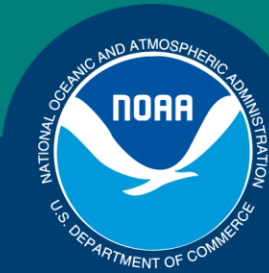


Science, Service, Stewardship



NMFS-AFSC-314

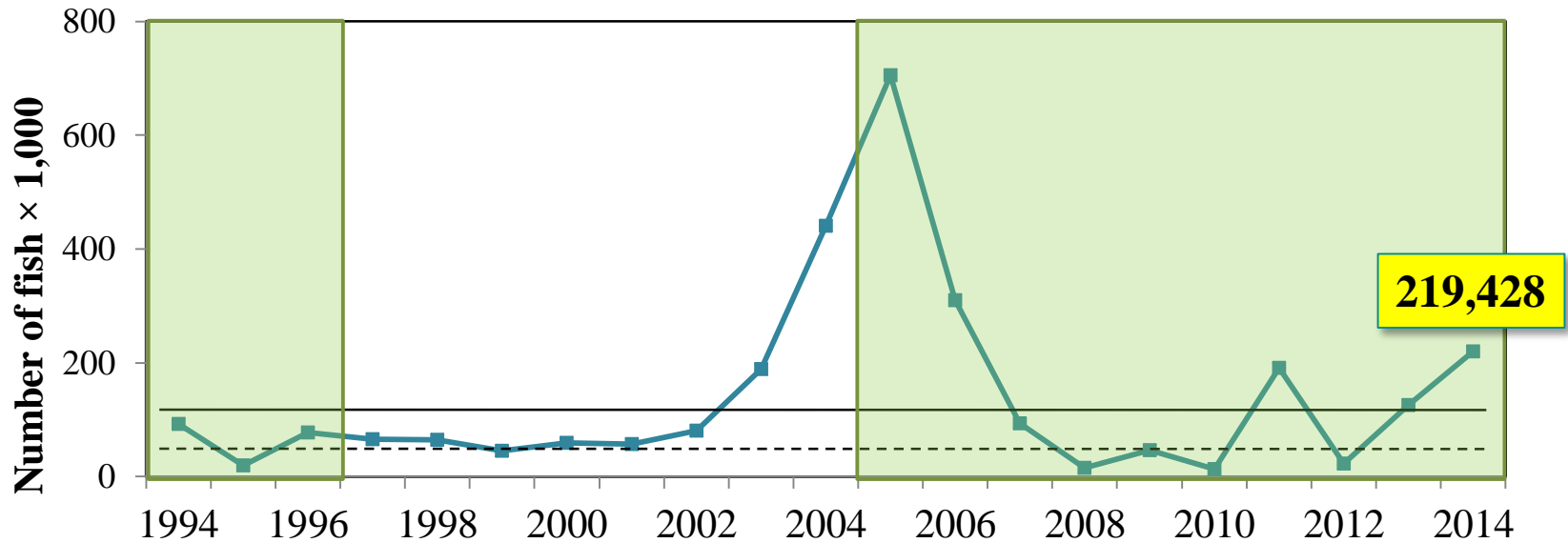
Genetic Stock Composition Analysis of Chum Salmon from the Prohibited Species Catch of the 2014 Bering Sea Walleye Pollock Trawl Fishery and Gulf of Alaska Groundfish Fisheries

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Genetics Program
Auke Bay Laboratories
Juneau, AK

**NOAA
FISHERIES
SERVICE**

April 5, 2016

2014 Bering Sea Chum Salmon Bycatch



1994: Scales (Patton et al. 1998) – 1,204 samples

1994-1995: Allozymes (Wilmot et al. 1998) – 457 (1994) and 1,680 (1995) samples

1996: Allozymes (Seeb et al. 2004) – eastern shelf

Microsatellites:

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
n	1,084	1,367	1,279	629	1,437	1,048	1,472	673	4,094	1,741

Our Stock Groupings

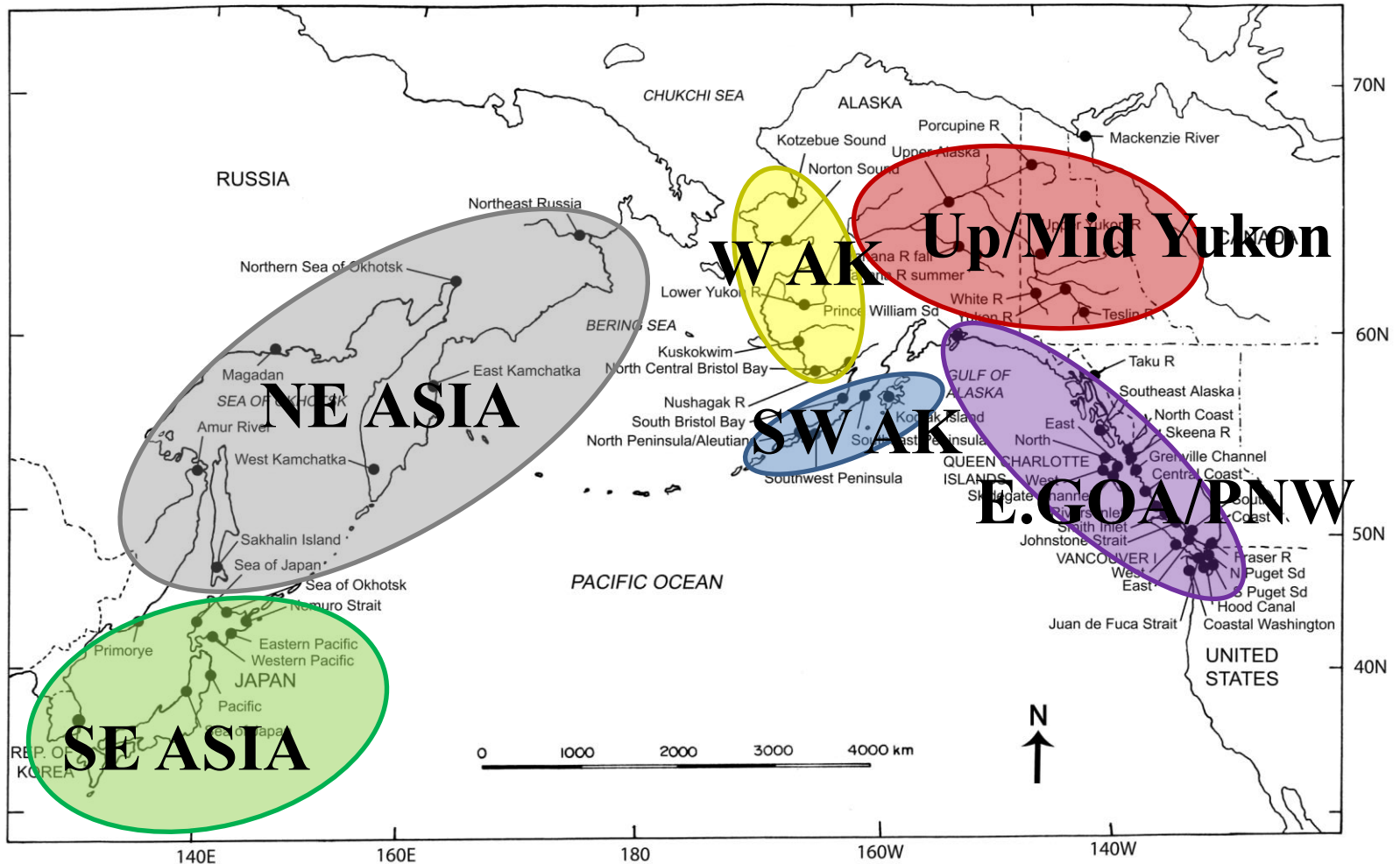
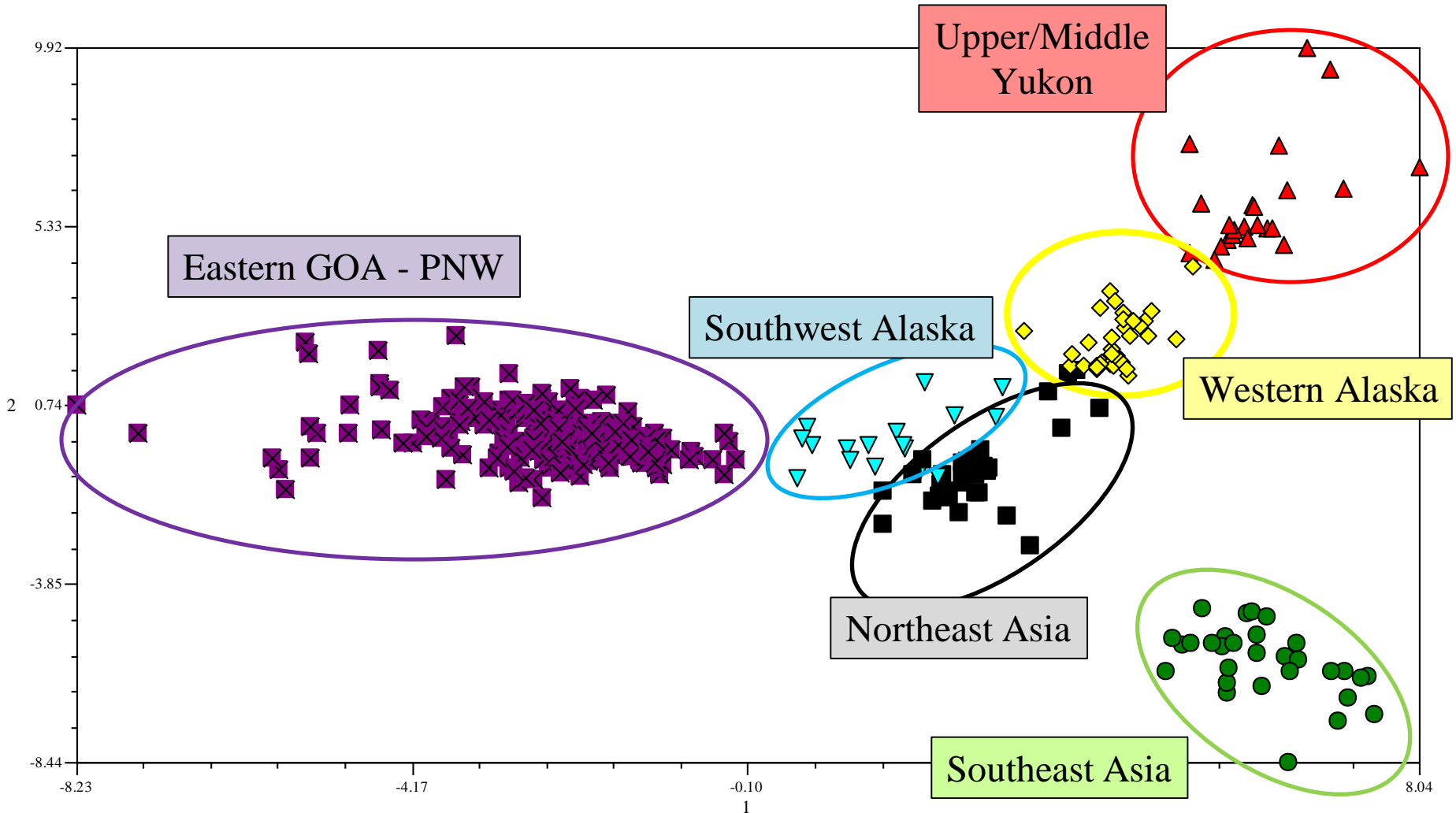


Figure 1

Map of the Pacific Rim indicating the general geographic regions where chum salmon (*Oncorhynchus keta*) from 381 populations were surveyed. The regions are listed in Table 1.

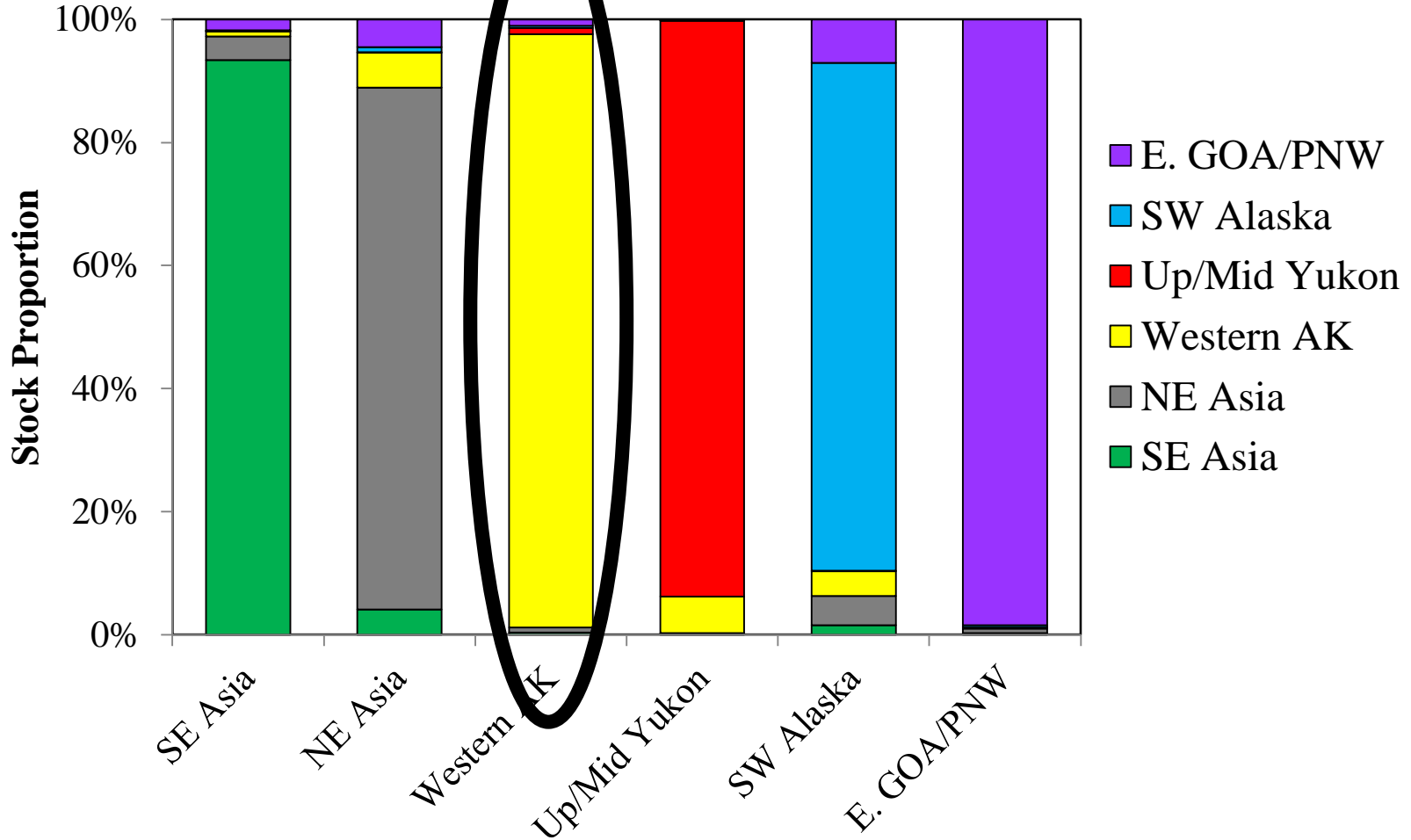
Principal Coordinate Analysis

11 microsattellites



Baseline Analysis – 100% Simulations

11 microsatellite markers



CIAP-WASC chum salmon collections

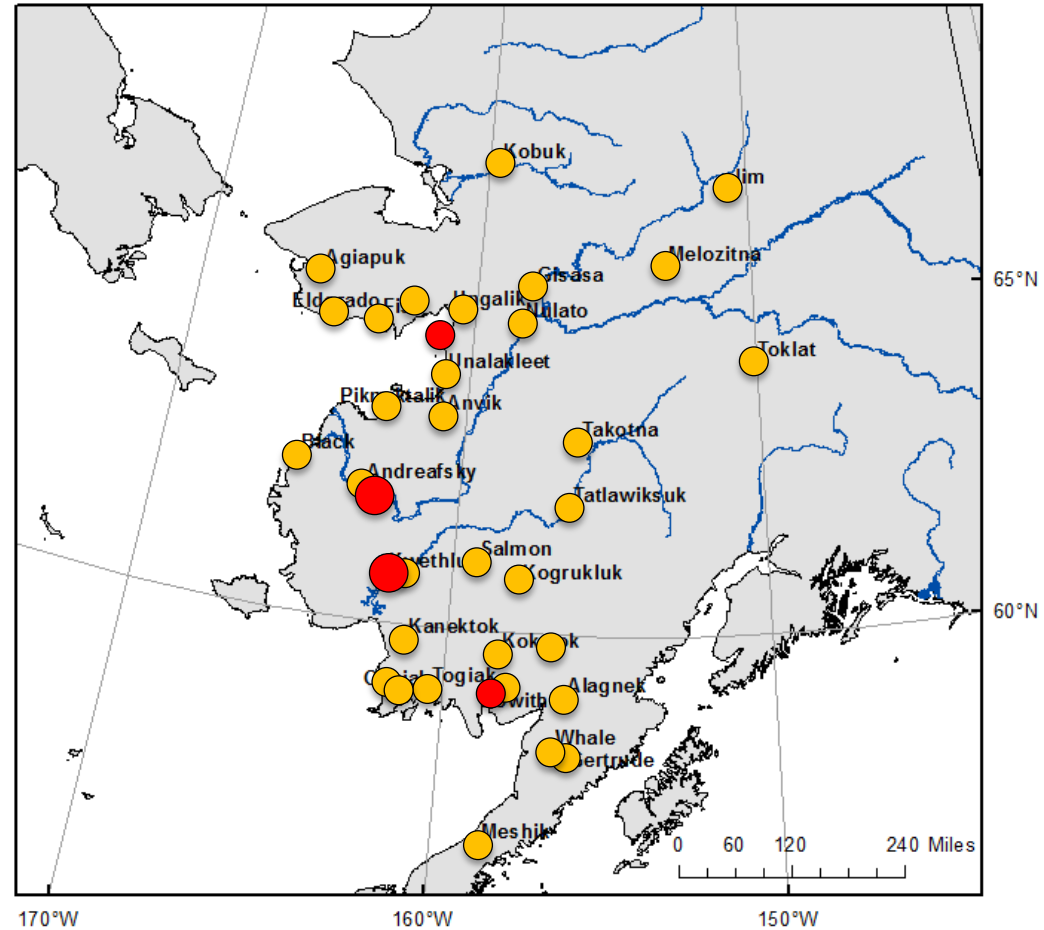
Goal II

Objective 1 ●

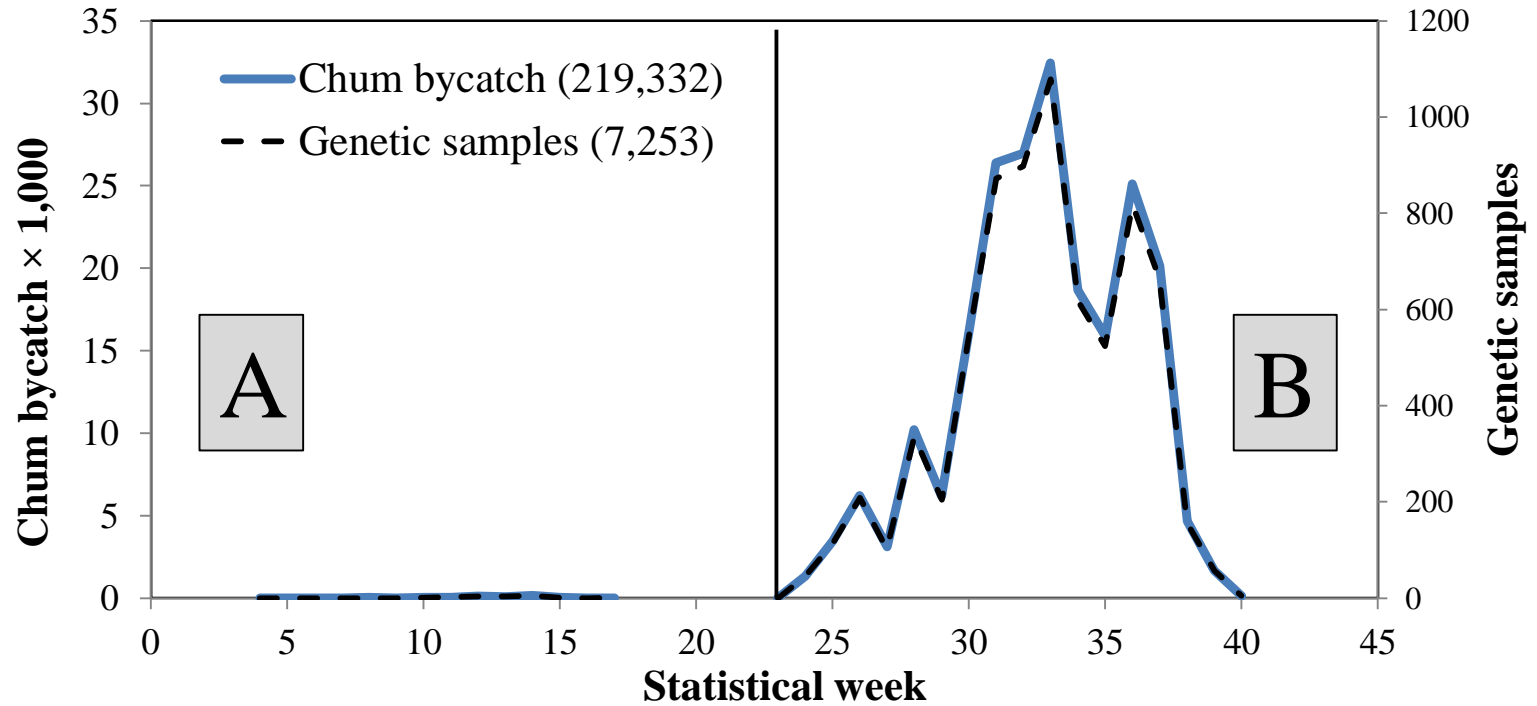
Genotype 144 samples from each of 32 collections at pre-existing and new microsatellite markers.

Objective 2 ●

Genotype mixture samples from lower Yukon and Kuskokwim rivers.

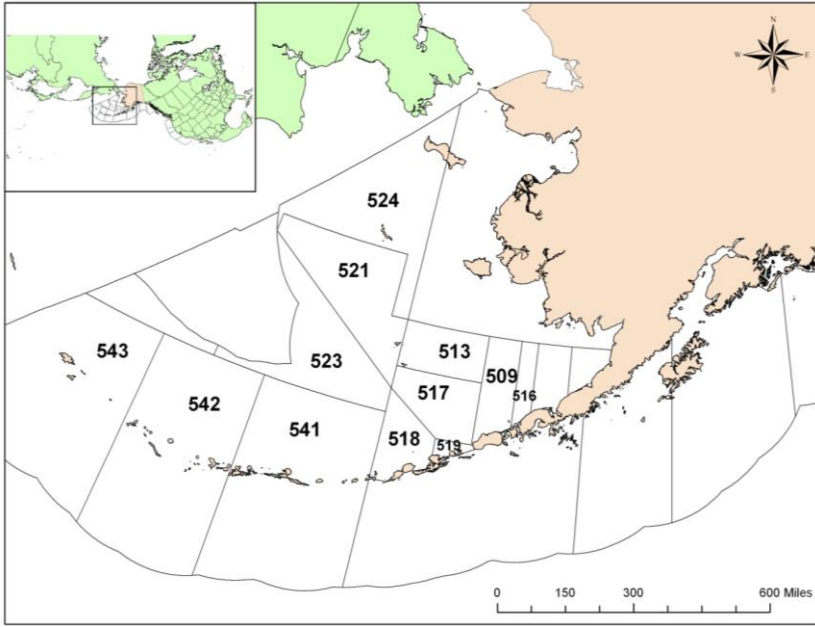


2014 Bering Sea Chum Salmon Bycatch

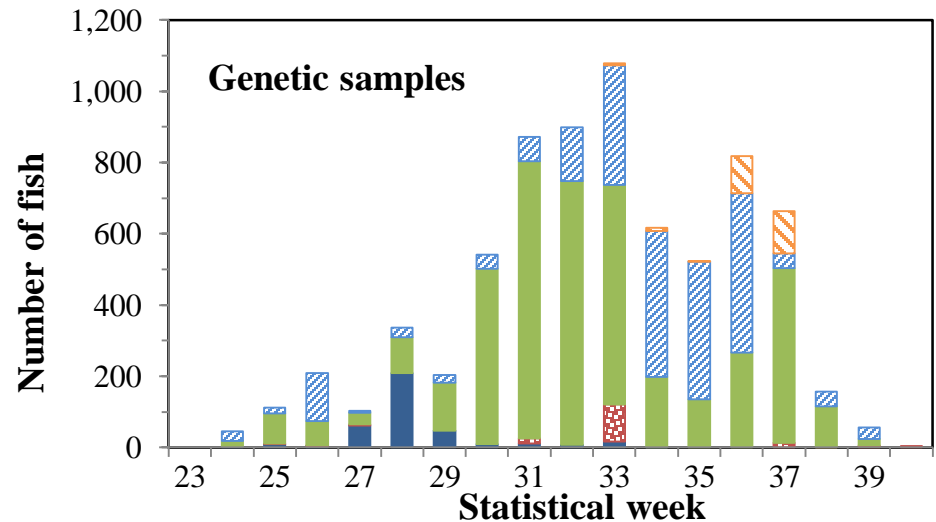
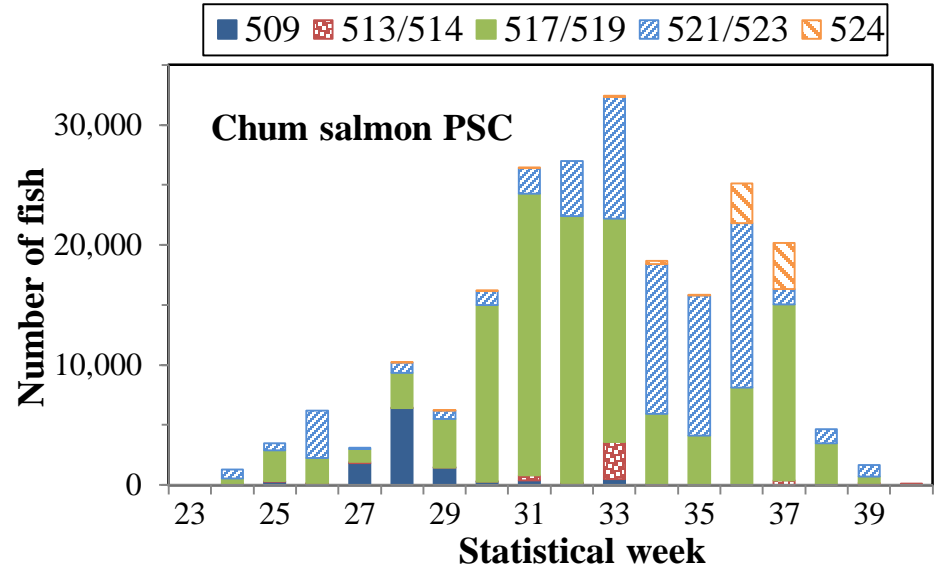


2014 Bering Sea Chum Salmon Bycatch

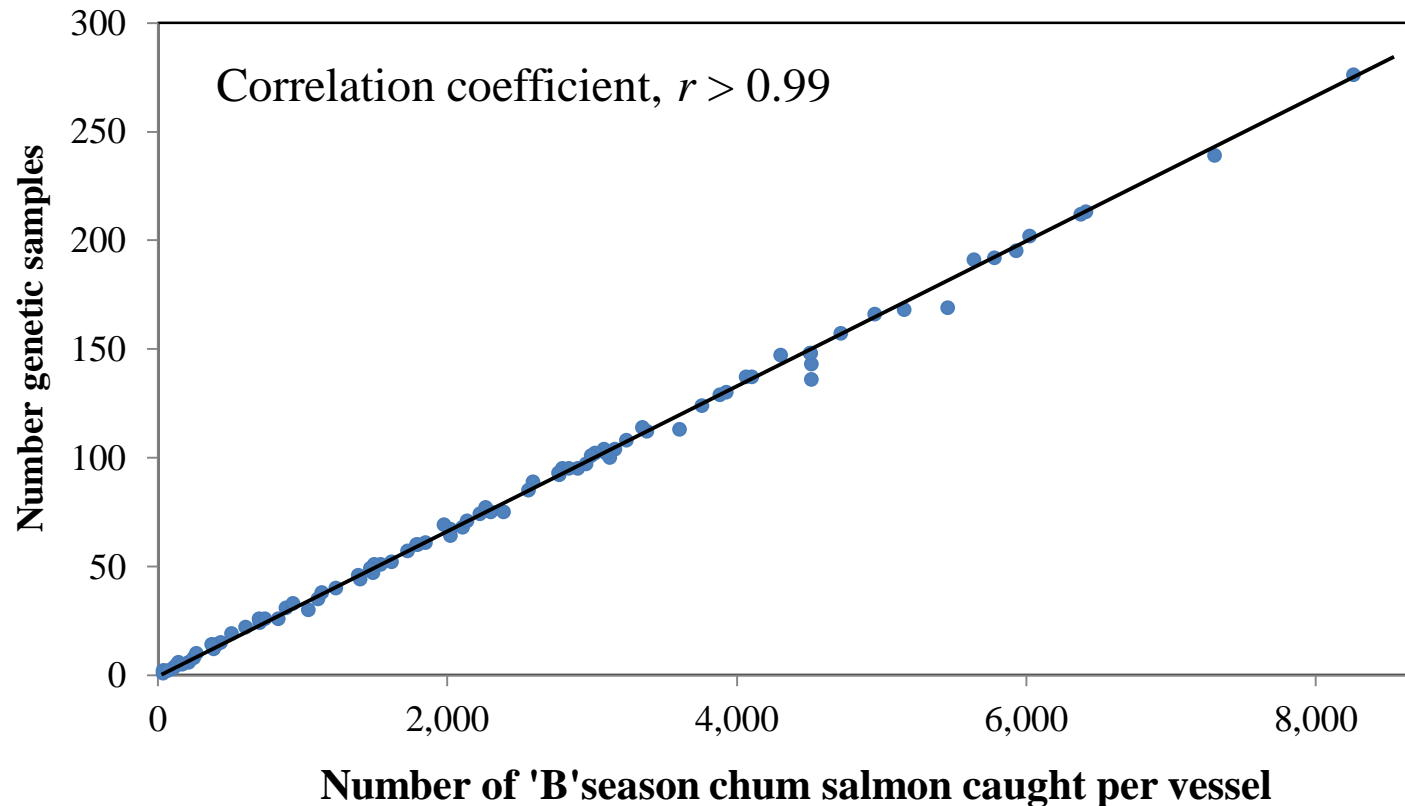
Statistical Areas



Sample set	χ^2	d.f.	<i>P</i> -value
Collected	1.12	15	>0.99
Genotyped	3.11	15	>0.99
Analyzed	6.81	15	0.96



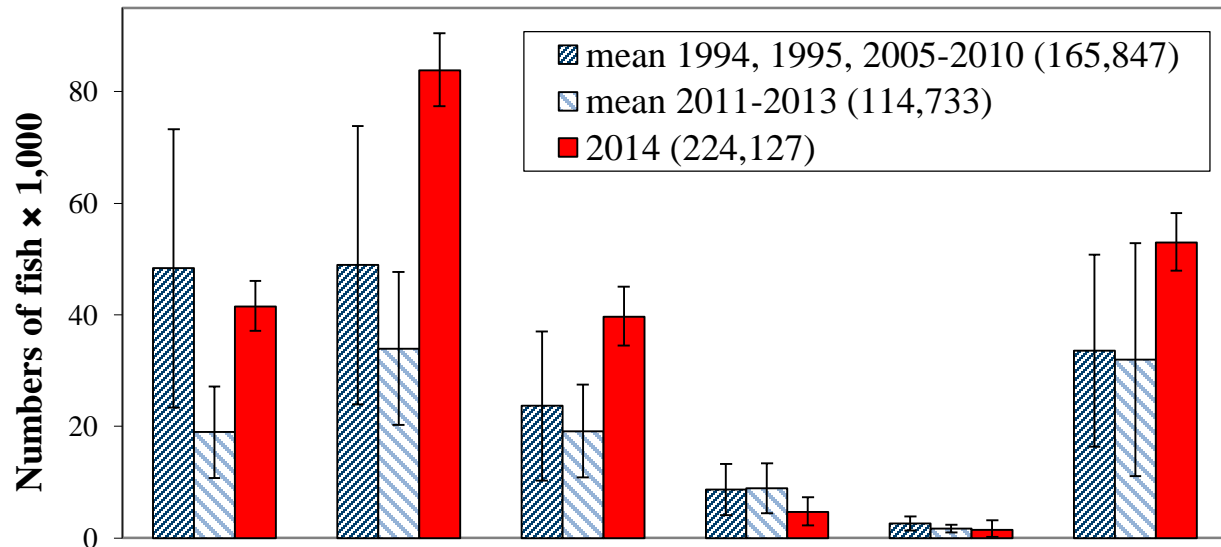
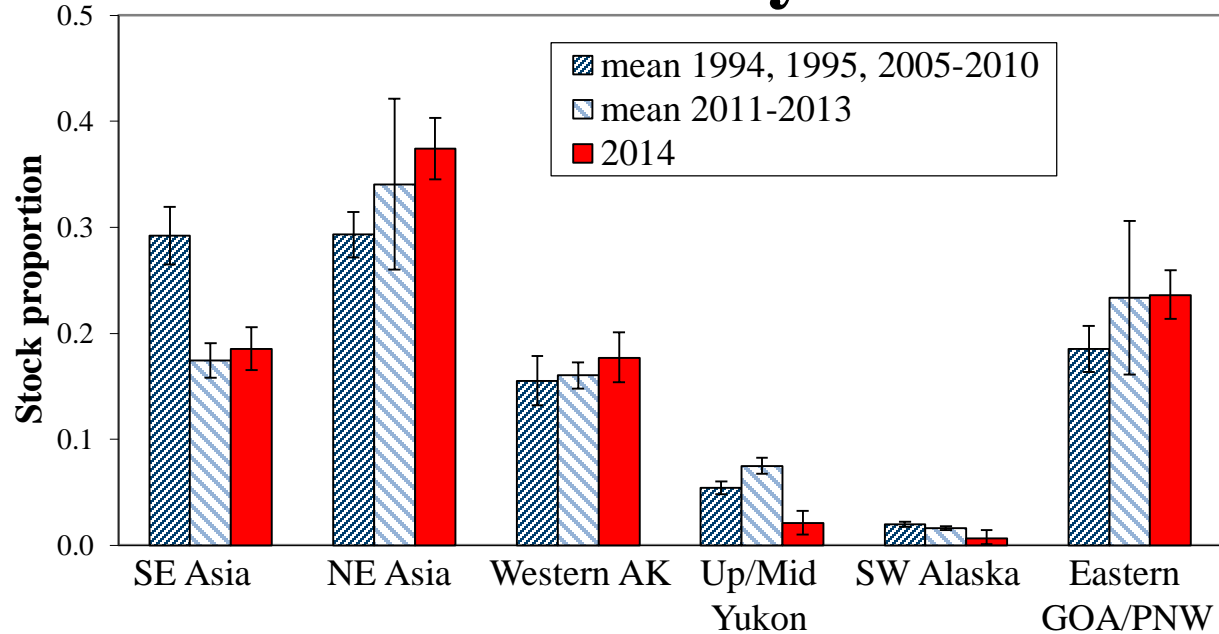
2014 Bering Sea Chum Salmon Bycatch



2014 Bering Sea Chum Salmon Bycatch

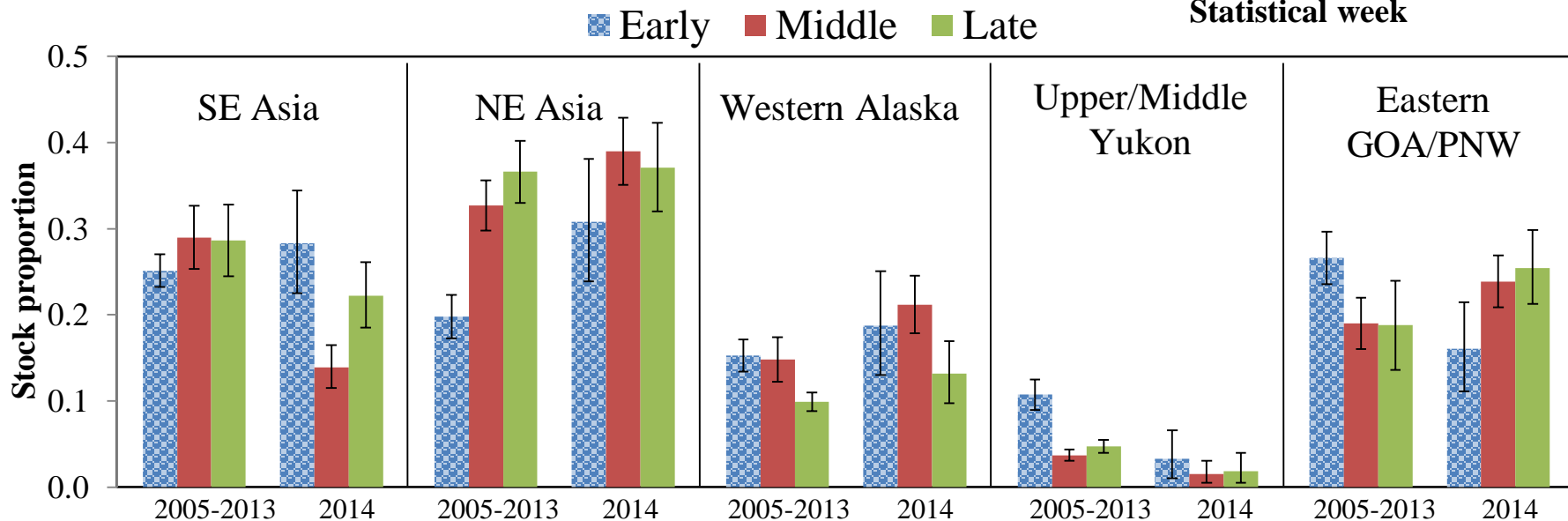
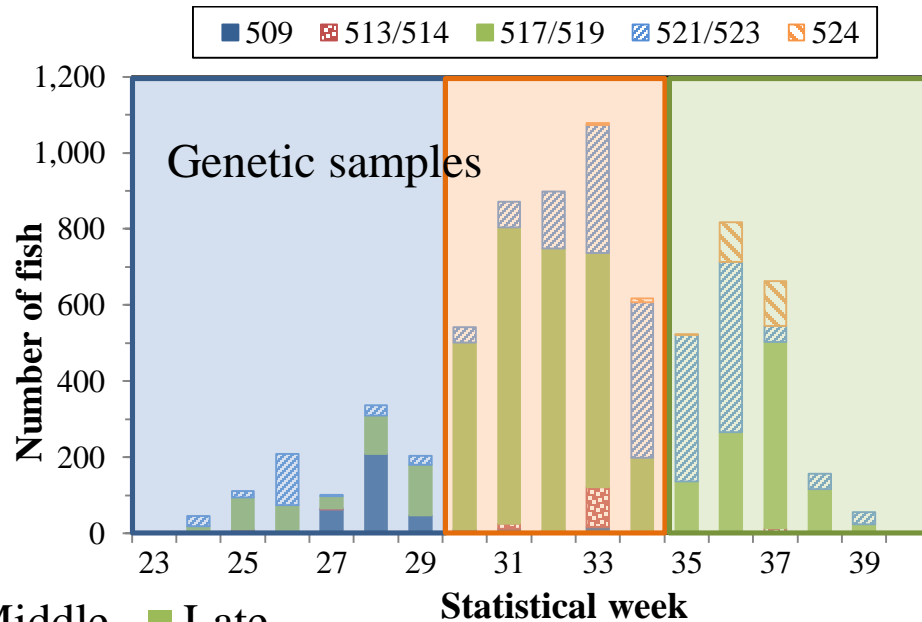
Stock Proportions (1,741 samples)

BAYES Region	Mean	SD
SE Asia	0.185	0.010
NE Asia	0.374	0.015
Western Alaska	0.177	0.012
Upper/Middle Yukon	0.021	0.006
SW Alaska	0.007	0.003
Eastern GOA/PNW	0.236	0.012

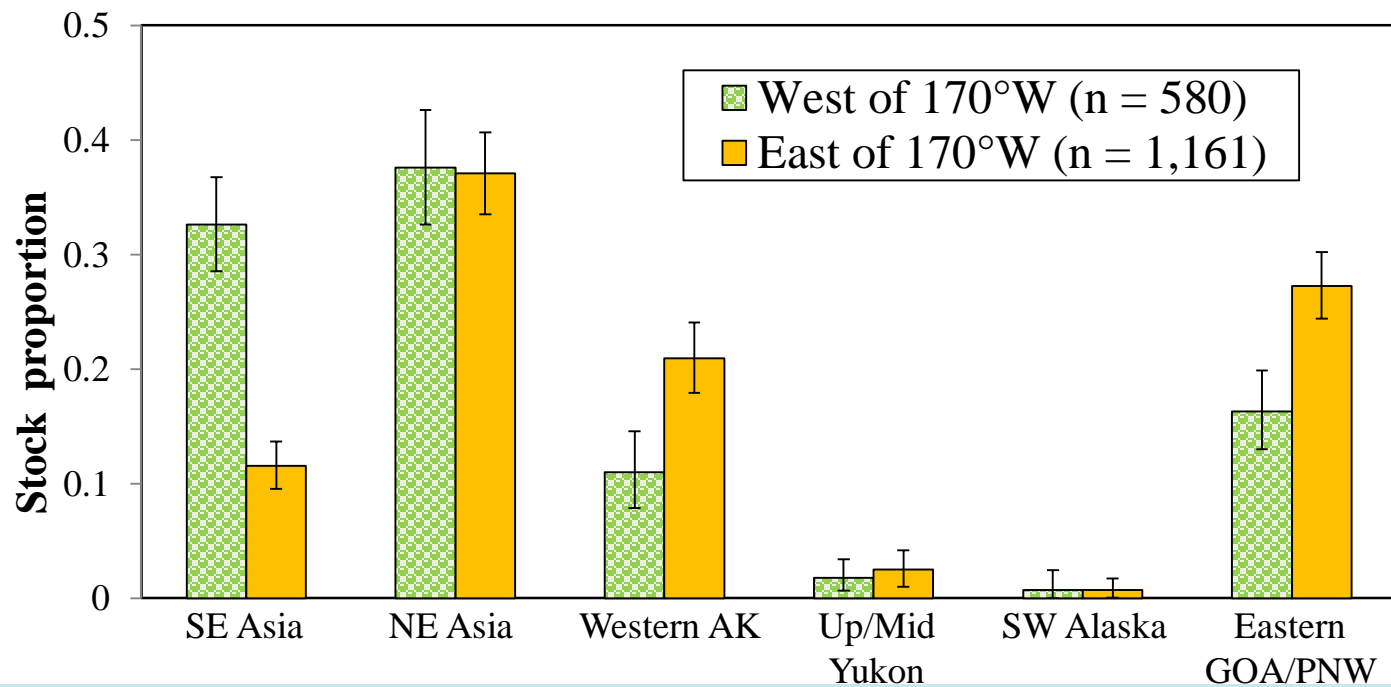
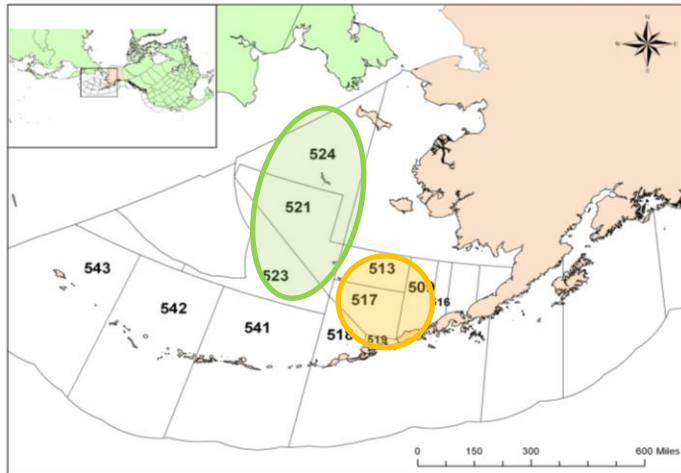


2014 Bering Sea Chum Salmon Bycatch

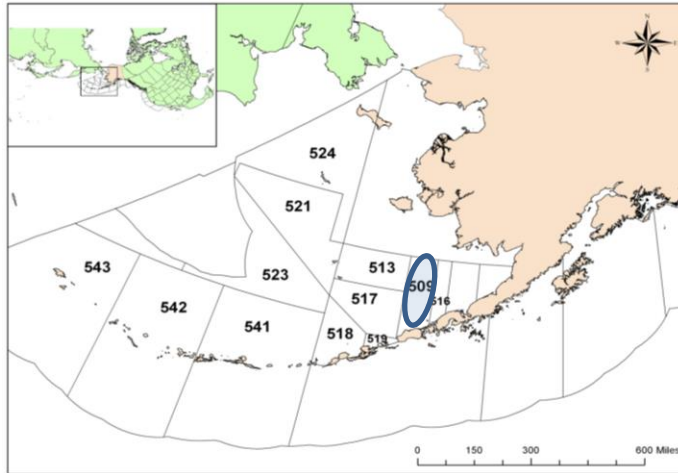
Weeks	Dates	Number Samples
24-29	June 10 – July 19	249
30-34	July 20 – August 23	957
35-40	August 24 – October 4	535



2014 Bering Sea Chum Salmon Bycatch

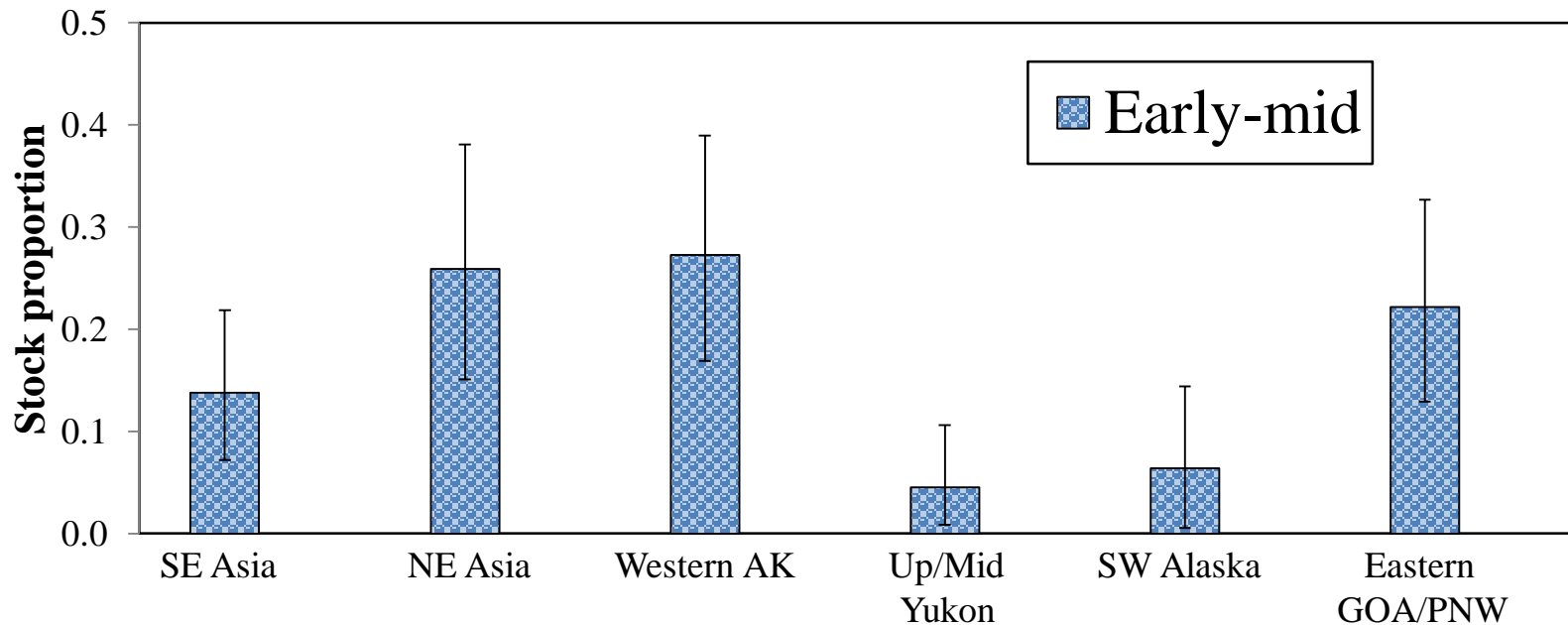


2014 Bering Sea Chum Salmon Bycatch

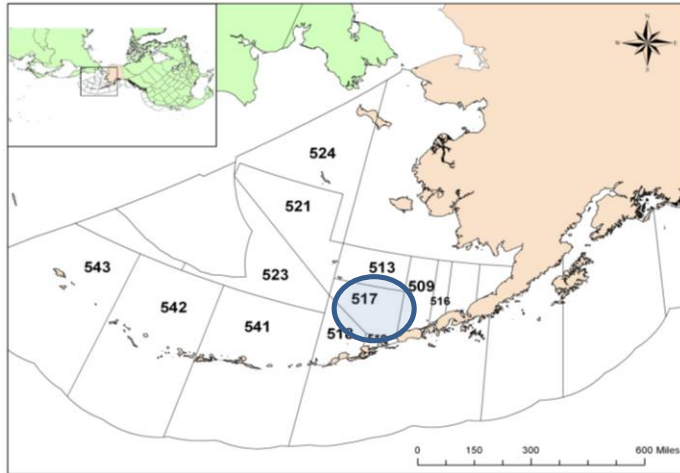


Area 509

Time period	Number of samples
Early-mid	90

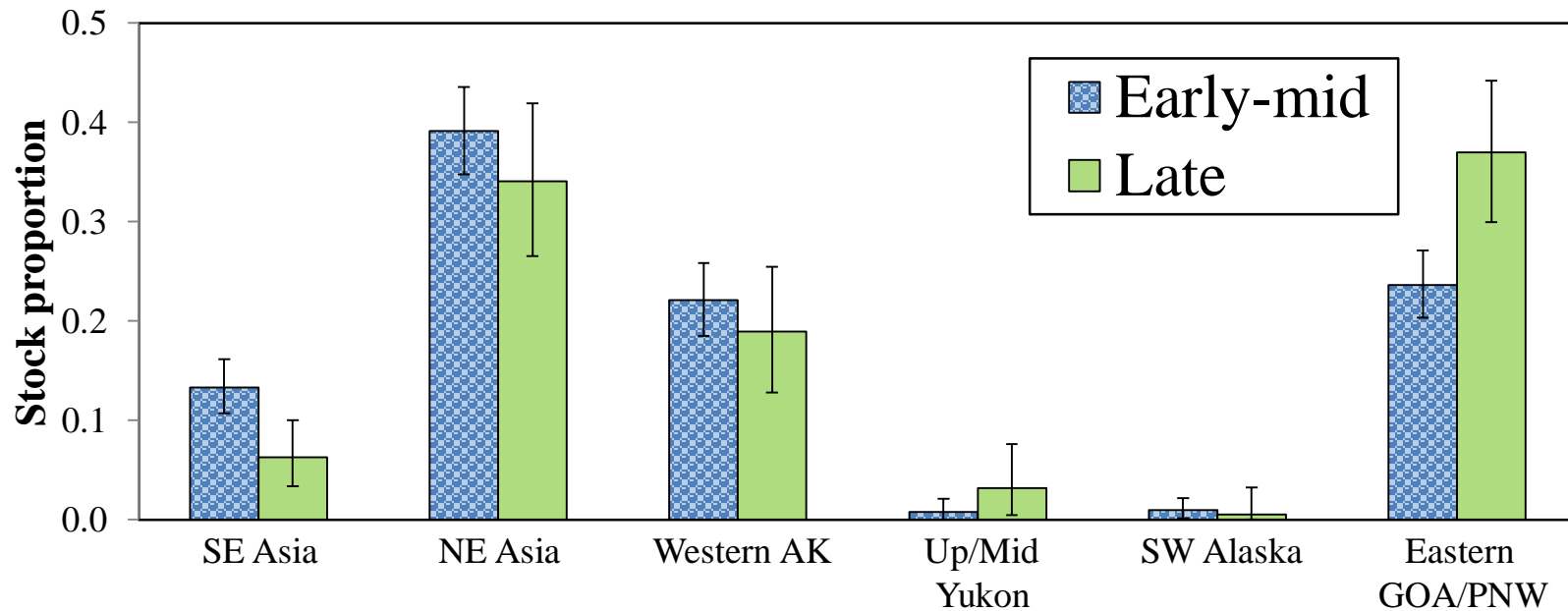


2014 Bering Sea Chum Salmon Bycatch

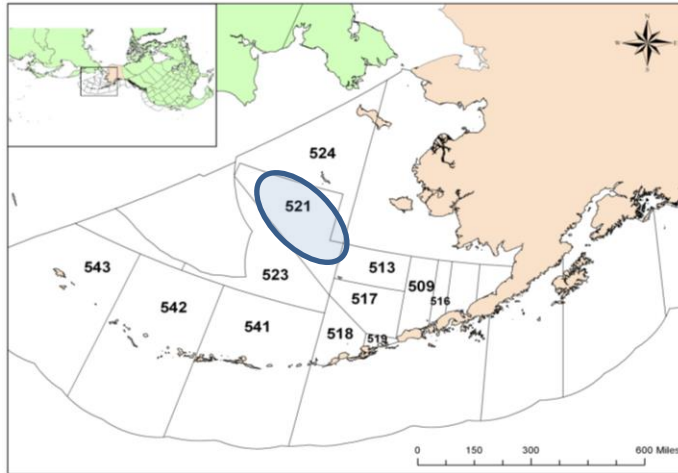


Area 517

Time period	Number of samples
Early-mid	784
Late	252

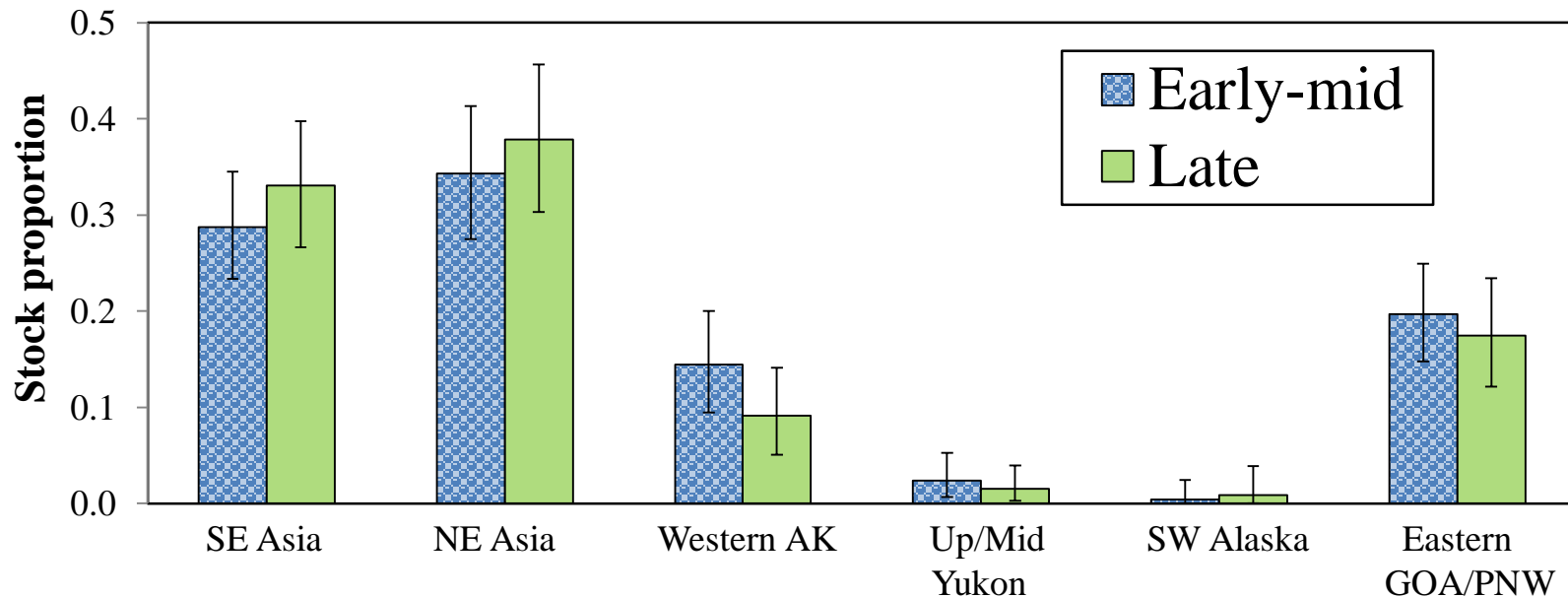


2014 Bering Sea Chum Salmon Bycatch

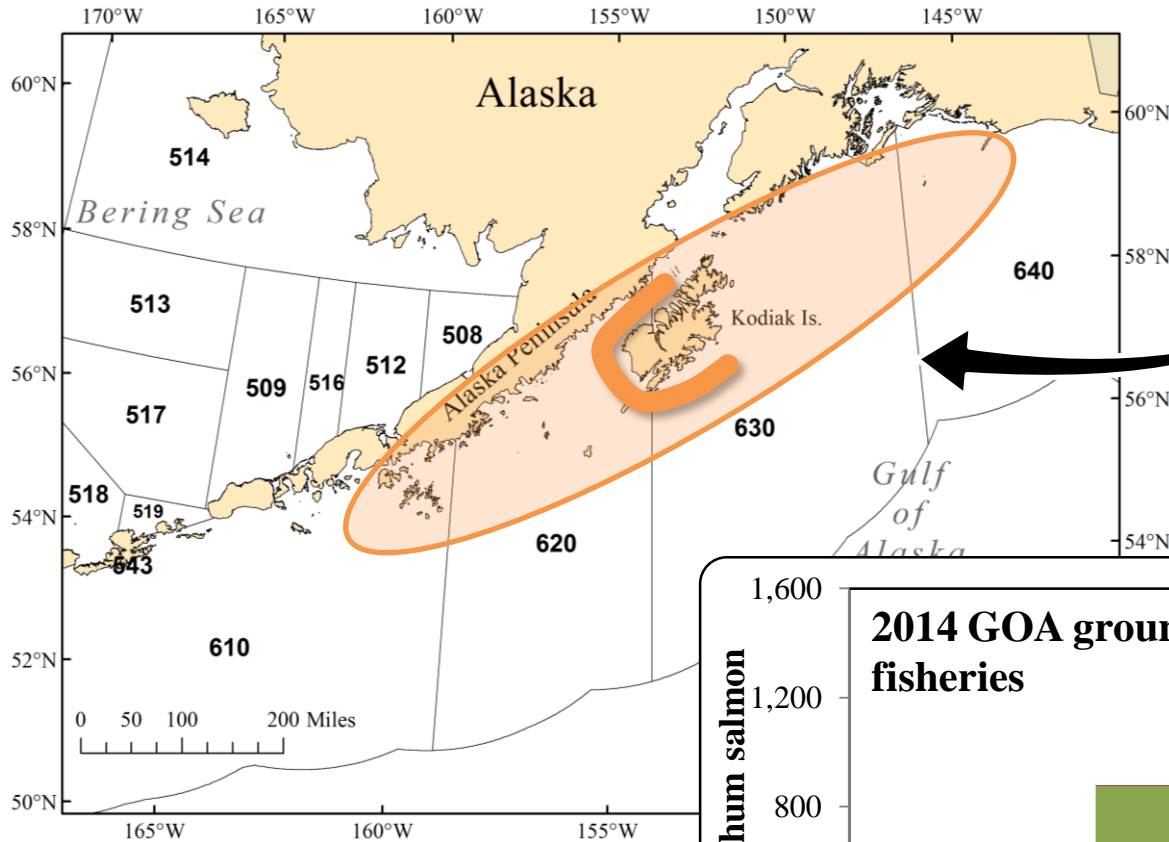


Area 521

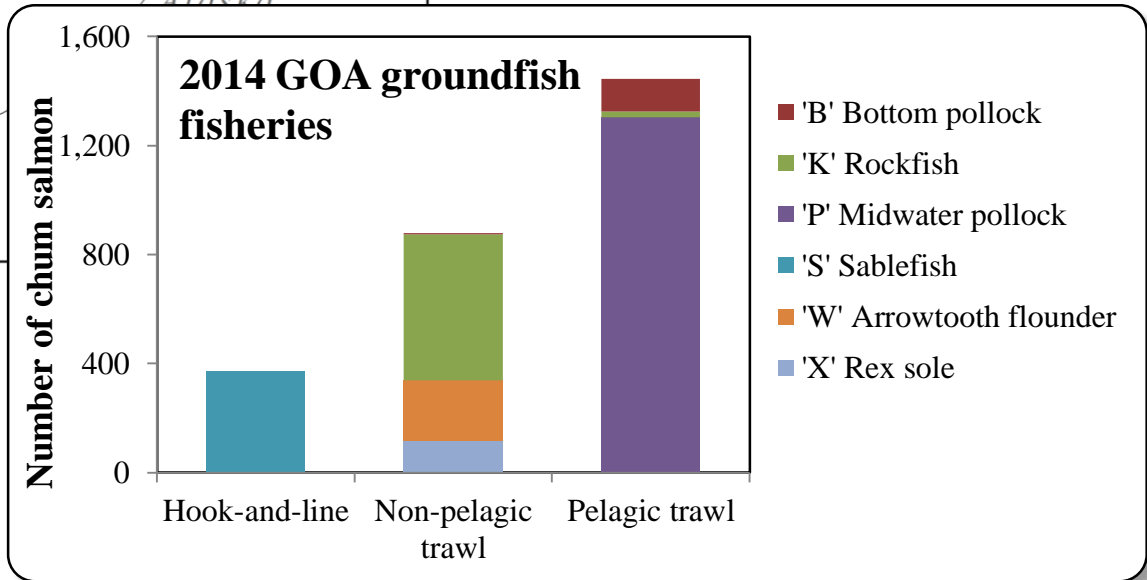
Time period	Number of samples
Early-mid	295
Late	221



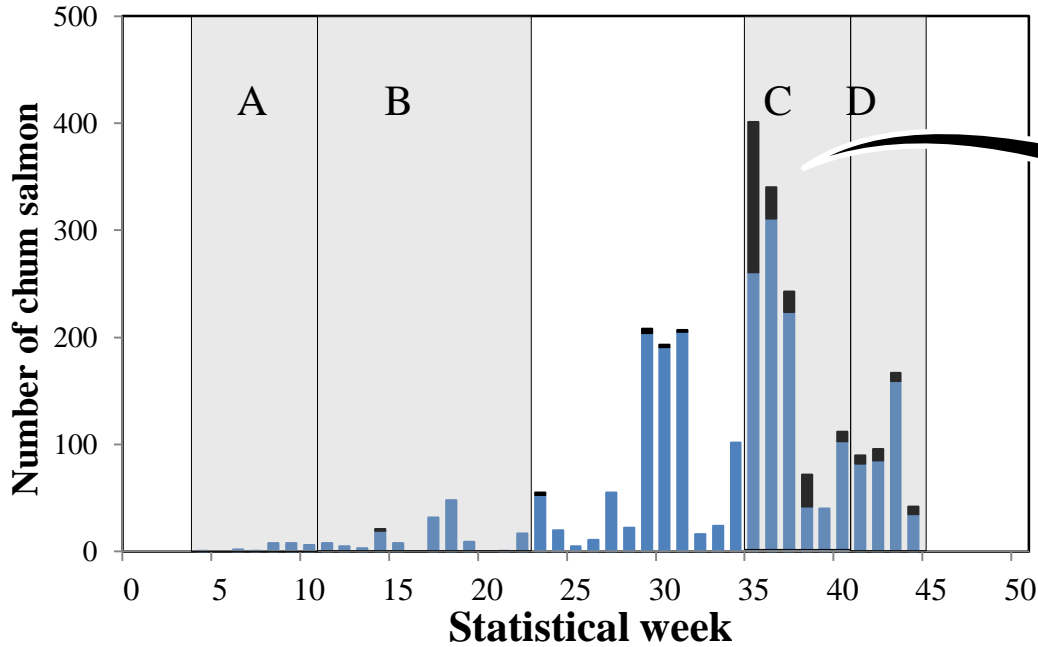
2014 GOA Chum Salmon Bycatch



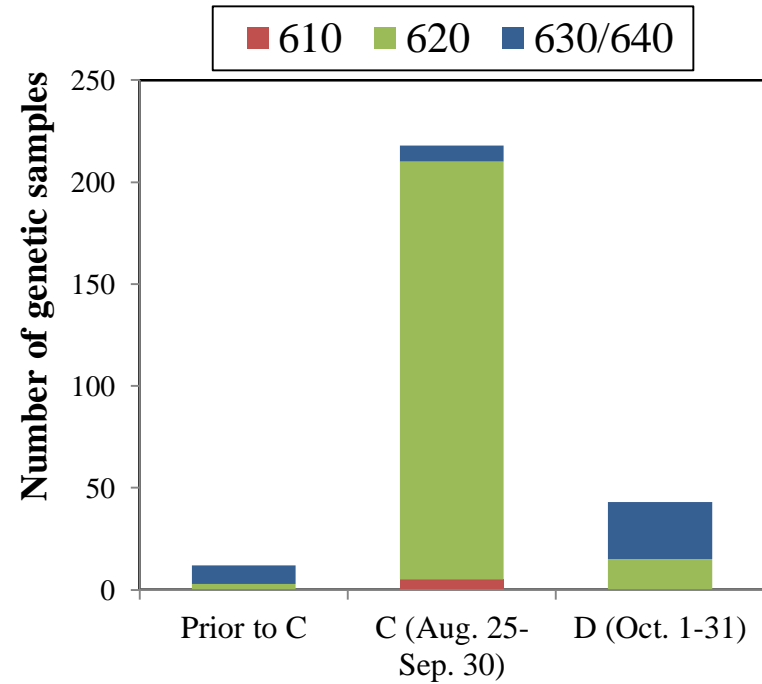
273 genetic samples



2014 GOA Chum Salmon Bycatch



Genetic samples

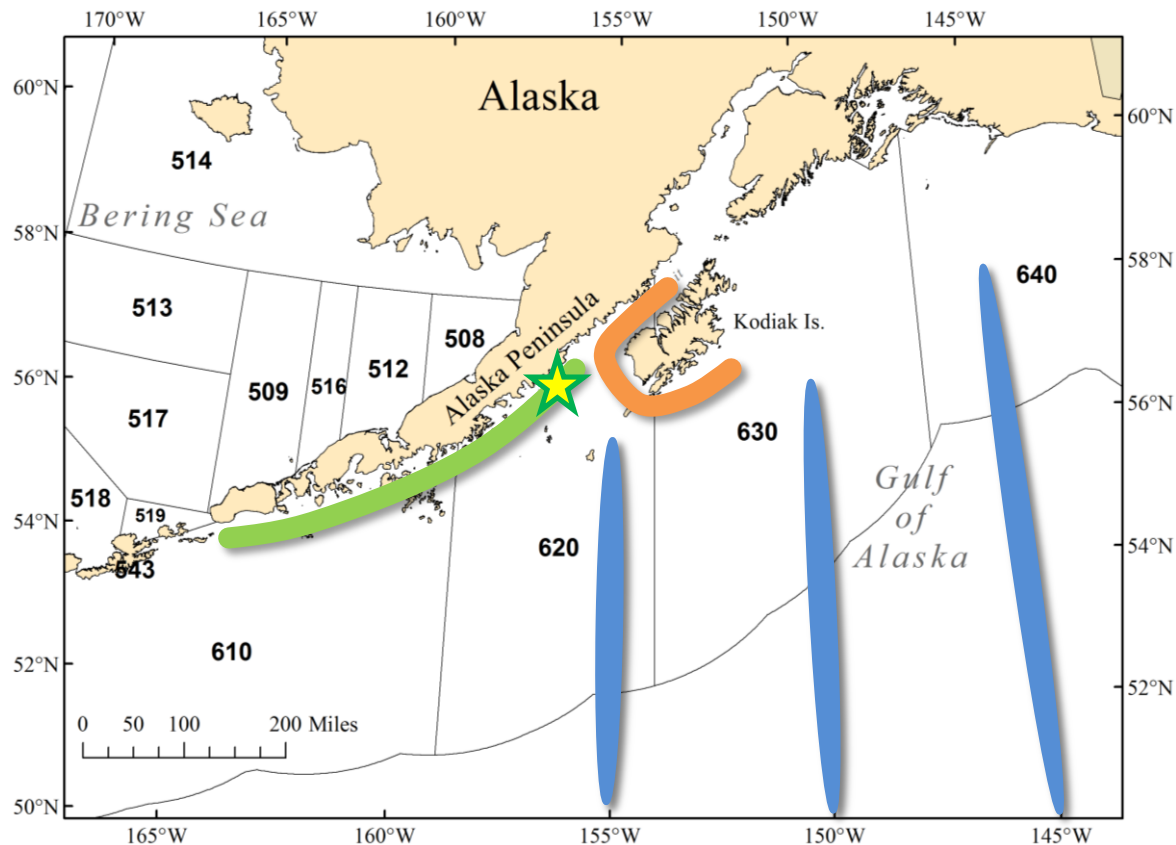


Gulf of Alaska pollock season

2014 GOA Chum Salmon Bycatch

Stock Proportions (252 samples)

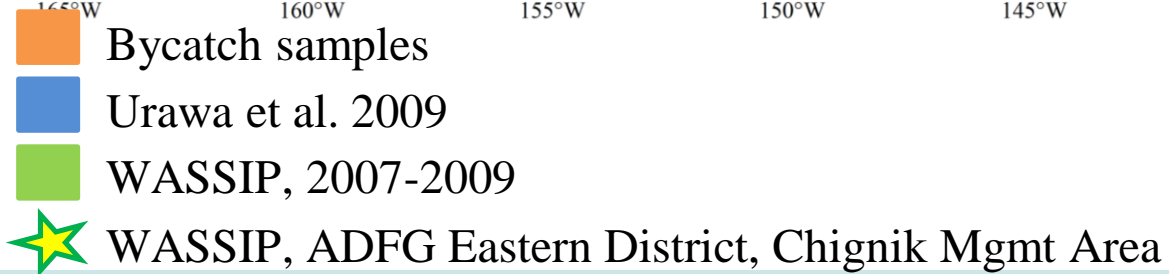
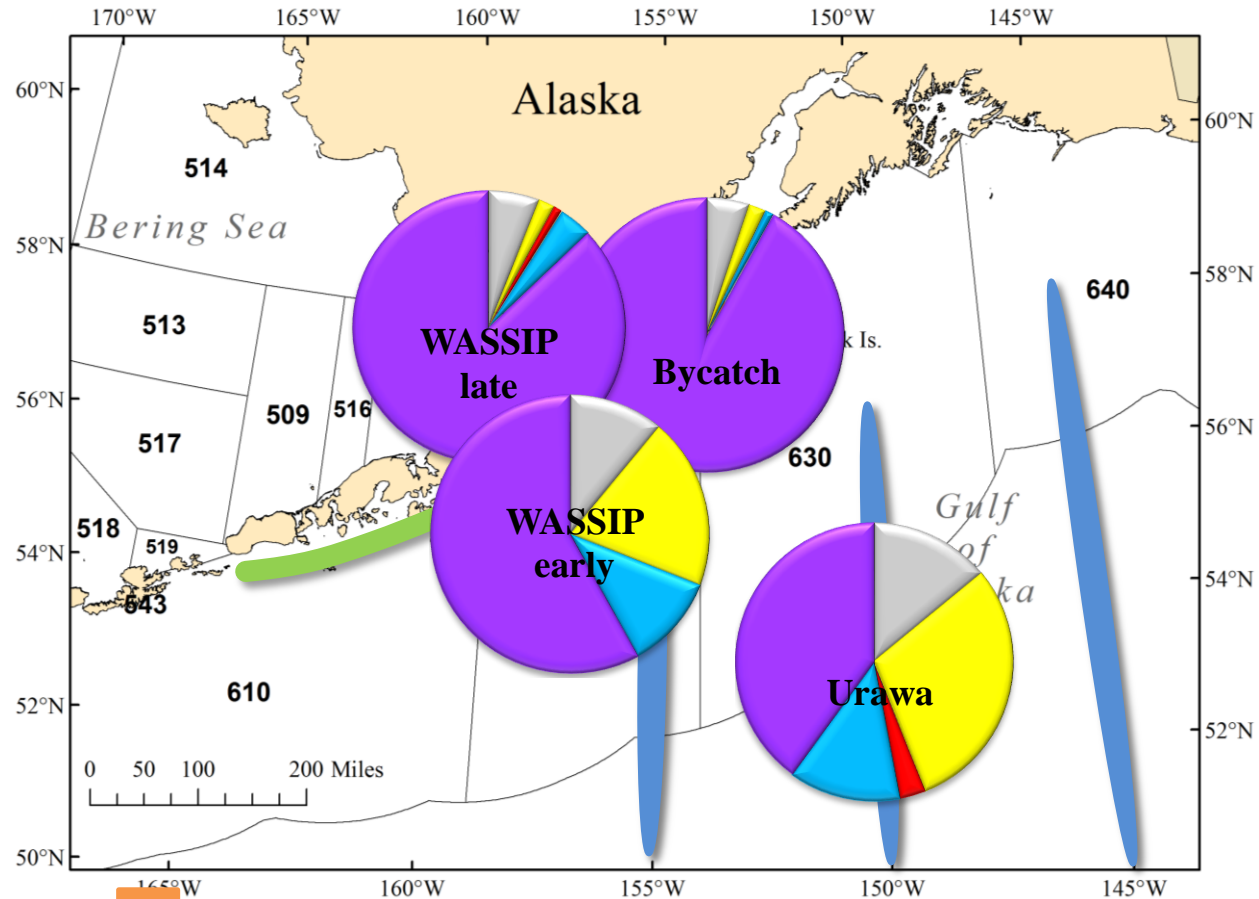
BAYES Region	Mean	SD
SE Asia	0.028	0.011
NE Asia	0.024	0.016
Western Alaska	0.020	0.011
Up/Mid Yukon	0.001	0.002
SW Alaska	0.012	0.014
Eastern GOA/PNW	0.916	0.023



- Bycatch samples
- Urawa et al. 2009
- WASSIP, 2007-2009
- WASSIP, ADFG Eastern District, Chignik Mgmt Area

2014 GOA Chum Salmon Bycatch

Stock Proportions



Acknowledgements

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