



**NOAA
FISHERIES**

**Alaska Fisheries
Science Center**

Results from the Eastern & Northern Bering Sea Bottom Trawl Survey

May 30 to August 27, 2019

**Resource Assessment &
Conservation Engineering Division
Groundfish Assessment Program**

September 17, 2019



Survey Charter Vessels

EBS & NBS

May 30 – August 27



FV Alaska Knight
2010 -present
10^h year

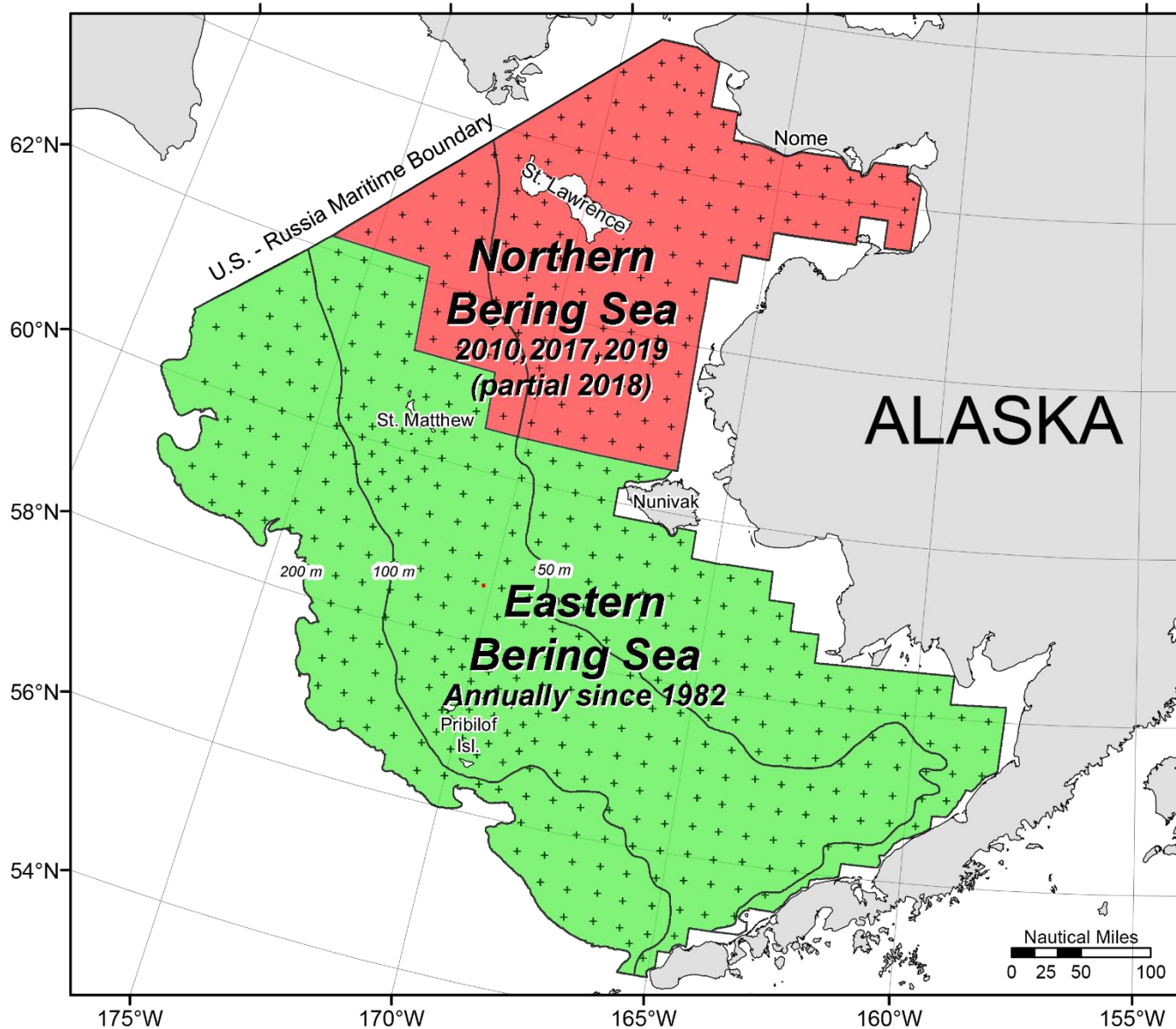
EBS & NBS

May 30 – August 27



FV Vesteraalen
2014 -present
6th year

Standard surveys



Length measurements **EBS** & **NBS**

	EBS	NBS
walleye pollock	36,638	12,321
Pacific cod	9,109	5,255
Pacific halibut	2,522	248
yellowfin sole	25,669	11,595
flathead sole	20,587	52
northern rock sole	23,017	7,702
arrowtooth flounder	14,276	24
Alaska plaice	9,071	8,315
Alaska skate	3,651	755
Kamchatka flounder	1,945	1
rex sole	2,240	-
Bering flounder	753	2,314
plain sculpin	1,961	2,677
great sculpin	931	119
shorthorn sculpin	214	335
yellow Irish lord	993	2
starry flounder	1,032	1,038
saffron cod	466	6,264
Artic cod	1	46
longhead dab	523	916
bigmouth sculpin	258	-
Greenland turbot	165	7
other taxa (17)	1,860	632
TOTAL		218,500

Age structures EBS & NBS

Random

Walleye pollock	1,541	250
Pacific cod	1,505	196
Flathead sole	804	6
Bering Flounder	65	115
Arrowtooth flounder	700	-

Per cm/sex/area

Yellowfin sole	836	539
Northern rock sole	545	266
Alaska plaice	525	142
Kamchatka flounder	448	-
Greenland turbot	113	3
Pacific halibut	?	?
Yellow Irish lord	231	-

Other projects & samples **EBS** & **NBS**

Population Genetics

- NBS Pacific cod
- Sleeper & salmon sharks
- Deepwater corals
- Pacific Lamprey
- Sand Lances
- NBS Pacific Halibut

Pacific halibut

- Telemetry Tags
- Wire tags
- Tissue samples
- Fin clips

Stomachs

- Pollock
- Pacific cod
- Halibut
- ATF & KAM

Environmental Monitoring

- Ambient Light Monitoring
- CTD Data Collection
- NBS HAB Sampling

Fish/Crab Condition

- Pacific cod Maturity
- Walleye Pollock and P. cod bod cond.
- Juvenile Flatfish condition factors
- Snow Crab Body Condition
- Snow Crab Reproduction

Acoustics

- AVO Index

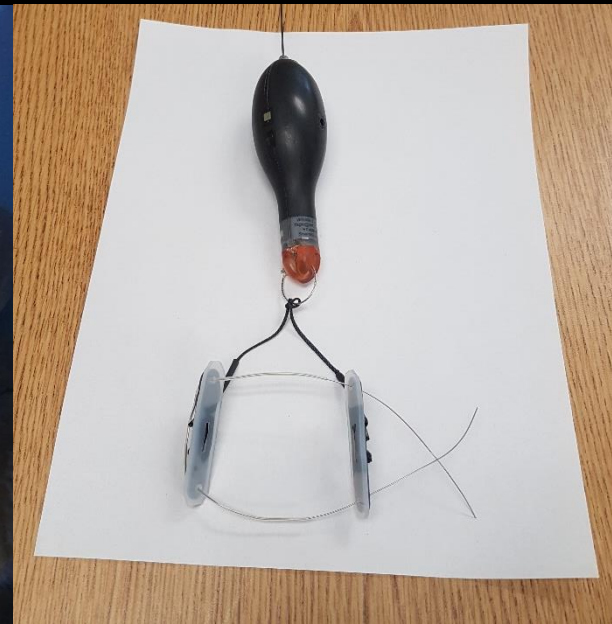
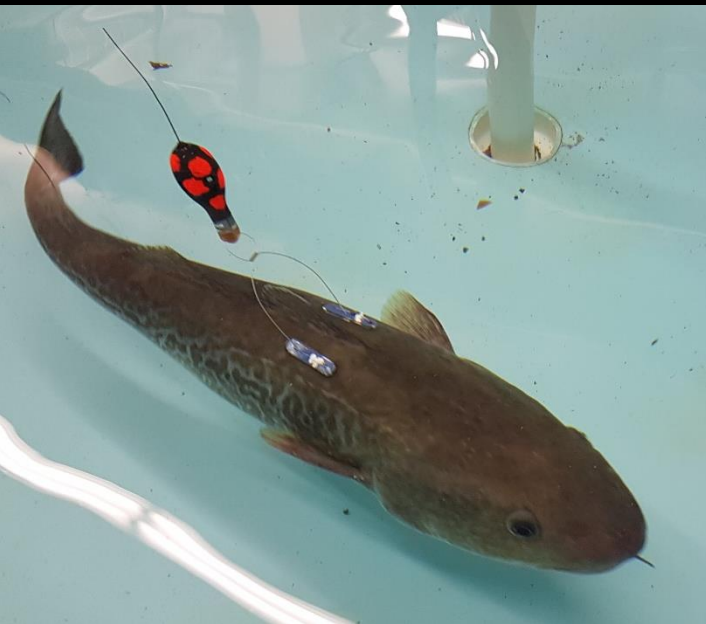
Misc

- Bitter Crab Monitoring
- Invert. Stable Isotope Analysis
- Morphometrics of NBS gastropods
- Arctic and Saffron cod age and growth

Special Studies

NBS Pacific cod Telemetry Tagging

Collaborative Project with NSEDC and Savoonga Fishermen



Special Studies

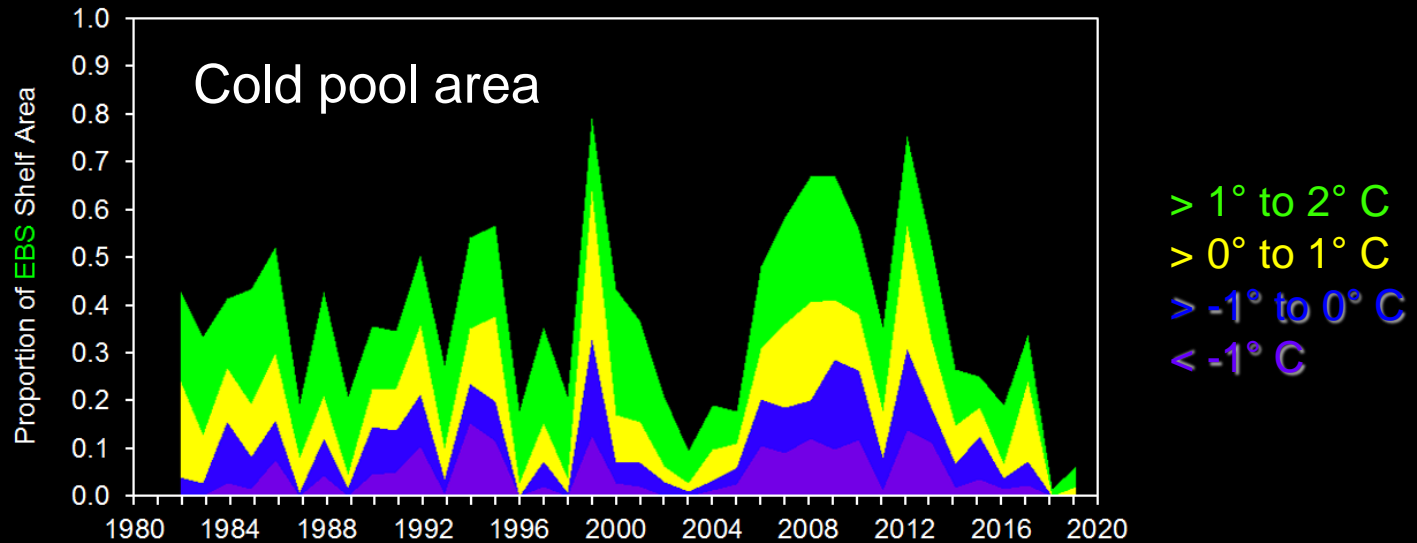
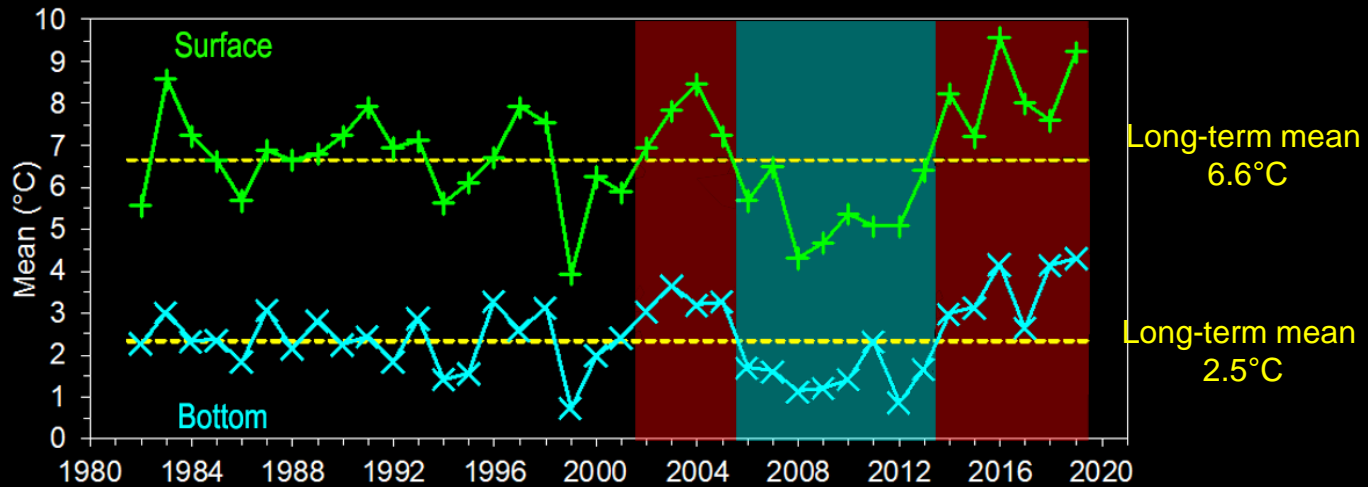
Acoustic Moorings

Cooperative Project with MACE and PMEL

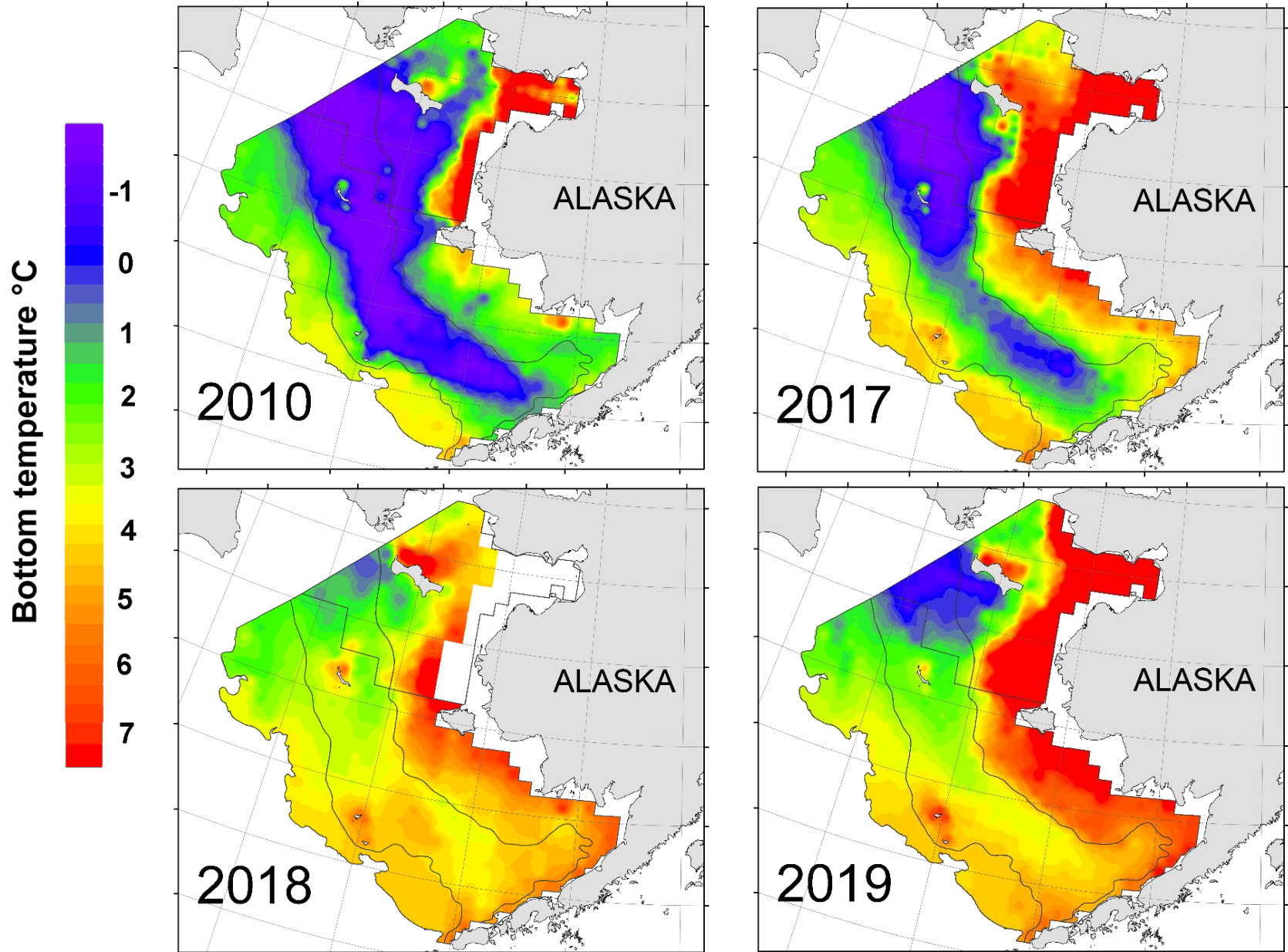


CPA & Mean Bottom Temperature

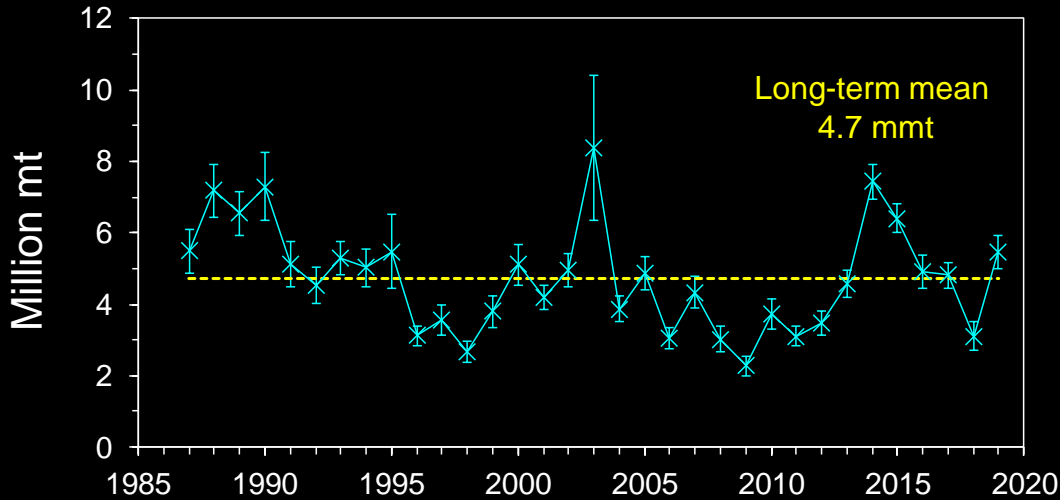
Standard EBS survey area



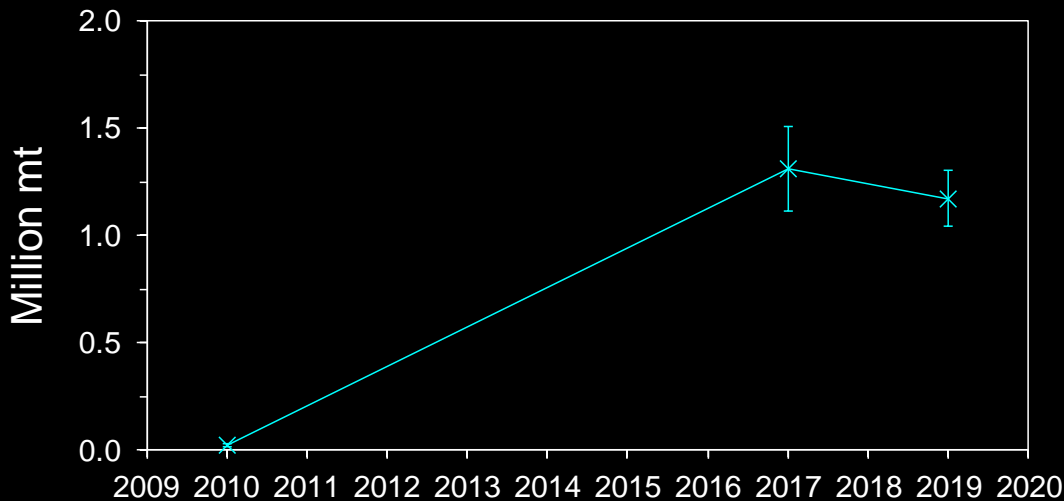
Survey bottom temperatures



EBS and NBS Walleye pollock

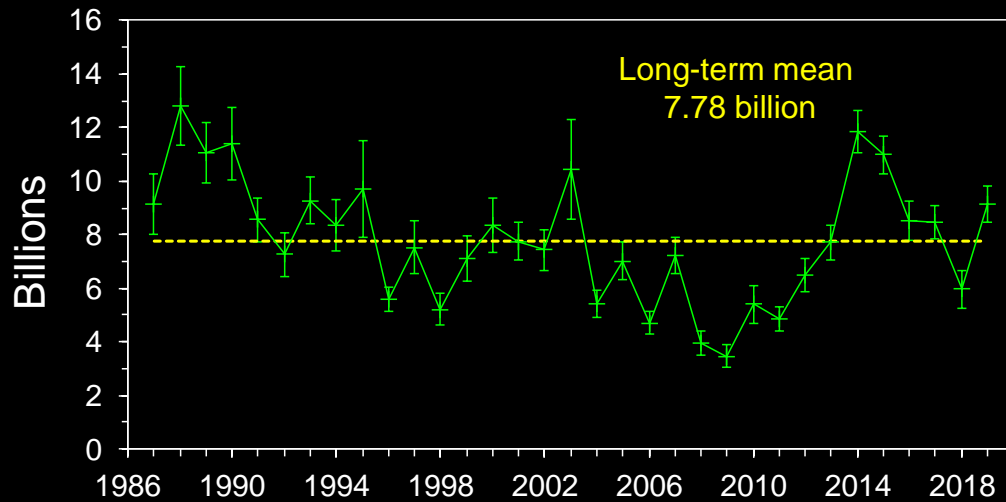


EBS Biomass
5.46 mmt
+75% from 2018 (3.11 mmt)



NBS Biomass
1.17 mmt
-11% from 2017 (1.32 mmt)

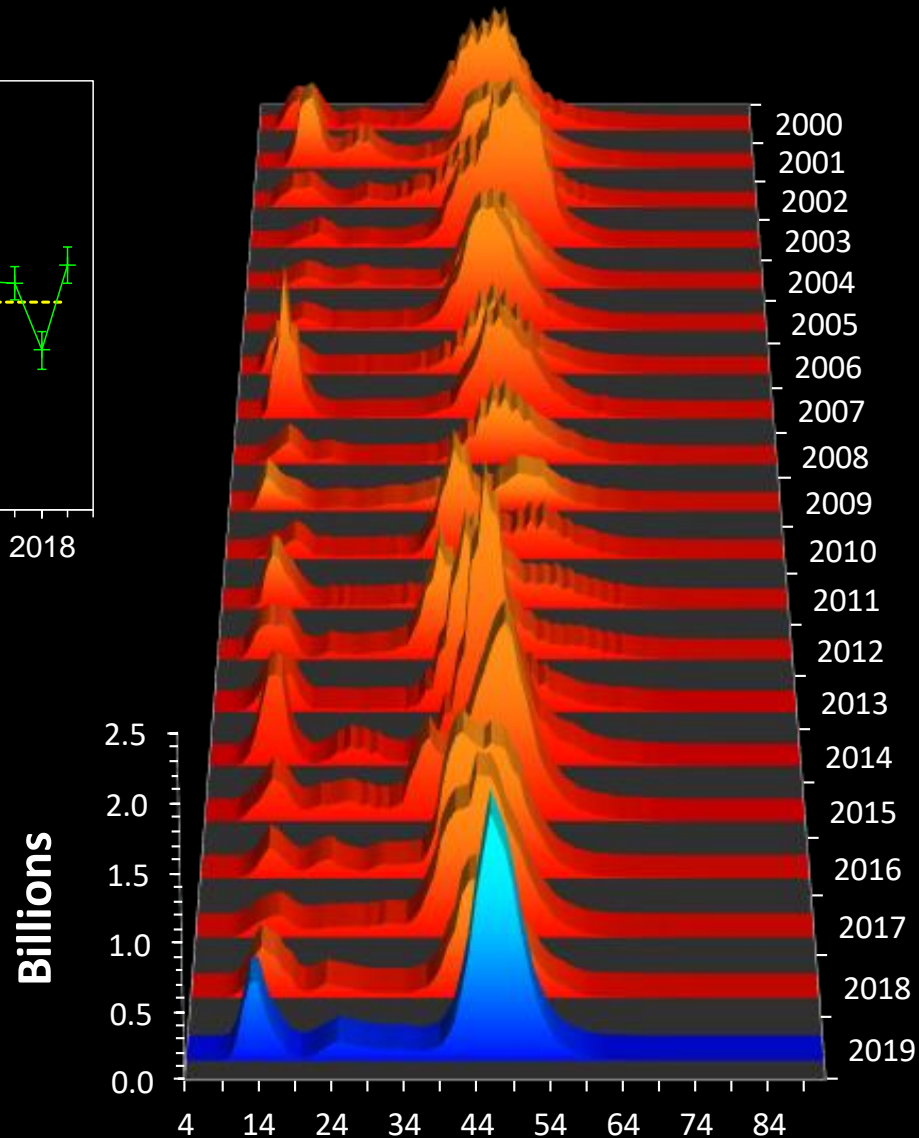
EBS Walleye pollock



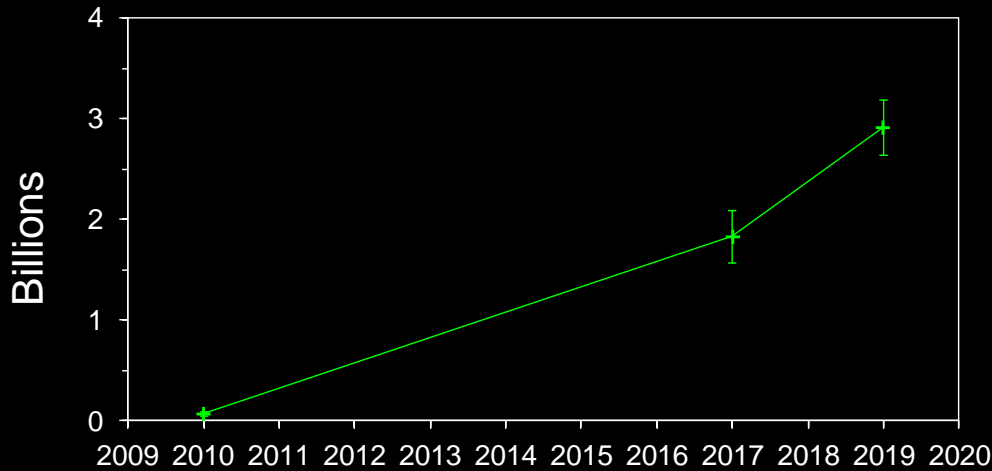
EBS Abundance

9.13 billion

+53% from 2018 (6.0 billion)



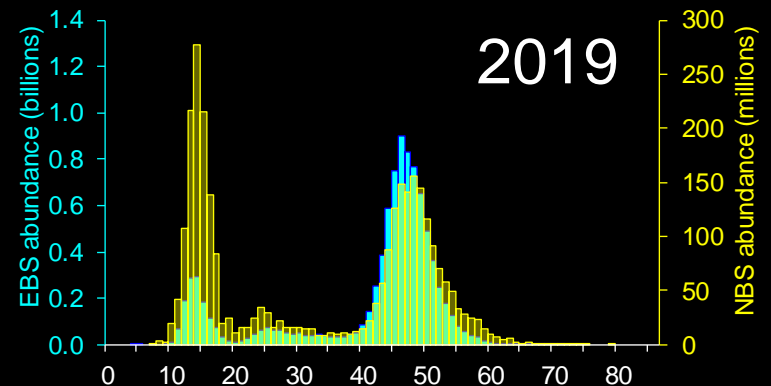
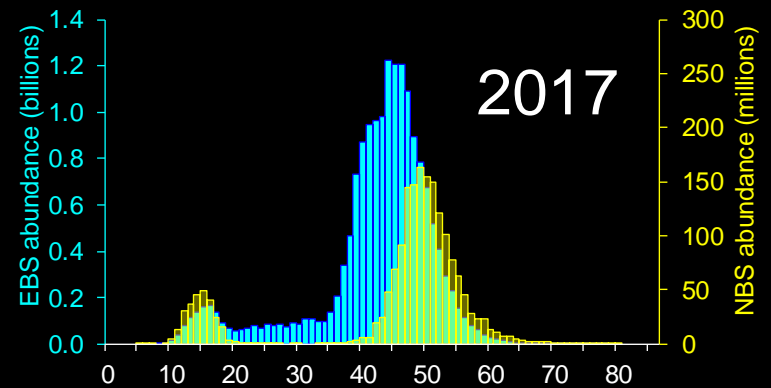
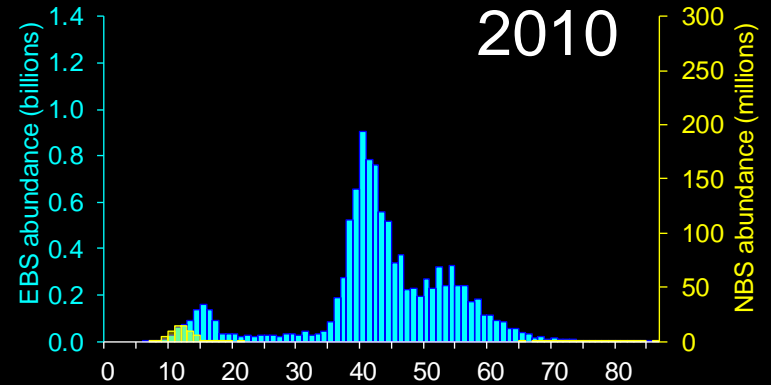
NBS Walleye pollock



NBS Abundance

2.9 billion

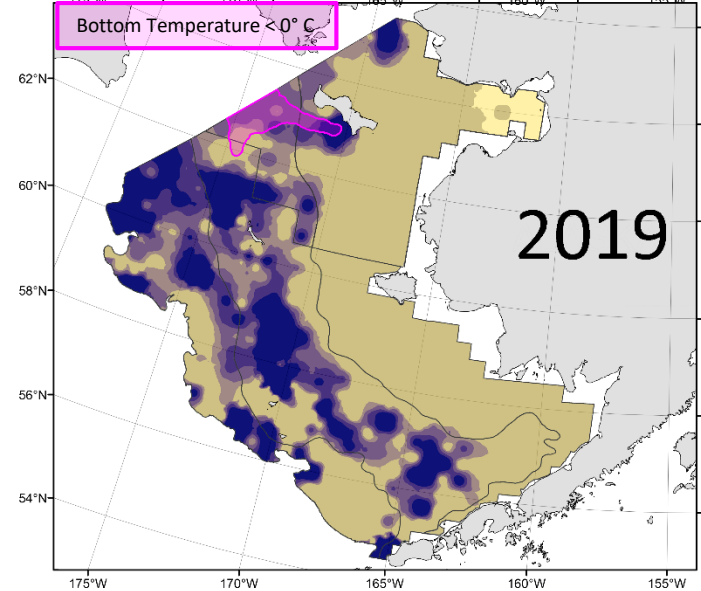
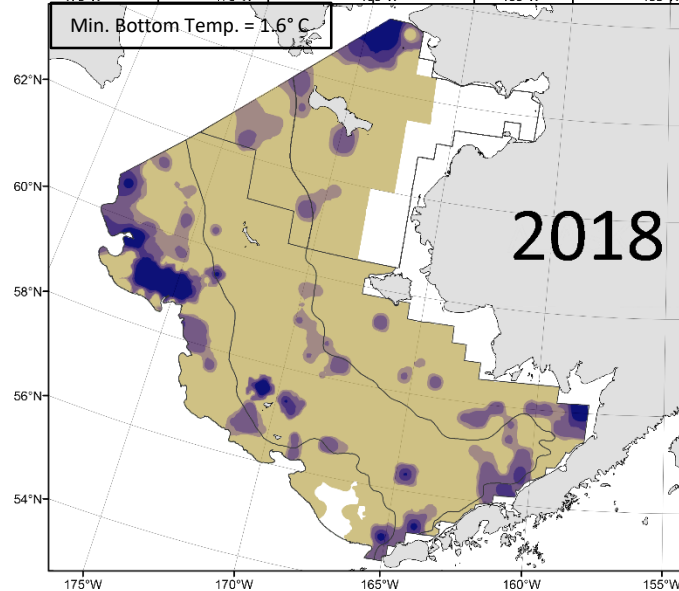
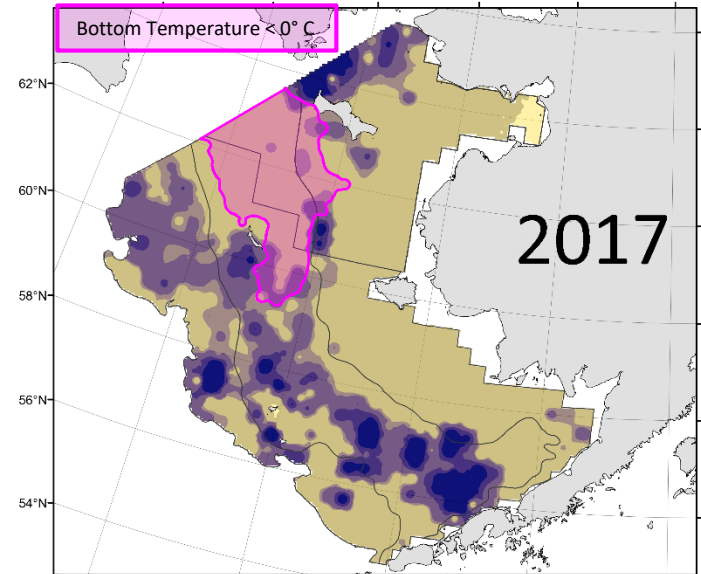
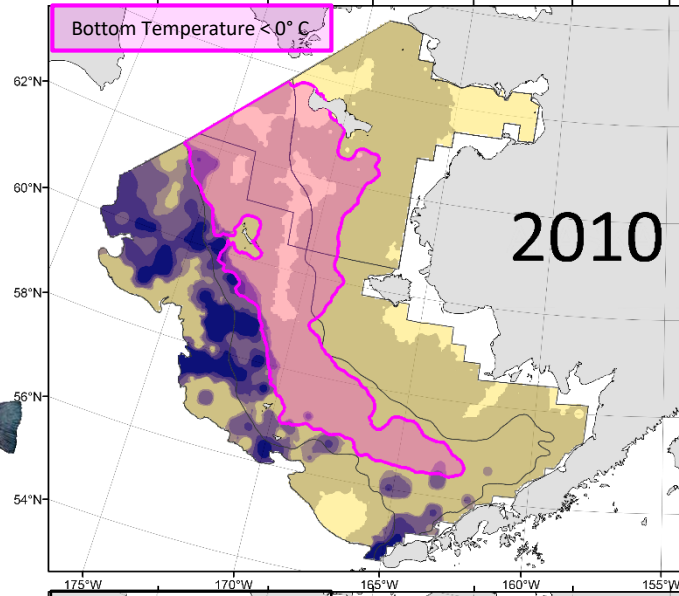
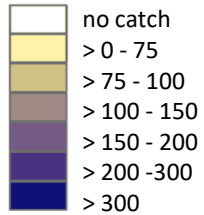
+59% from 2017 (1.8 billion)



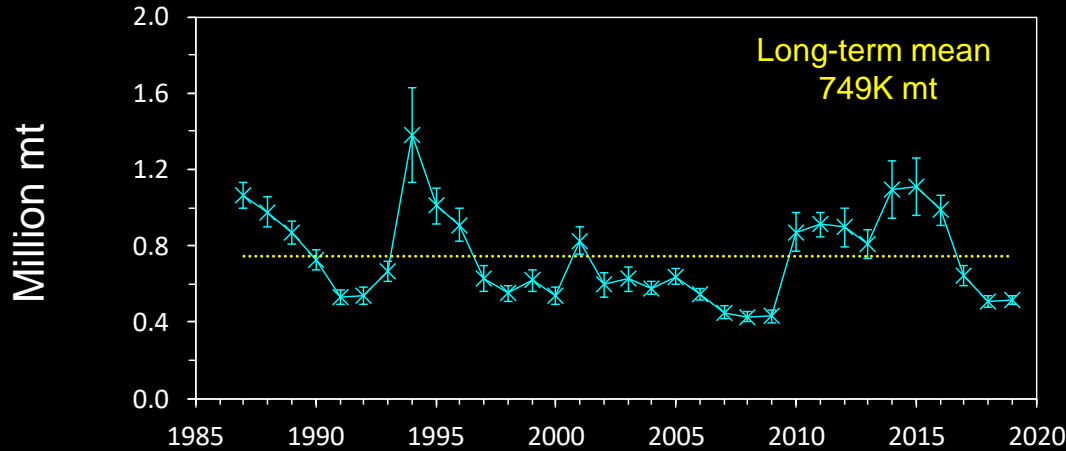
Bering Sea Pollock Distribution



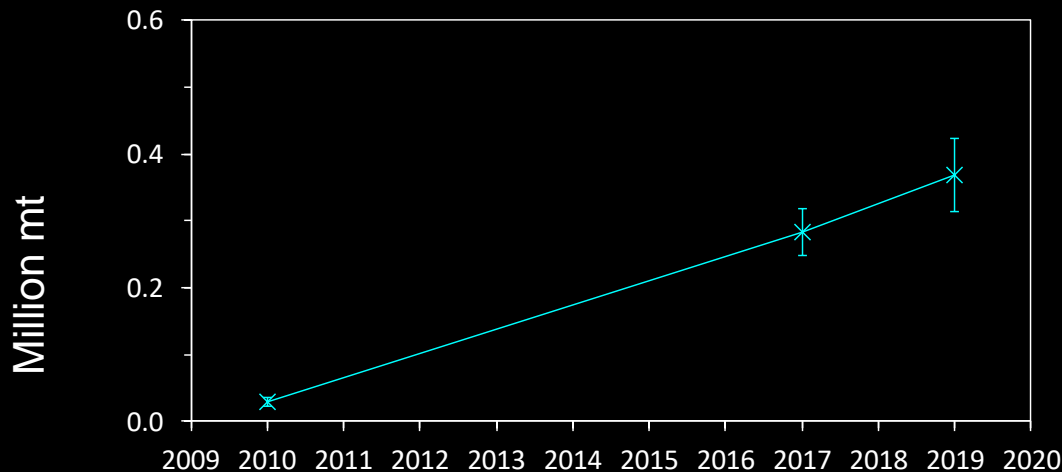
Walleye Pollock
(kg/ha)



EBS and NBS Pacific cod

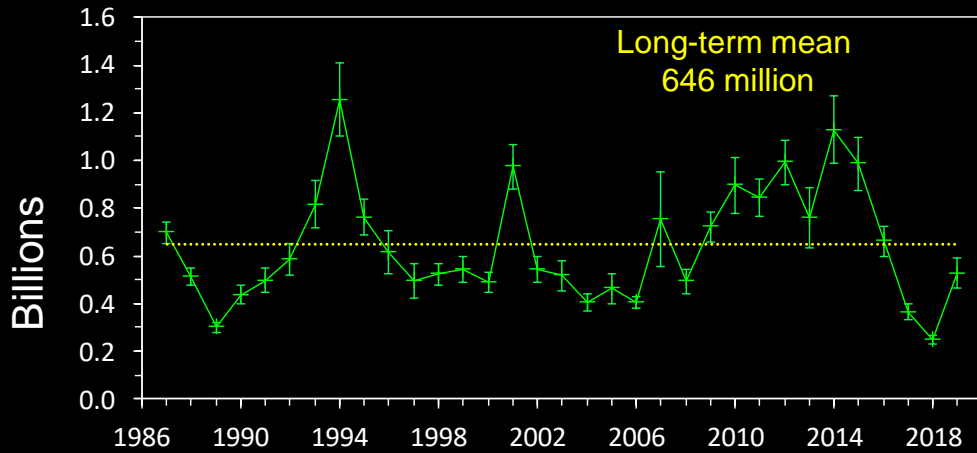


EBS Biomass
517K mt
+2% from 2018 (507K mt)



NBS Biomass
368K mt
+30% from 2017 (283K mt)

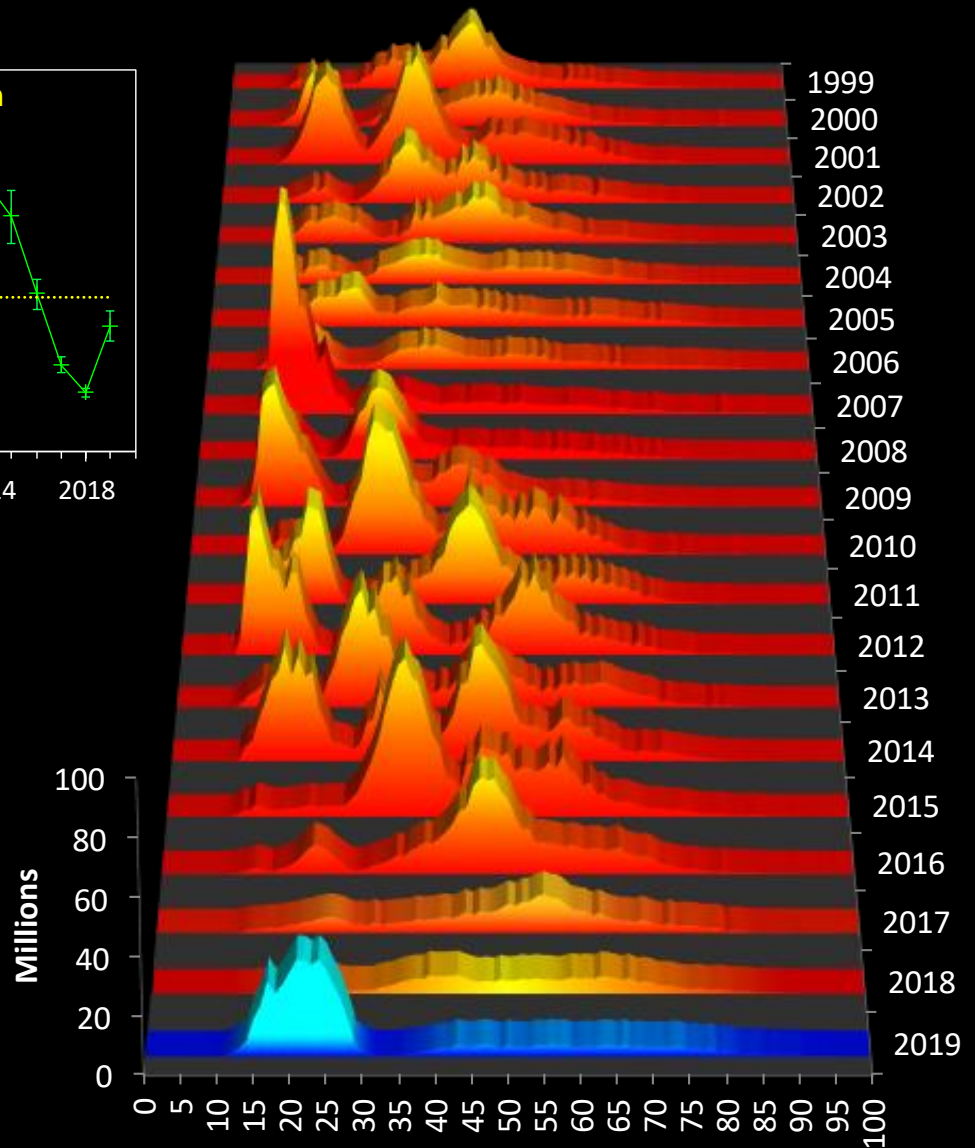
EBS Pacific cod



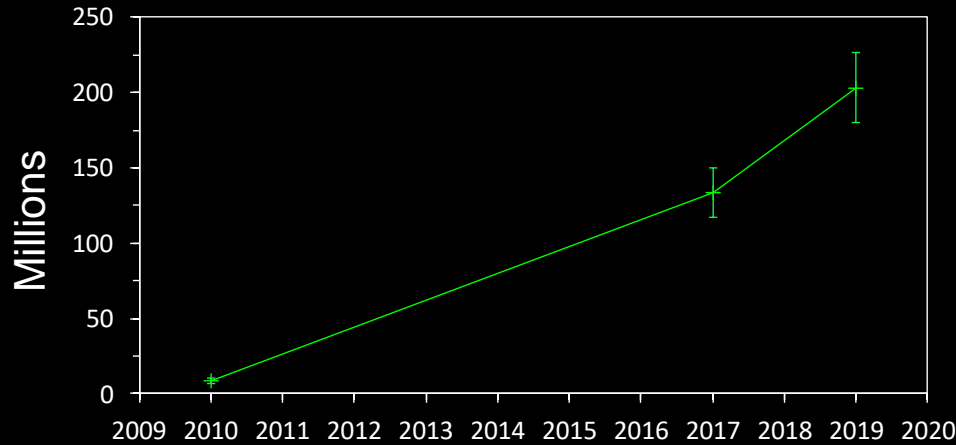
EBS Abundance

527 million

+112% from 2018 (249 million)



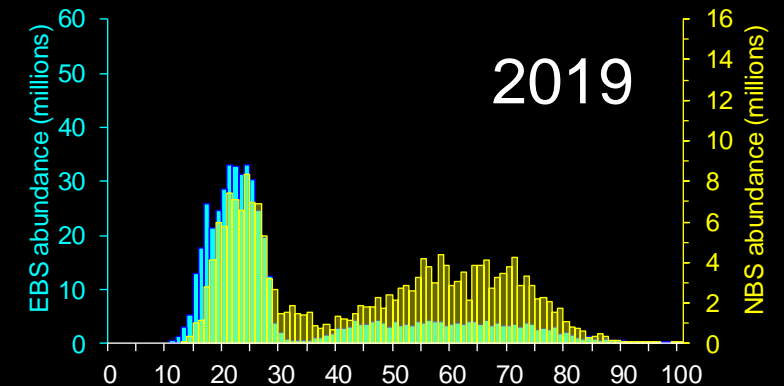
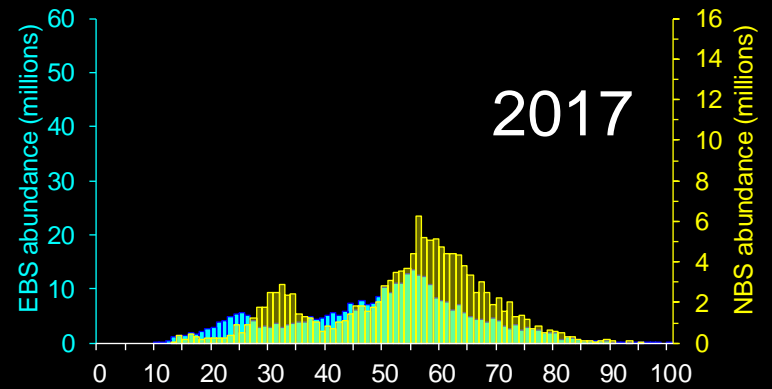
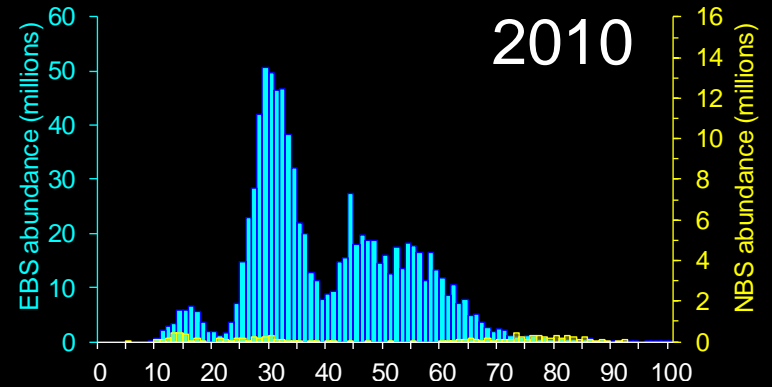
NBS Pacific cod



NBS Abundance

203 million

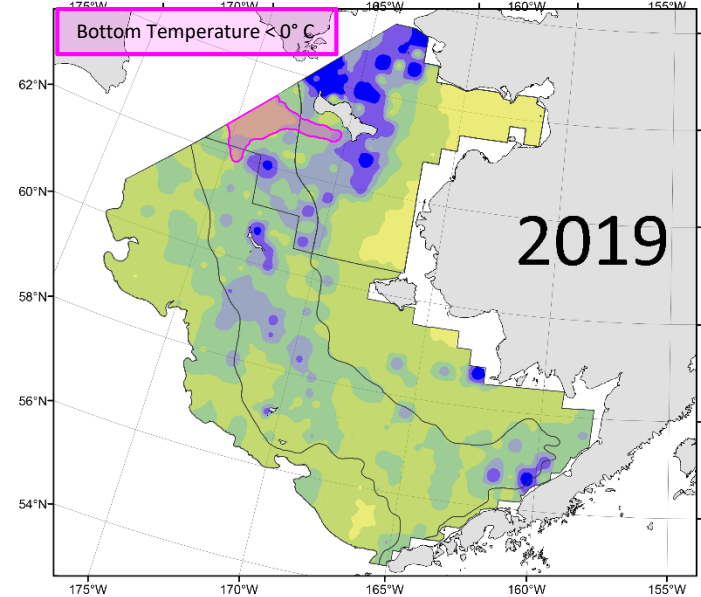
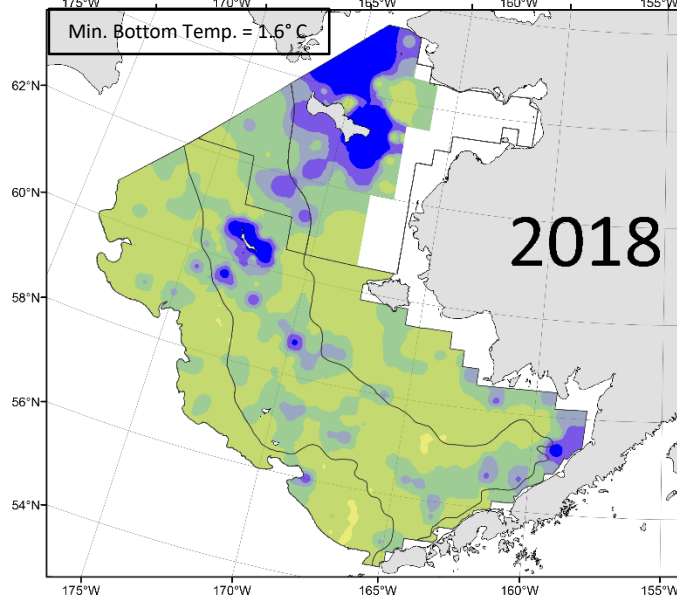
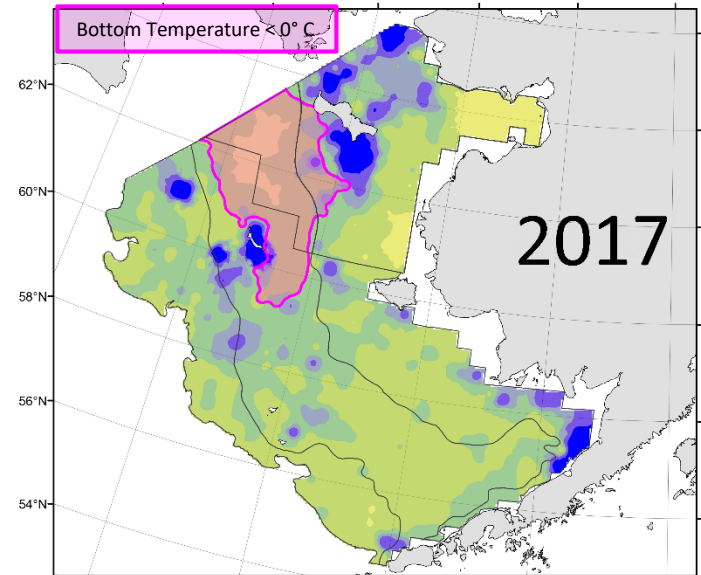
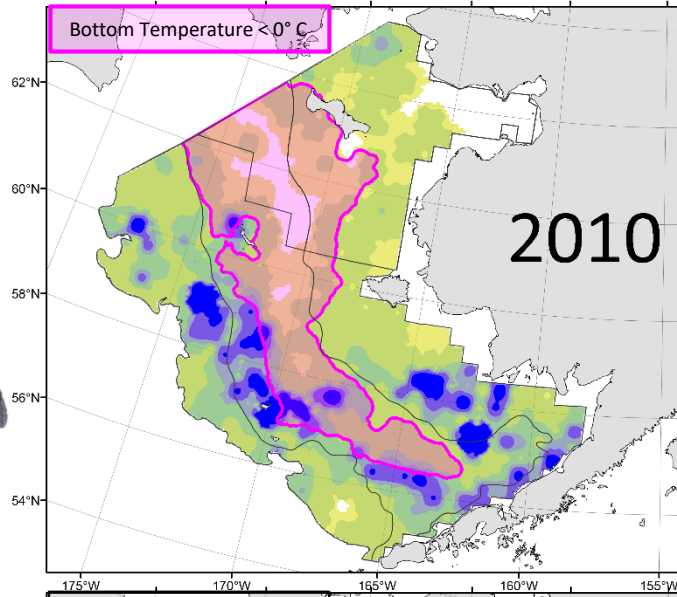
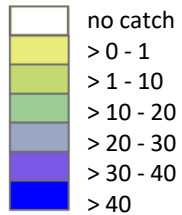
+52% from 2017 (133 million)



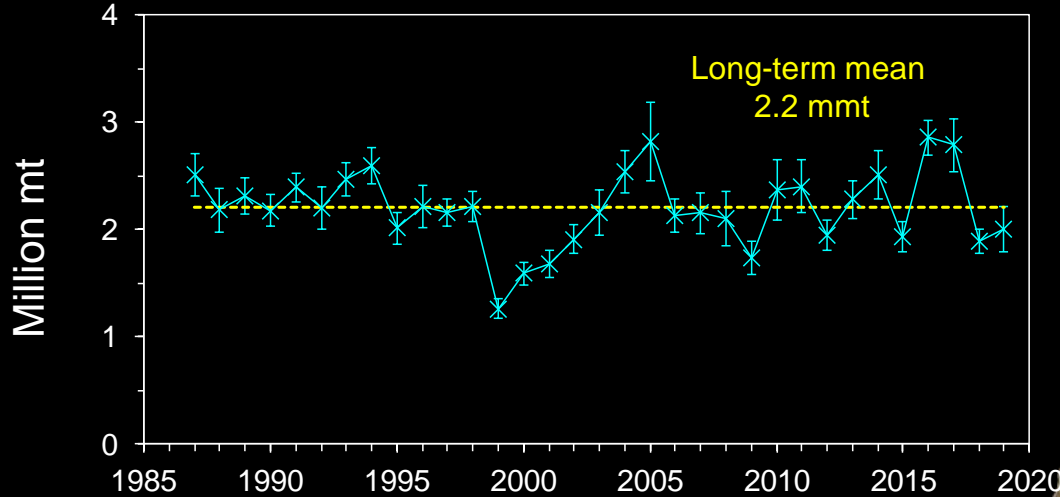
Bering Sea Pacific Cod Distribution



Pacific Cod
(kg/ha)



EBS and NBS Yellowfin sole

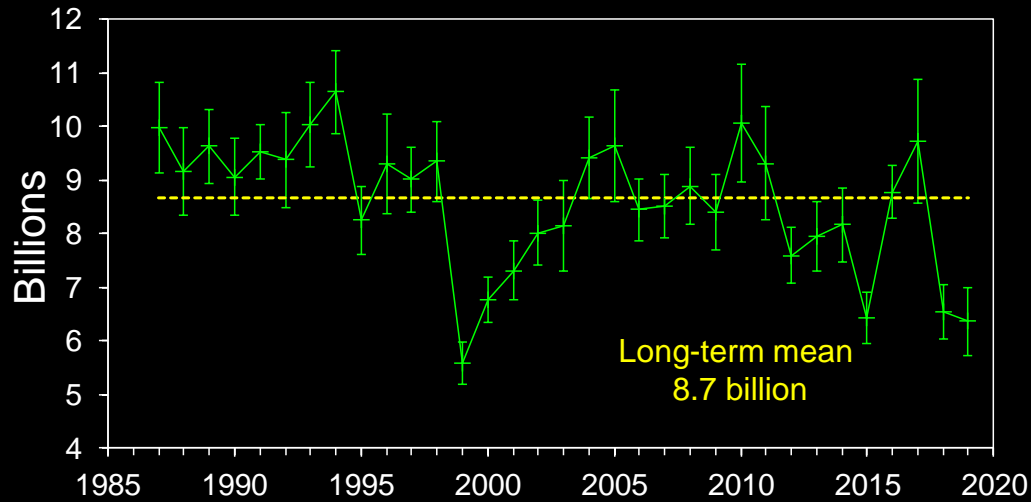


EBS Biomass
2.01 mmt
+6% from 2018 (1.90 mmt)



NBS Biomass
521K mt
+22% from 2017 (426K mt)

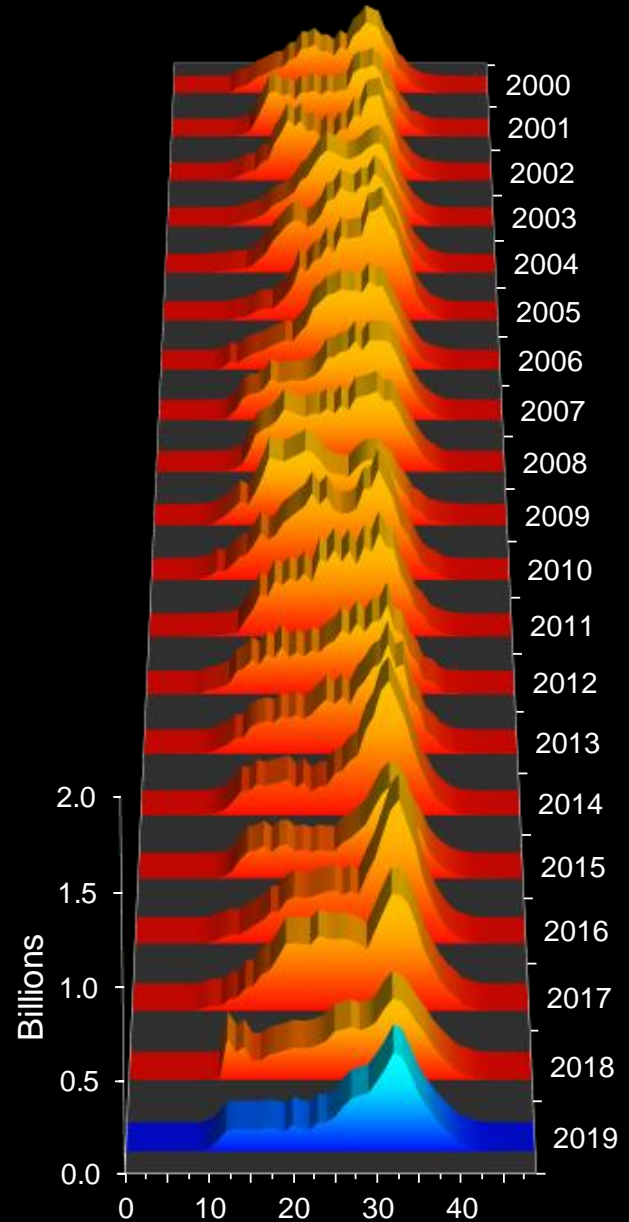
EBS Yellowfin sole



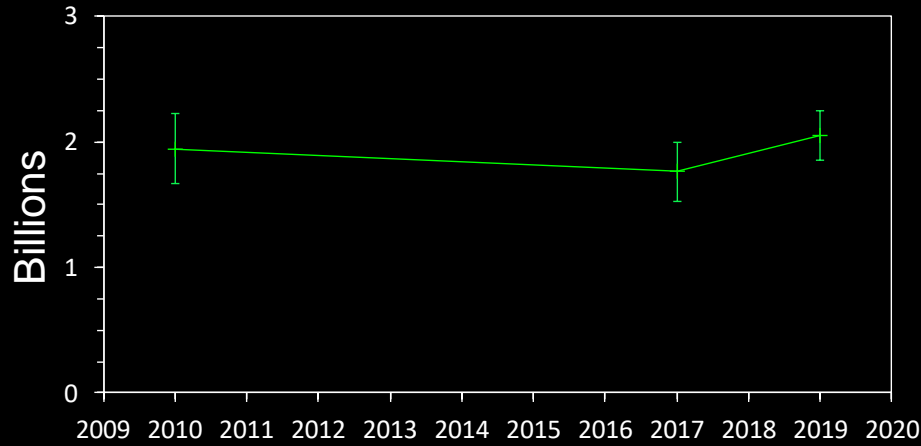
EBS Abundance

6.4 billion

-3% from 2018 (6.5 billion)



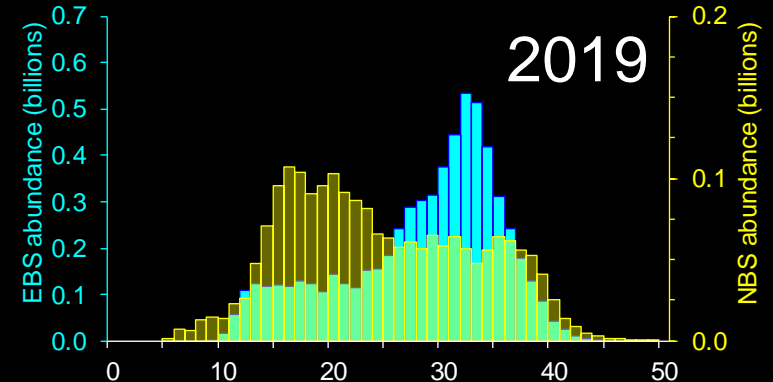
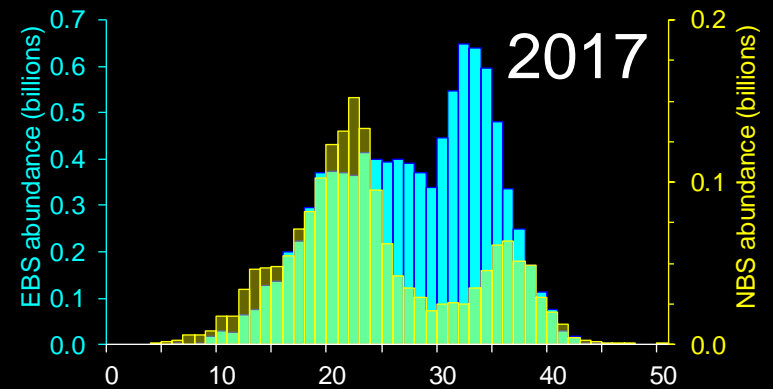
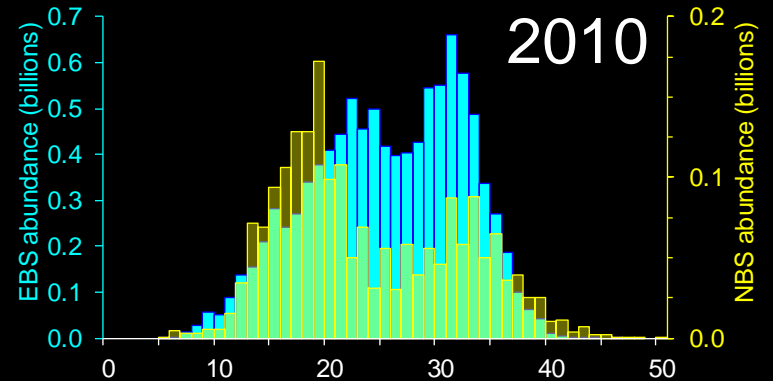
NBS Yellowfin sole



NBS Abundance

2.05 billion

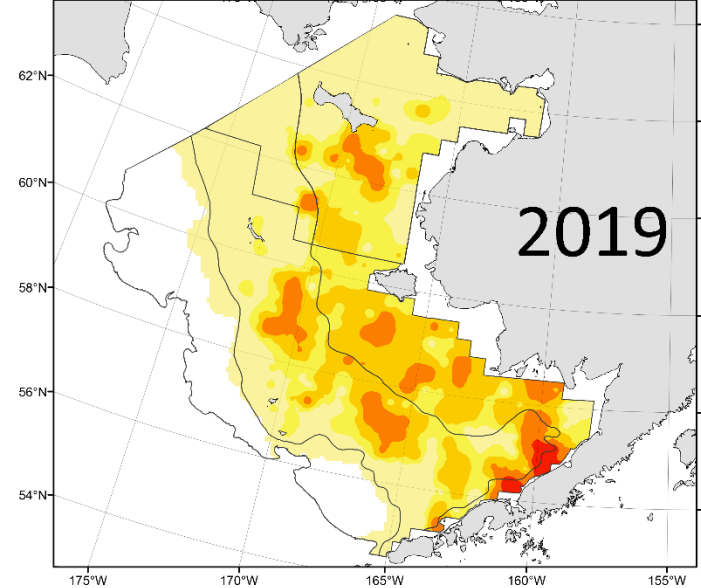
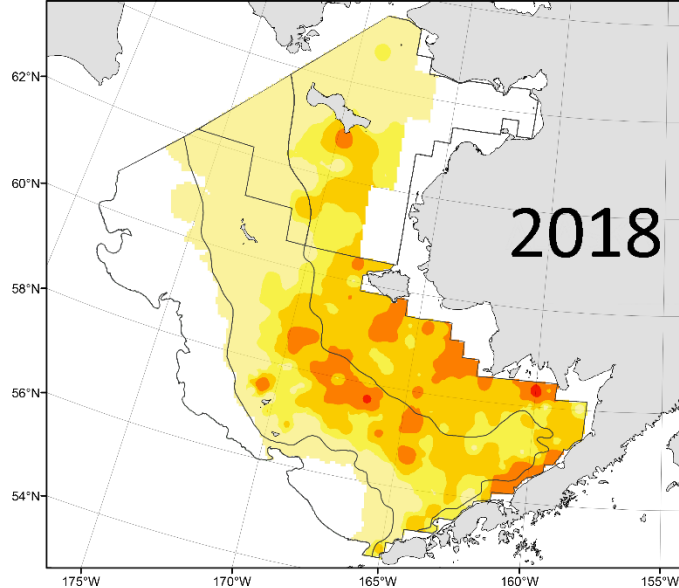
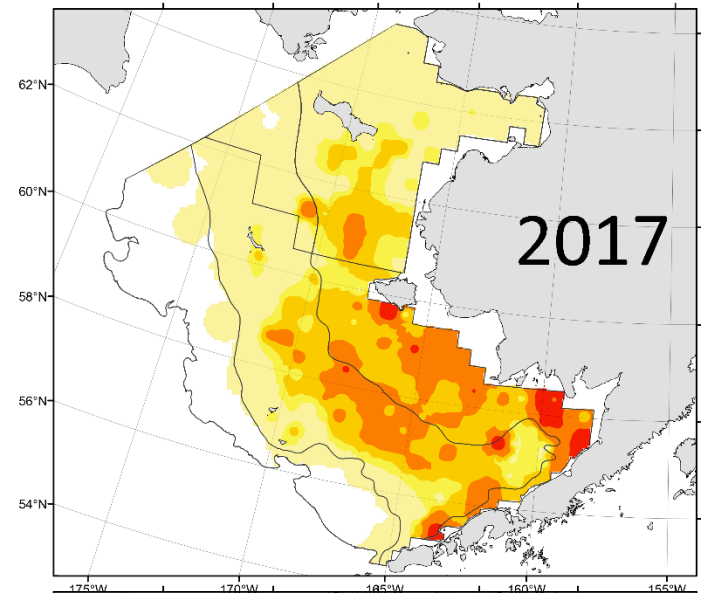
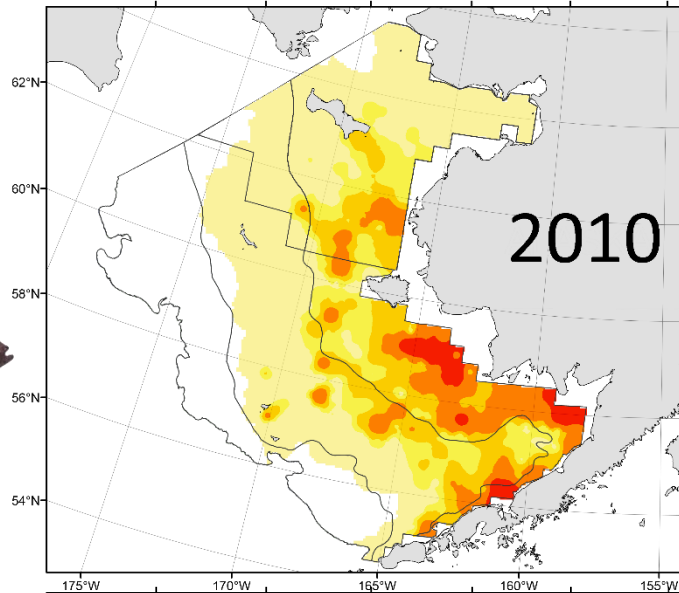
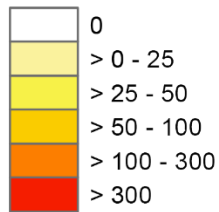
+16% from 2017 (1.76 billion)



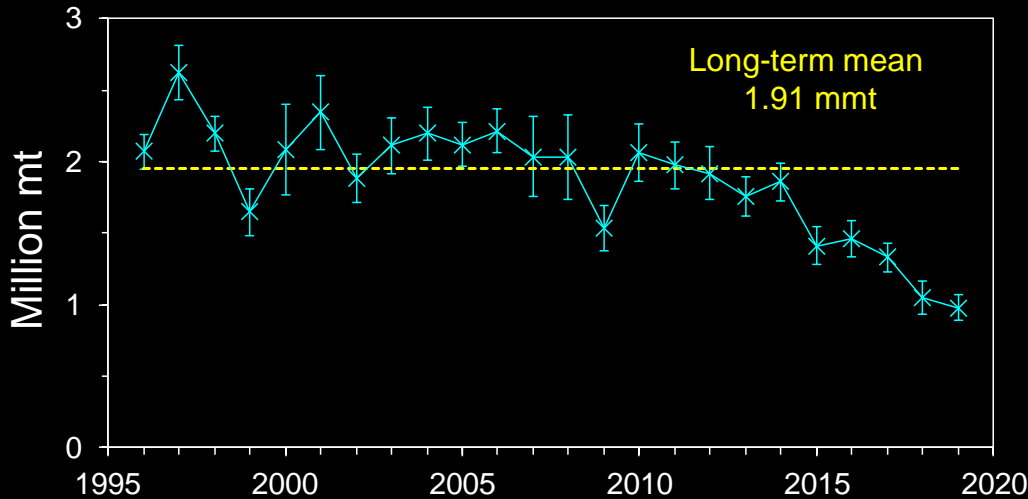
Bering Sea Yellowfin Sole Distribution



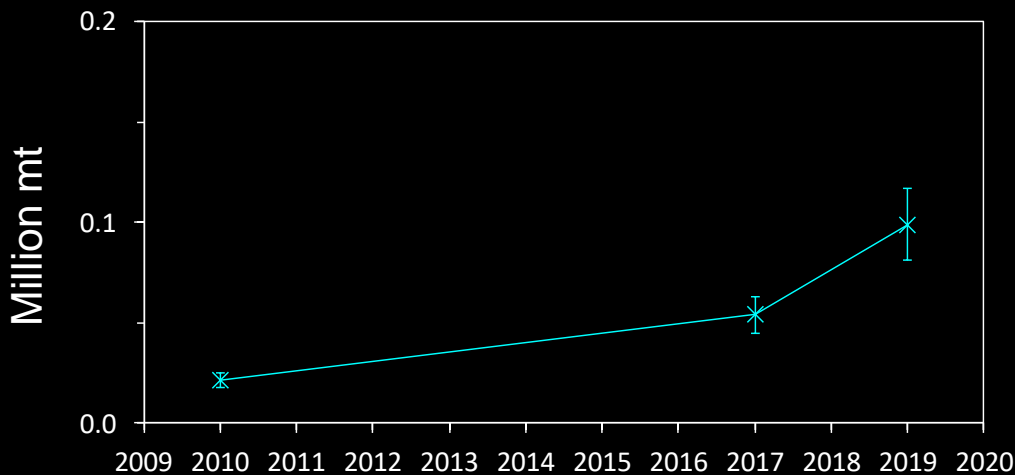
Yellowfin Sole
(kg/ha)



EBS and NBS Northern rock sole

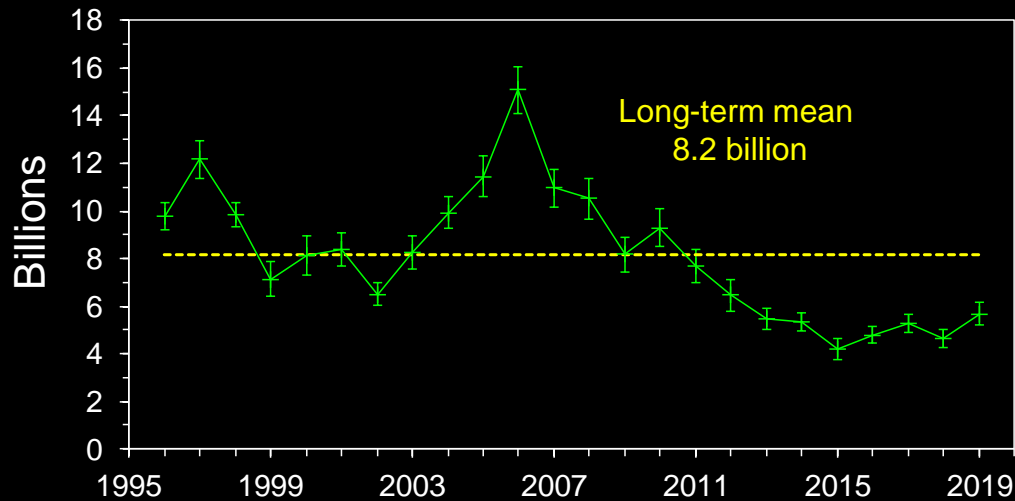


EBS Biomass
1.05 mmt
-21% from 2018 (1.33 mmt)



NBS Biomass
99K mt
+84% from 2017 (54K mt)

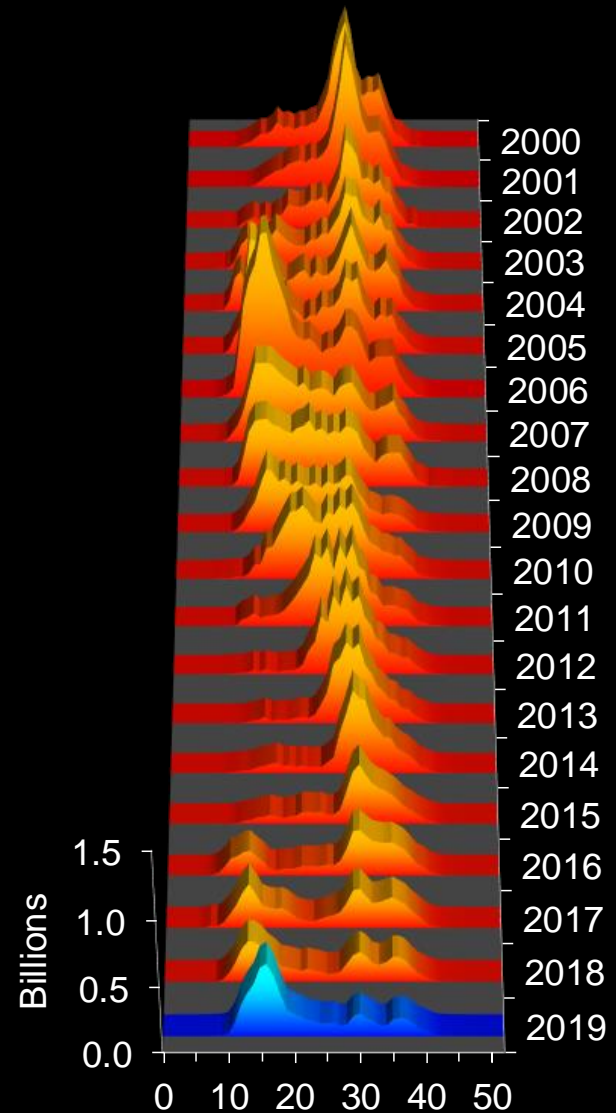
EBS Northern rock sole



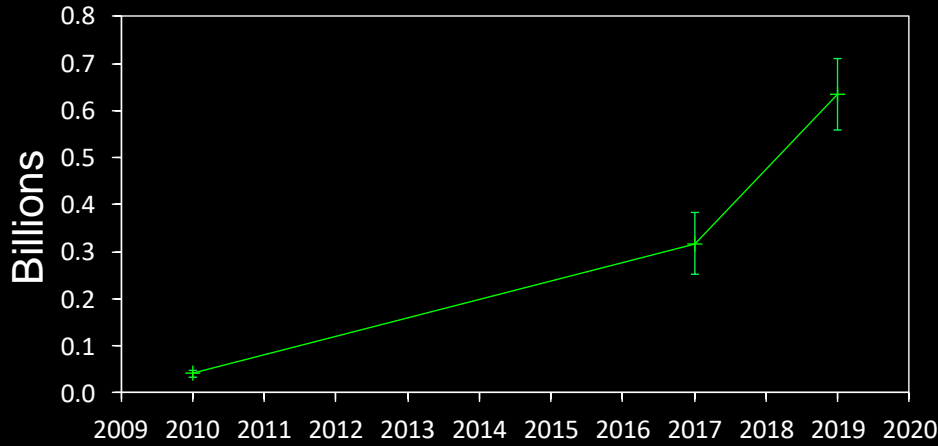
EBS Abundance

5.68 billion

+23% from 2018 (4.63 billion)



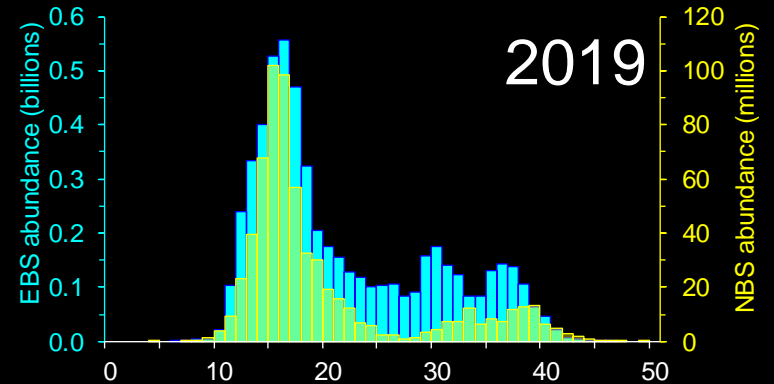
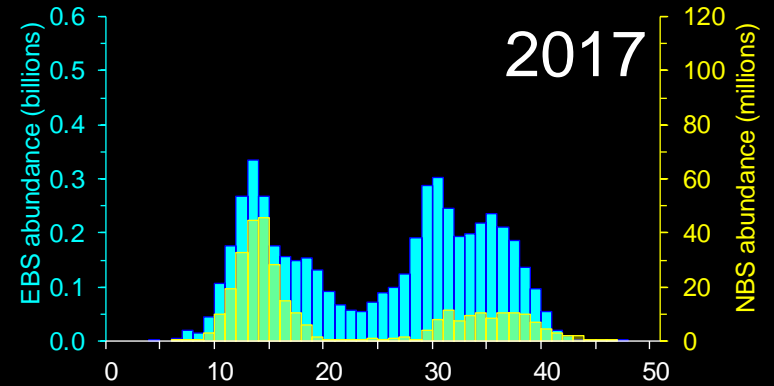
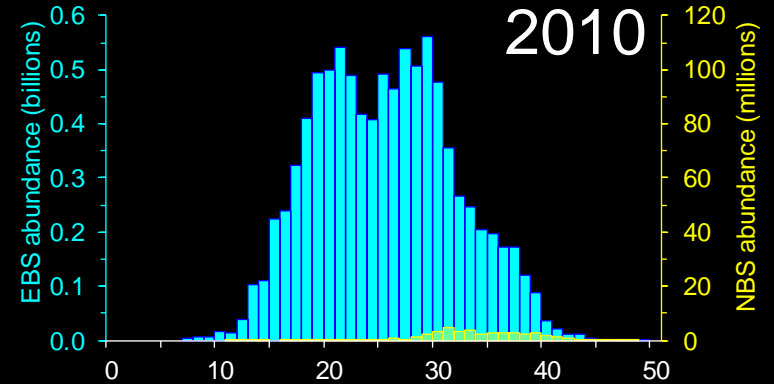
NBS Northern rock sole



NBS Abundance

634 million

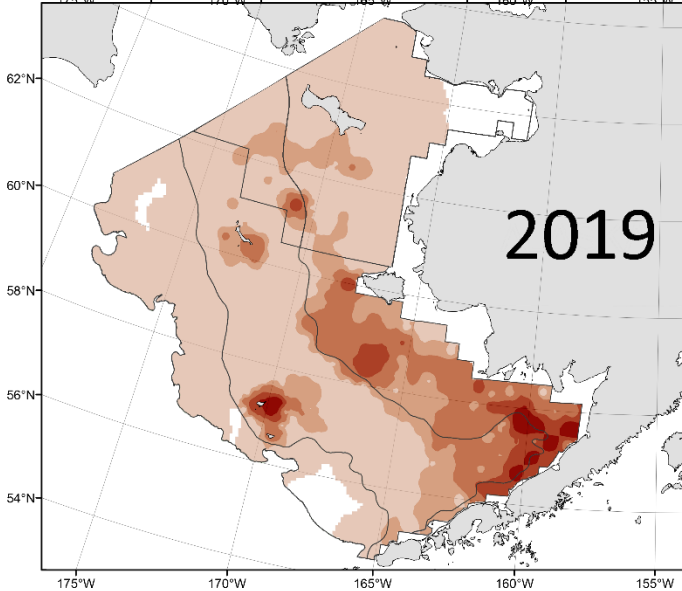
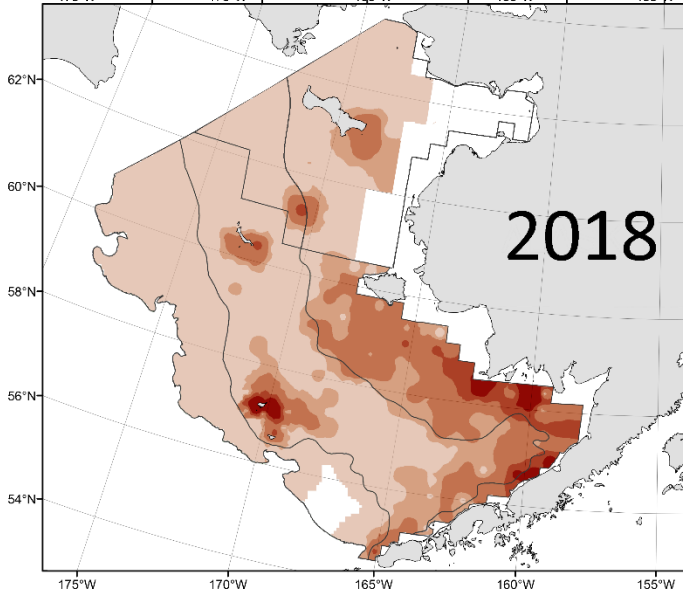
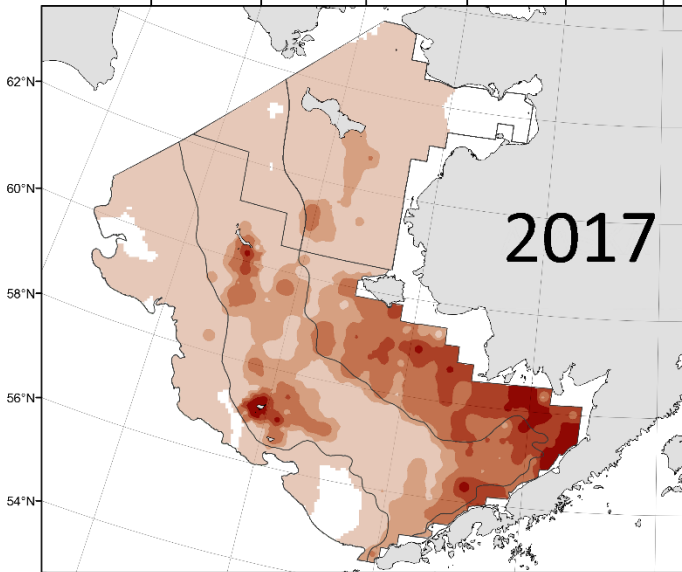
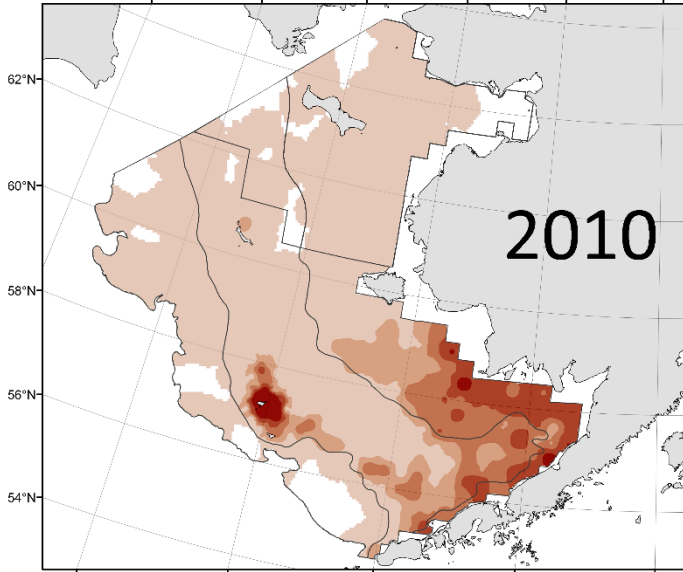
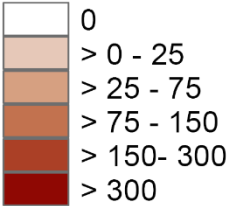
+100% from 2017 (318 million)



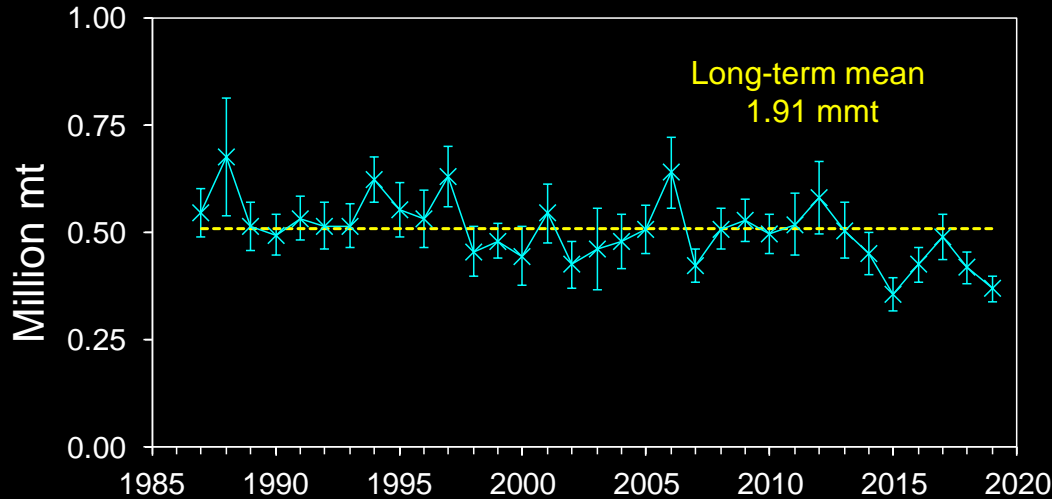
Bering Sea Northern Rock Sole Distribution



Northern rock sole
(kg/ha)



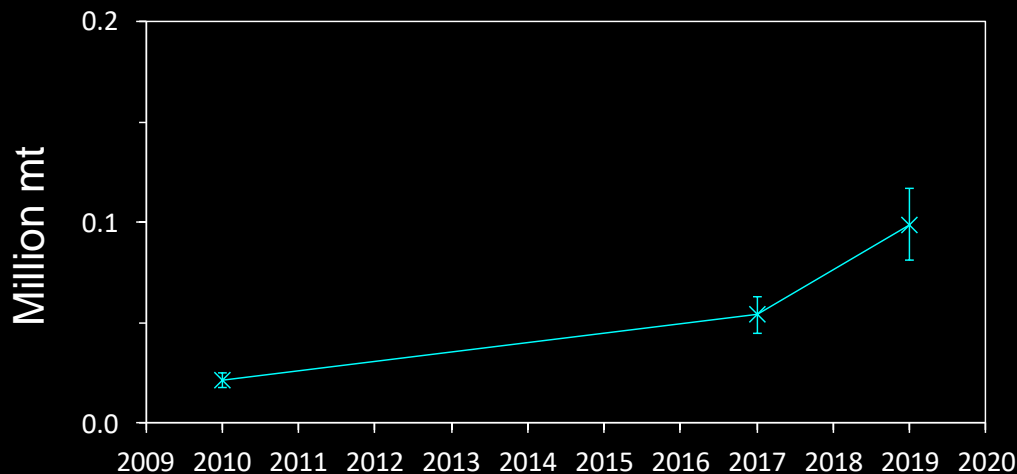
EBS and NBS Alaska plaice



EBS Biomass

370K mt

-12% from 2018 (420K mt)

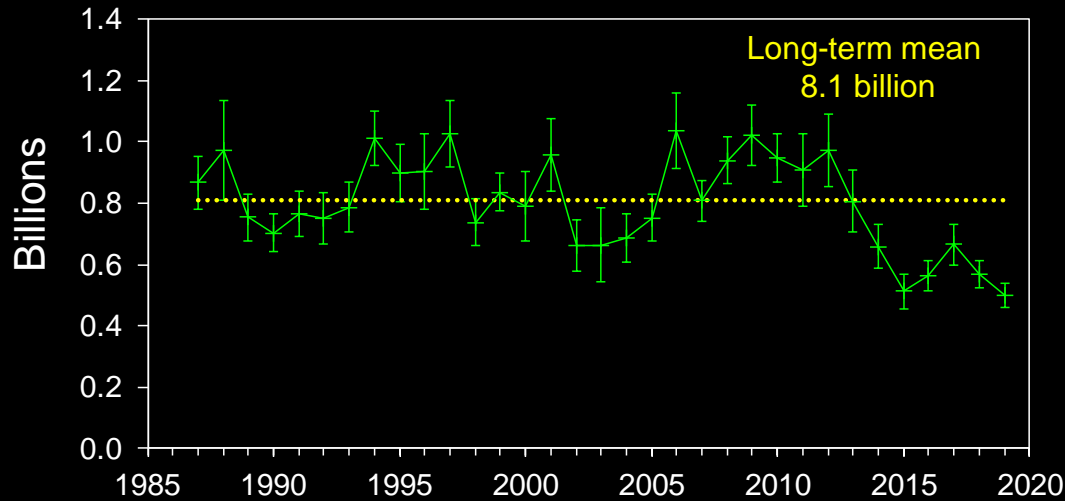


NBS Biomass

99K mt

+84% from 2017 (54K mt)

EBS Alaska plaice



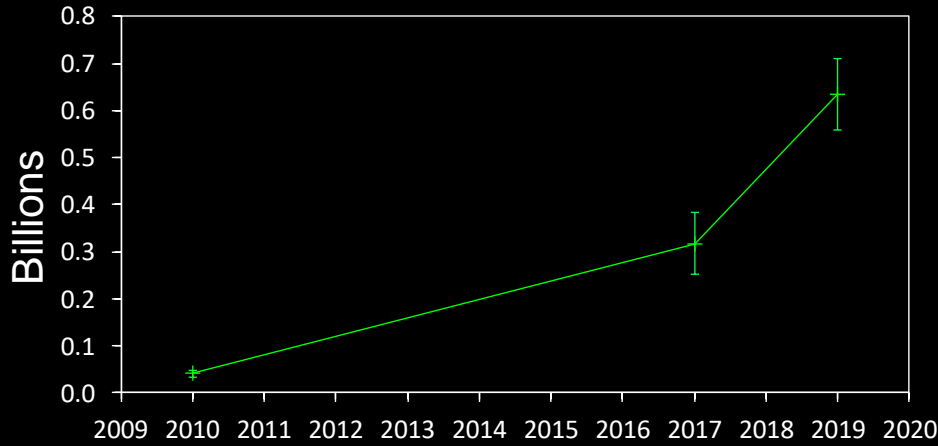
EBS Abundance

499 million

-12% from 2018 (570 million)



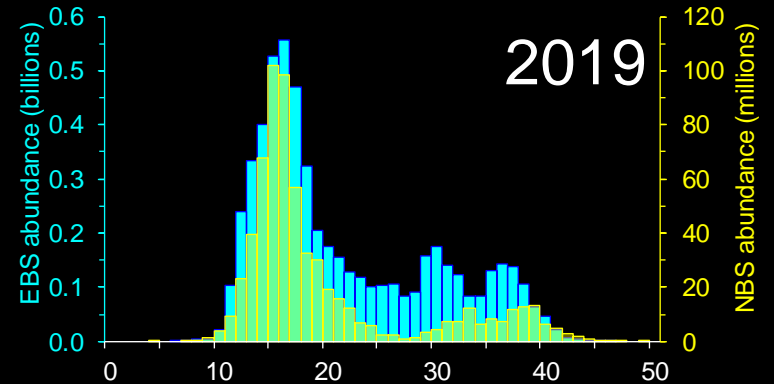
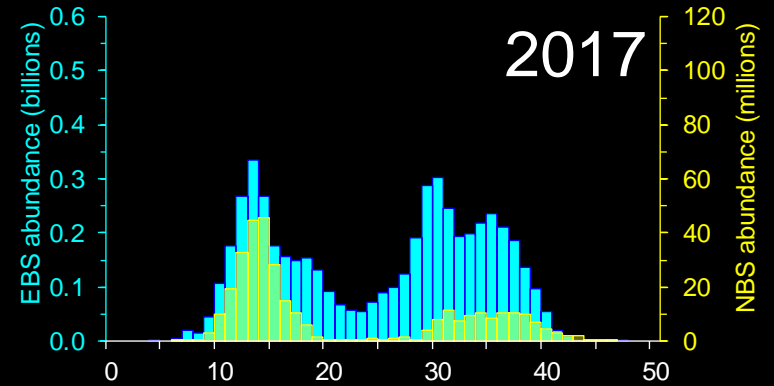
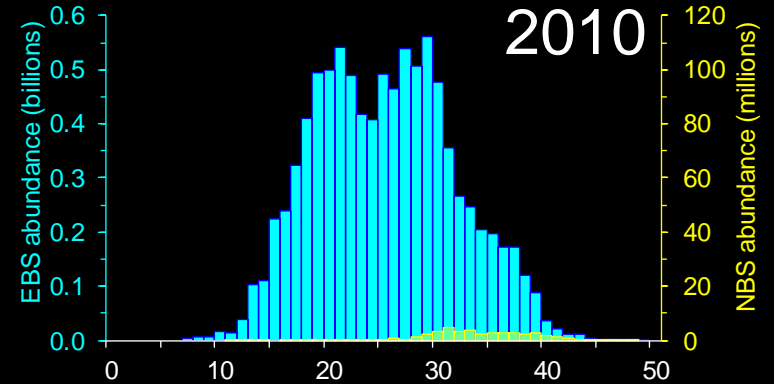
NBS Alaska plaice



NBS Abundance

634 million

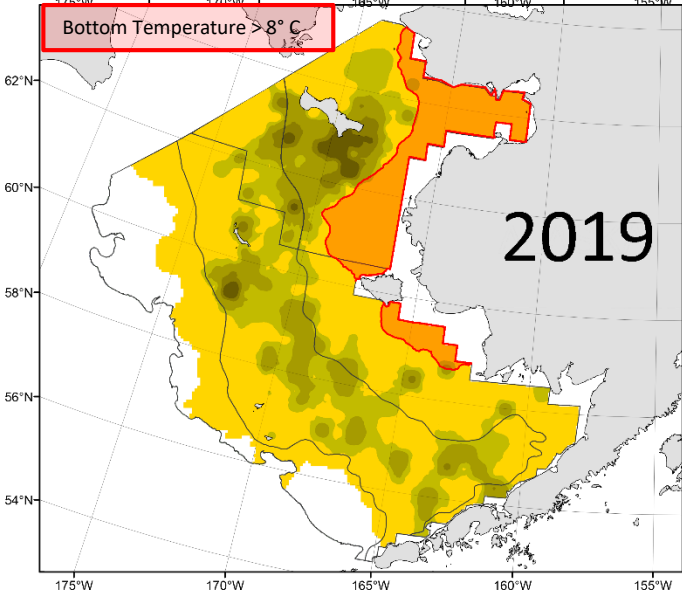
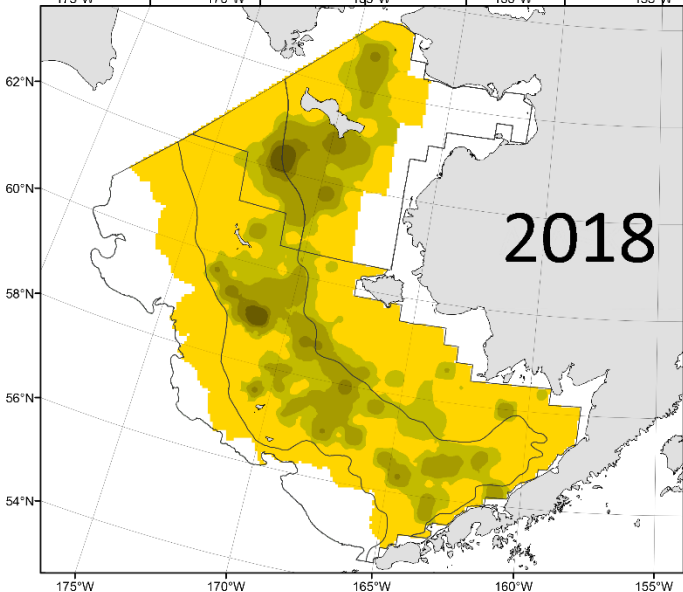
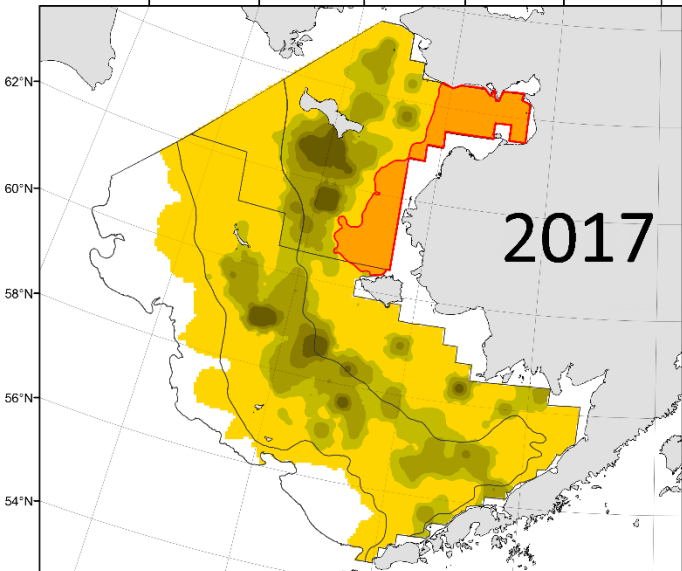
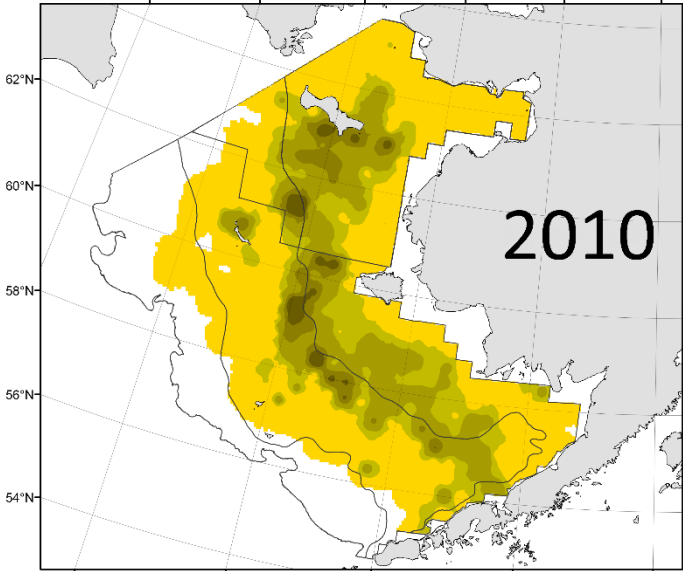
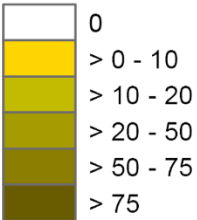
+100% from 2017 (318 million)



Bering Sea Alaska Plaice Distribution



Alaska plaice
(kg/ha)

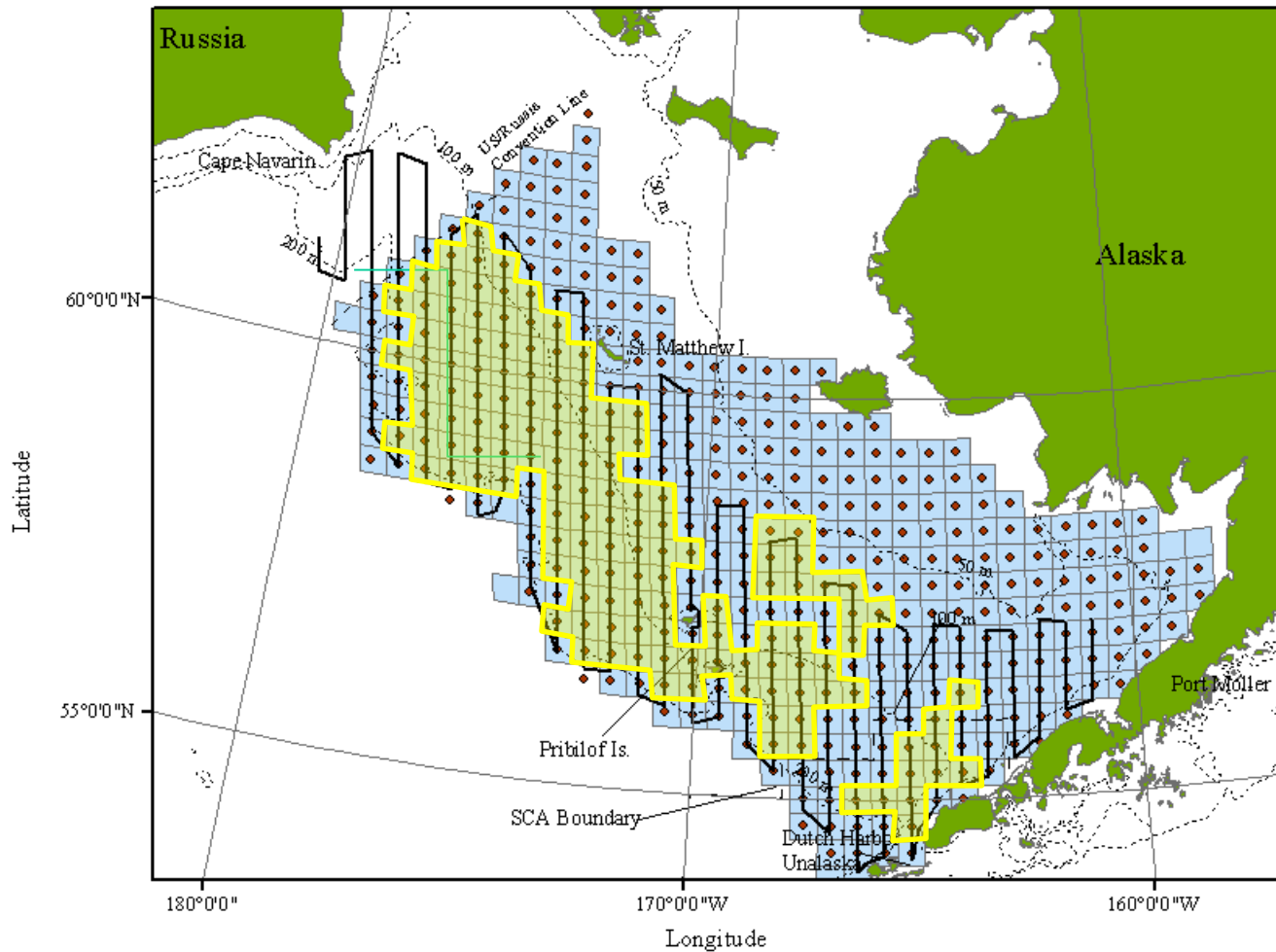


2019 survey results

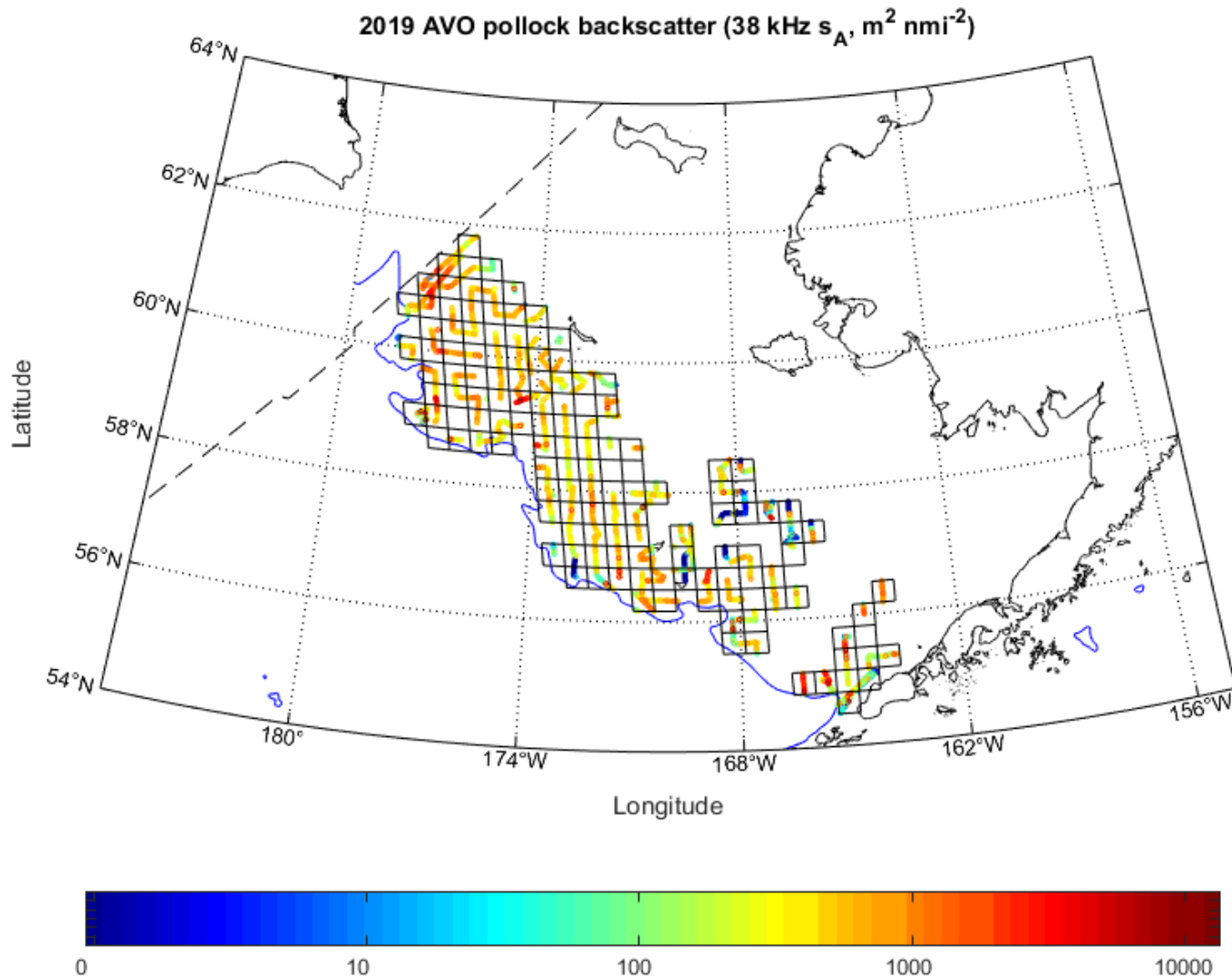
		EBS				NBS				
Taxon	Year	Biomass mt		Abundance x1000		Year	Biomass mt		Abundance x1000	
Arrowtooth fl.	2018	511,192		1,086,953		2017	-		-	
	2019	578,390	13%	1,014,099	-7%	2019	1,443		1,425	
Kamchatka fl.	2018	44,000		93,721		2017	91		86	
	2019	44,870	2%	78,749	-16%	2019	61	-33%	84	-3%
Greenland turbot	2018	18,017		7,361		2017	58		93	
	2019	16,053	-11%	5,101	-31%	2019	424	625%	220	136%
Pacific halibut	2018	125,957		50,502		2017	18,115		5,064	
	2019	113,855	-10%	74,459	47%	2019	25,814	42%	7,914	56%
Flathead sole	2018	492,623		2,329,667		2017	76		166	
	2019	611,483	24%	2,217,216	-5%	2019	463	508%	2,407	1353%
Bering fl.	2018	12,995		61,152		2017	20,782		241,155	
	2019	8,269	-36%	35,805	-41%	2019	18,573	-11%	122,547	-49%
Alaska plaice	2018	419,509		569,754		2017	324,264		496,025	
	2019	368,787	-12%	499,174	-12%	2019	322,565	-1%	535,232	8%
Alaska sklate	2018	545,994		126,778		2017	81,295		17,803	
	2019	491,109	-10%	102,980	-19%	2019	95,466	17%	22,541	27%
Arctic cod	2018	-		-		2017	4,140		133,418	
	2019	2		31		2019	47	-99%	1,610	-99%
Saffron cod	2018	295		10,395		2017	76,341		1,442,498	
	2019	1,370	364%	13,931	34%	2019	82,408	8%	1,301,086	-10%

AVO (index of midwater pollock from bottom trawl survey acoustics)

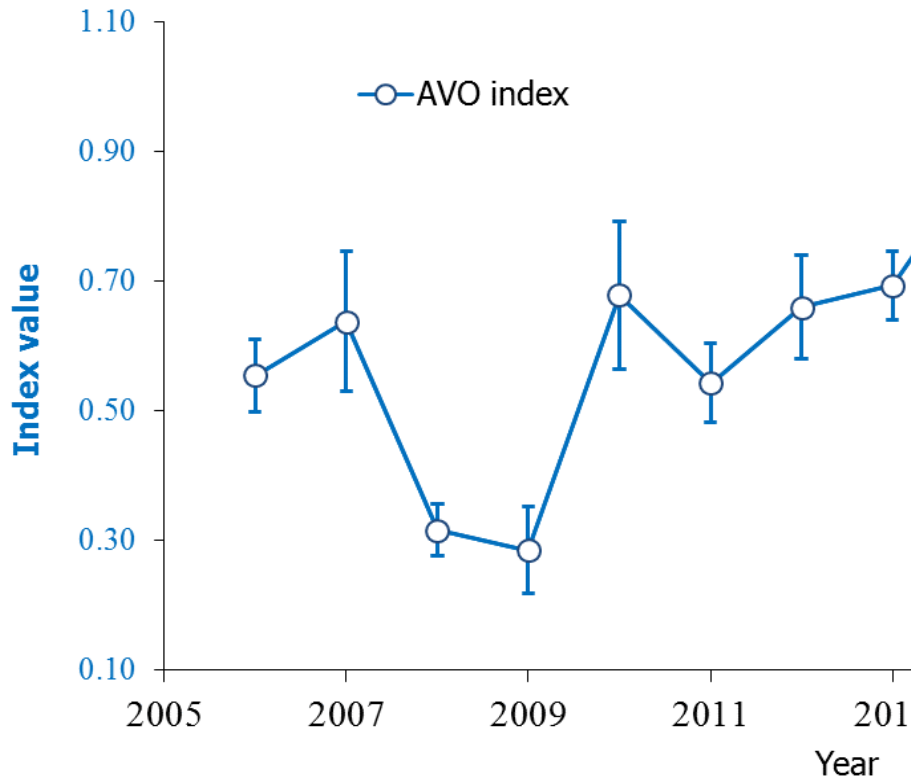
S. Stienessen, T. Honkalehto, N. Lauffenburger, P. Ressler



2019 AVO Index



2019 AVO Index



Increased 1.3% from 2018
Decreased 6.8% from 2017

