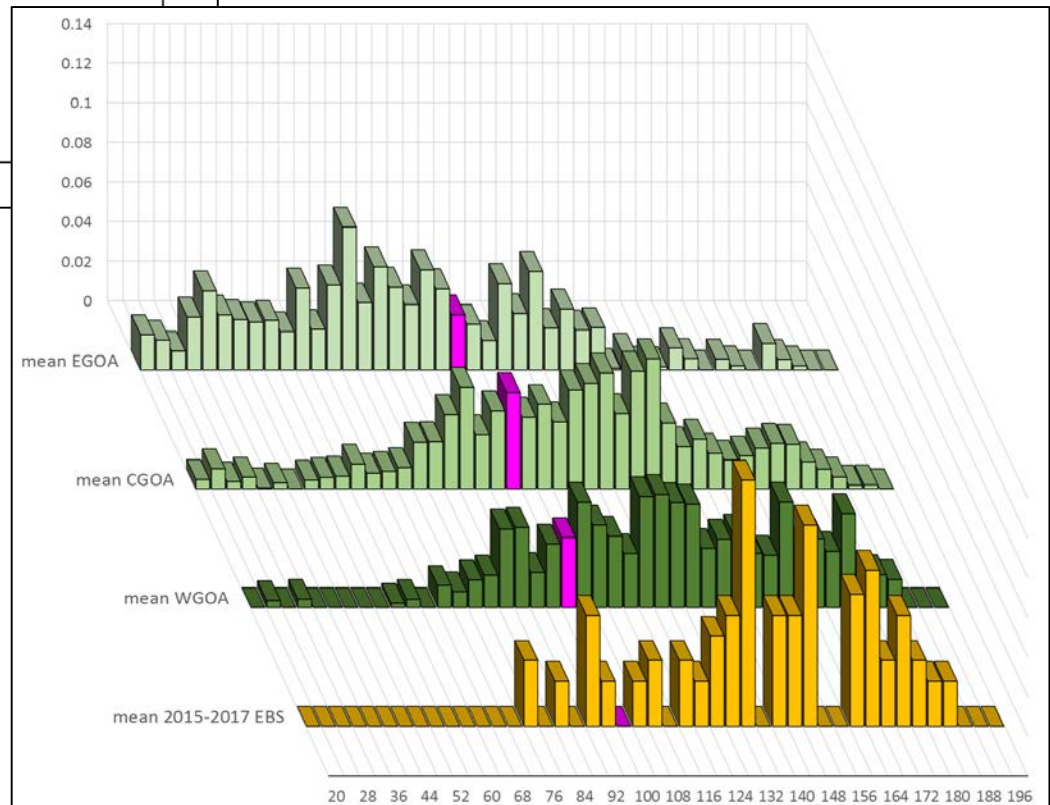
# Other Skates biomass – EBS shelf trawl survey



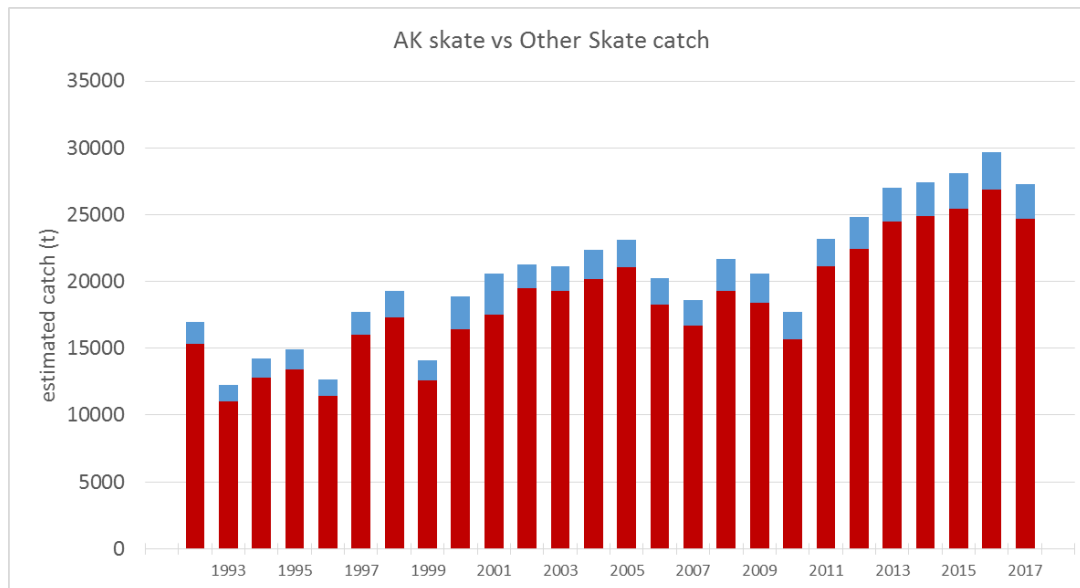
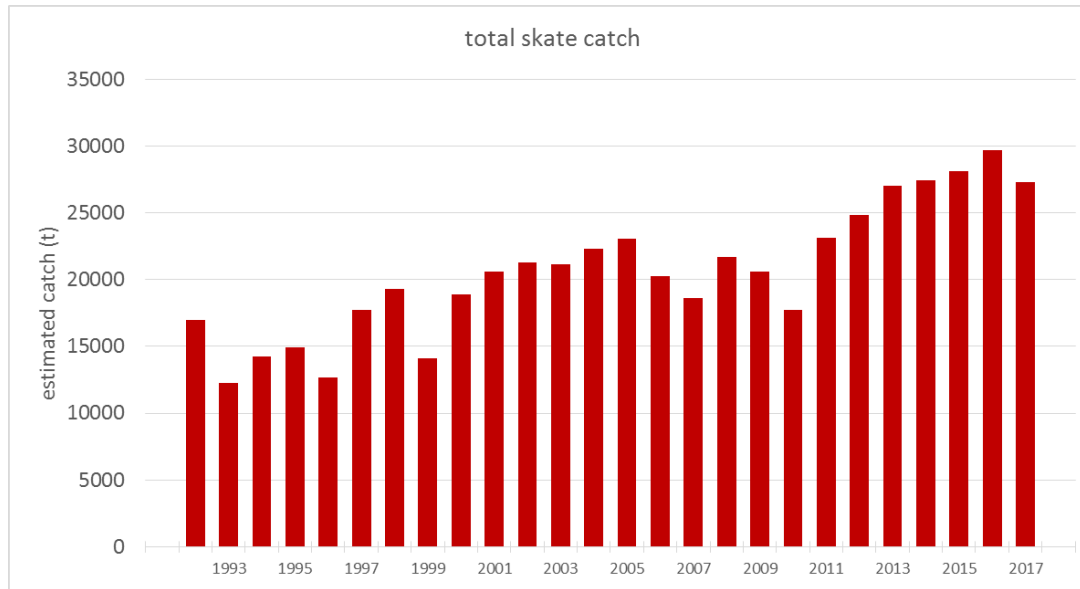




are EBS big skates  
from the GOA?



# BSAI skate catch

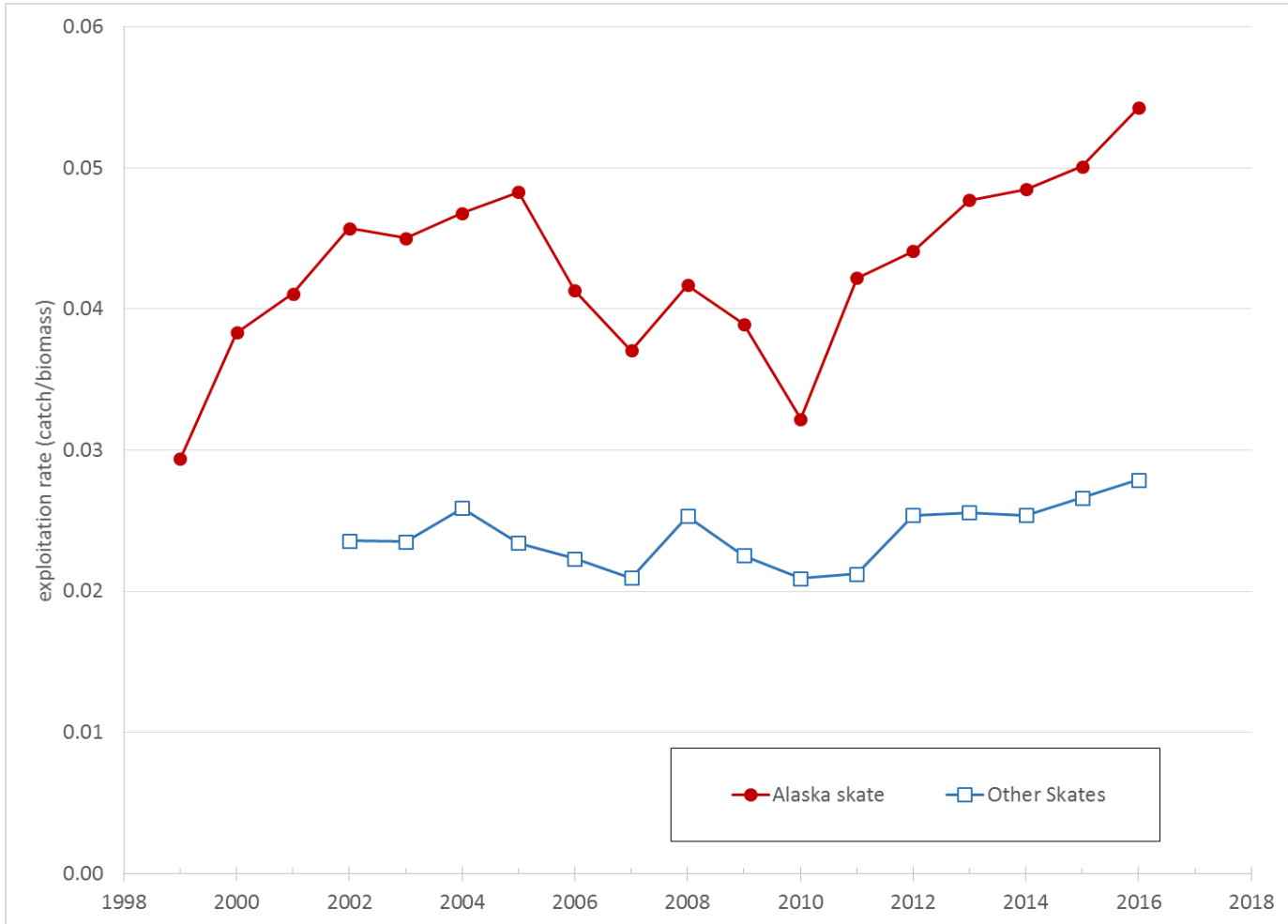




# ID of skates in the longline fishery

	2015	2016	2017	all years
SOFT SNOOT SKATE ( <i>Bathyraja</i> spp)	84%	84%	87%	85%
ALASKA SKATE	12%	11%	9%	11%
BERING SKATE	2%	1%	1%	2%
BIG SKATE	1%	1%	1%	1%
SKATE EGG CASE UNIDENTIFIED	1%	1%	1%	1%
ALEUTIAN SKATE	1%	1%	0%	1%
STIFF SNOOT SKATE	0%	0%	0%	0%
WHITEBLOTCHED SKATE	0%	0%	0%	0%
COMMANDER SKATE	0%	0%	0%	0%
SKATE UNIDENTIFIED	0%	0%	0%	0%
MUD SKATE	0%	0%	0%	0%
LONGNOSE SKATE	0%	0%	0%	0%
WHITEBROW SKATE	0%	0%	0%	0%
ROUGHTAIL SKATE	0%	0%	0%	0%
DEEPSEA SKATE	0%	0%	0%	0%

# exploitation rates



# harvest recommendations

Alaska skate harvest recommendations				
Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2017	2018	2018*	2019*
<i>M</i> (natural mortality rate)	0.13	0.13	<b>0.13</b>	0.13
Tier	3a	3a	<b>3a</b>	3a
Projected total (age 0+) biomass (t)	506,921	487,035	<b>478,306</b>	452,245
Female spawning biomass (t)				
Projected	110,180	110,159	<b>107,136</b>	103,953
<i>B</i> <sub>100%</sub>	180,556	180,556	<b>180,556</b>	180,556
<i>B</i> <sub>40%</sub>	72,222	72,222	<b>72,222</b>	72,222
<i>B</i> <sub>35%</sub>	63,195	63,195	<b>63,195</b>	63,195
<i>F</i> <sub>OFL</sub>	0.092	0.092	<b>0.092</b>	0.092
<i>maxF</i> <sub>ABC</sub>	0.079	0.079	<b>0.079</b>	0.079
<i>F</i> <sub>ABC</sub>	0.079	0.079	<b>0.079</b>	0.079
OFL (t)	39,162	37,365	<b>36,655</b>	34,189
maxABC (t)	33,731	32,183	<b>31,572</b>	29,447
ABC (t)	33,731	32,183	<b>31,572</b>	29,447
Status	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2015	2016	2016	2017
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 <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2017	2018	2018	2019
<i>M</i> (natural mortality rate)	0.1	0.1	<b>0.1</b>	0.1
Tier	5	5	<b>5</b>	5
Biomass (t)	100,130	100,130	<b>100,130</b>	100,130
<i>F<sub>OFL</sub></i>	0.10	0.10	<b>0.10</b>	0.10
<i>maxF<sub>ABC</sub></i>	0.075	0.075	<b>0.075</b>	0.075
<i>F<sub>ABC</sub></i>	0.075	0.075	<b>0.075</b>	0.075
OFL (t)	10,013	10,013	<b>10,013</b>	10,013
maxABC (t)	7,510	7,510	<b>7,510</b>	7,510
ABC (t)	7,510	7,510	<b>7,510</b>	7,510
Status	As determined <i>last</i> year for:		As determined <i>this</i> year for:	
	2015	2016	2016	2017
Overfishing	No	n/a	No	n/a

aggregate harvest recommendations for the BSAI skate complex				
Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2017	2018	2018	2019
OFL (t)	49,063	46,583	<b>46,668</b>	44,202
maxABC (t)	41,144	39,008	<b>39,082</b>	36,957
ABC (t)	41,144	39,008	<b>39,082</b>	36,957