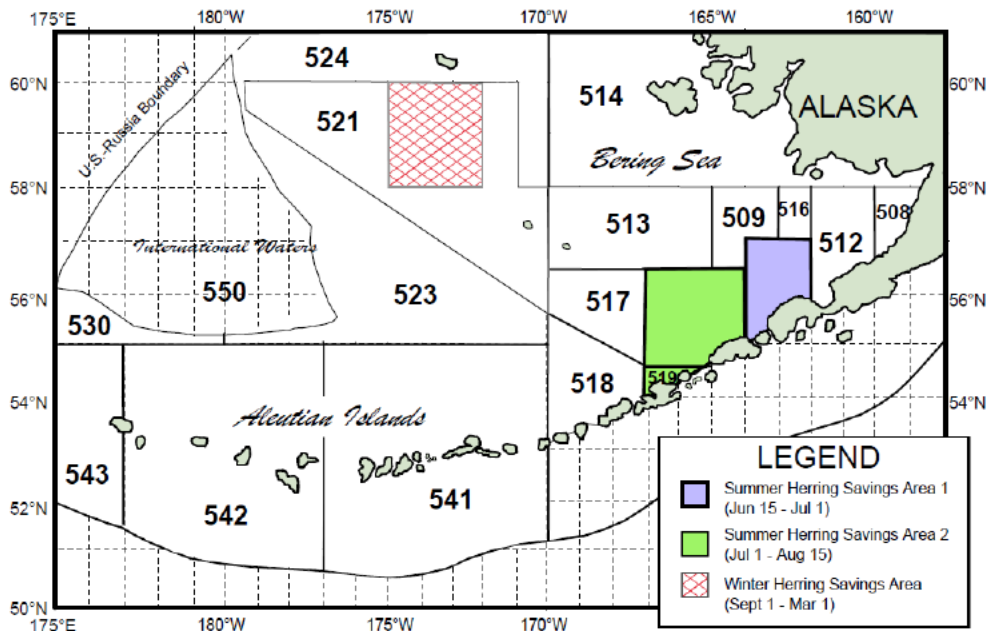


# EI SUPPLEMENTAL INFORMATION ON BSAI HERRING PSC AND DISTRIBUTION

DIANA STRAM AND MICHAEL FEY, JUNE 10, 2020



# HERRING SAVINGS AREAS IMPLEMENTED 1991 (AMD16A)



- Summer HSA1 June 15- July 1
- Summer HSA2 July 1- August 15
- Winter HAS3 Sept 1- March 1



Areas and timing informed by data from 1980s



# ANNUAL HERRING PSC (MT) ALL SECTORS 2010-2020\*

Year	PSC	Limit	Remaining	% Taken
2010	353	1,973	1,620	18%
2011	397	2,273	1,876	17%
2012	2,376	2,094	-282	113%
2013	988	2,648	1,660	37%
2014	187	2,179	1,992	9%
2015	1,529	2,742	1,213	56%
2016	1,494	2,630	1,136	57%
2017	1,023	2,013	990	51%
2018	540	1,830	1,290	30%
2019	1,183	2,547	1,364	46%
2020*	2,763	2,532	-231	109%
average	1,167	2,315	1,148	49%

\*2020 data is as of May 24th 2020

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive\_PSC.



# HAS CLOSURES HISTORICALLY

- Pollock closures:

- 2012 October 1, 2012 - March 1, 2013 Winter HSA3 closed
- 1994 November 14, 1994 - March 1, 1994 Winter HSA3 closed
- 1991 September 21, 1991 - March 1, 1992 Winter HSA3 closed

- Yellowfin sole:

- 1992 July 14 - August 15, 1992 (HSA2) and September 1, 1994 - March 1, 1993 (HSA3)
  - However in-season authority increased the limit after State recalculated a higher biomass and closures after August 2 were rescinded.



# PSC (MT) POLLOCK FISHERY 2010-2020 (5/24/20) BY SEASON

<b>Year</b>	<b>A season</b>	<b>B season</b>	<b>Total</b>
<b>2010</b>	302	47	349
<b>2011</b>	2	375	377
<b>2012</b>	130	2,229	2,358
<b>2013</b>	0	959	959
<b>2014</b>	0	159	159
<b>2015</b>	417	1,070	1,487
<b>2016</b>	578	854	1,431
<b>2017</b>	262	702	964
<b>2018</b>	65	408	473
<b>2019</b>	210	892	1,102
<b>2020</b>	2,701	---	2,701



Year	CP PSC	CV PSC	Total
2010	293	8	302
2011	0	1	2
2012	127	3	130
2013	0	0	0
2014	0	0	0
2015	364	54	418
2016	370	209	578
2017	212	51	262
2018	24	41	65
2019	165	45	210
2020*	1,553	1,149	2,701

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive\_PSC.As of May 24, 2020

**A SEASON  
HERRING PSC  
(MT) IN POLLOCK  
TARGET BY CP/CV**

# HERRING PSC (MT) BY TARGET AND (LIMIT) 2010-2020\*

Year	Pollock Pelagic Trawl fishery	Pollock/Atka Mackerel /Other TRW	Yellowfin Sole Trawl fishery	Pacific Cod Trawl fishery	Rock Sole / Flathead Sole / Other Flatfish Trawl fishery	Turbot / Sablefish / Arrowtooth Trawl fishery	Rockfish Trawl fishery	Total PSC
2010	186 (1,508)	163 (214)	3 (169)	0 (29)	1 (29)	0 (14)	0 (10)	353
2011	346 (1,737)	31 (247)	19 (195)	0 (33)	1 (33)	0 (16)	0 (12)	397
2012	2,167 (1,600)	186 (227)	16 (179)	6 (31)	1 (31)	0 (15)	0 (11)	2,376
2013	959 (2,165)	0 (200)	27 (180)	0 (40)	2 (30)	0 (20)	0 (13)	988
2014	151 (1,776)	8 (164)	25 (148)	1 (40)	1 (24)	0 (16)	0 (11)	187
2015	1,386 (2,242)	101 (207)	31 (187)	2 (42)	9 (30)	0 (20)	0 (14)	1,529
2016	1,425 (2,151)	7 (199)	33 (179)	2 (40)	27 (29)	0 (19)	0 (13)	1,494
2017	957 (1,800)	8 (50)	34 (100)	0 (10)	23 (43)	0 (5)	0 (5)	1,023
2018	307 (1,662)	166 (30)	48 (80)	3 (9)	17 (39)	0 (5)	0 (5)	540
2019	1,082 (2,313)	22 (42)	59 (111)	0 (13)	19 (54)	0 (7)	1 (7)	1,183
2020	2,819 (2,299)	43 (42)	48 (110)	0 (13)	16 (54)	1 (7)	0 (7)	2,928

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive\_PSC. 5/31/20

**Herring (includes CDQ fisheries)**

**Trawl Gear**

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken
	Pacific Cod	MT	0	13	13	1%
	Pollock Pelagic	MT	2,819	2,299	-520	123%
	Pollock, Atka Mackerel, Other Species	MT	43	42	-1	102%
	Rock Sole, Flathead Sole, Other Flatfish	MT	16	54	38	30%
	Rockfish	MT	0	7	7	0%
	Turbot, Arrowtooth, Kamchatka, Sablefish	MT	1	7	6	15%
	Yellowfin Sole	MT	48	110	62	44%
<b>Total:</b>			<b>2,928</b>	<b>2,532</b>	<b>-396</b>	<b>116%</b>

**HERRING PSC ALLOWANCES  
 BY TARGET APPORTIONMENT  
 AND ACCRUAL (2020)**

**(SOURCE NMFS AKRC CATCH  
 ACCOUNTING REPORT)**

Report run on: June 04, 2020 4:10 AM



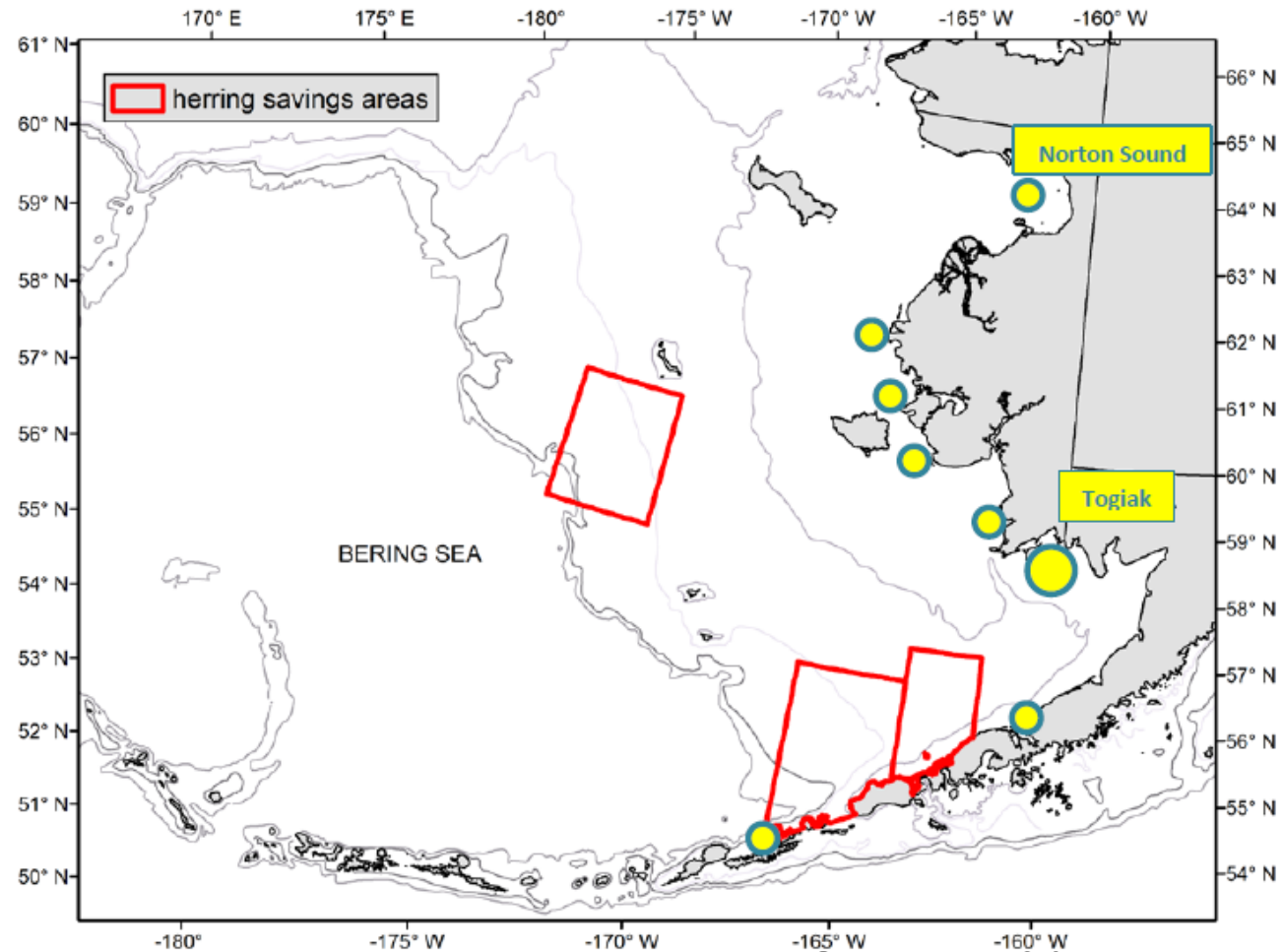
# SPAWNING STOCKS INCLUDED IN OVERALL BIOMASS ESTIMATE FOR PSC LIMIT

## PSC LIMIT = 1% OF TOTAL HERRING BIOMASS ESTIMATE (MT)

Spawning area	2012	2013	2014	2015	2016	2017	2018	2019	2020
Norton Sound	39,396	48,035	47,299	48,794	48,794	31,007	31,007	31,007	31,007
Cape Romanzof	4,349	4,349	2,634	4,366	4,366	4,678	4,678	3,300	3,300
Nunivak Island	2,612	2,612	2,068	5,132	140	3,540	3,540	4,464	4,464
Nelson Island	4,267	4,266	3,882	27,422	27,422	4,785	4,785	4,916	4,916
Cape Avinof	1,901	1,901	1,200	9,456	9,456	3,126	3,126	1,890	1,890
Goodnews Bay	29,944	29,944	7,116	16,812	8,263	4,724	4,724	4,724	4,724
Security Cove	11,061	18,144	7,852	11,681	8,540	4,781	4,781	4,762	4,762
Togiak	112,260	152,169	142,834	148,306	147,185	142,453	124,062	197,355	195,793
Port Moller/Port Heiden	3,629	3,382	2,268	2,268	8,932	2,184	2,268	2,291	2,350
<b>Total</b>	<b>209,419</b>	<b>264,802</b>	<b>217,153</b>	<b>274,236</b>	<b>263,098</b>	<b>201,278</b>	<b>182,971</b>	<b>254,709</b>	<b>253,207</b>



# HERRING SAVINGS AREAS AND LOCATIONS OF HERRING FISHERIES



From Ormseth, 2015



# EBS HERRING MIGRATION PATTERNS (FROM TOJO ET AL. 2007)

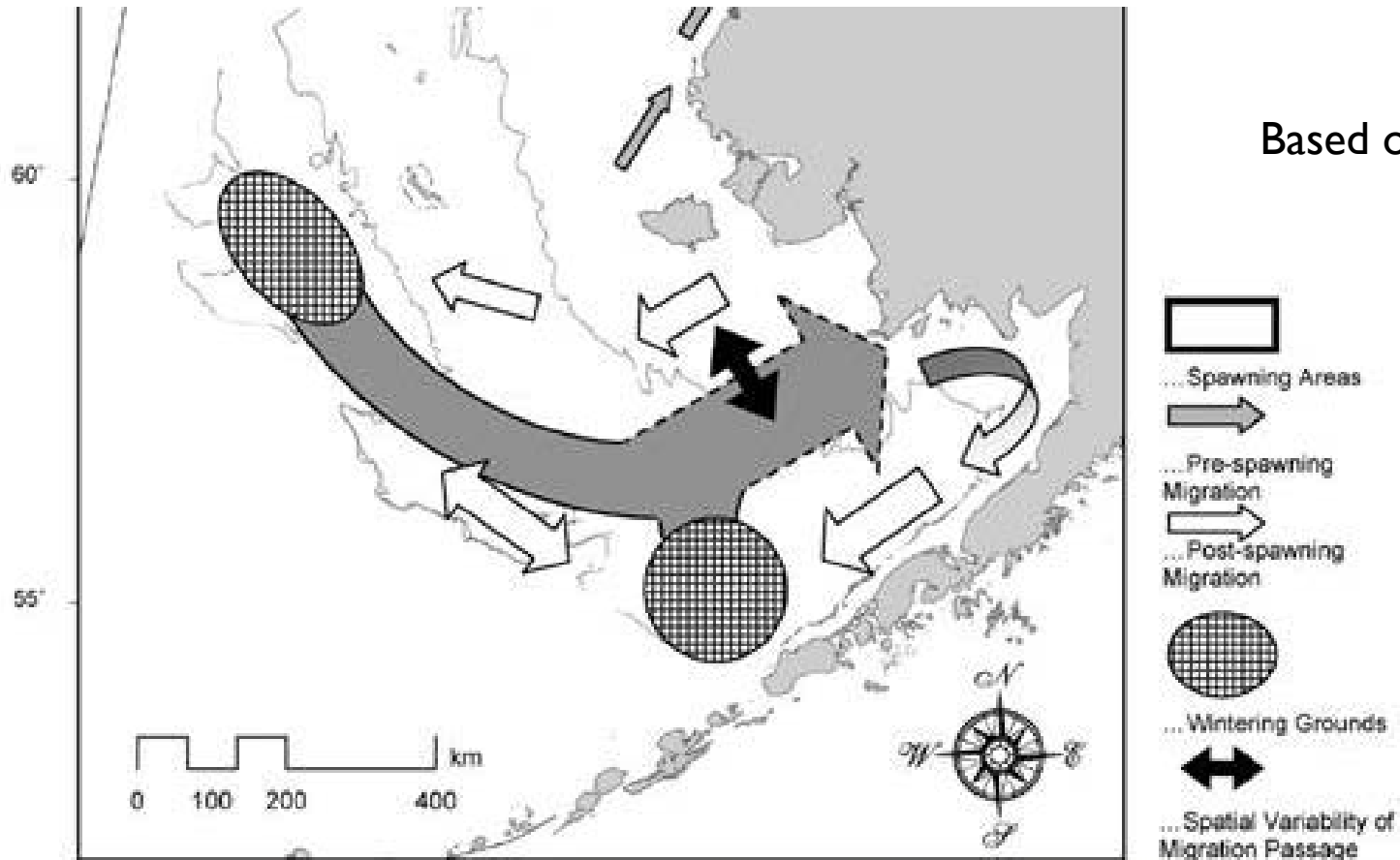
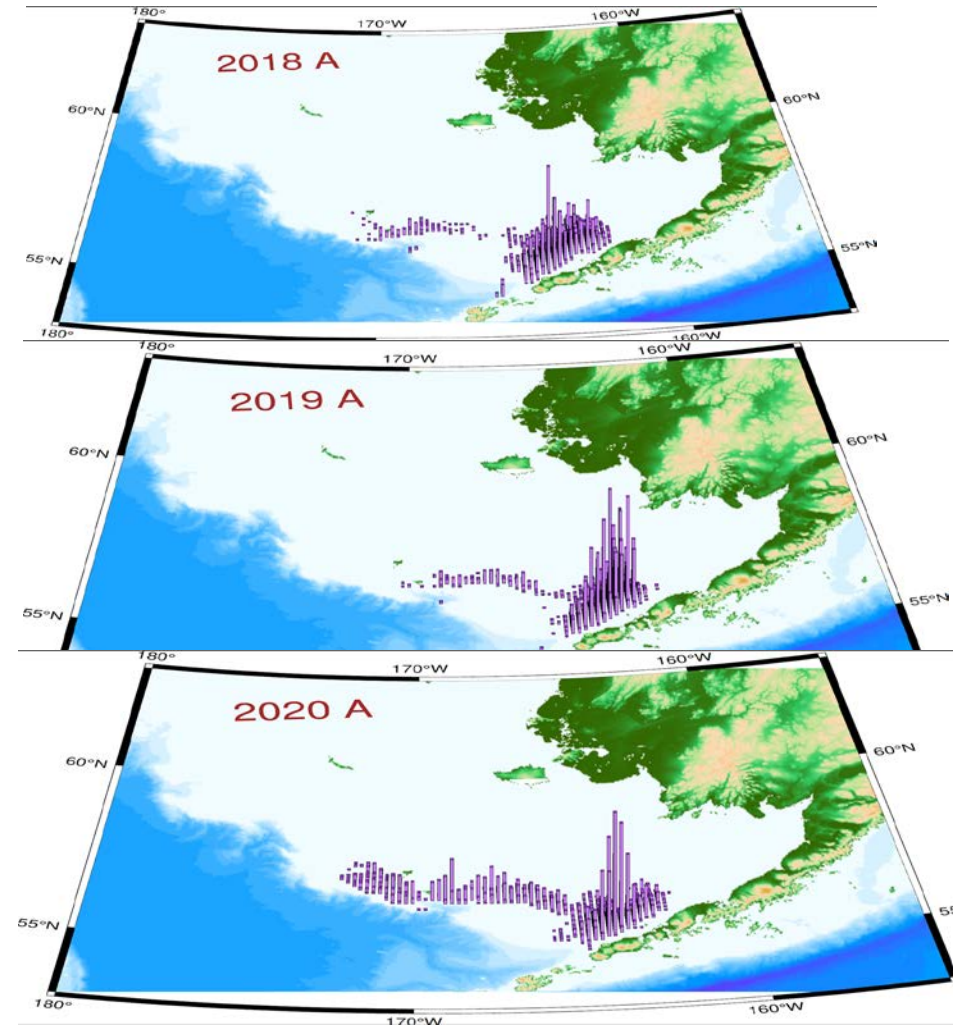
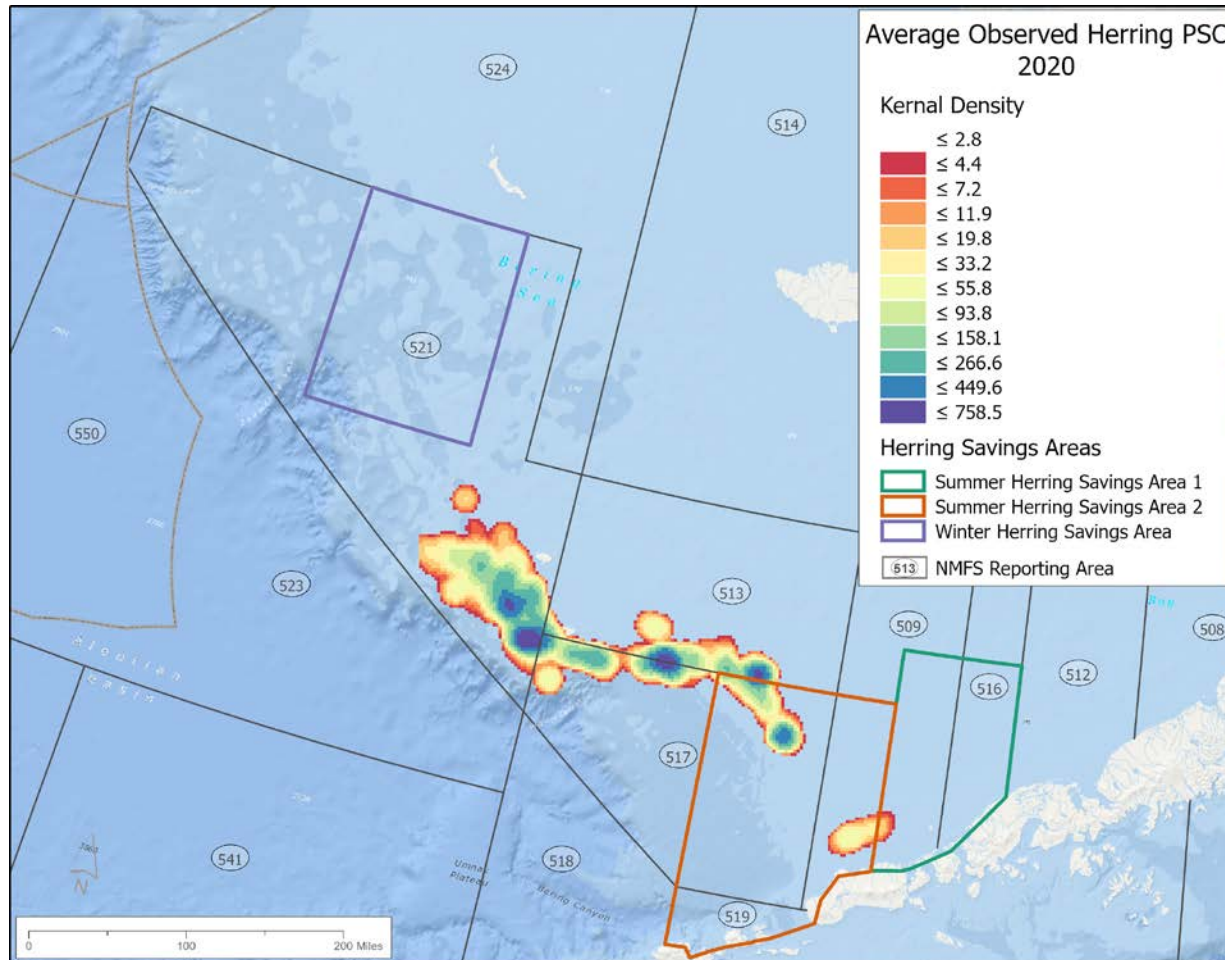


Fig. 6. Revised eastern Bering Sea (EBS) herring migration pattern and spatial variability in pre-spawning migration. The gray lines are the 50-, 100-, and 200-m isobaths. Thick rectangles show historical spawning locations. The two gridded circles represent the major wintering grounds. The gray boxed arrows show pre-spawning movements, and the open boxed arrows show post-spawning movements.

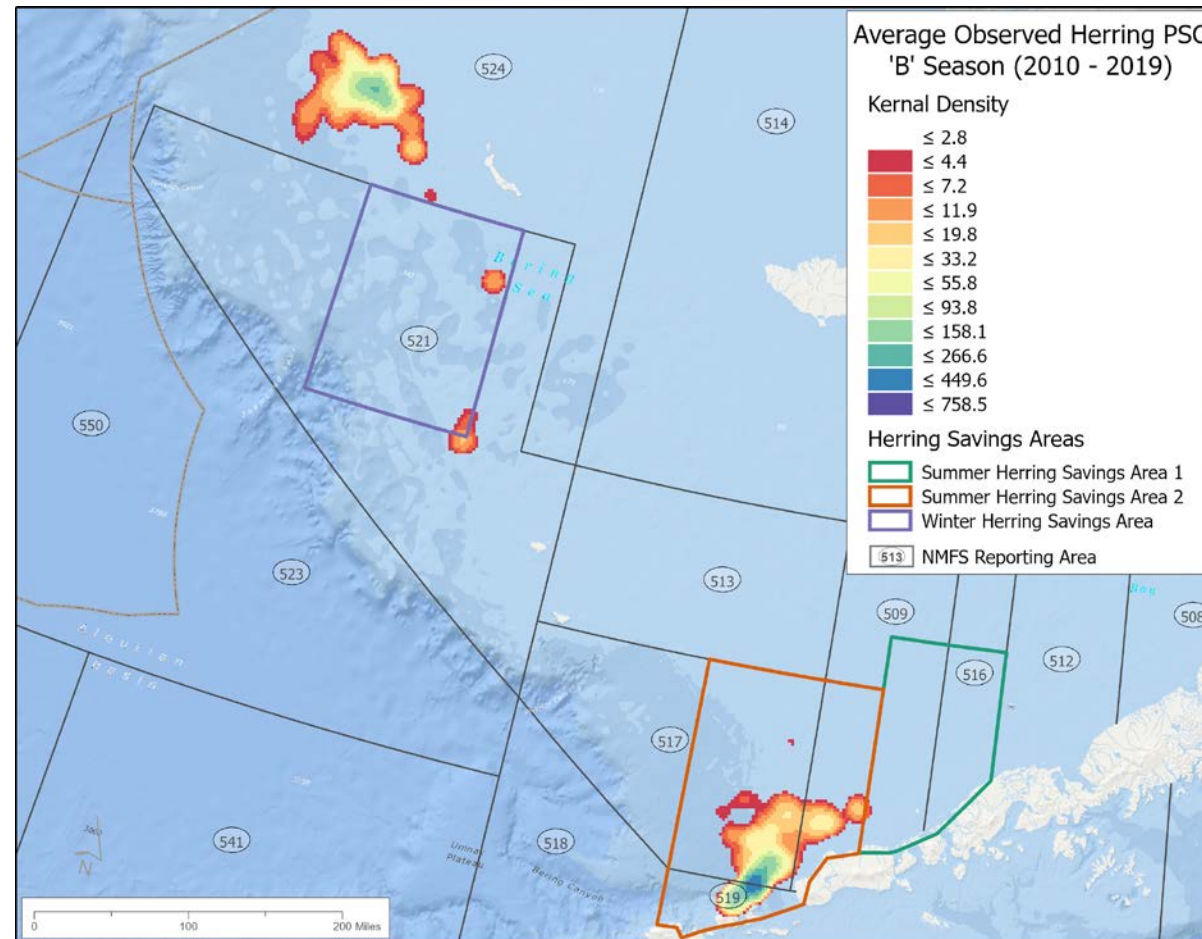




# OBSERVED HERRING PSC A SEASON 2020 ; POLLOCK CPUE 2018-2020



# OBSERVED HERRING PSC B SEASON 2010-2019



# QUESTIONS?

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