



**NMFS-AFSC-391**

<https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-391.pdf>

# **Genetic Stock Composition Analysis of the Chinook Salmon Bycatch from the 2017 Bering Sea Trawl Fisheries**

**C. M. Guthrie III, Hv. T. Nguyen, M. Marsh, J. T. Watson**

**And J. R. Guyon**

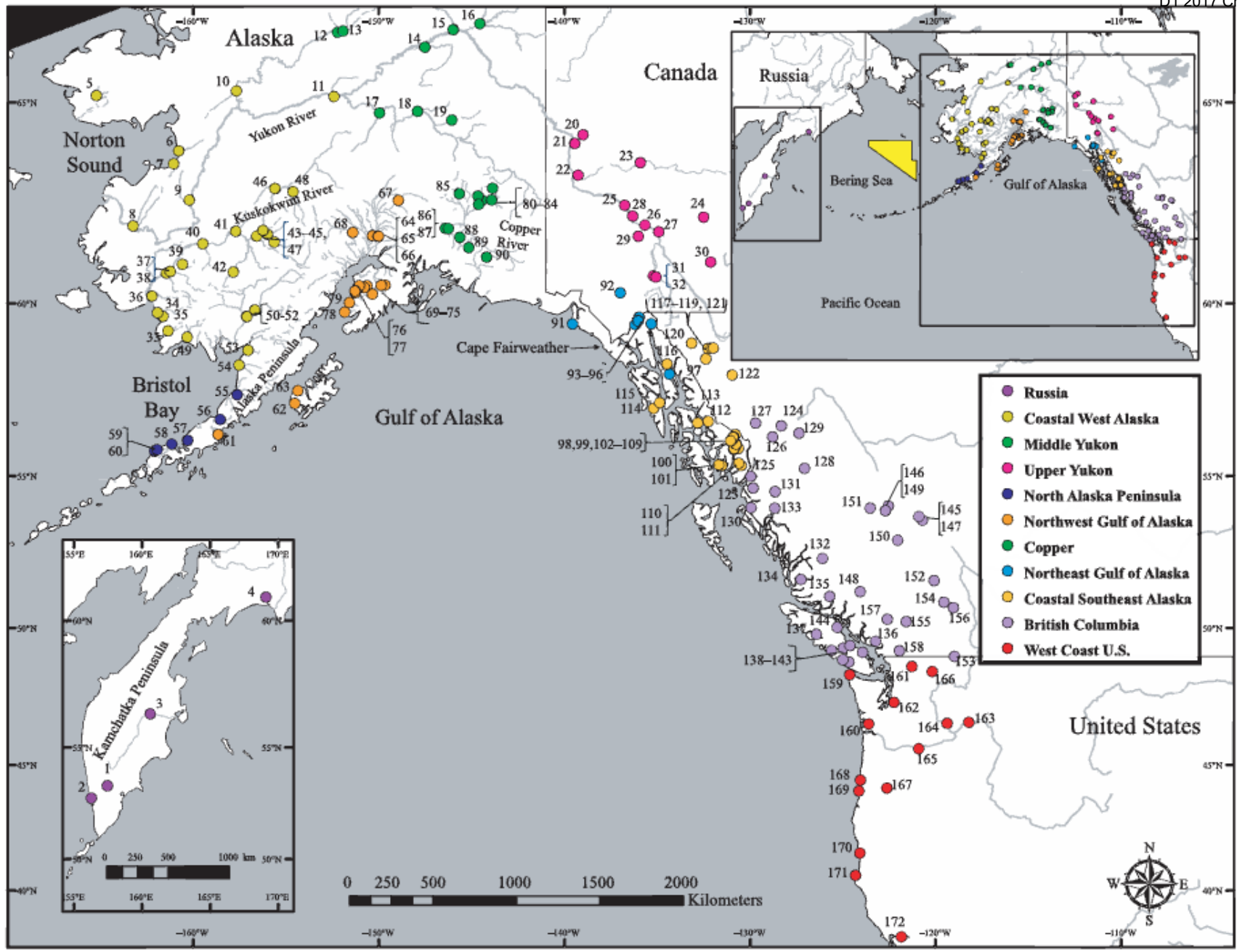
Genetics Program

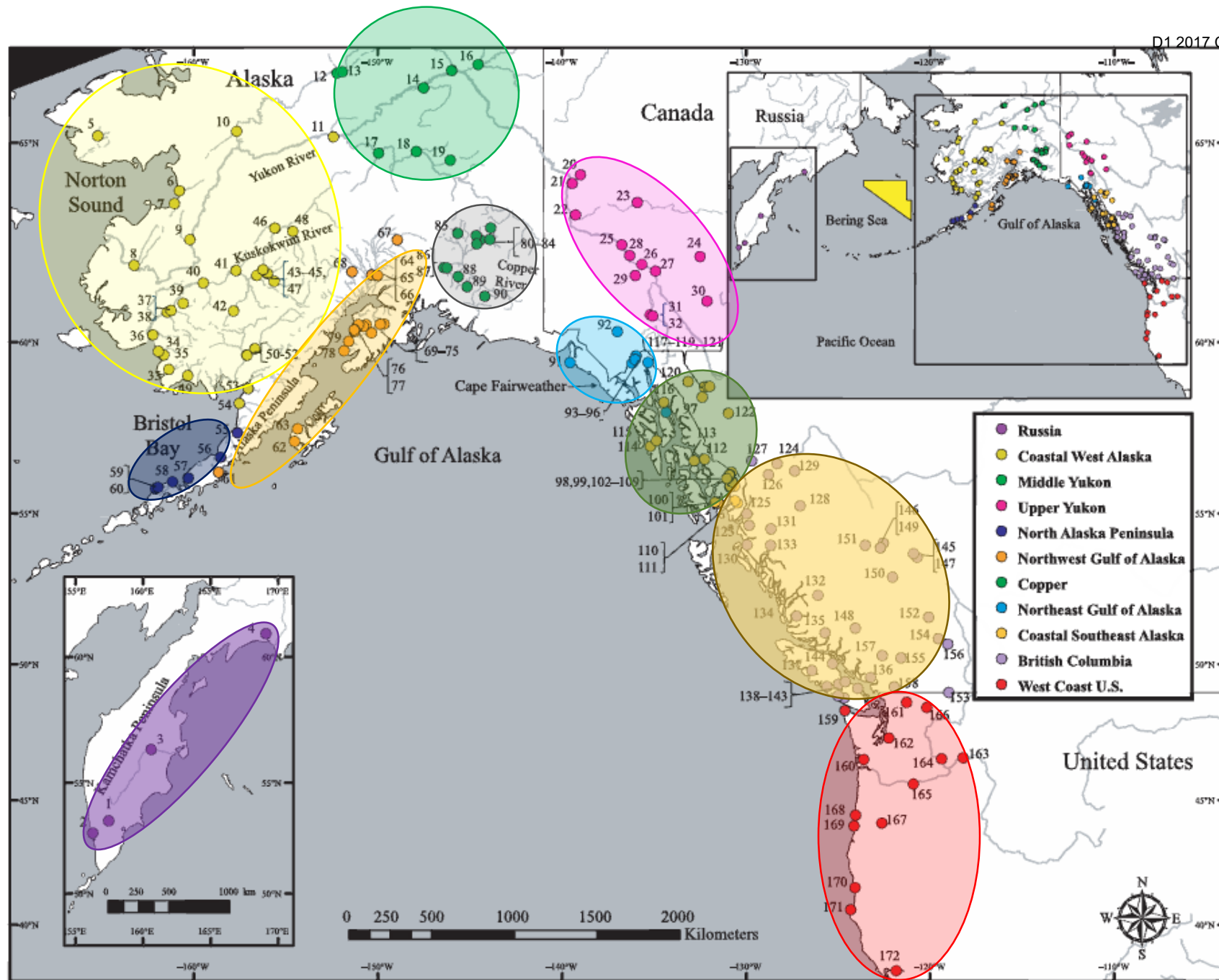
Auke Bay Laboratories

Juneau, AK

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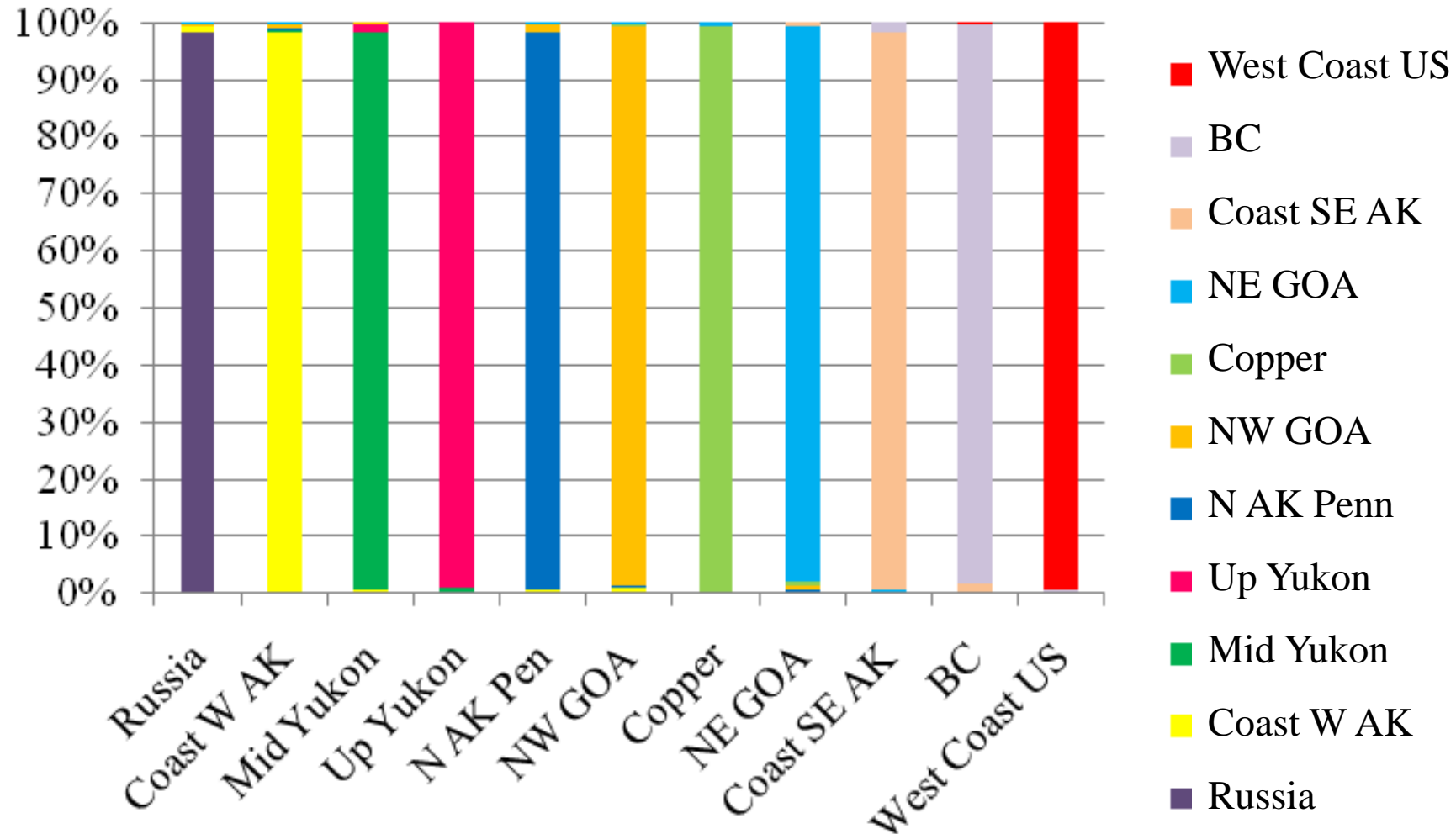
**June 4th, 2019**

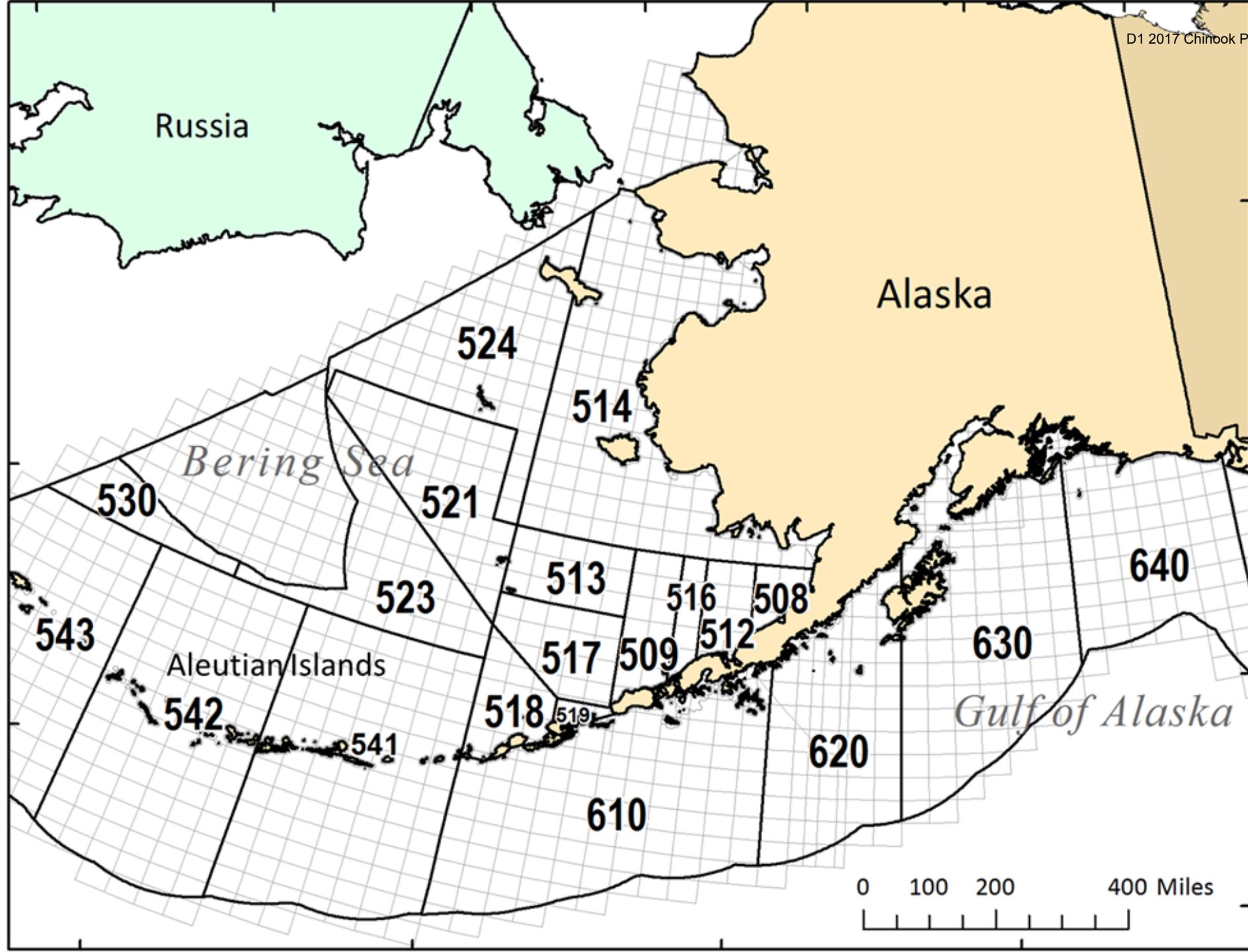




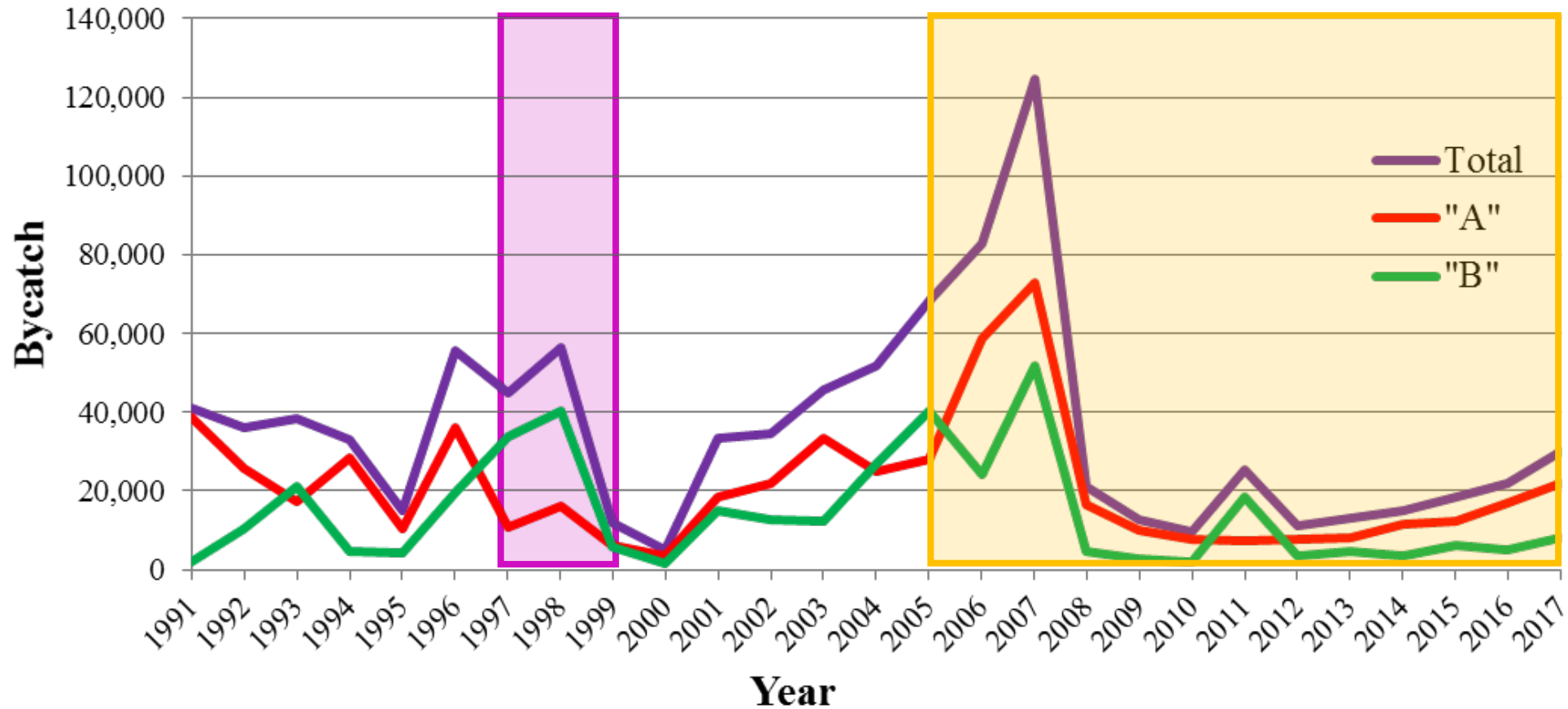
# Baseline Analysis – 100% Simulations

## 43 SNPs





# 2017 Chinook Salmon Bering Sea Bycatch



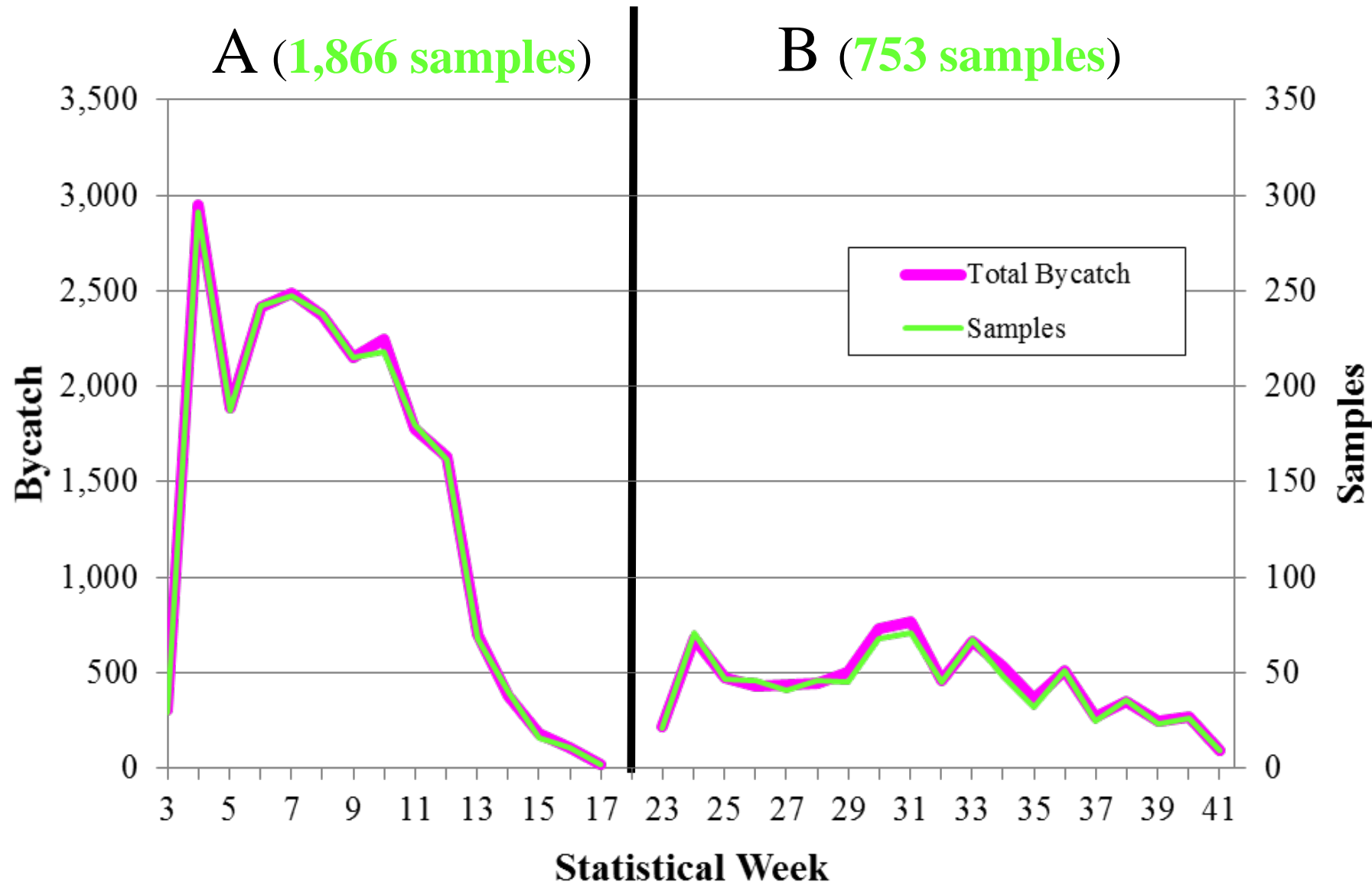
1979-1982: Scales (Myers & Rogers, 1988)

1997-1999: Scales (Myers et al., 2004)

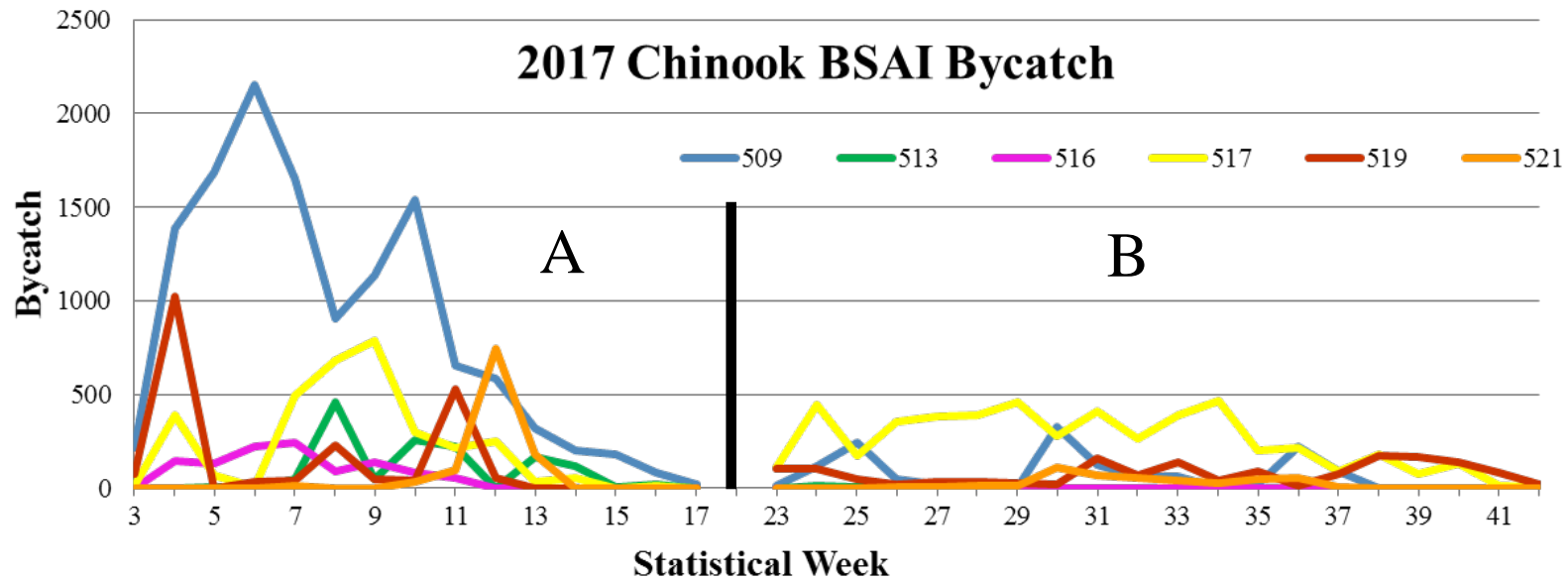
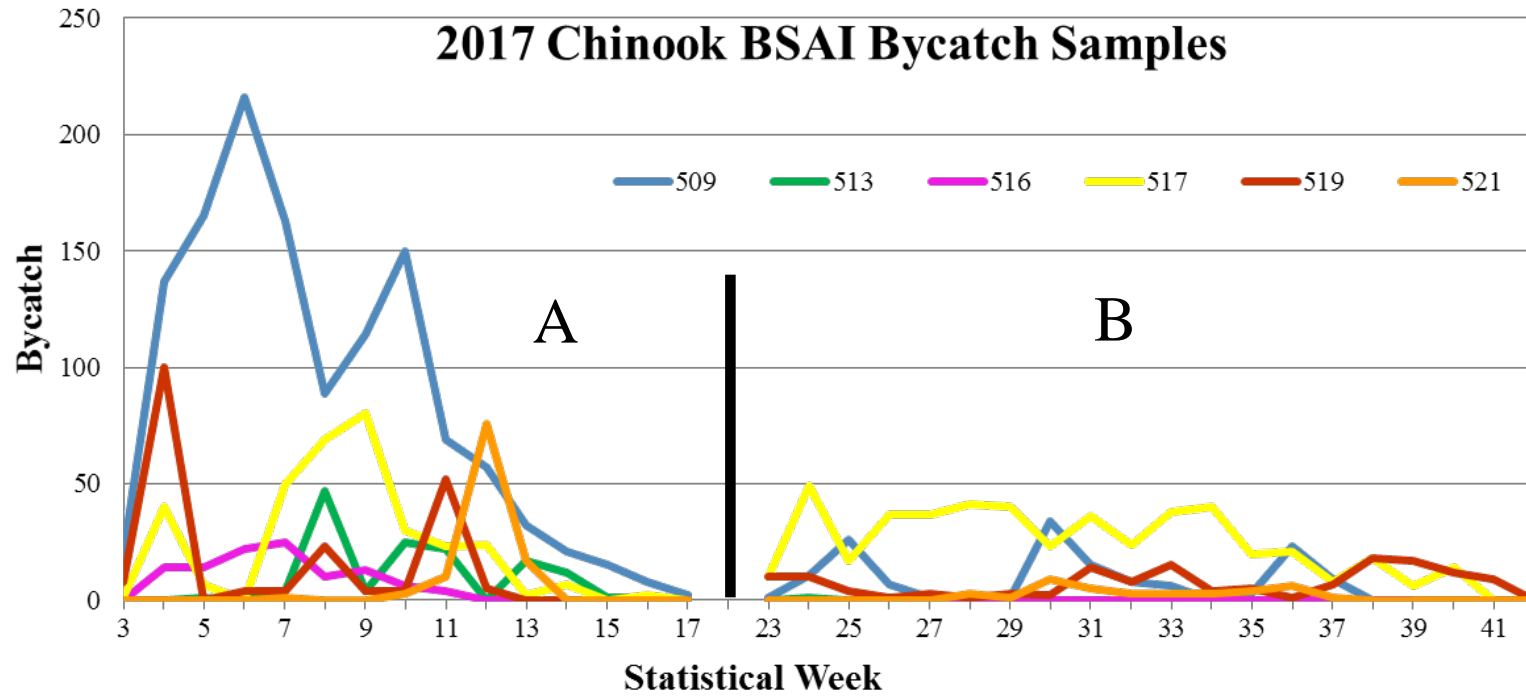
2005 "B" - 2006: SNPs (ADF&G, Chinook Salmon EIS)

2007-17: SNPs – 867 (2007 "B"), 863 (2008), 386 (2009), 826 (2010), 2,473 (2011), 1,111 (2012), 1,246 (2013), 1,385 (2014), 1,757 (2015), 1,910 (2016) 2,948 (2017) samples.

# 2017 Bering Sea Bycatch/Sample Distribution



# 2017 Chinook Salmon Bering Sea Bycatch

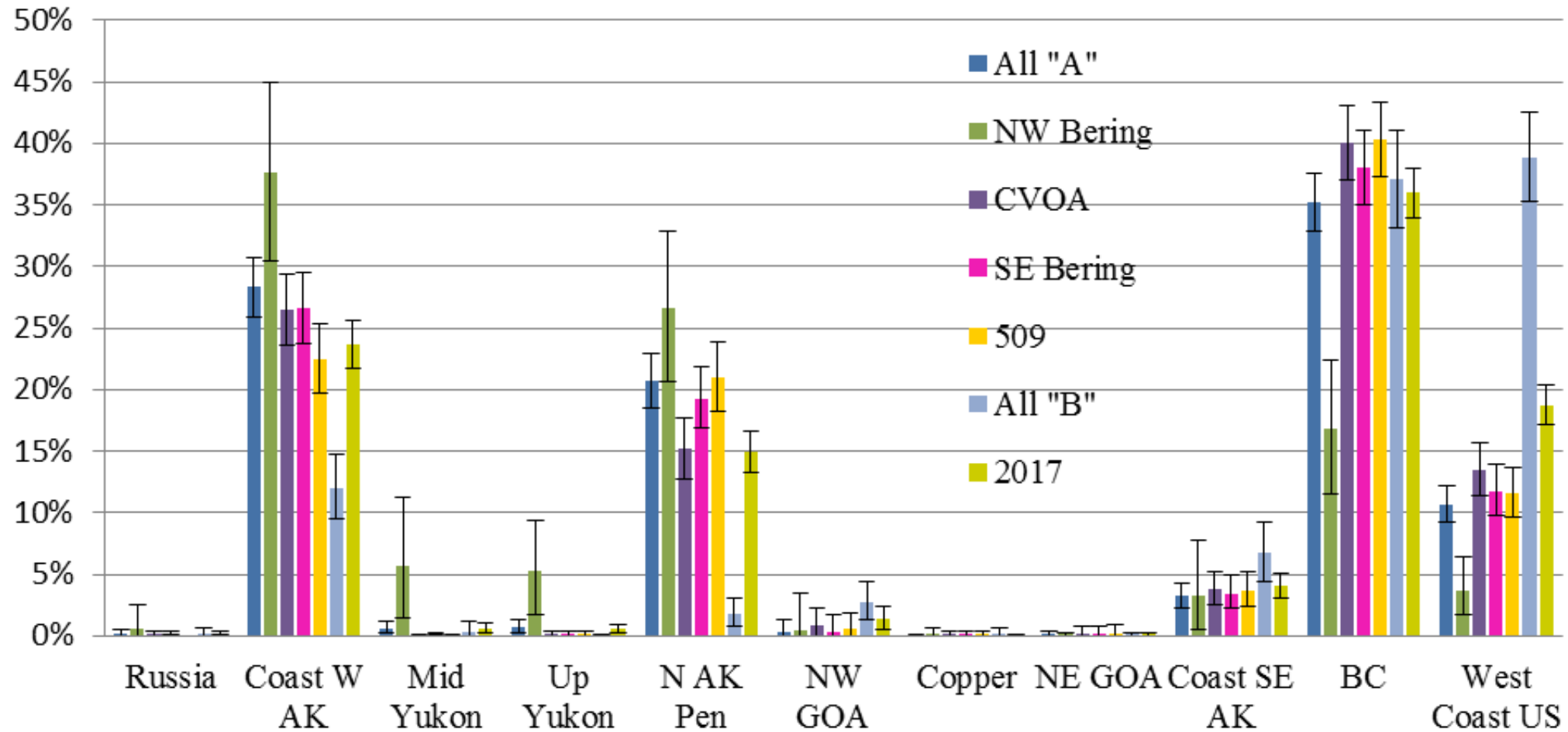




Region	"A" Season (N=1,866)				"B" Season (N=753)				Bering Sea all (N=2,619)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	35	0.2	0.12	(0.0,0.5)	19	0.2	0.19	(0.0,0.7)	54	0.2	0.10	(0.1,0.4)
Coast W AK	6,118	28.3	1.23	(25.9,30.8)	1,015	12.0	1.33	(9.5,14.7)	7,111	23.7	0.99	(21.7,25.6)
Mid Yukon	136	0.6	0.26	(0.2,1.2)	29	0.3	0.33	(0.0,1.1)	162	0.5	0.21	(0.2,1.0)
Up Yukon	156	0.7	0.27	(0.3,1.3)	1	0.0	0.04	(0.0,0.1)	162	0.5	0.20	(0.2,1.0)
N AK Pen	4,465	20.7	1.15	(18.5,23.0)	154	1.8	0.59	(0.8,3.1)	4,490	14.9	0.87	(13.3,16.7)
NW GOA	78	0.4	0.39	(0.0,1.4)	231	2.7	0.79	(1.3,4.4)	406	1.4	0.45	(0.6,2.3)
Copper	2	0.0	0.04	(0.0,0.1)	10	0.1	0.18	(0.0,0.6)	3	0.0	0.03	(0.0,0.1)
NE GOA	13	0.1	0.12	(0.0,0.4)	2	0.0	0.08	(0.0,0.2)	9	0.0	0.07	(0.0,0.3)
Coast SE AK	691	3.2	0.54	(2.2,4.3)	575	6.8	1.24	(4.5,9.3)	1,221	4.1	0.52	(3.1,5.1)
BC	7,609	35.2	1.18	(32.9,37.6)	3,141	37.1	2.01	(33.2,41.0)	10,812	36.0	1.03	(34.0,38.0)
West Coast US	2,303	10.7	0.75	(9.2,12.2)	3,291	38.8	1.87	(35.2,42.5)	5,642	18.8	0.81	(17.2,20.4)
Total Catch	21,603				8,473				30,076			

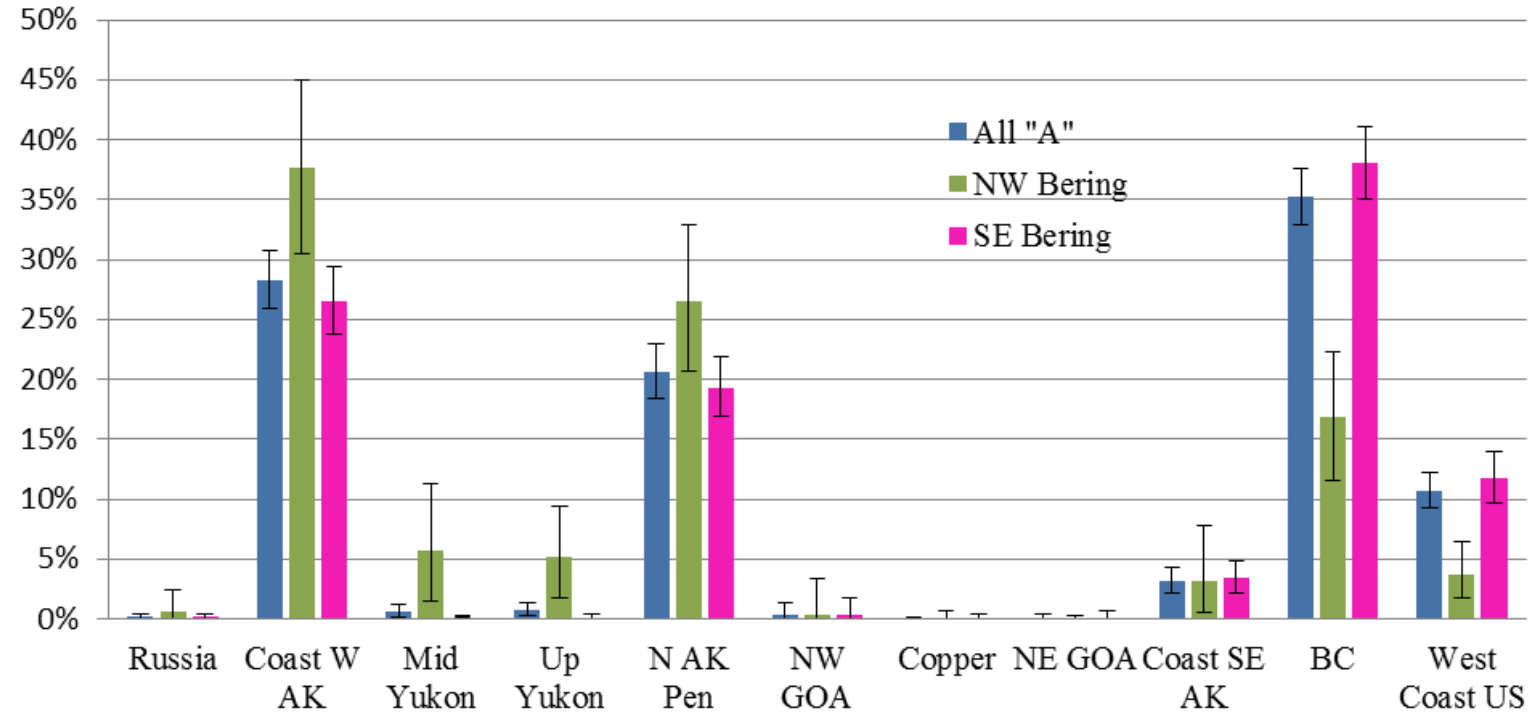
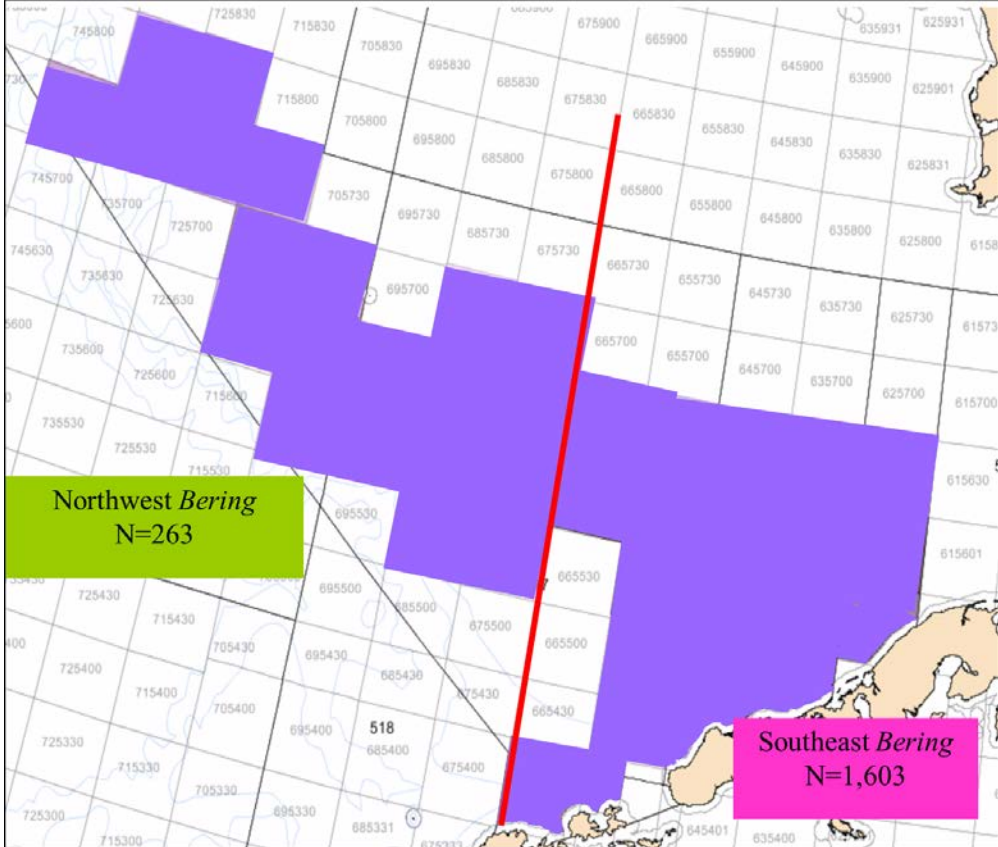
50% from Alaskan river systems flowing into the Bering Sea for "A" Season  
 14% from Alaskan river systems flowing into the Bering Sea for "B" Season  
 40% from Alaskan river systems flowing into the Bering Sea for entire year

# Bering Sea "A" Area and Time Comparison



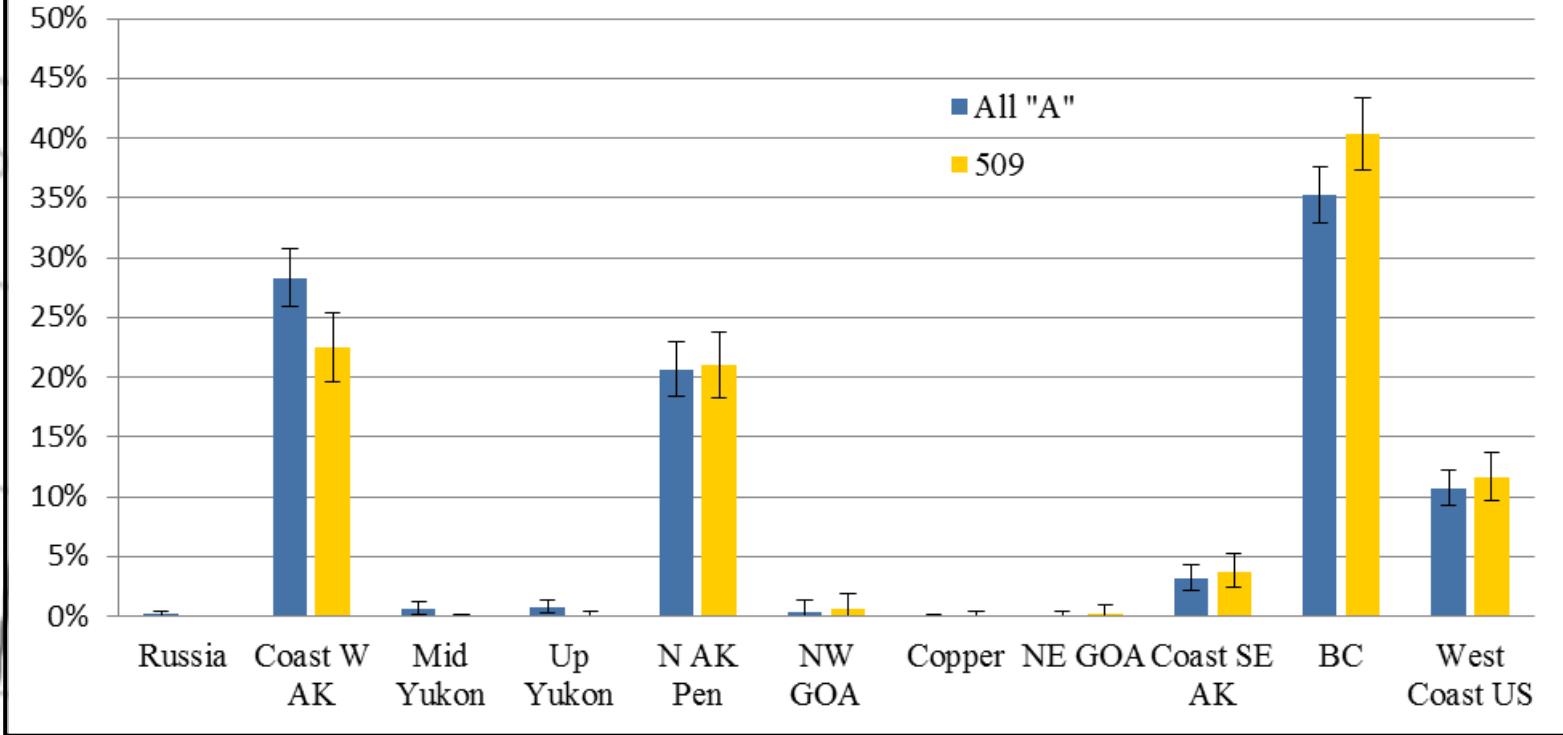
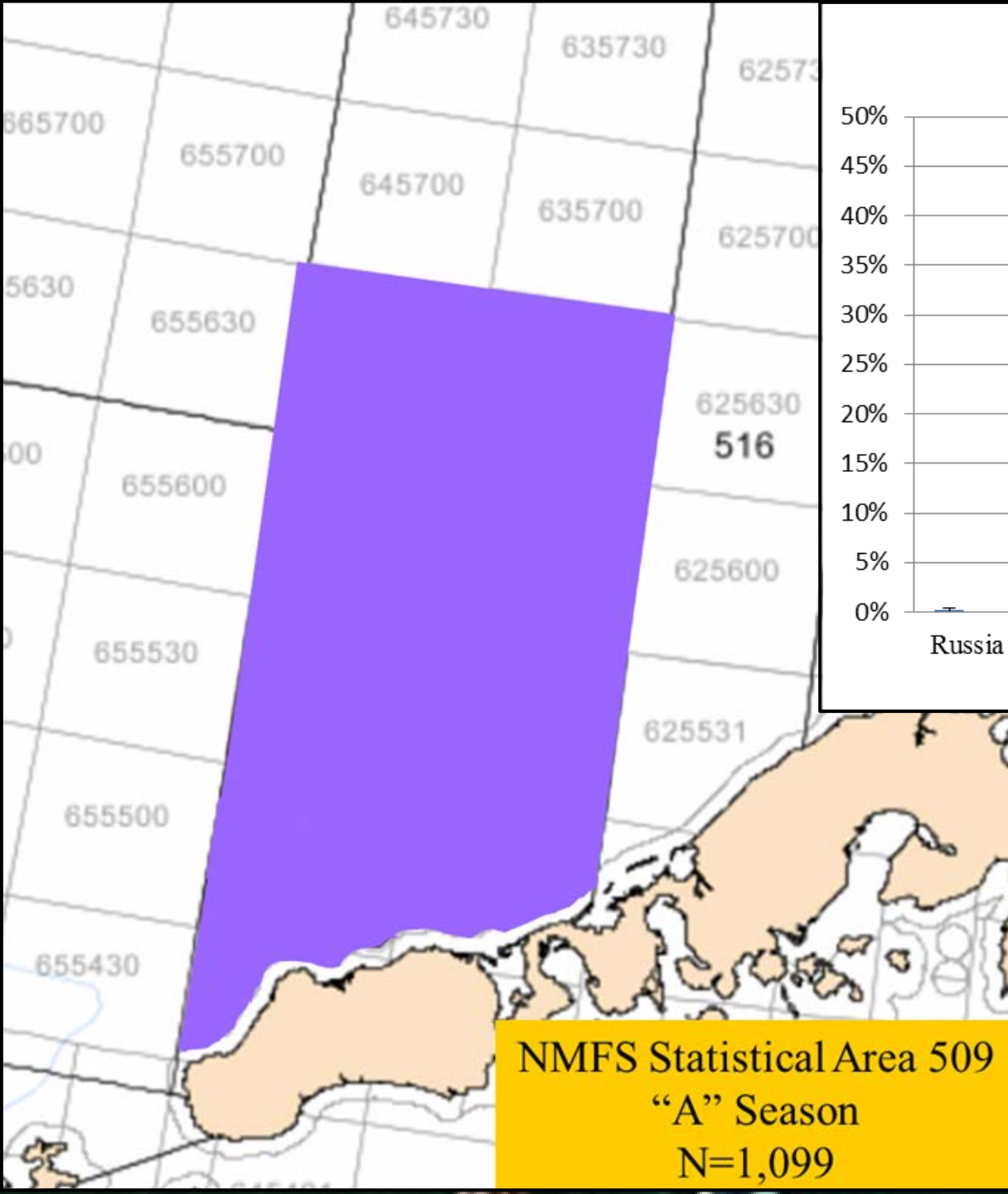
# Bering Sea "A" Area and Time Comparison

D1 2017 Onhook PRESENTATION  
July 2017



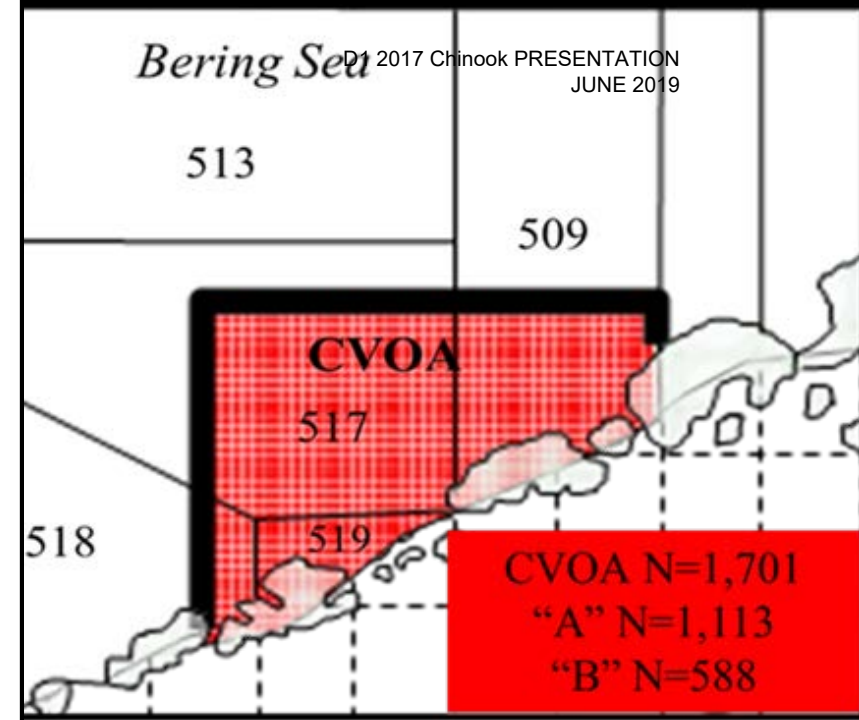
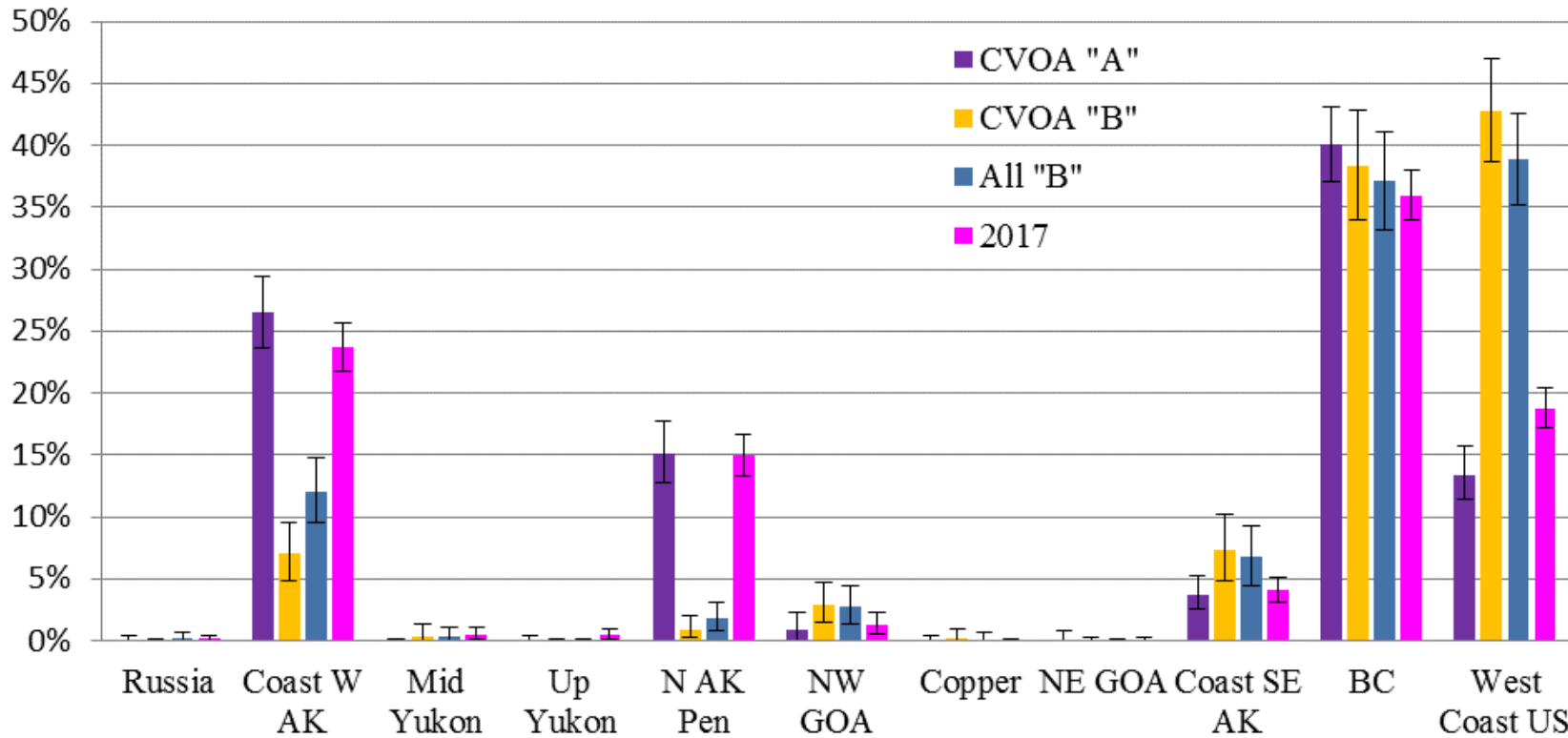
Region	"A" Season (N=1,866)				SE Bering S. "A" (N=1,603)				NW Bering S. "A" (N=263)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	35	0.2	0.12	(0.0,0.5)	31	0.2	0.11	(0.0,0.5)	19	0.6	0.73	(0.0,2.5)
Coast W AK	6,118	28.3	1.23	(25.9,30.8)	4,921	26.6	1.29	(24.1,29.1)	1,156	37.7	3.70	(30.5,45.0)
Mid Yukon	136	0.6	0.26	(0.2,1.2)	26	0.1	0.15	(0.0,0.5)	173	5.7	2.62	(1.4,11.2)
Up Yukon	156	0.7	0.27	(0.3,1.3)	26	0.1	0.13	(0.0,0.5)	161	5.2	1.99	(1.7,9.4)
N AK Pen	4,465	20.7	1.15	(18.5,23.0)	3,576	19.3	1.18	(17.0,21.7)	815	26.6	3.14	(20.6,32.9)
NW GOA	78	0.4	0.39	(0.0,1.4)	59	0.3	0.37	(0.0,1.3)	12	0.4	0.94	(0.0,3.4)
Copper	2	0.0	0.04	(0.0,0.1)	4	0.0	0.05	(0.0,0.2)	2	0.1	0.21	(0.0,0.6)
NE GOA	13	0.1	0.12	(0.0,0.4)	19	0.1	0.19	(0.0,0.7)	1	0.0	0.12	(0.0,0.3)
Coast SE AK	691	3.2	0.54	(2.2,4.3)	641	3.5	0.58	(2.4,4.7)	99	3.2	1.91	(0.5,7.8)
BC	7,609	35.2	1.18	(32.9,37.6)	7,042	38.0	1.29	(35.5,40.6)	517	16.9	2.76	(11.6,22.3)
West Coast US	2,303	10.7	0.75	(9.2,12.2)	2,182	11.8	0.85	(10.2,13.5)	114	3.7	1.21	(1.7,6.4)
<b>Total Catch</b>	<b>21,603</b>				<b>18,527</b>				<b>3,069</b>			

# Bering Sea "A" Area and Time Comparison

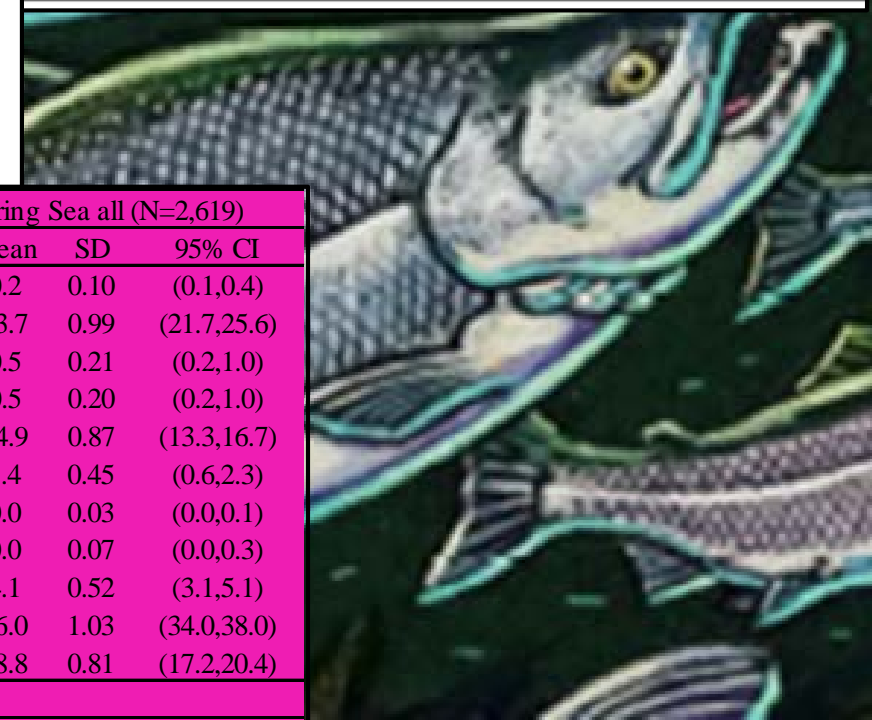


Region	"A" Season (N=1,866)				Area 509 "A" (N=1,099)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	35	0.2	0.12	(0.0,0.5)	0	0.0	0.02	(0.0,0.0)
Coast W AK	6,118	28.3	1.23	(25.9,30.8)	2,855	22.5	1.45	(19.7,25.3)
Mid Yukon	136	0.6	0.26	(0.2,1.2)	1	0.0	0.04	(0.0,0.1)
Up Yukon	156	0.7	0.27	(0.3,1.3)	14	0.1	0.11	(0.0,0.4)
N AK Pen	4,465	20.7	1.15	(18.5,23.0)	2,664	21.0	1.43	(18.2,23.8)
NW GOA	78	0.4	0.39	(0.0,1.4)	72	0.6	0.54	(0.0,1.9)
Copper	2	0.0	0.04	(0.0,0.1)	6	0.1	0.11	(0.0,0.4)
NE GOA	13	0.1	0.12	(0.0,0.4)	23	0.2	0.28	(0.0,1.0)
Coast SE AK	691	3.2	0.54	(2.2,4.3)	472	3.7	0.70	(2.5,5.2)
BC	7,609	35.2	1.18	(32.9,37.6)	5,127	40.3	1.56	(37.3,43.4)
West Coast US	2,303	10.7	0.75	(9.2,12.2)	1,480	11.6	1.03	(9.7,13.7)
<b>Total Catch</b>	<b>21,603</b>				<b>12,715</b>			

# Bering Sea "B" Area and Time Comparison

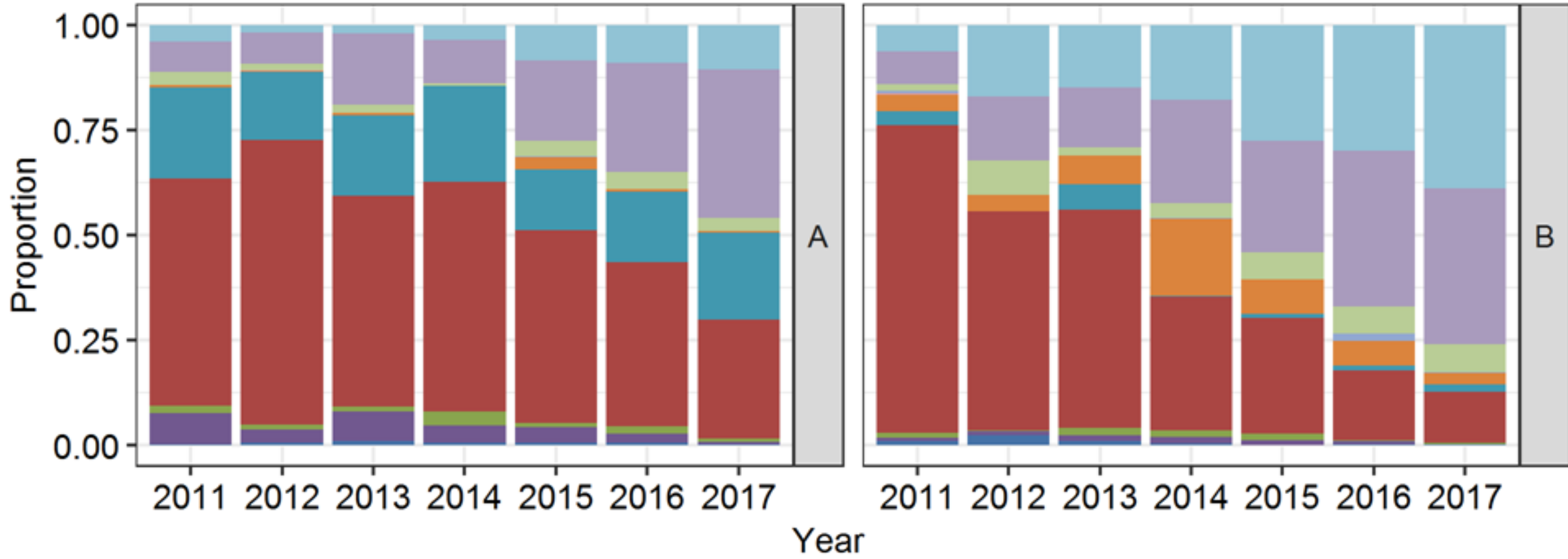


Region	CVOA "A" (N=1,113)				CVOA "B" (N=588)				"B" Season (N=753)				Bering Sea all (N=2,619)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	13	0.1	0.09	(0.0,0.4)	1	0.0	0.05	(0.0,0.1)	19	0.2	0.19	(0.0,0.7)	54	0.2	0.10	(0.1,0.4)
Coast W AK	3,418	26.5	1.46	(23.6,29.4)	466	7.1	1.17	(4.9,9.5)	1,019	12.0	1.33	(9.5,14.7)	7,113	23.7	0.99	(21.7,25.6)
Mid Yukon	1	0.0	0.04	(0.0,0.1)	23	0.4	0.37	(0.0,1.3)	29	0.3	0.33	(0.0,1.1)	162	0.5	0.21	(0.2,1.0)
Up Yukon	14	0.1	0.11	(0.0,0.4)	1	0.0	0.06	(0.0,0.2)	1	0.0	0.04	(0.0,0.1)	162	0.5	0.20	(0.2,1.0)
N AK Pen	1,959	15.2	1.28	(12.7,17.7)	60	0.9	0.46	(0.2,2.0)	154	1.8	0.59	(0.8,3.1)	4,490	14.9	0.87	(13.3,16.7)
NW GOA	107	0.8	0.65	(0.0,2.3)	196	3.0	0.84	(1.5,4.8)	231	2.7	0.79	(1.3,4.4)	406	1.4	0.45	(0.6,2.3)
Copper	5	0.0	0.10	(0.0,0.4)	17	0.3	0.28	(0.0,1.0)	10	0.1	0.18	(0.0,0.6)	3	0.0	0.03	(0.0,0.1)
NE GOA	14	0.1	0.22	(0.0,0.8)	1	0.0	0.10	(0.0,0.3)	2	0.0	0.08	(0.0,0.2)	9	0.0	0.07	(0.0,0.3)
Coast SE AK	483	3.7	0.69	(2.5,5.2)	482	7.3	1.38	(4.8,10.2)	575	6.8	1.24	(4.5,9.3)	1,221	4.1	0.52	(3.1,5.1)
BC	5,171	40.0	1.55	(37.0,43.1)	2,531	38.3	2.24	(34.0,42.8)	3,141	37.1	2.01	(33.2,41.0)	10,812	36.0	1.03	(34.0,38.0)
West Coast US	1,735	13.4	1.10	(11.4,15.7)	2,829	42.8	2.11	(38.7,47.0)	3,291	38.8	1.87	(35.2,42.5)	5,642	18.8	0.81	(17.2,20.4)
<b>Total Catch</b>	<b>12,921</b>				<b>6,606</b>				<b>8,473</b>				<b>30,076</b>			



# Chinook Salmon Bering Sea Bycatch Seasonal Stock Differences

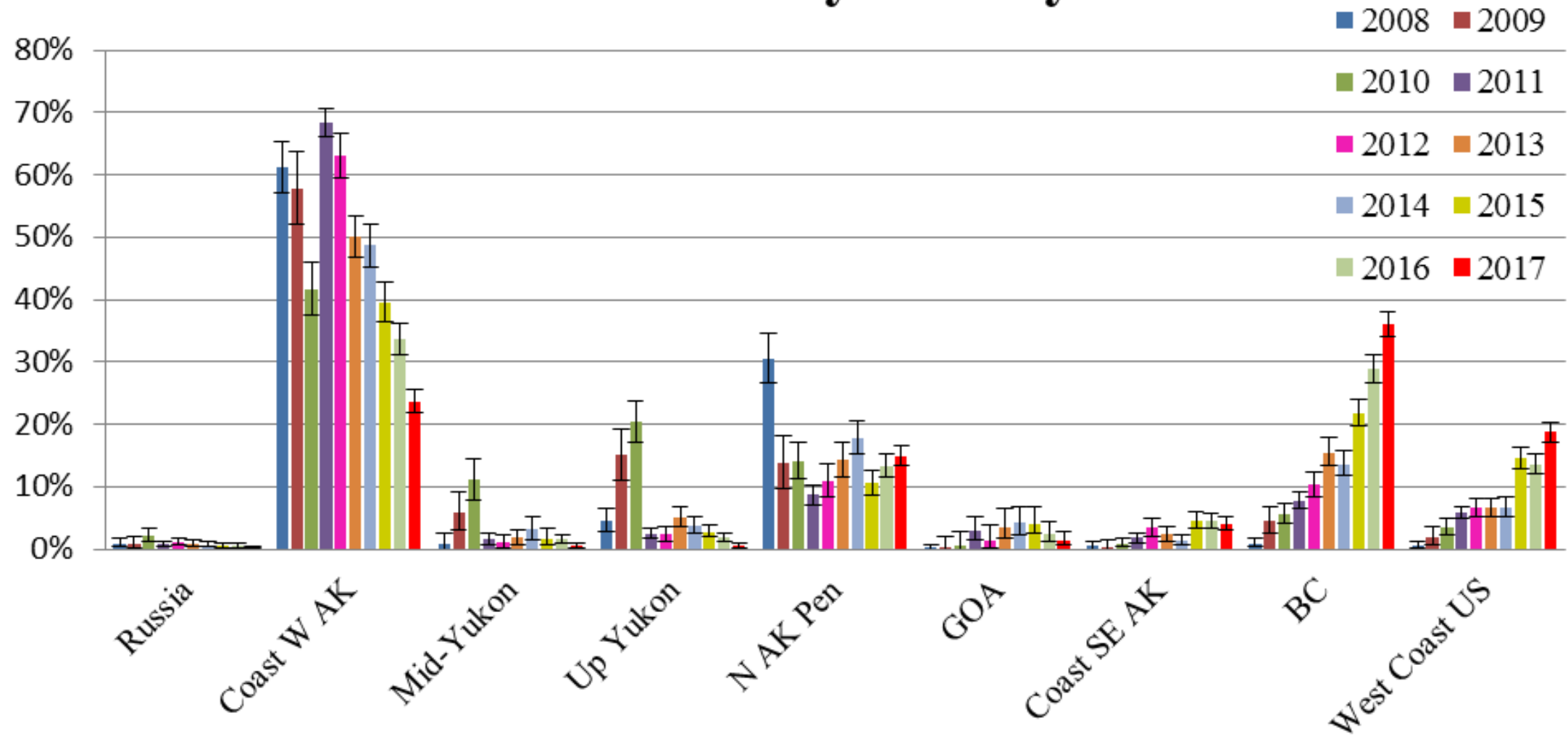
D. 2017 Chinook PRESENTATION  
JULY 2017



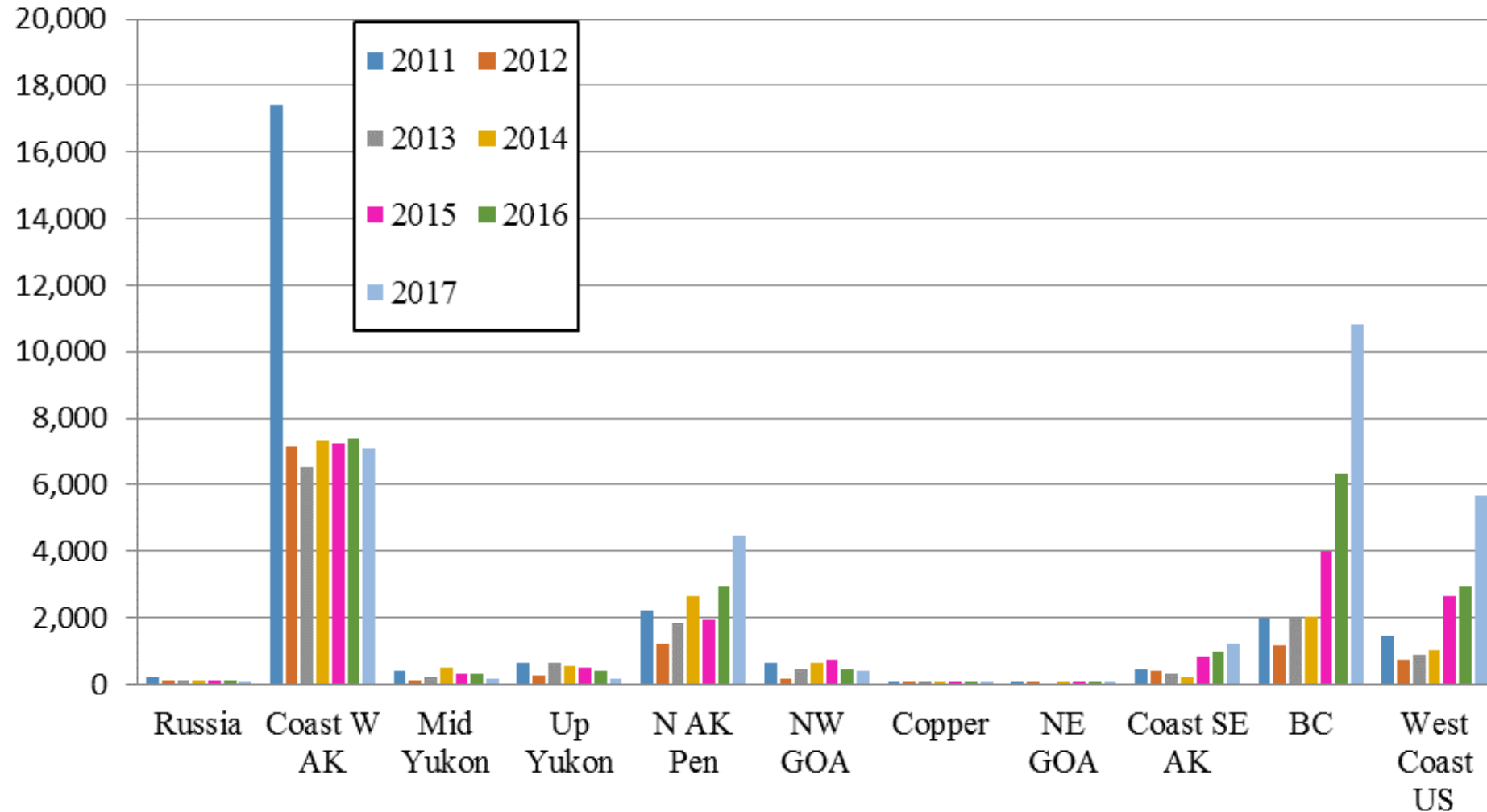
2017 A Season: 1,866 samples

2017 B Season: 753 samples

# BSAI Chinook Bycatch by Year

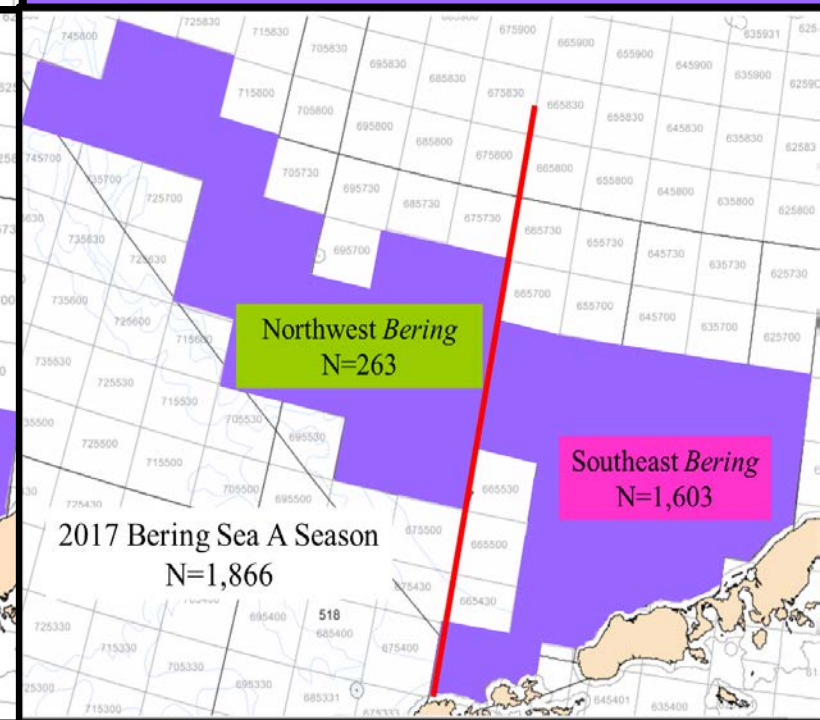
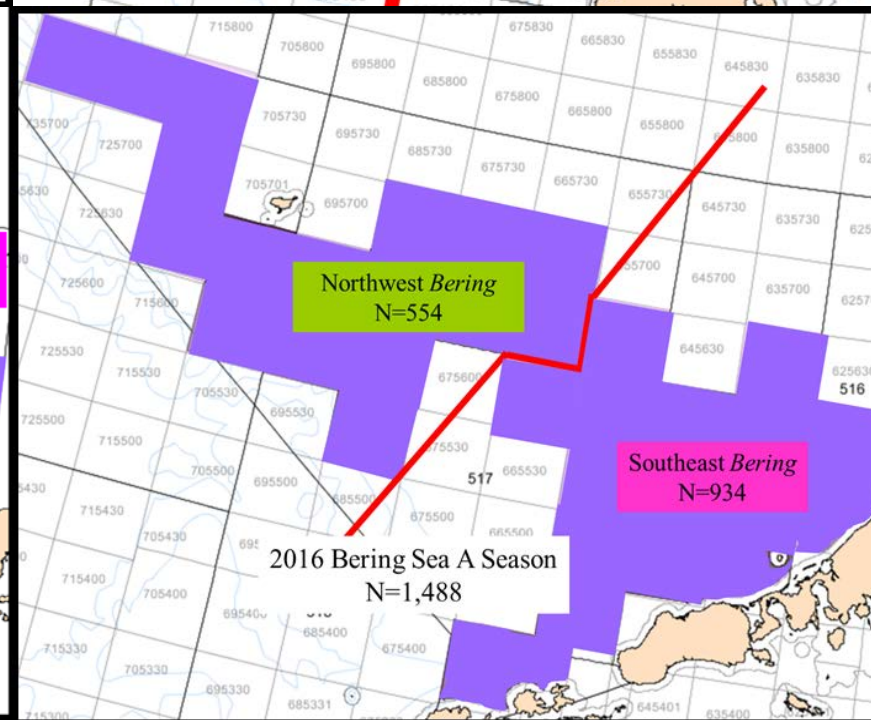
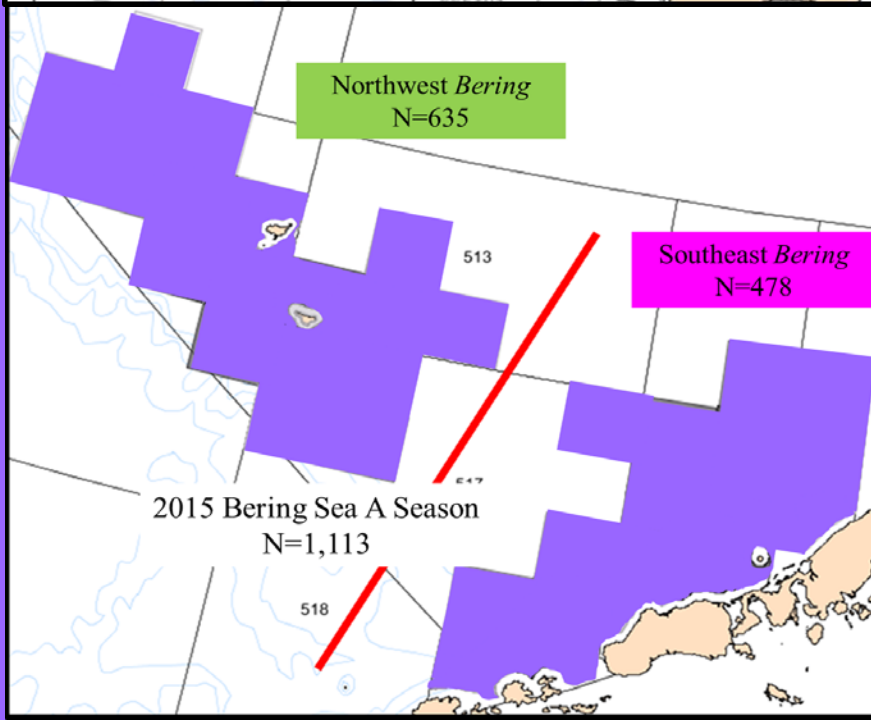
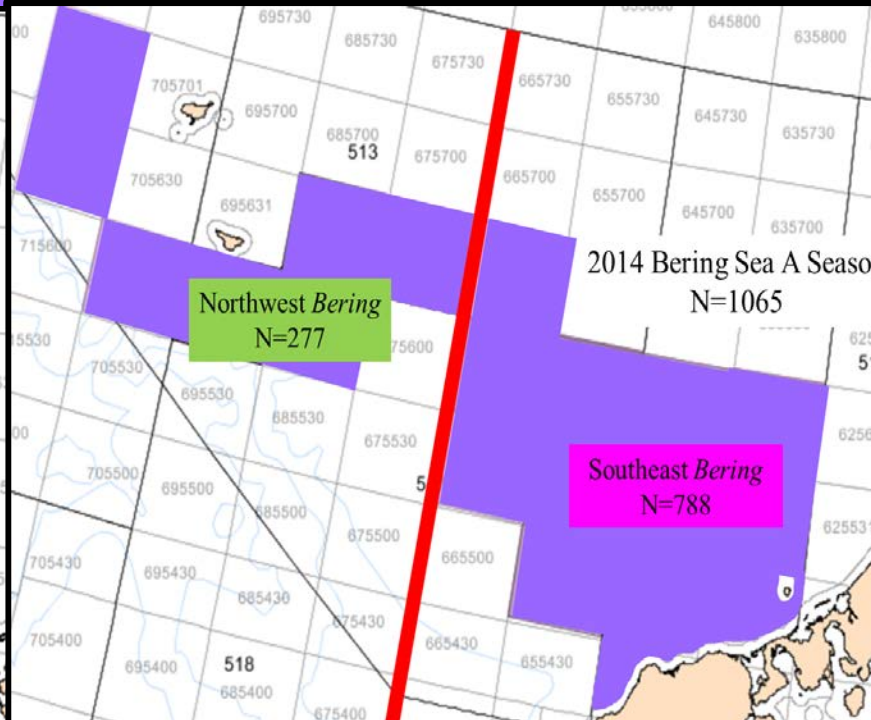
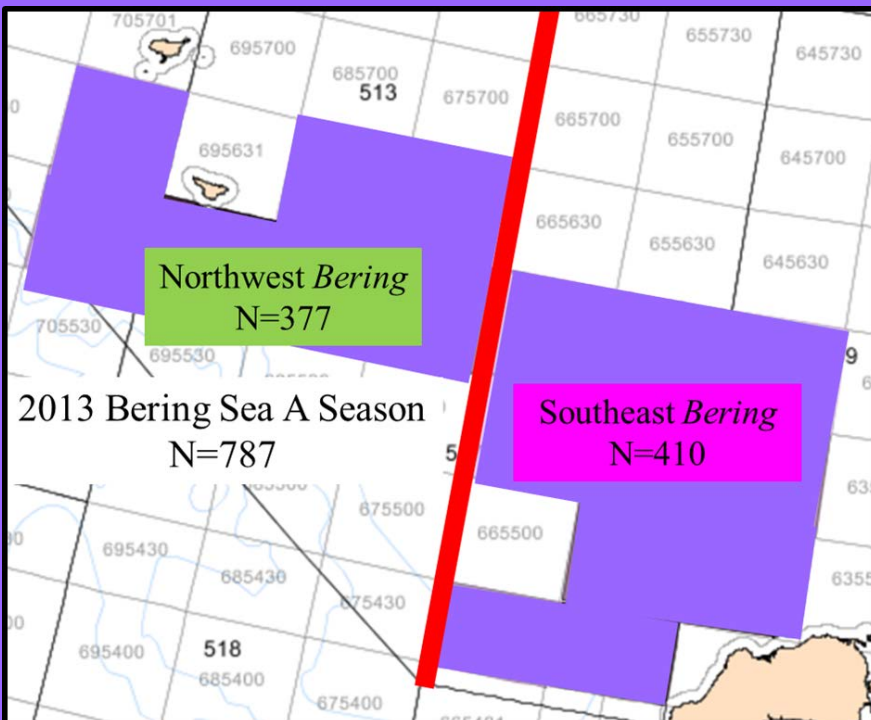


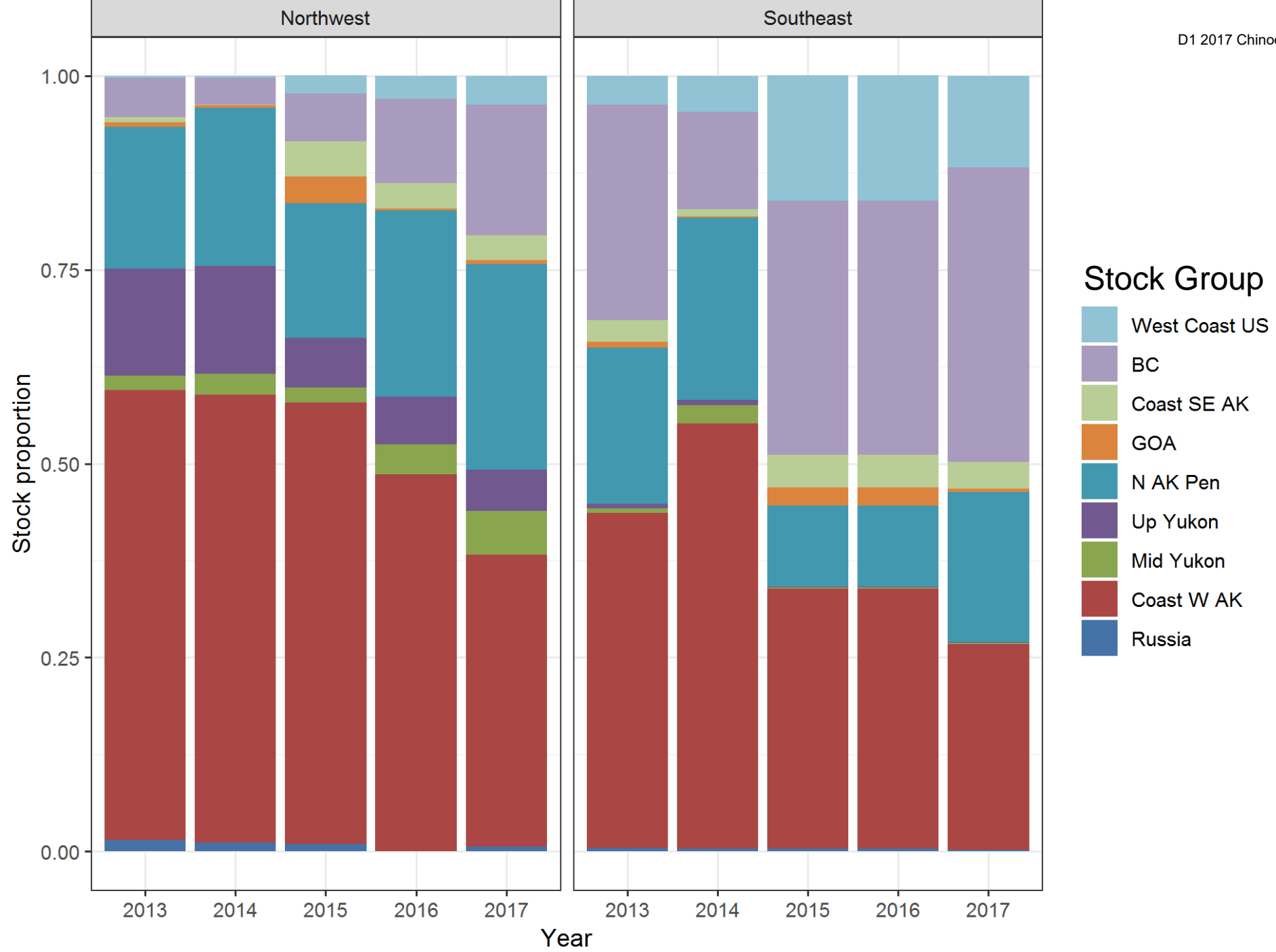
## Annual Estimated Catch of Chinook Salmon in the Bering Sea Pollock Fishery



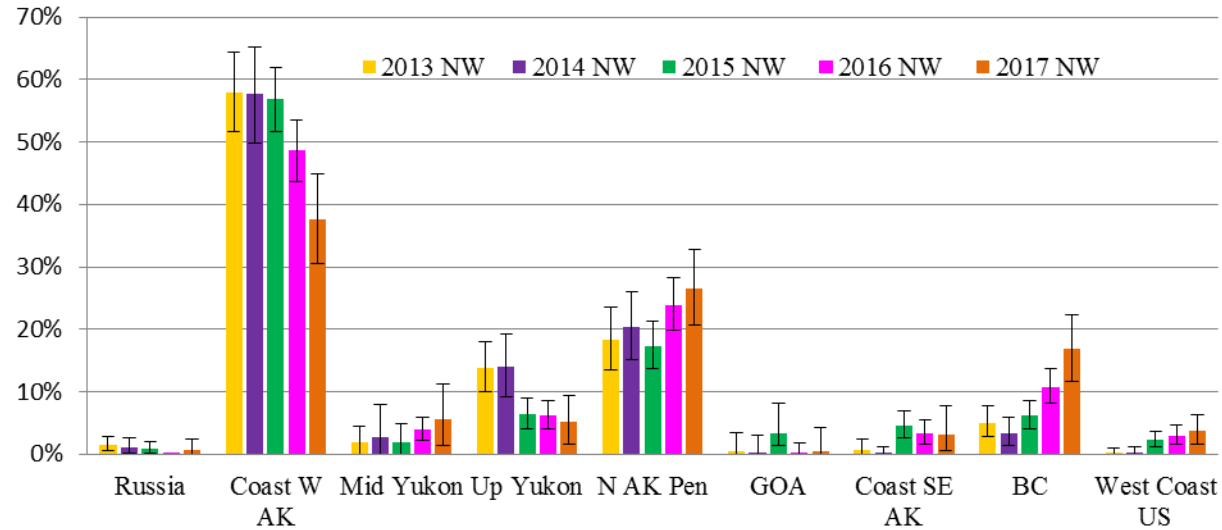


# Locations of the Northwest Bering and Southeast Bering Chinook genetic samples 2013-2017

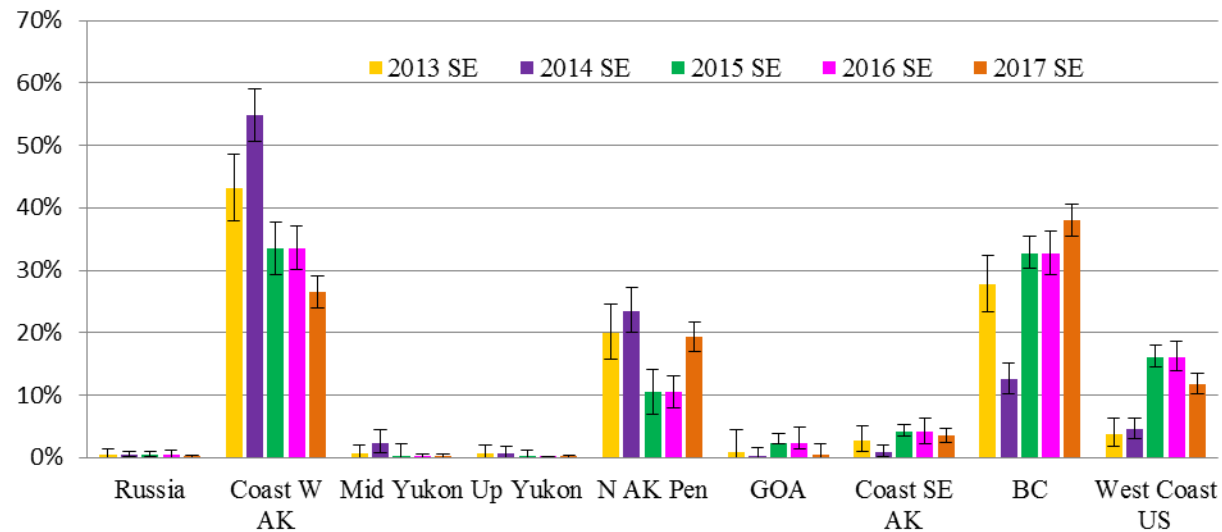




### Northwest Bering "A" season

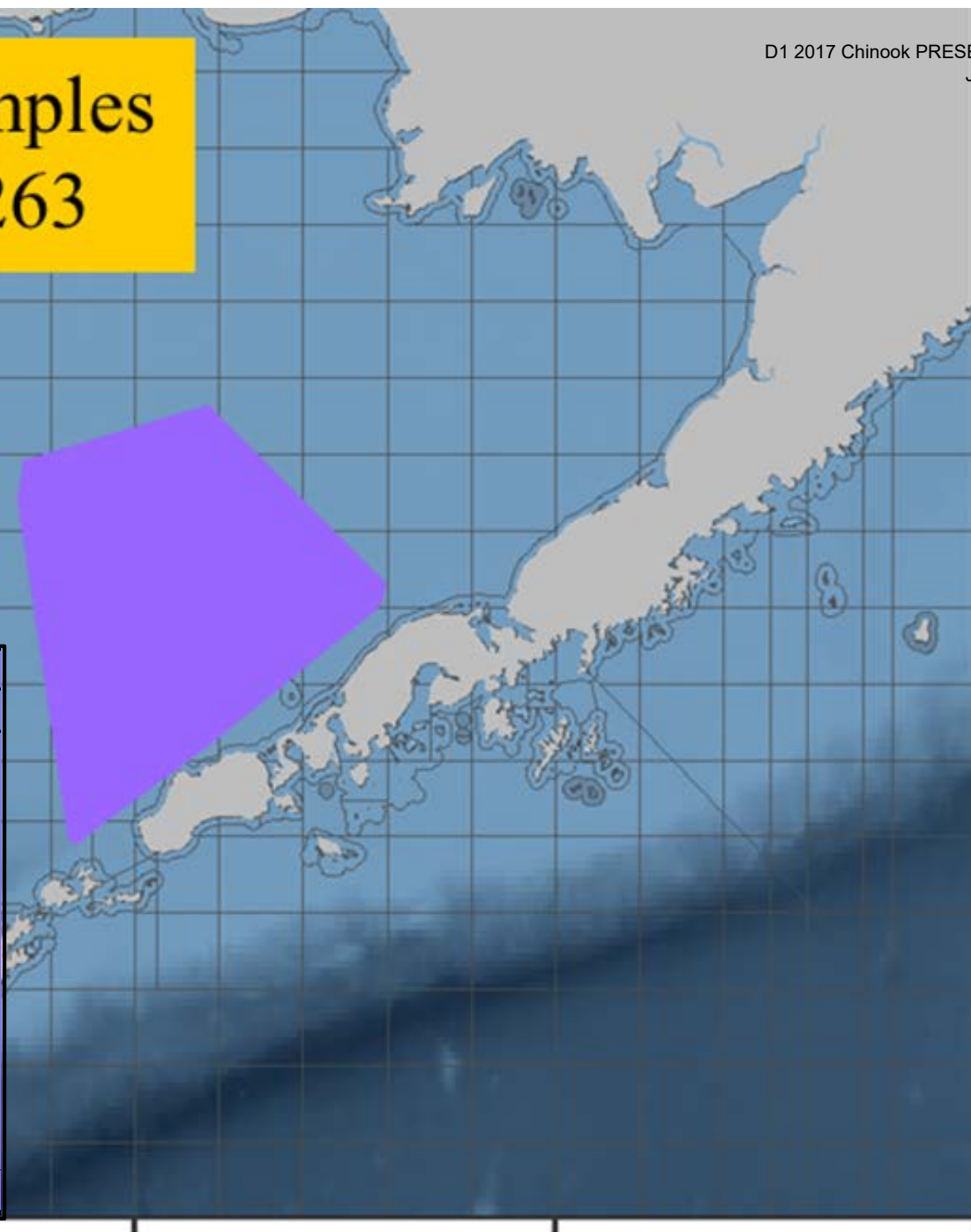


### Southeast Bering "A" season



# Bering Sea CP samples "A" Season N=263

Region	Bering S. CP "A" (N=263)			
	Est. #	Mean	SD	95% CI
Russia	0	0.0	0.06	(0.0,0.1)
Coast W AK	39	19.0	2.79	(13.7,24.6)
Mid Yukon	0	0.0	0.13	(0.0,0.3)
Up Yukon	0	0.2	0.40	(0.0,1.4)
N AK Pen	19	9.4	2.15	(5.7,14.1)
NW GOA	1	0.2	0.45	(0.0,1.5)
Copper	0	0.0	0.13	(0.0,0.4)
NE GOA	1	0.0	0.12	(0.0,0.3)
Coast SE AK	34	7.5	2.29	(3.4,12.4)
BC	95	45.2	3.50	(38.3,52.0)
West Coast US	74	18.5	2.51	(13.8,23.6)
Sample Size Total	263			





**NMFS-AFSC-390**

<http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-390.pdf>

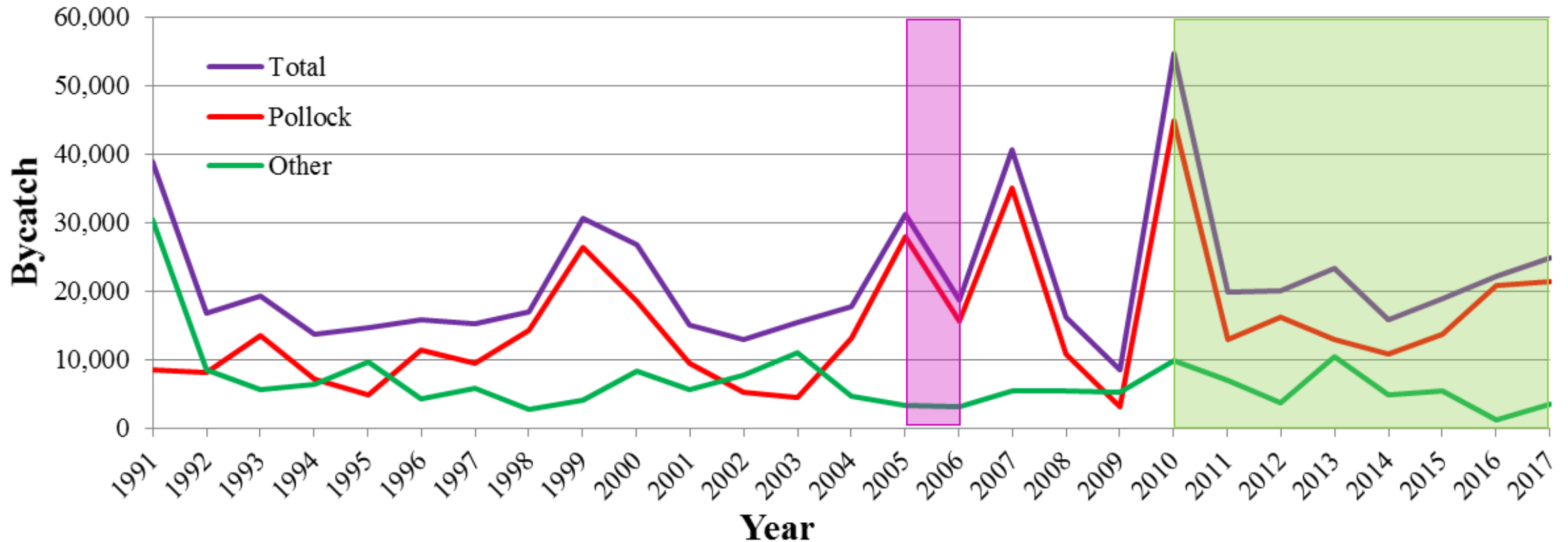
# **Genetic Stock Composition Analysis to the Chinook Salmon Bycatch Samples from the 2017 *Gulf of Alaska* Trawl Fisheries**

**C.M. Guthrie, III, Hv. T. Nguyen, M. Marsh, and J.R. Guyon**  
Genetics Program  
Auke Bay Laboratories  
Juneau, AK

**NOAA  
FISHERIES  
SERVICE**

# 2017 Chinook Salmon GOA Bycatch

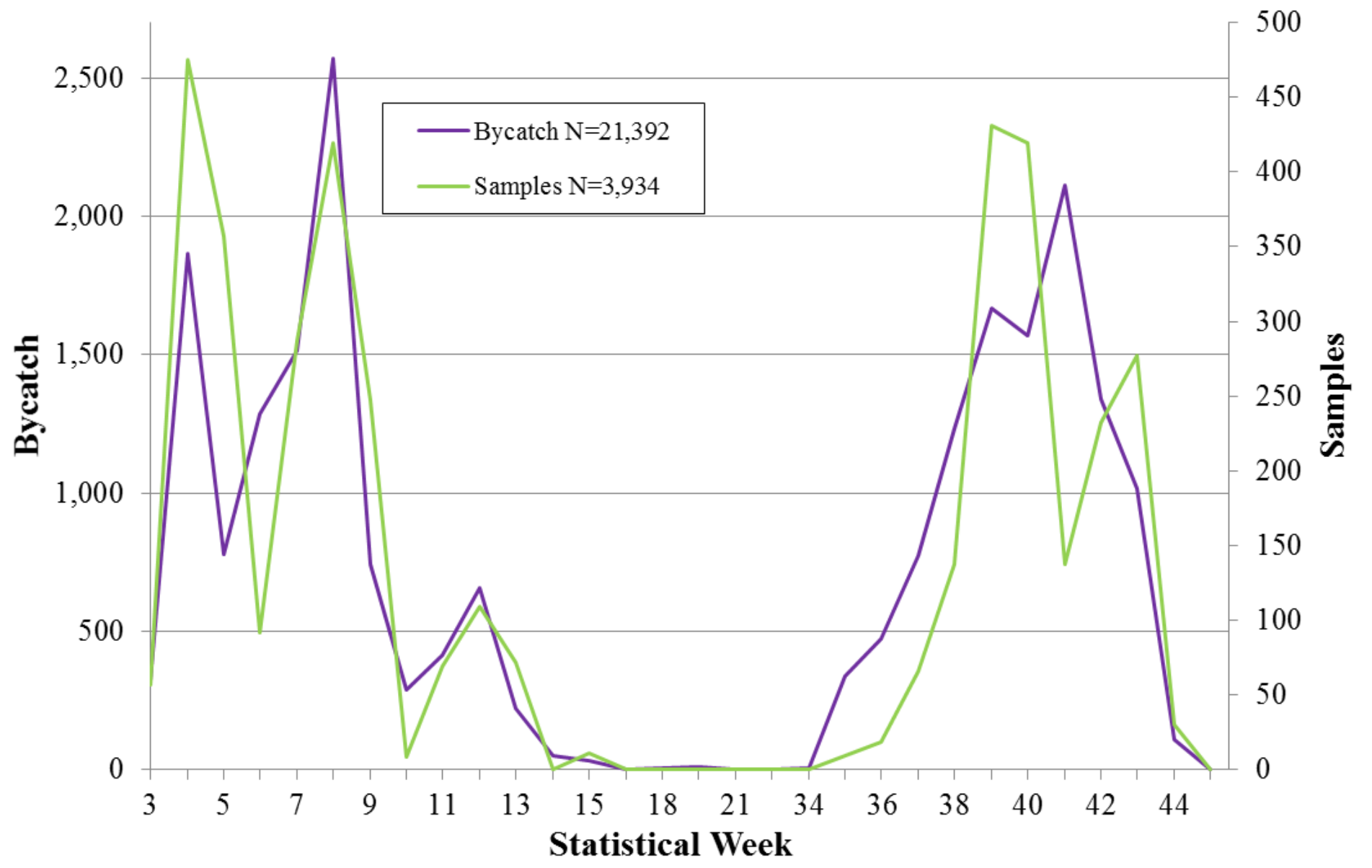
D1 2017 Chinook PRESENTATION  
JUNE 2019



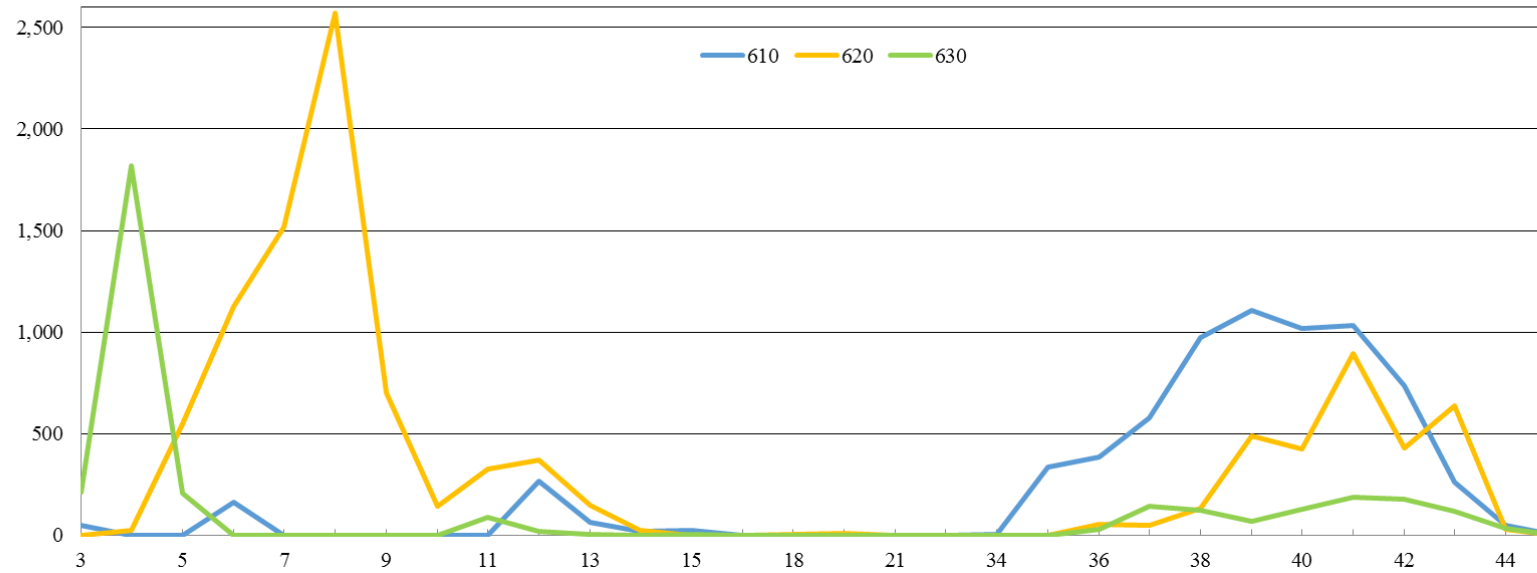
2005 – 2006: SNPs – 219 (Winter 2006), 62 (Summer 2005-6), 127 (Fall 2005-6) samples.

2010–17: SNPs – 161 (2010), 240 (2011), 948 (2012), 693 (2013), 1,163 (2014), 2,414 (2015), 4,962 (2016) and 3,571 (2017) samples.

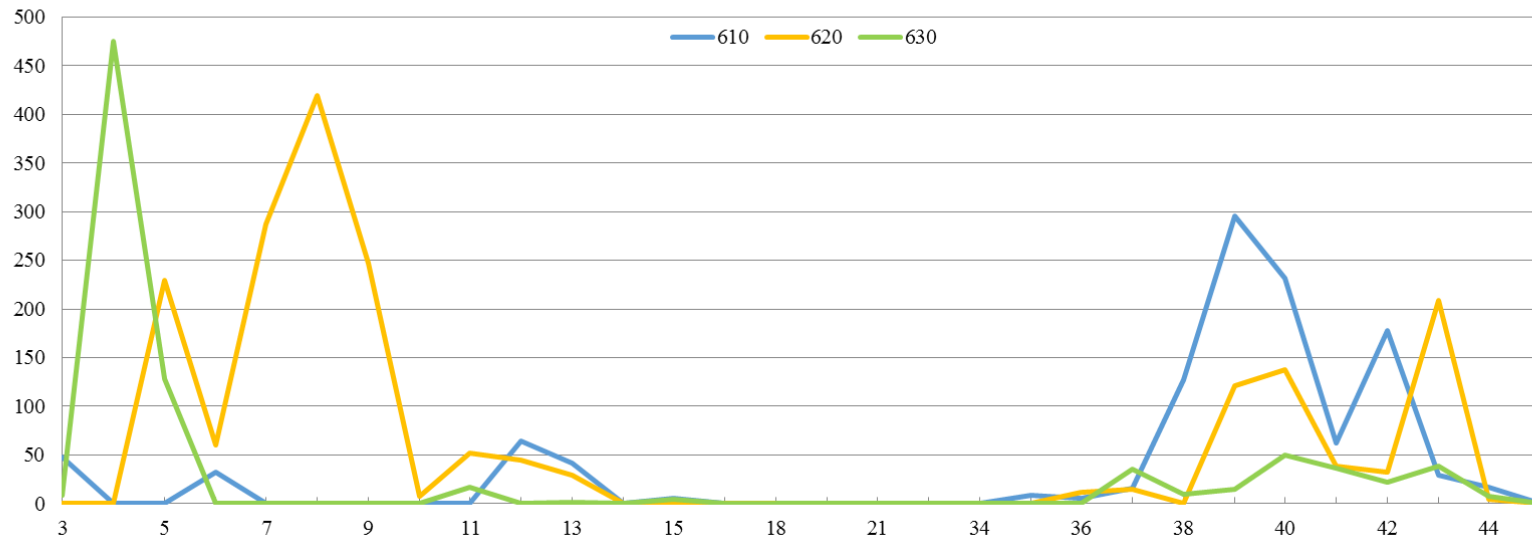
# 2017 GOA Pollock Bycatch/Sample Distribution



# 2017 Chinook GOA Bycatch



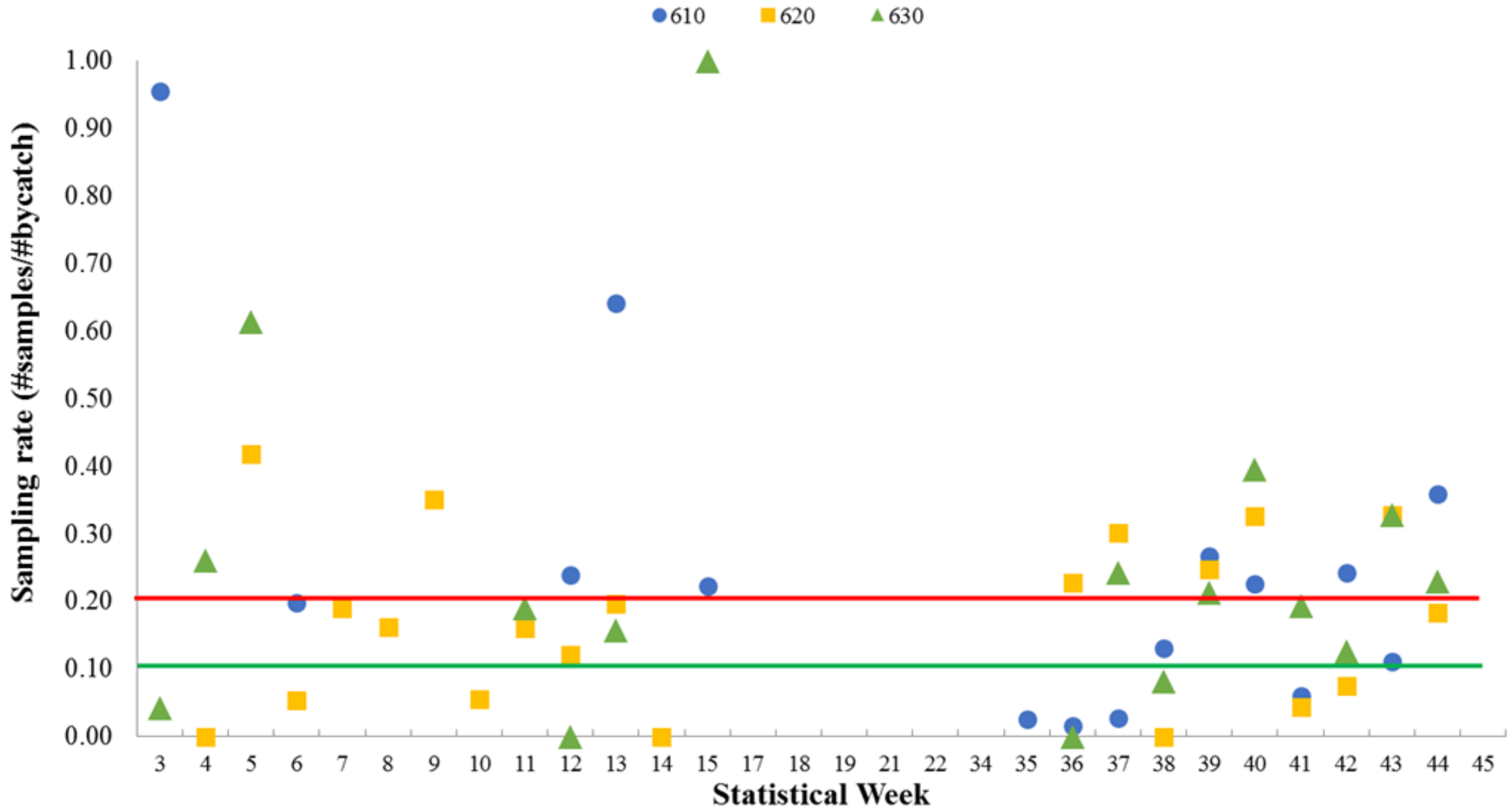
# 2017 Chinook GOA Samples



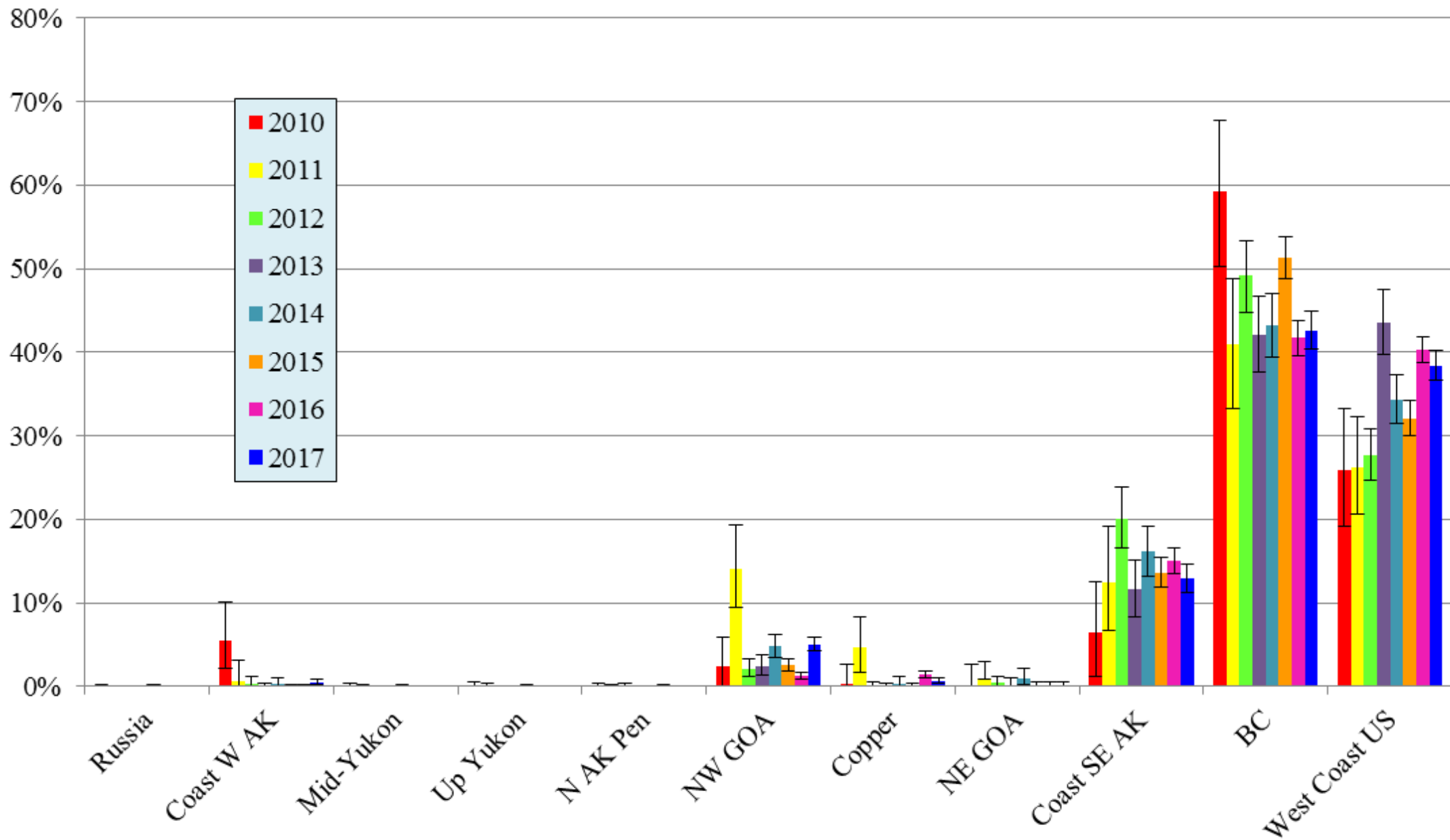
Statistical Week



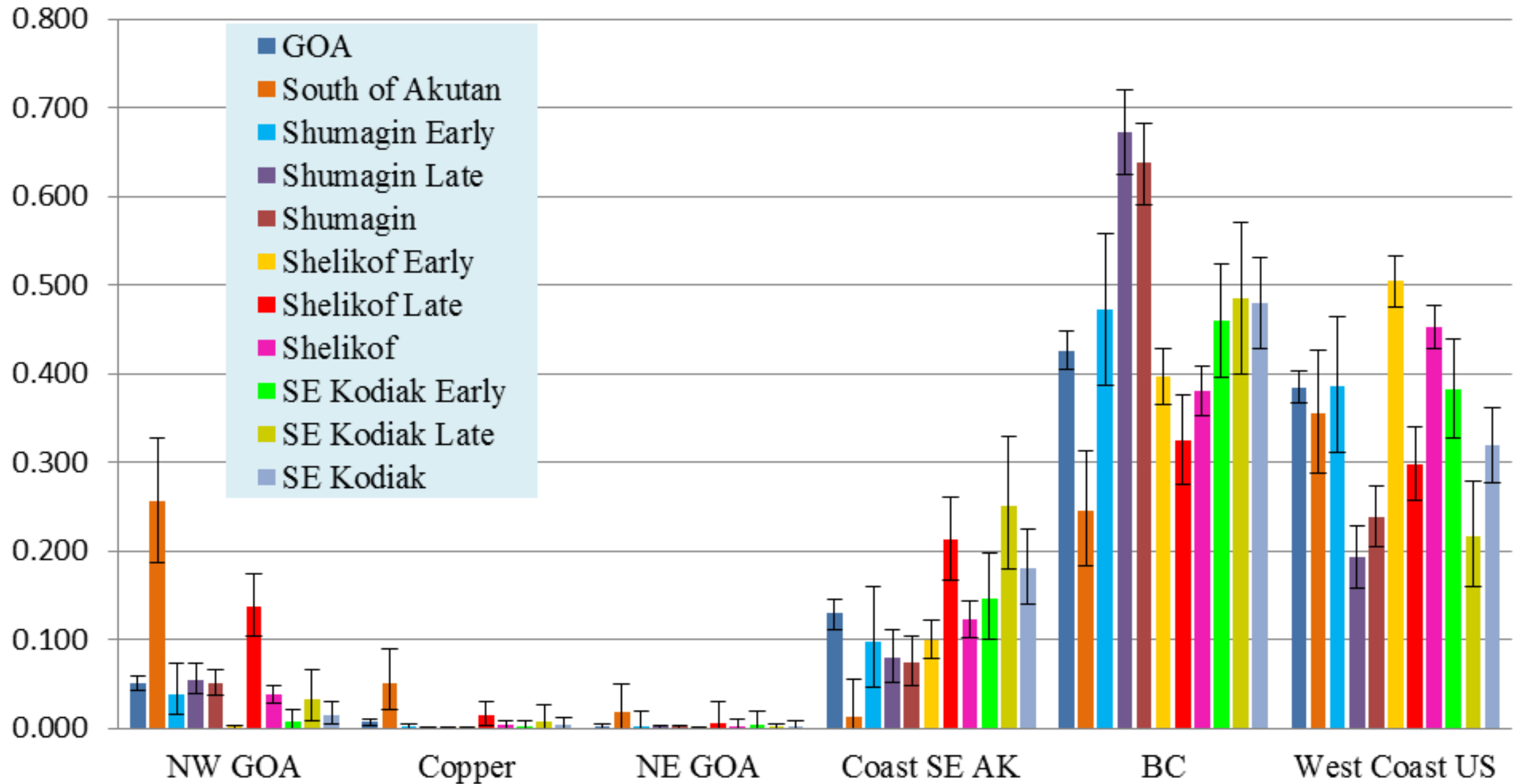
# 2017 Chinook GOA Samples

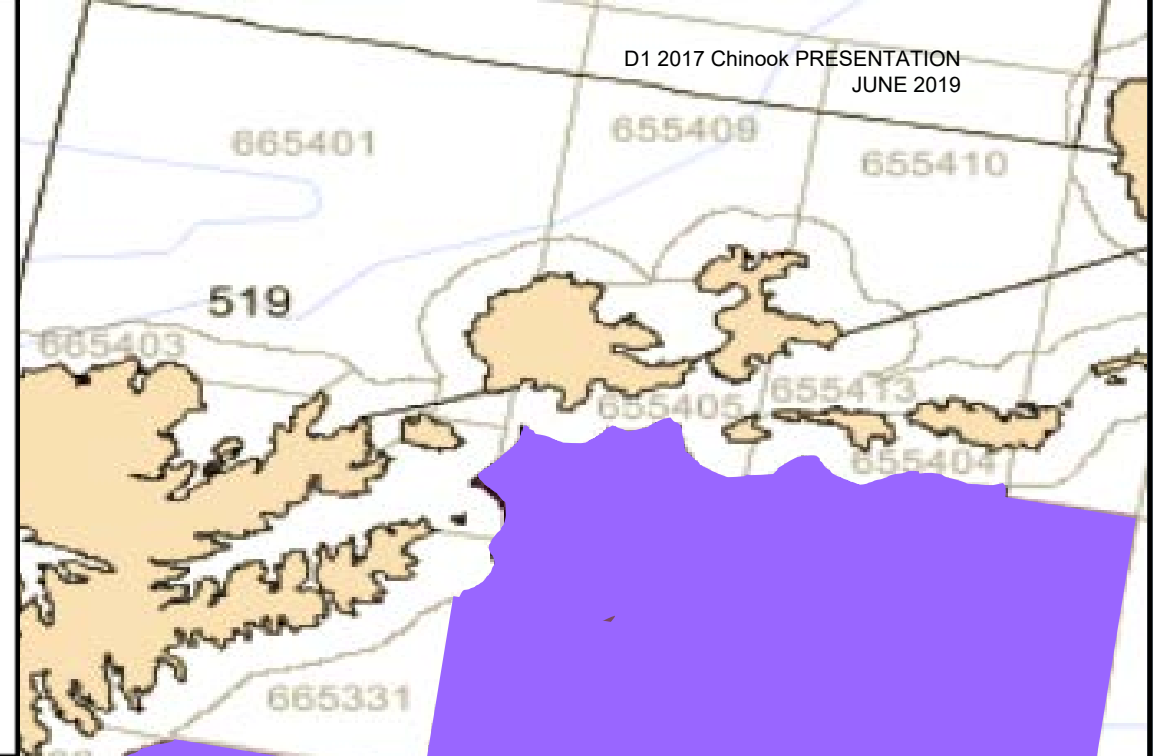
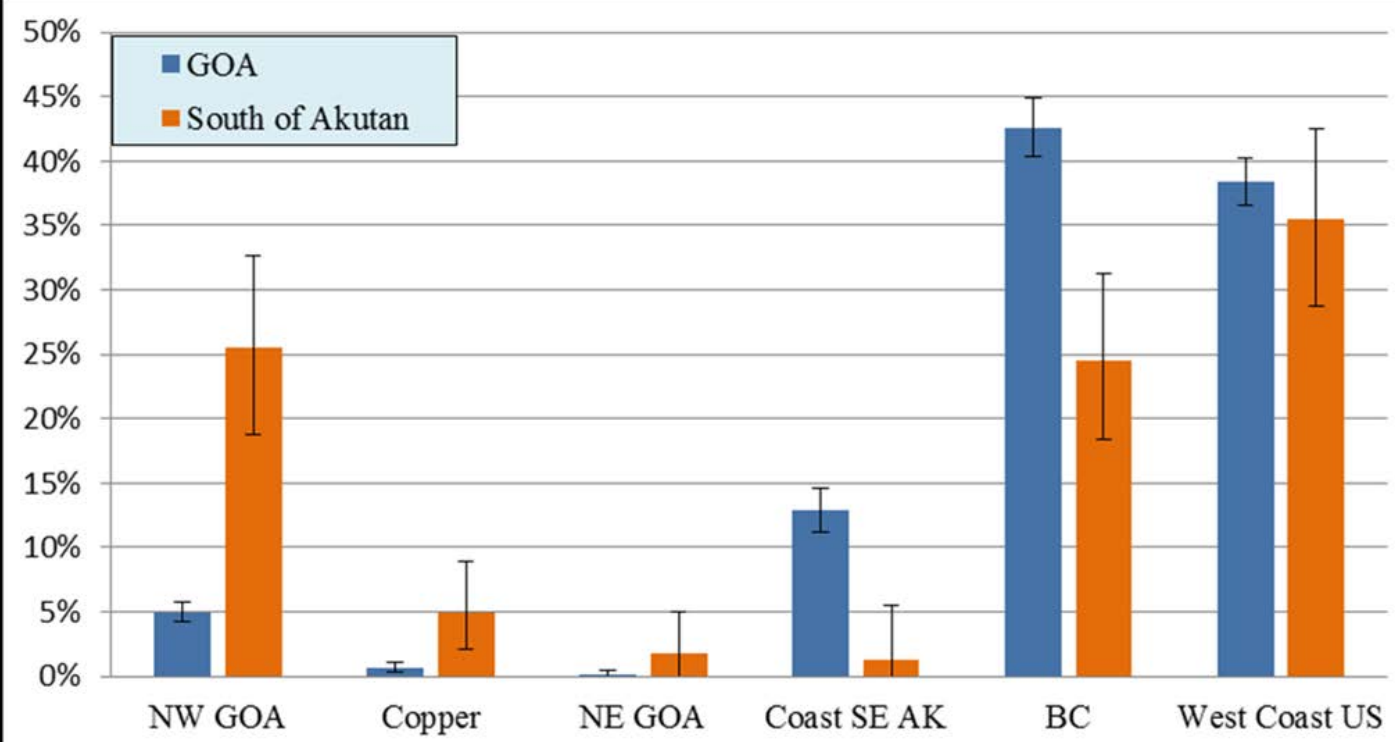


# 2017 Chinook Salmon GOA Bycatch - Pollock



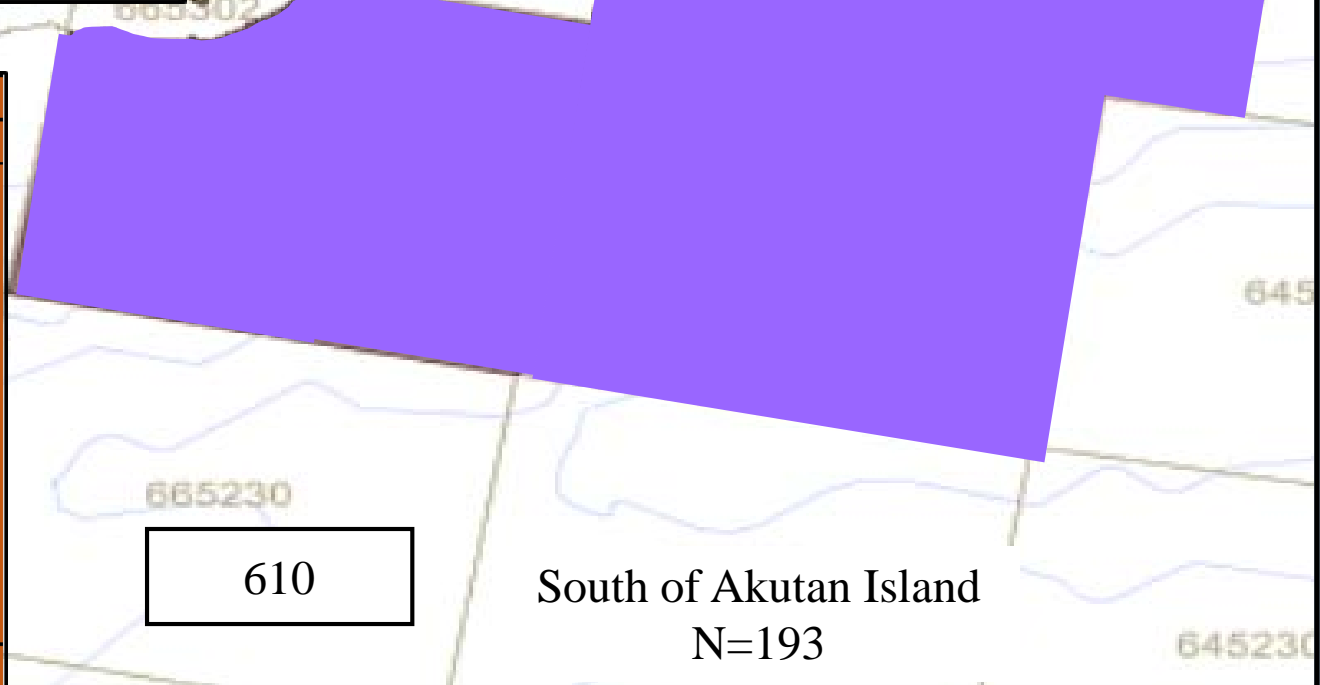
# 2017 GOA Chinook Salmon Bycatch



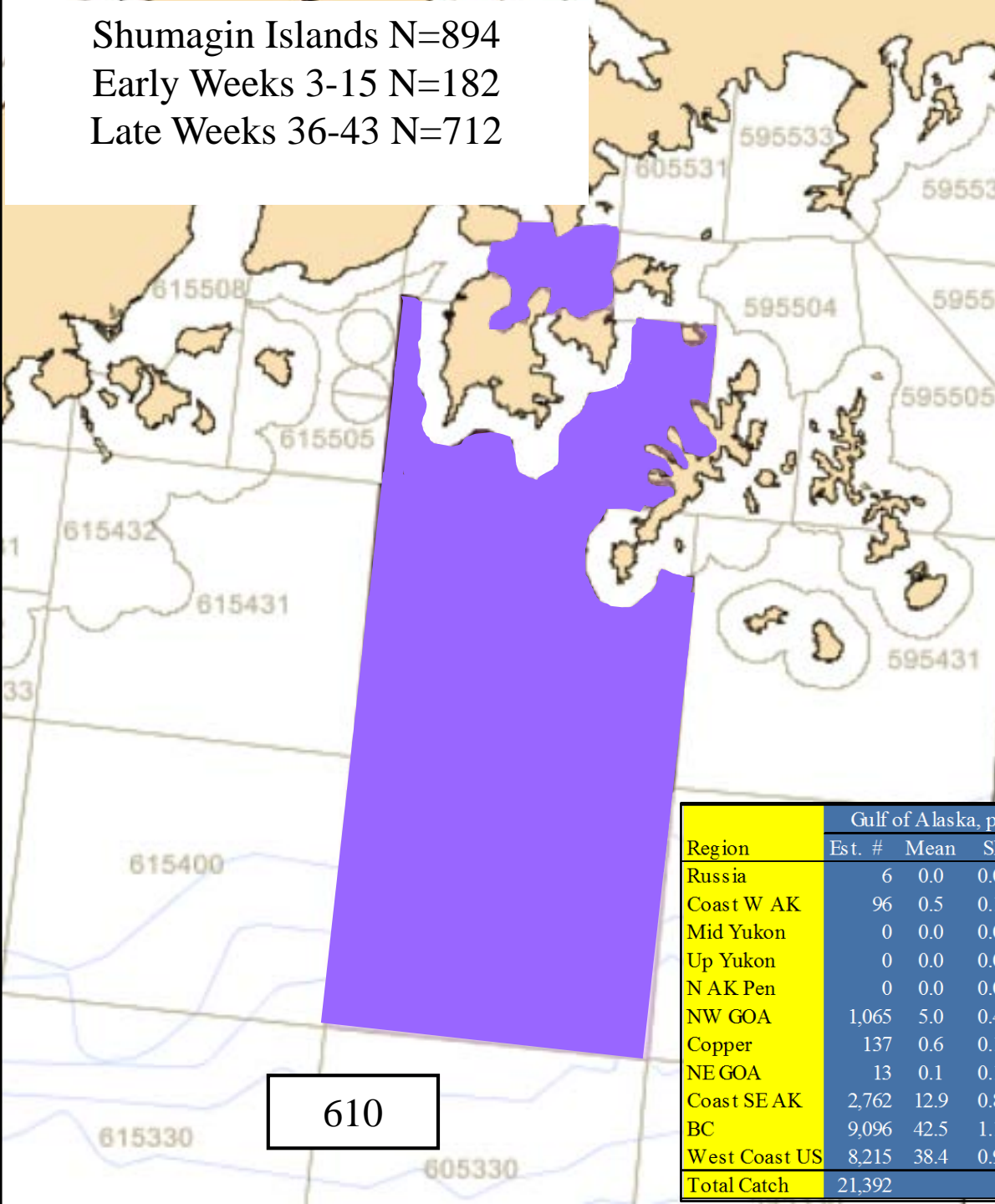


Gulf of Alaska, pollock (N=3,571) | South of Akutan Island (N=193)

Region	Gulf of Alaska, pollock (N=3,571)				South of Akutan Island (N=193)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	6	0.0	0.03	(0.0,0.1)	20	0.5	0.52	(0.0,1.9)
Coast W AK	96	0.5	0.18	(0.2,0.9)	208	5.6	2.11	(2.1,10.4)
Mid Yukon	0	0.0	0.01	(0.0,0.0)	1	0.0	0.12	(0.0,0.3)
Up Yukon	0	0.0	0.01	(0.0,0.0)	1	0.0	0.16	(0.0,0.5)
N AK Pen	0	0.0	0.02	(0.0,0.1)	4	0.1	0.46	(0.0,1.5)
NW GOA	1,065	5.0	0.41	(4.2,5.8)	949	25.5	3.56	(18.7,32.7)
Copper	137	0.6	0.18	(0.3,1.0)	186	5.0	1.75	(2.1,8.9)
NE GOA	13	0.1	0.13	(0.0,0.5)	65	1.8	1.38	(0.0,5.0)
Coast SE AK	2,762	12.9	0.86	(11.2,14.6)	49	1.3	1.57	(0.0,5.5)
BC	9,096	42.5	1.14	(40.4,44.9)	913	24.6	3.30	(18.4,31.3)
West Coast US	8,215	38.4	0.92	(36.6,40.2)	1,321	35.5	3.52	(28.7,42.6)
<b>Total Catch</b>	<b>21,392</b>				<b>3,717</b>			

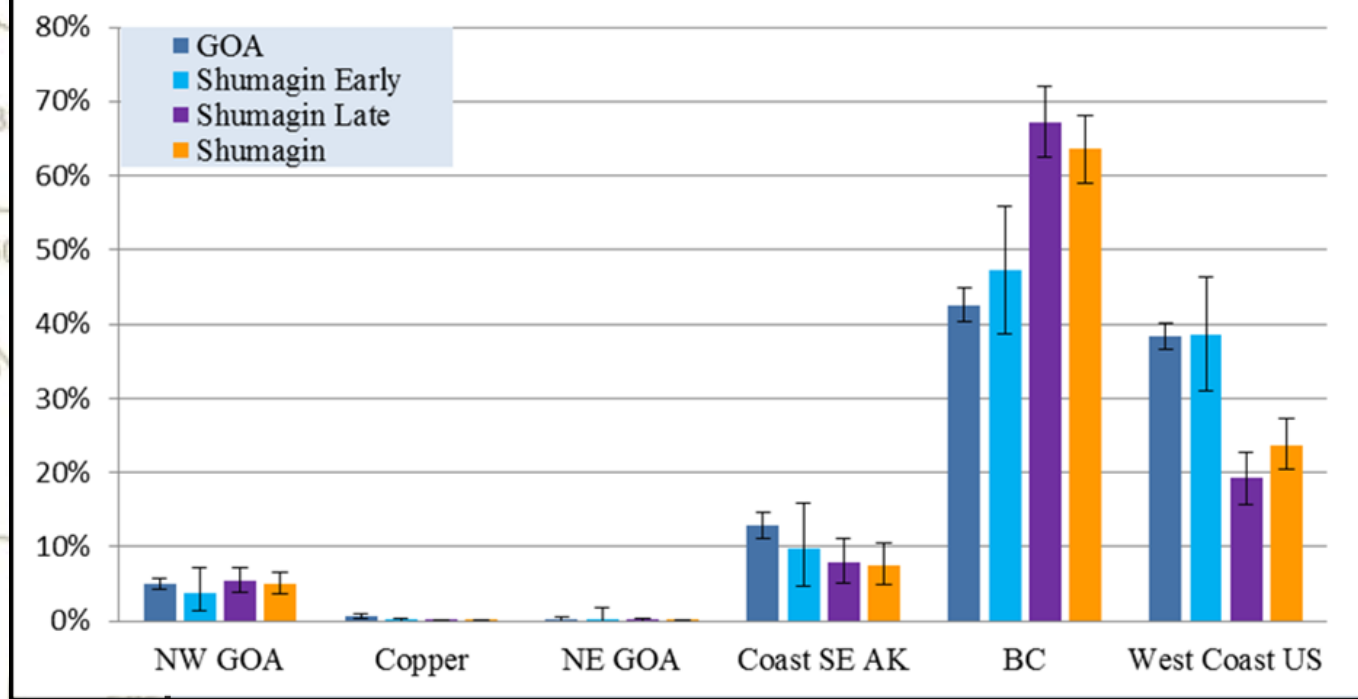


Shumagin Islands N=894  
 Early Weeks 3-15 N=182  
 Late Weeks 36-43 N=712



## 2017 Shumagin Chinook Salmon Bycatch

D1 2017 Chinook PRESENTATION  
 JUNE 2019

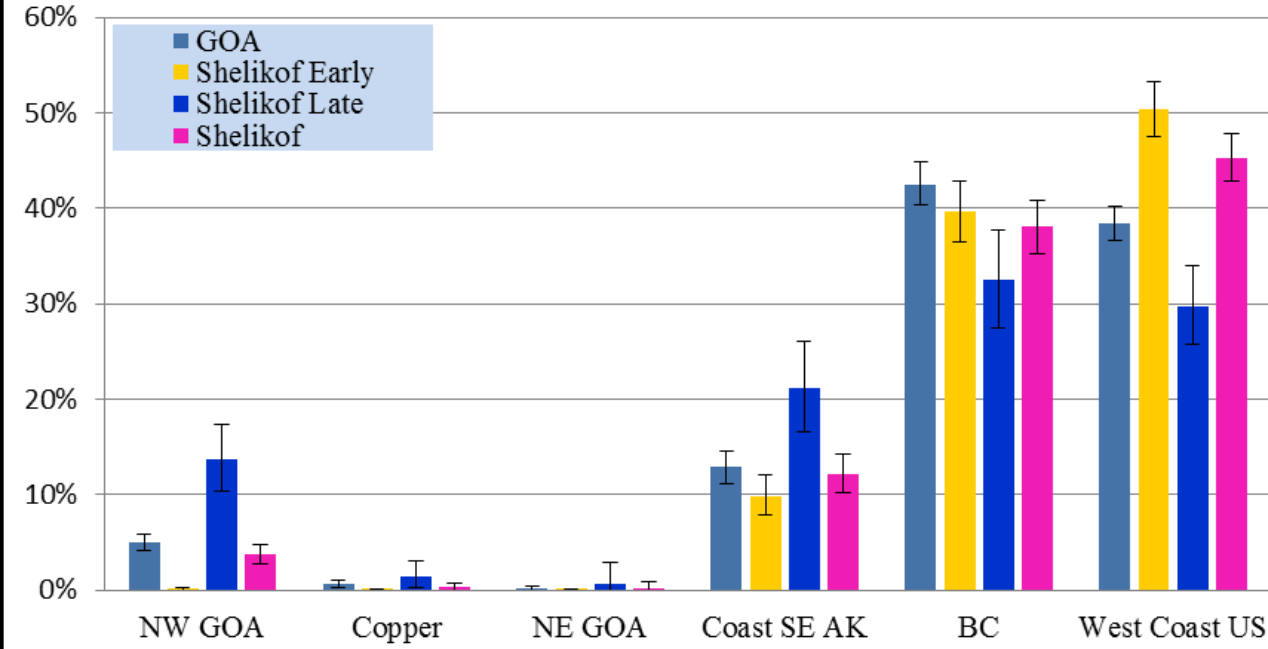


Region	Gulf of Alaska, pollock (N=3,571)				Shumagin Islands Early (N=182)				Shumagin Islands Late (N=712)				Shumagin Islands (N=894)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	6	0.0	0.03	(0.0,0.1)	0	0.0	0.09	(0.0,0.1)	0	0.0	0.02	(0.0,0.0)	0	0.0	0.02	(0.0,0.0)
Coast W AK	96	0.5	0.18	(0.2,0.9)	1	0.2	0.43	(0.0,1.5)	3	0.1	0.16	(0.0,0.6)	2	0.1	0.11	(0.0,0.4)
Mid Yukon	0	0.0	0.01	(0.0,0.0)	0	0.0	0.17	(0.0,0.5)	0	0.0	0.03	(0.0,0.1)	0	0.0	0.03	(0.0,0.1)
Up Yukon	0	0.0	0.01	(0.0,0.0)	0	0.0	0.15	(0.0,0.4)	0	0.0	0.05	(0.0,0.2)	0	0.0	0.04	(0.0,0.1)
N AK Pen	0	0.0	0.02	(0.0,0.1)	0	0.0	0.18	(0.0,0.4)	0	0.0	0.07	(0.0,0.2)	0	0.0	0.06	(0.0,0.1)
NW GOA	1,065	5.0	0.41	(4.2,5.8)	22	3.9	1.50	(1.5,7.3)	137	5.4	0.88	(3.8,7.2)	156	5.0	0.76	(3.6,6.6)
Copper	137	0.6	0.18	(0.3,1.0)	0	0.0	0.14	(0.0,0.4)	1	0.0	0.06	(0.0,0.2)	0	0.0	0.05	(0.0,0.1)
NE GOA	13	0.1	0.13	(0.0,0.5)	1	0.2	0.52	(0.0,1.8)	1	0.0	0.10	(0.0,0.3)	1	0.0	0.08	(0.0,0.2)
Coast SE AK	2,762	12.9	0.86	(11.2,14.6)	56	9.8	2.92	(4.6,16.0)	202	8.0	1.51	(5.2,11.1)	230	7.4	1.44	(4.9,10.4)
BC	9,096	42.5	1.14	(40.4,44.9)	273	47.2	4.44	(38.6,55.9)	1,700	67.2	2.42	(62.4,71.9)	1,979	63.7	2.33	(59.1,68.1)
West Coast US	8,215	38.4	0.92	(36.6,40.2)	223	38.6	3.94	(31.1,46.4)	486	19.2	1.80	(15.8,22.8)	737	23.7	1.75	(20.4,27.3)
<b>Total Catch</b>	<b>21,392</b>				<b>578</b>				<b>2,529</b>				<b>3,106</b>			

# 2017 Shelikof Chinook Salmon Bycatch

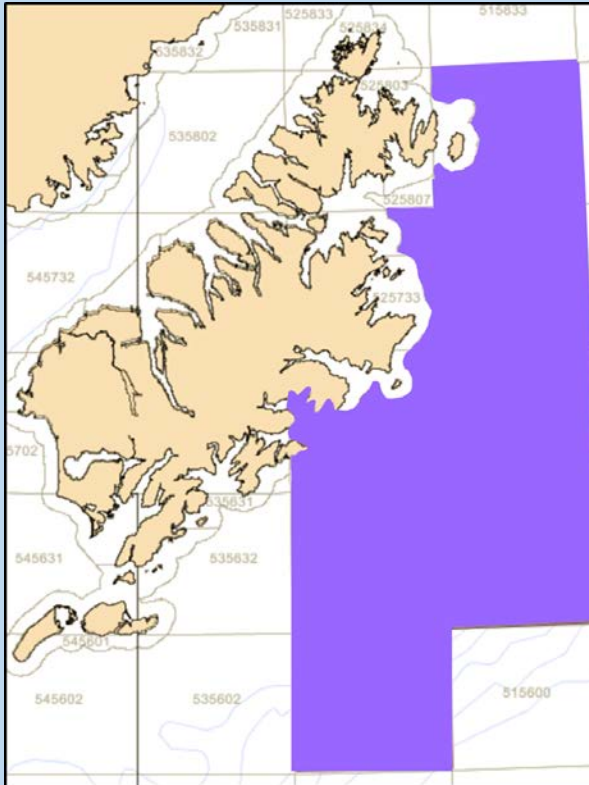
01 2017 CHINOOK PRESENTATION  
JUNE 2019

Shelikof Strait N=1,922  
Early Weeks 3-15 N=1,404  
Late Weeks 36-44 N=518



Late

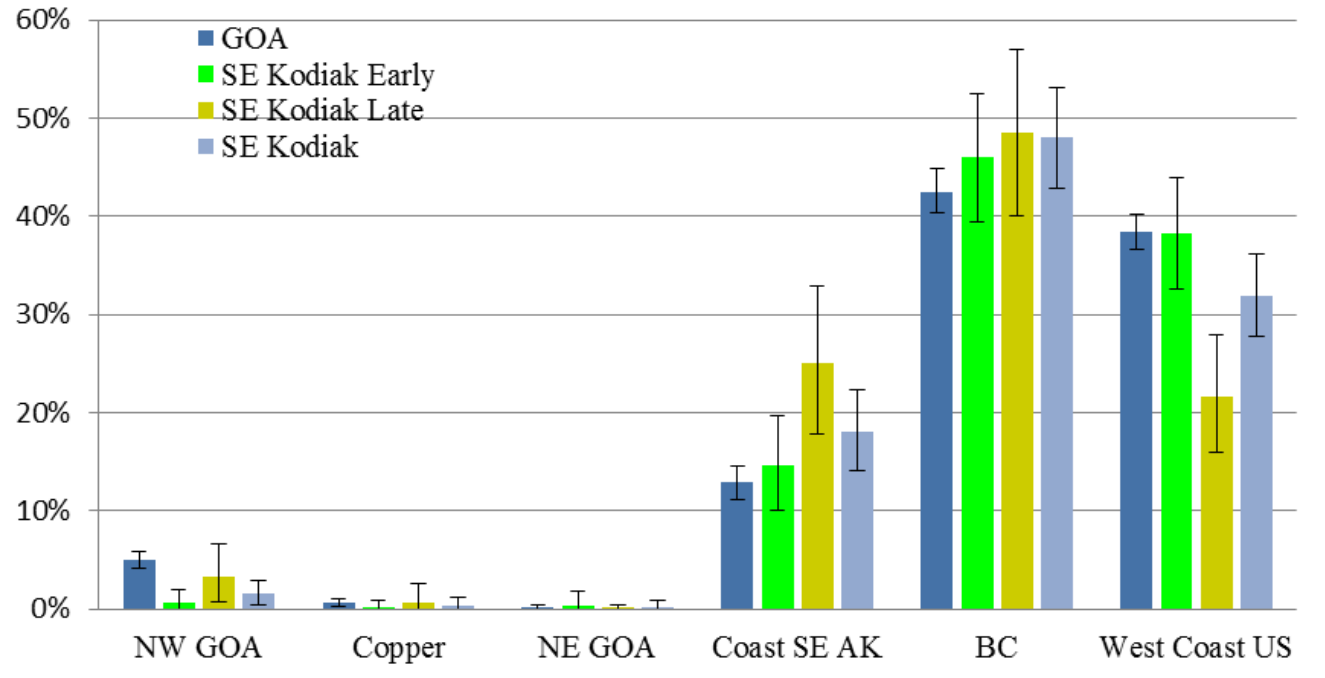
Region	Gulf of Alaska, pollock (N=3,571)				Shelikof Strait Early (N=1,404)				Shelikof Strait Late (N=518)				Shelikof Strait (N=1,922)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	6	0.0	0.03	(0.0,0.1)	0	0.0	0.01	(0.0,0.0)	0	0.0	0.03	(0.0,0.1)	0	0.0	0.01	(0.0,0.0)
Coast W AK	96	0.5	0.18	(0.2,0.9)	2	0.0	0.05	(0.0,0.2)	23	0.8	0.89	(0.0,3.0)	22	0.2	0.25	(0.0,0.9)
Mid Yukon	0	0.0	0.01	(0.0,0.0)	0	0.0	0.02	(0.0,0.0)	0	0.0	0.05	(0.0,0.1)	0	0.0	0.01	(0.0,0.0)
Up Yukon	0	0.0	0.01	(0.0,0.0)	1	0.0	0.02	(0.0,0.1)	1	0.0	0.06	(0.0,0.2)	0	0.0	0.02	(0.0,0.0)
N AK Pen	0	0.0	0.02	(0.0,0.1)	0	0.0	0.02	(0.0,0.0)	0	0.0	0.07	(0.0,0.2)	1	0.0	0.03	(0.0,0.1)
NW GOA	1,065	5.0	0.41	(4.2,5.8)	6	0.1	0.09	(0.0,0.3)	387	13.7	1.78	(10.4,17.3)	415	3.7	0.50	(2.8,4.8)
Copper	137	0.6	0.18	(0.3,1.0)	1	0.0	0.02	(0.0,0.1)	39	1.4	0.73	(0.2,3.0)	35	0.3	0.21	(0.0,0.8)
NE GOA	13	0.1	0.13	(0.0,0.5)	1	0.0	0.04	(0.0,0.1)	16	0.6	0.90	(0.0,2.9)	23	0.2	0.29	(0.0,0.9)
Coast SE AK	2,762	12.9	0.86	(11.2,14.6)	819	9.9	1.09	(7.8,12.1)	599	21.2	2.41	(16.6,26.1)	1,359	12.2	1.04	(10.2,14.3)
BC	9,096	42.5	1.14	(40.4,44.9)	3,292	39.6	1.63	(36.5,42.9)	916	32.5	2.61	(27.5,37.7)	4,234	38.0	1.41	(35.3,40.8)
West Coast US	8,215	38.4	0.92	(36.6,40.2)	4,188	50.4	1.45	(47.6,53.2)	839	29.8	2.10	(25.7,33.9)	5,041	45.3	1.24	(42.9,47.7)
<b>Total Catch</b>	<b>21,392</b>				<b>8,309</b>				<b>2,821</b>				<b>11,130</b>			



SE Kodiak I. N=540  
 Early Weeks 3-5 N=323  
 Late Weeks 36-44 N=197



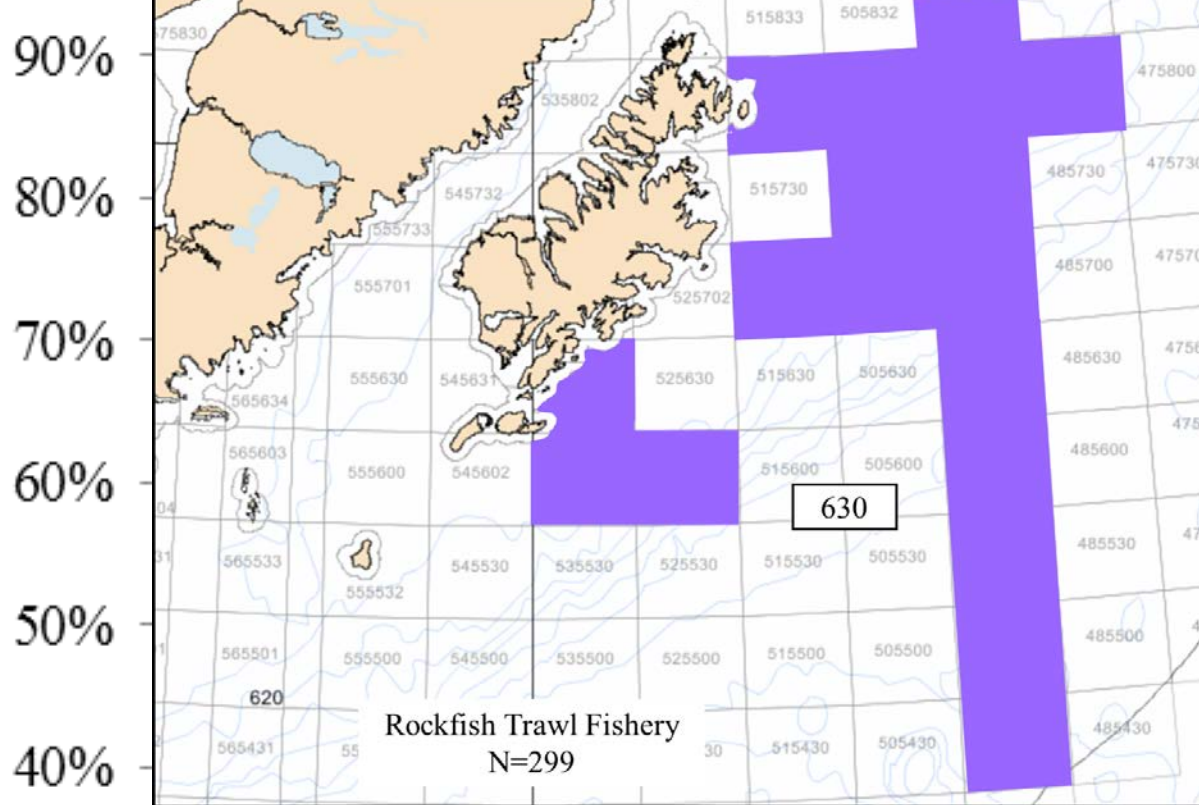
# 2017 SE Kodiak Chinook Salmon Bycatch



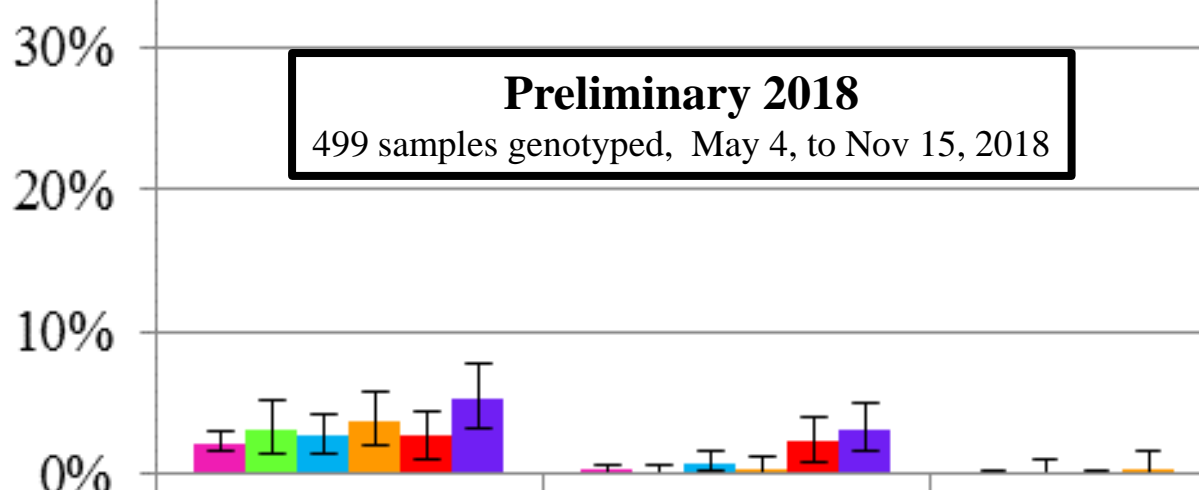
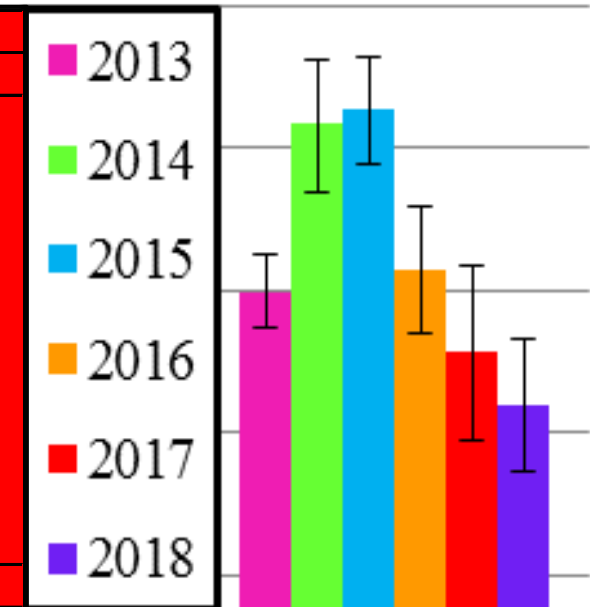
Region	Gulf of Alaska, pollock (N=3,571)				SE Kodiak I. Early (N=323)				Southeast Kodiak I. Late (N=197)				Southeast Kodiak Island (N=540)			
	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI	Est. #	Mean	SD	95% CI
Russia	6	0.0	0.03	(0.0,0.1)	0	0.0	0.05	(0.0,0.1)	0	0.0	0.08	(0.0,0.1)	0	0.0	0.03	(0.0,0.0)
Coast W AK	96	0.5	0.18	(0.2,0.9)	1	0.1	0.17	(0.0,0.6)	6	0.6	1.01	(0.0,3.5)	3	0.1	0.24	(0.0,0.9)
Mid Yukon	0	0.0	0.01	(0.0,0.0)	0	0.0	0.07	(0.0,0.2)	0	0.0	0.11	(0.0,0.3)	0	0.0	0.04	(0.0,0.1)
Up Yukon	0	0.0	0.01	(0.0,0.0)	0	0.0	0.08	(0.0,0.3)	0	0.0	0.15	(0.0,0.4)	0	0.0	0.05	(0.0,0.2)
N AK Pen	0	0.0	0.02	(0.0,0.1)	0	0.0	0.13	(0.0,0.3)	0	0.1	0.26	(0.0,0.6)	1	0.1	0.20	(0.0,0.7)
NW GOA	1,065	5.0	0.41	(4.2,5.8)	9	0.0	0.57	(0.0,2.1)	31	3.3	1.51	(0.8,6.7)	37	1.5	0.64	(0.5,3.0)
Copper	137	0.6	0.18	(0.3,1.0)	1	0.0	0.25	(0.0,0.9)	7	0.7	0.72	(0.0,2.6)	9	0.4	0.35	(0.0,1.2)
NE GOA	13	0.1	0.13	(0.0,0.5)	5	0.0	0.54	(0.0,1.9)	0	0.0	0.17	(0.0,0.4)	2	0.1	0.24	(0.0,0.9)
Coast SE AK	2,762	12.9	0.86	(11.2,14.6)	207	0.0	2.50	(10.0,19.7)	236	25.1	3.81	(17.9,32.8)	440	18.0	2.12	(14.0,22.4)
BC	9,096	42.5	1.14	(40.4,44.9)	650	0.0	3.30	(39.5,52.4)	455	48.5	4.33	(40.0,57.0)	1,172	48.0	2.61	(42.8,53.0)
West Coast US	8,215	38.4	0.92	(36.6,40.2)	540	0.0	2.88	(32.6,43.9)	203	21.6	3.06	(15.9,27.9)	779	31.9	2.14	(27.8,36.1)
<b>Total Catch</b>	<b>21,392</b>				<b>1,414</b>				<b>939</b>				<b>2,443</b>			

# 2017 Rockfish GOA Chinook Bycatch

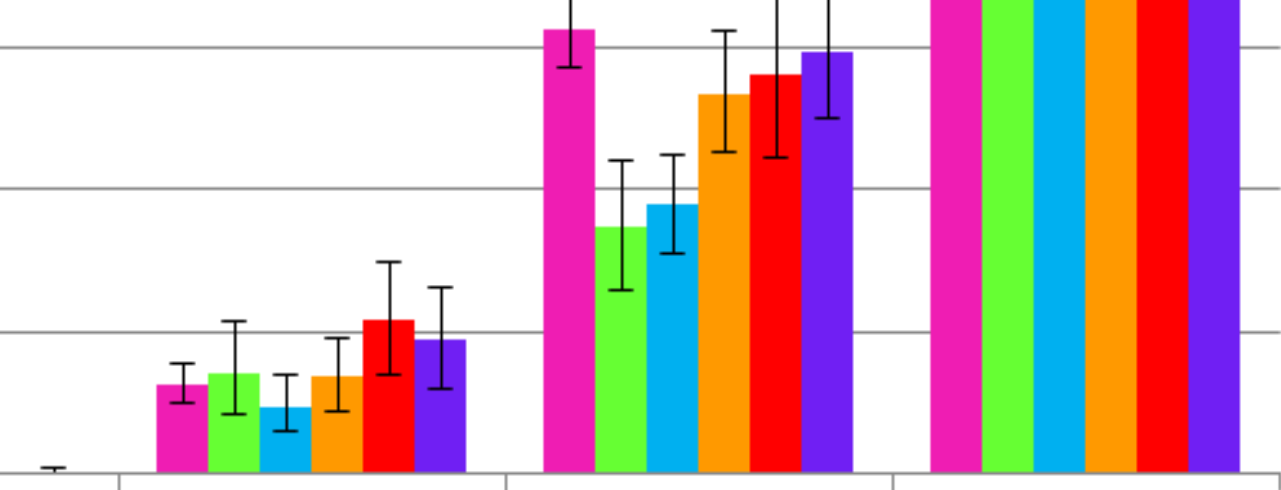
280 samples genotyped, May 6, to Nov 15, 2017



Region	Rockfish Trawl Fishey (N=280)			
	Est. #	Mean	SD	95% CI
Russia	0	0.0	0.07	(0.0,0.1)
Coast W AK	0	0.1	0.21	(0.0,0.7)
Mid Yukon	0	0.0	0.08	(0.0,0.2)
Up Yukon	0	0.0	0.10	(0.0,0.3)
N AK Pen	0	0.0	0.15	(0.0,0.4)
NW GOA	8	2.7	1.03	(1.1,5.1)
Copper	7	2.4	0.95	(0.8,4.6)
NE GOA	0	0.0	0.22	(0.0,0.5)
Coast SE AK	33	10.9	2.21	(6.9,15.5)
BC	84	28.1	3.07	(22.3,34.3)
West Coast US	166	55.6	3.11	(49.4,61.6)
<b>Total Catch</b>	<b>299</b>			



**Preliminary 2018**  
499 samples genotyped, May 4, to Nov 15, 2018



NW GOA      Copper      NE GOA      Coast SE AK      BC      West Coast US



# CHINOOK SALMON BYCATCH ASSESSMENT.

D1 2017 Chinook PRESENTATION  
JUNE 2019

## MARK LAB, ADF&G COMPONENT

by

Bev Agler and Lorna Wilson

Alaska Department of Fish and Game Division Commercial Fisheries, Juneau

Mark types of Chinook salmon collected during the 2017 fishing season on the high seas near Kodiak, AK.

Mark type	#	%
Coded wire tagged (CWT) <sup>1</sup>	14	4.7%
Thermal mark	24	8.1%
No thermal mark or CWT	257	86.2%
Missing otoliths, no CWT	2	0.7%
Otoliths not readable, no CWT	1	0.3%
Total	298	100%

Origin of thermal-marked Chinook salmon otoliths collected in 2017 on the high seas near Kodiak, AK.

Country	State/Province	Area	#
U.S.	Alaska	Southcentral	1
U.S.	Alaska	Southeast	9
U.S.	Washington	Central	1
U.S.	Oregon	Willamette	2
Canada	British Columbia	Vancouver Island	9
Unknown	Unknown		2
Total			24

Release and recovery information for coded-wire tagged Chinook salmon captured as bycatch in the 2017 Gulf of Alaska trawl fishery for rockfish as sampled by Alaska Groundfish Data Bank. The number of Chinook salmon with readable coded-wire tags (CWTs) and clipped adipose fins (ad-clipped) is in parentheses.

From Michele Masuda – NOAA-Auke Bay Labs

Detection method	Number sampled	Number ad-clipped	Number with readable CWTs
Electronic wand	299	42	14 (12)

Release state	Number of CWTs
Alaska	2
British Columbia	2
Washington	7
Oregon	3

Rearing type	Number of CWTs	Ad-clipped	Not ad-clipped
Hatchery	12	10	2
Wild	2	2	0

Release and recovery information for coded-wire tagged Chinook salmon captured as bycatch in the 2018 Gulf of Alaska trawl fishery for rockfish as sampled by Alaska Groundfish Data Bank. The number of Chinook salmon with readable coded-wire tags (CWTs) and clipped adipose fins (ad-clipped) is in parentheses.

From Michele Masuda – NOAA-Auke Bay Labs

Detection method	Number sampled	Number ad-clipped	Number with readable CWTs	Number of agency-only wire
Electronic wand	504	67	27 (23)	1 (1)

Release state	Number of CWTs	Number of agency-only wire
Alaska	5	0
British Columbia	1	0
Washington	14	0
Oregon	7	1

Rearing type	Number of CWTs	Ad-clipped	Not ad-clipped
Hatchery	27	23	4
Wild	0	0	0

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