

Science, Service, Stewardship



**NMFS-AFSC-342**

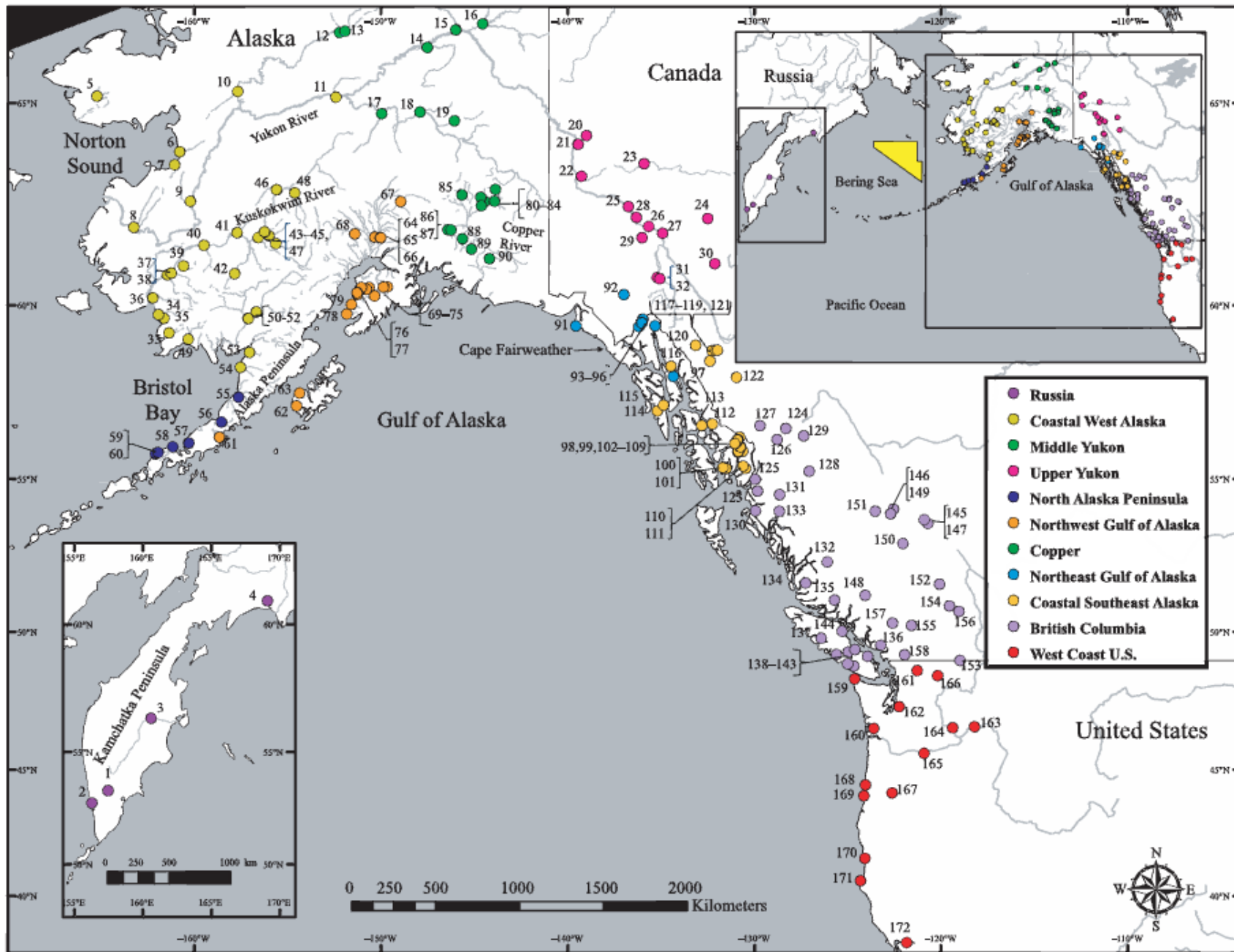
<http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-342.pdf>

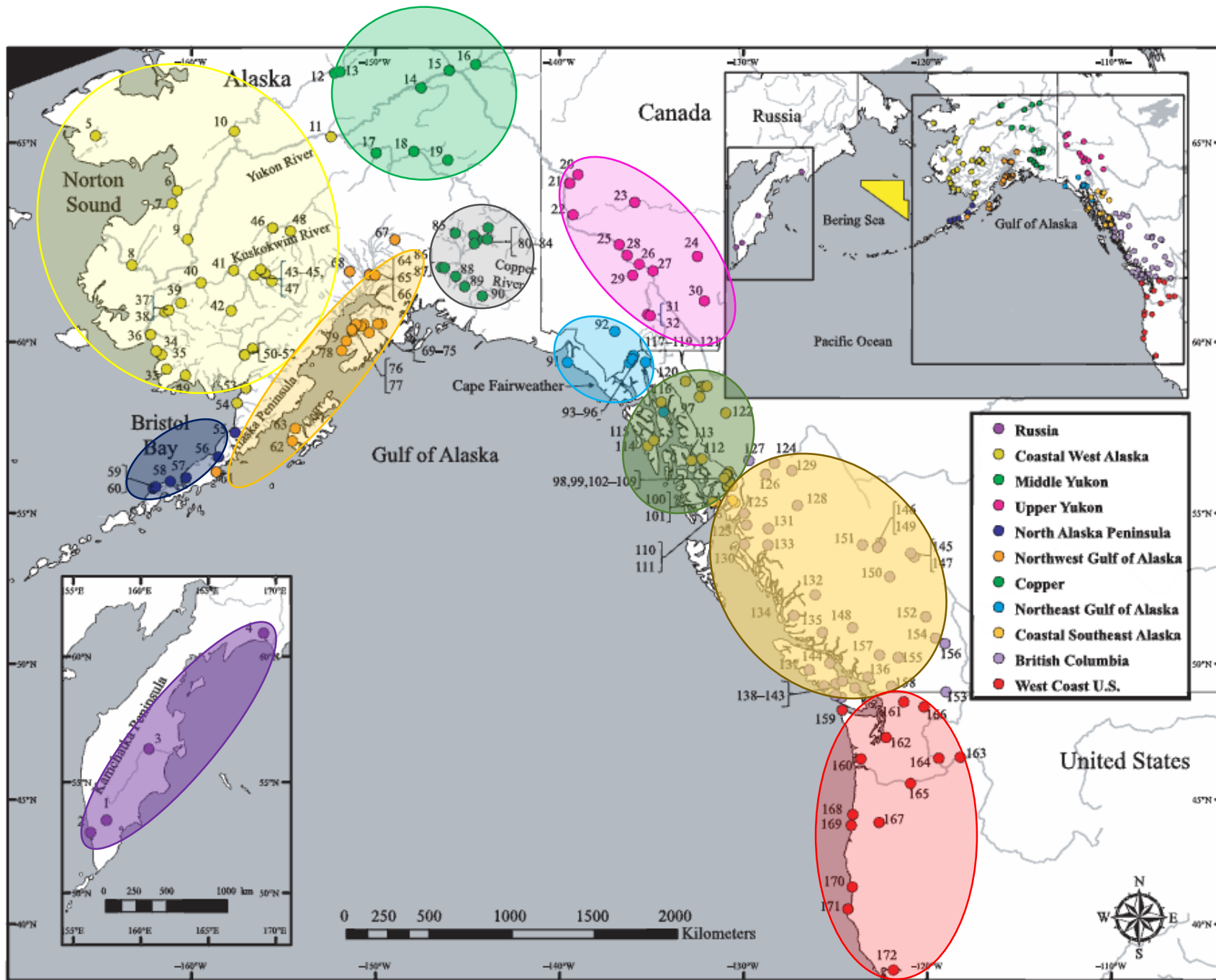
**Genetic Stock Composition Analysis of the  
Chinook Salmon Bycatch from the 2015 *Bering*  
*Sea* Walleye Pollock (*Gadus chalcogrammus*)  
Trawl Fishery**

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

**NOAA  
FISHERIES  
SERVICE**

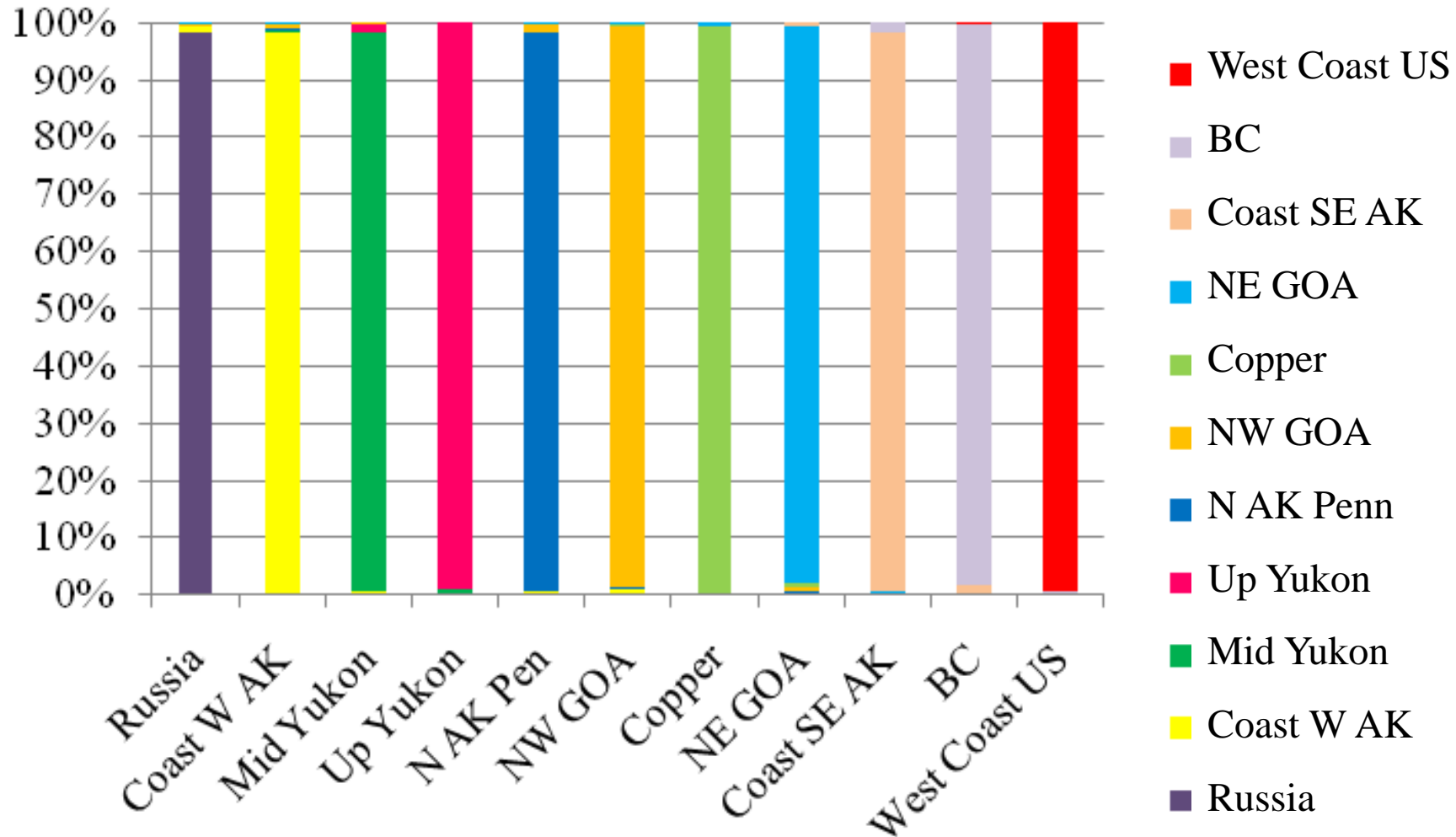
**April 4, 2017**



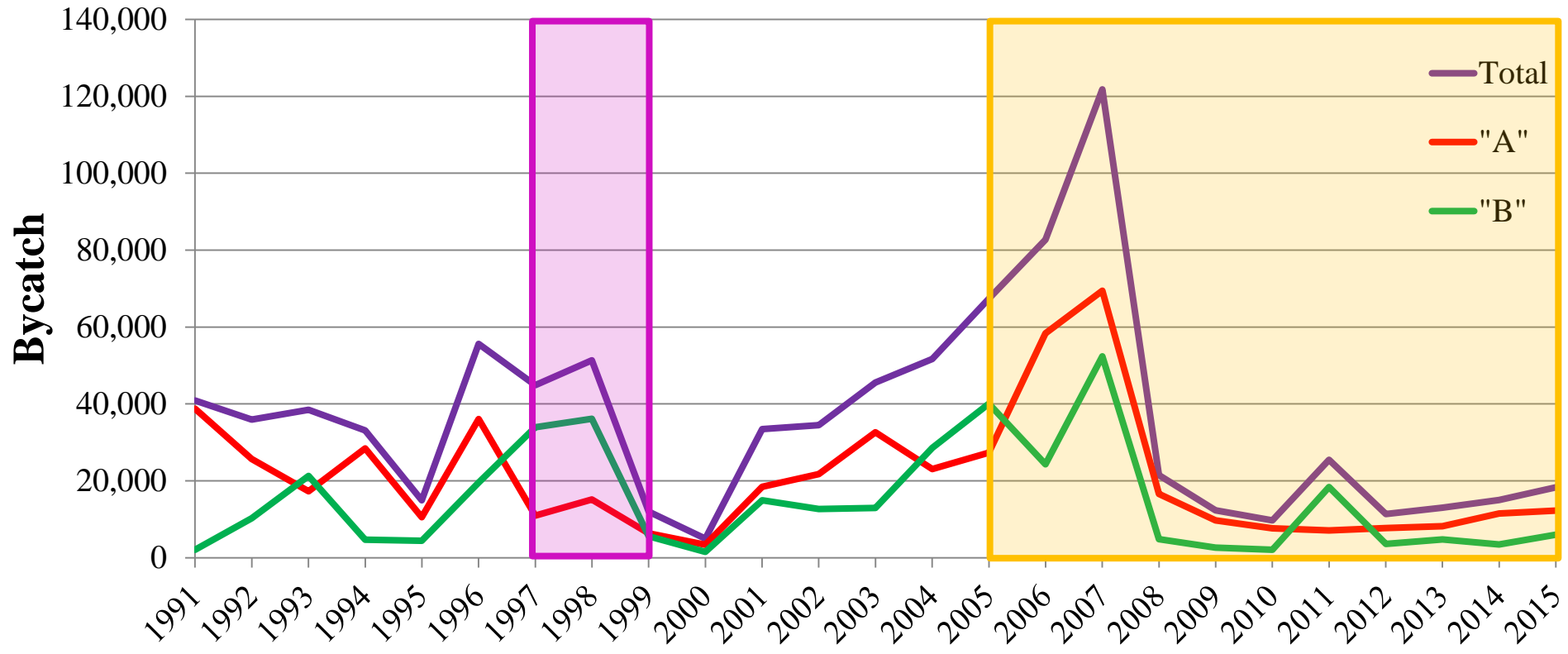


# Baseline Analysis – 100% Simulations

## 43 SNPs



# 2015 Chinook Salmon Bering Sea Bycatch



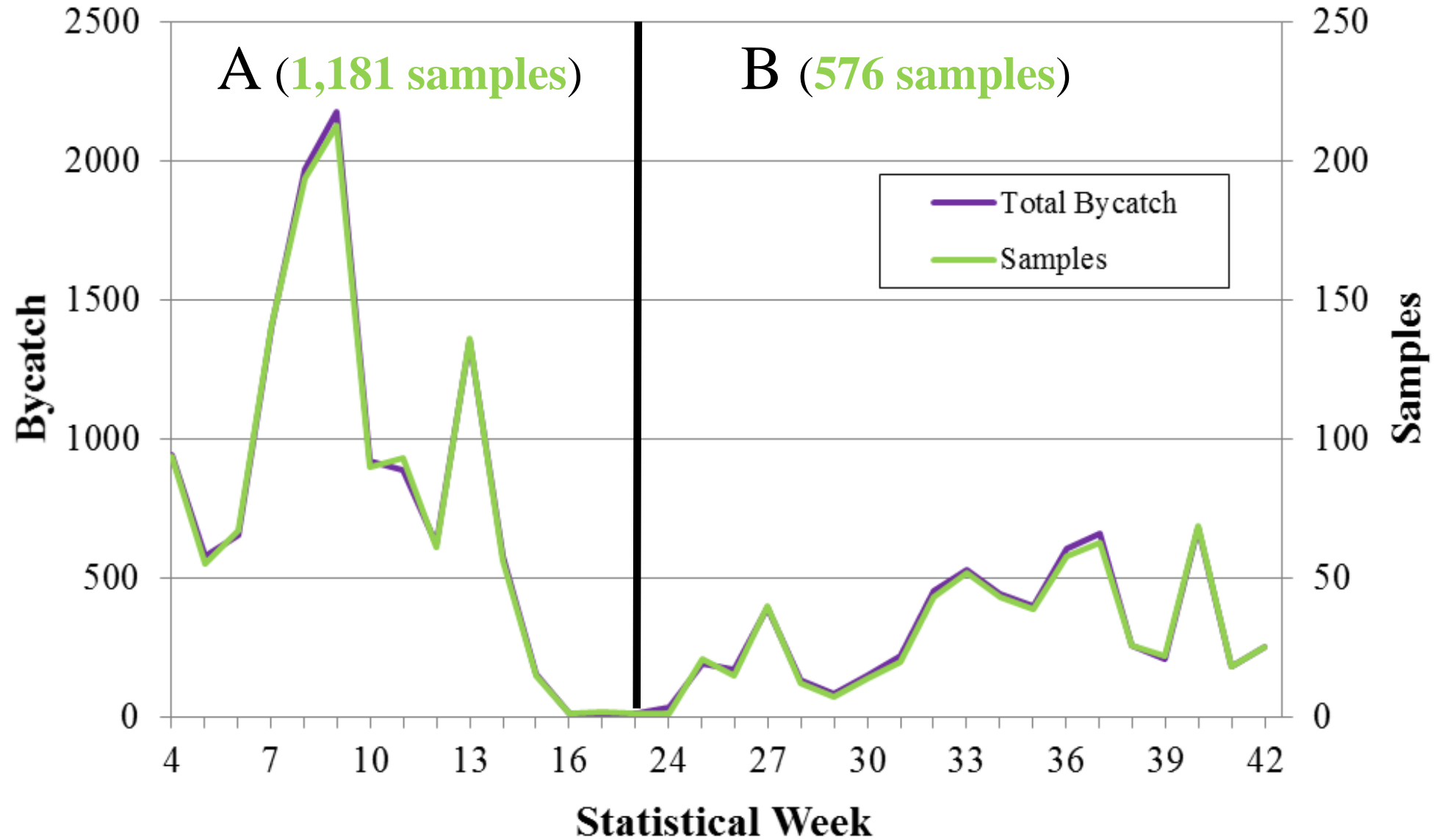
1979-1982: Scales (Myers and Rogers, 1988)

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

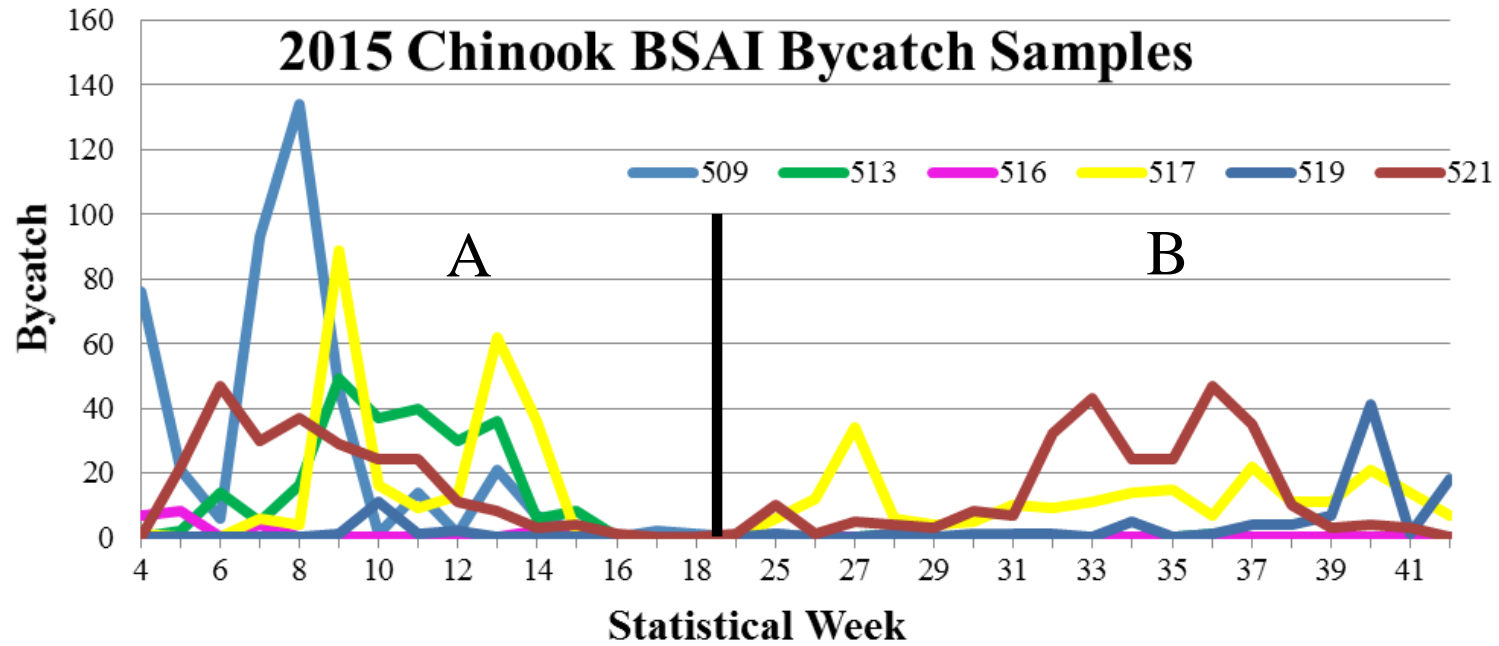
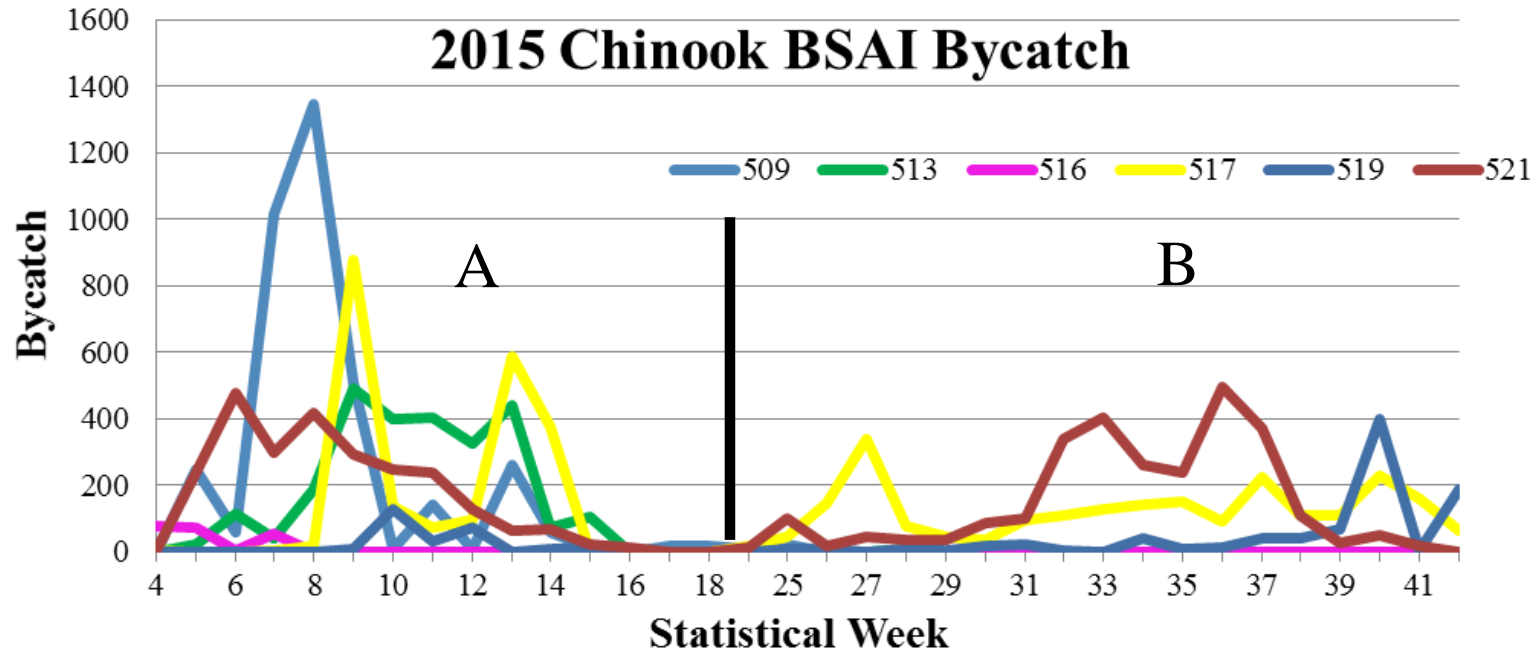
2005 "B" - 2006: SNPs (ADF&G, Chinook Salmon EIS)

2007 - 2015: 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), samples.

# 2015 Chinook Salmon Bering Sea Bycatch



# 2015 Chinook Salmon Bering Sea Bycatch



Region	“A” Season (1,181)		“B” Season (576)		Entire Year (1,757)	
	BAYES	SD	BAYES	SD	BAYES	SD
Russia	0.006	0.003	0.001	0.002	0.005	0.002
Coast W AK	0.459	0.019	0.274	0.024	0.396	0.016
Middle Yukon	0.010	0.008	0.016	0.007	0.017	0.007
Up Yukon	0.036	0.007	0.011	0.006	0.027	0.005
N AK Penn	0.145	0.013	0.010	0.009	0.106	0.010
NW GOA	0.028	0.008	0.082	0.020	0.040	0.008
Copper	0.002	0.004	0.001	0.001	0.001	0.002
NE GOA	0.000	0.001	0.001	0.002	0.000	0.001
Coast SE AK	0.039	0.007	0.063	0.014	0.045	0.007
BC	0.191	0.012	0.266	0.021	0.218	0.011
West Coast US	0.084	0.008	0.275	0.020	0.145	0.009

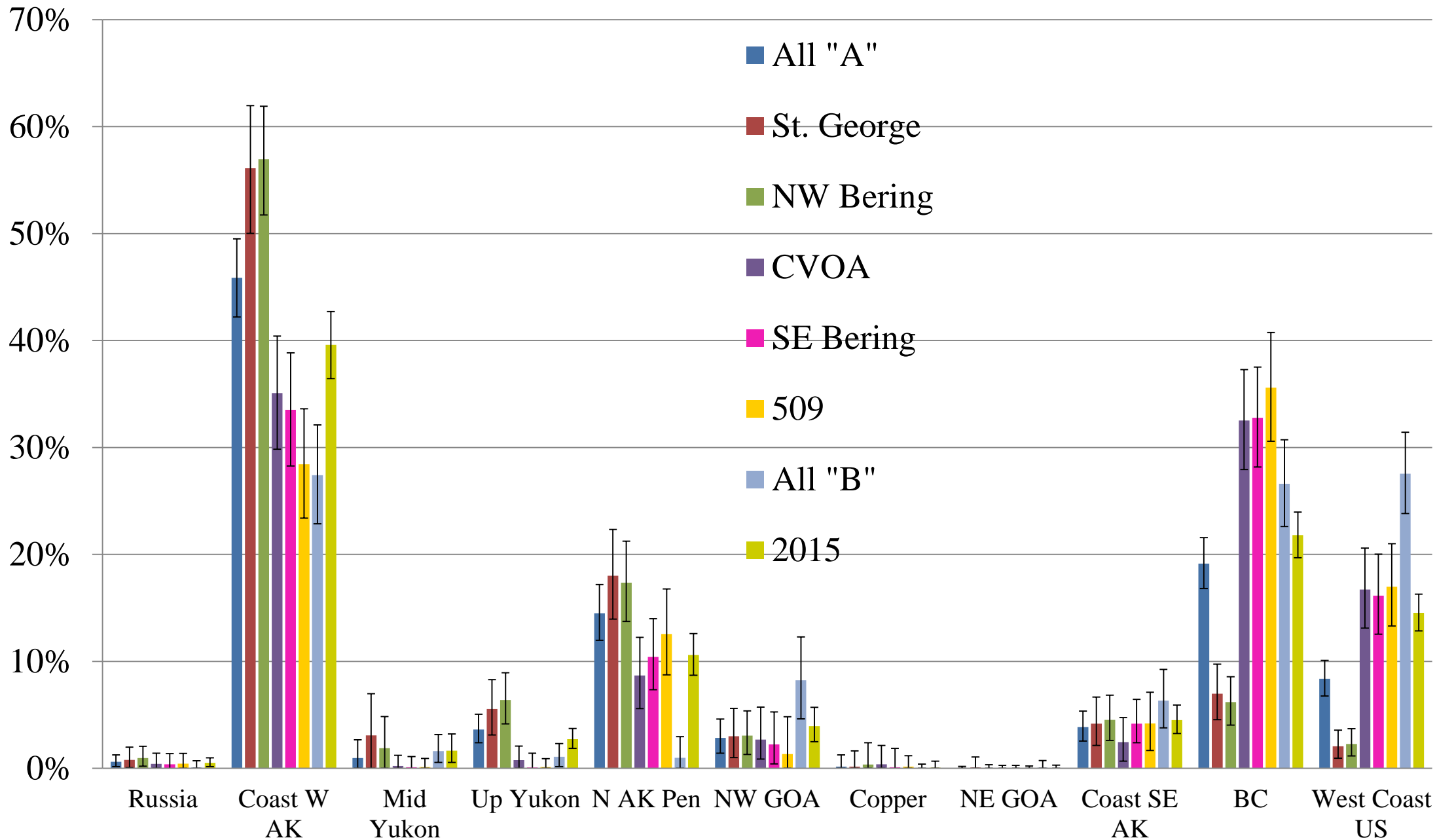
65% from Alaskan river systems flowing into the Bering Sea for “A” Season

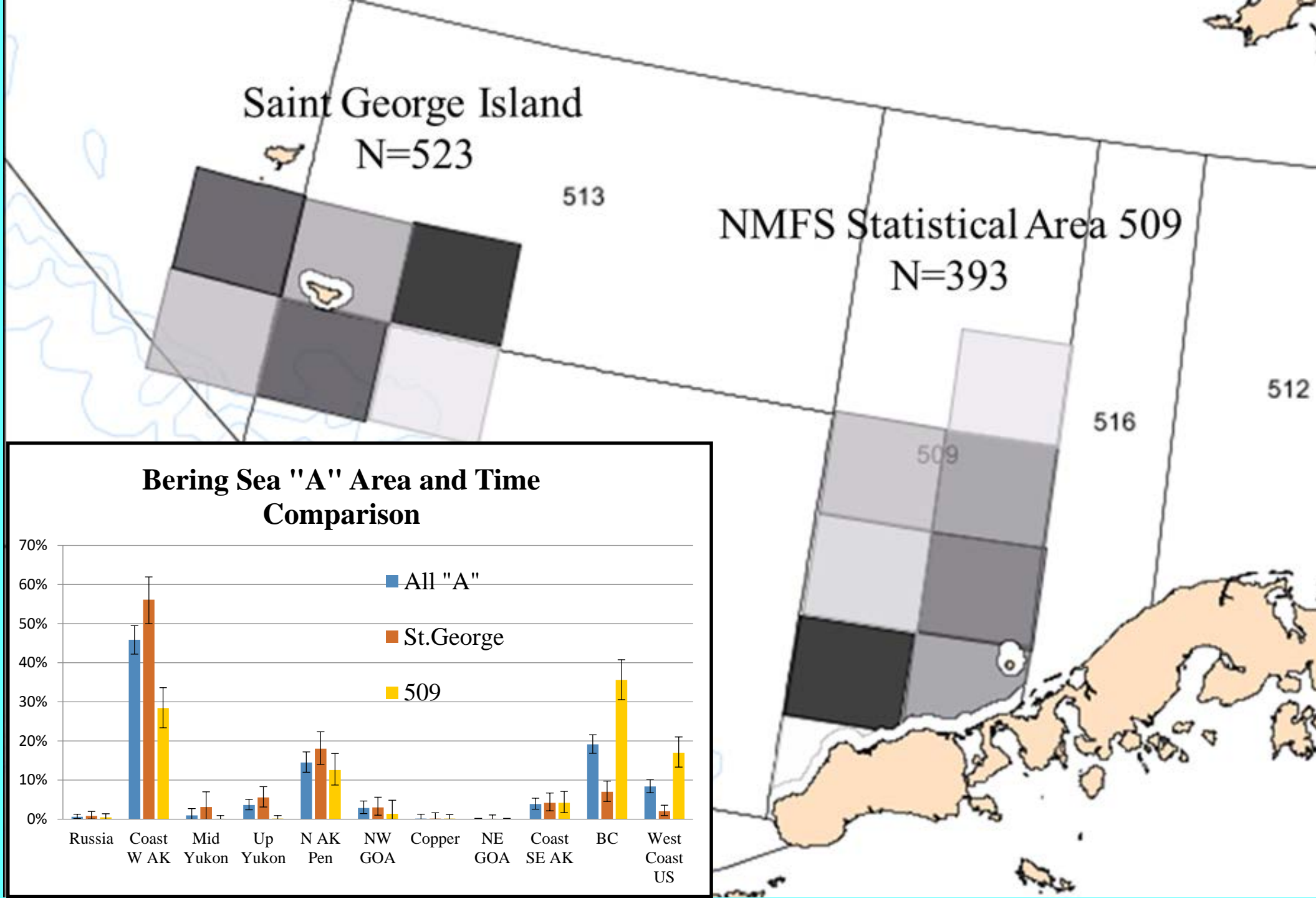
31% from Alaskan river systems flowing into the Bering Sea for “B” Season

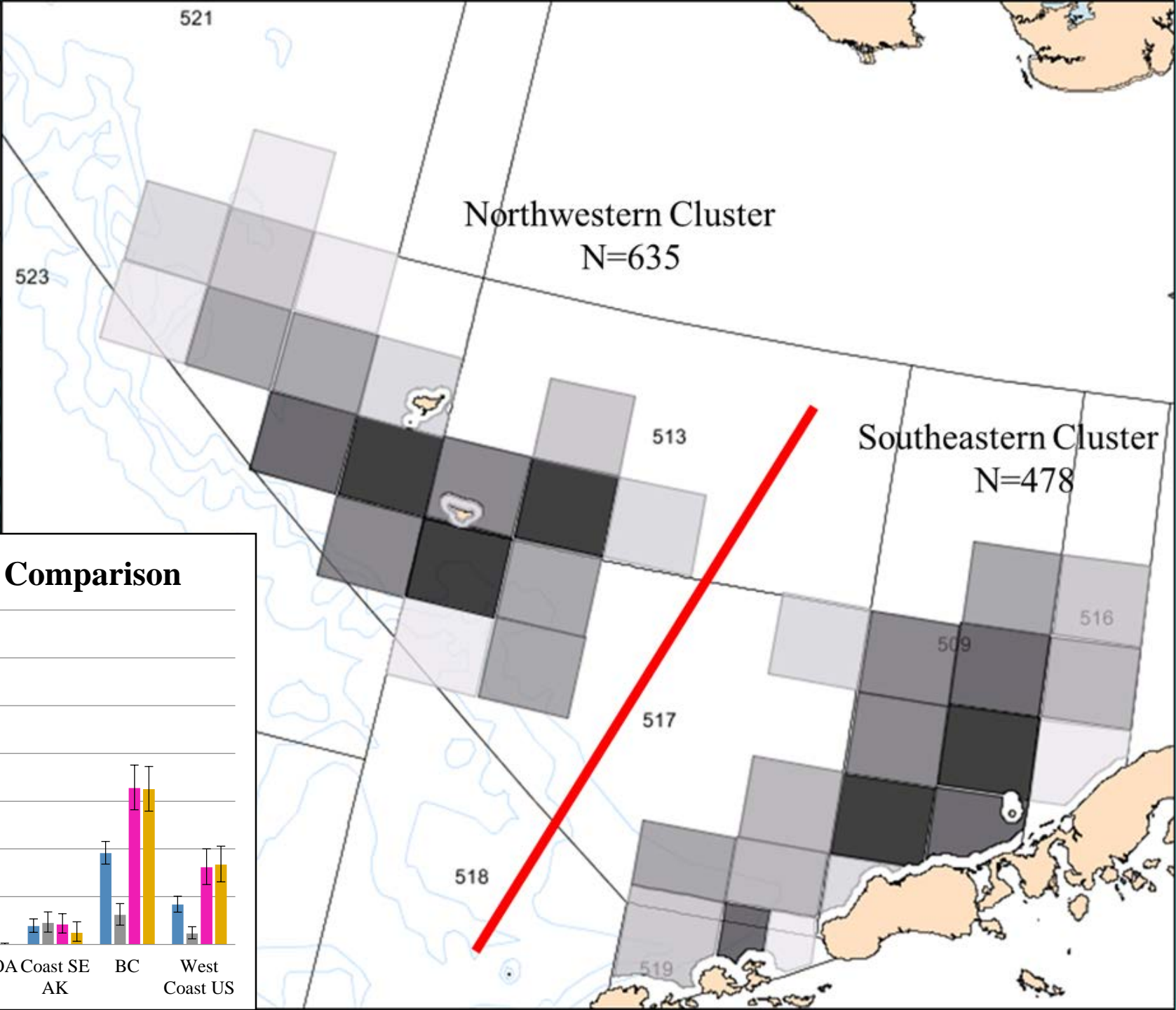
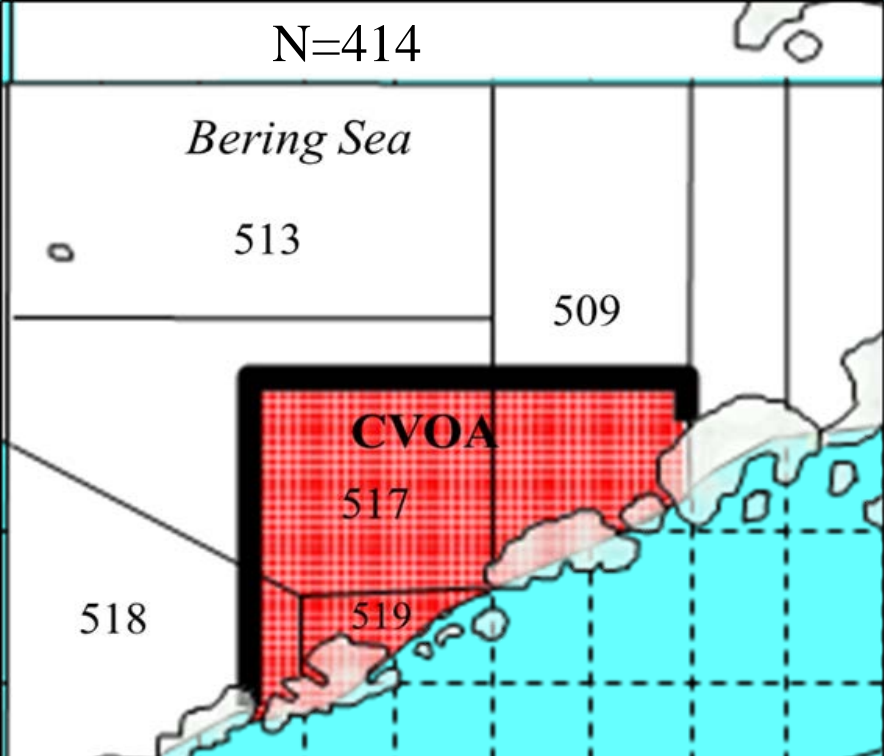
55% from Alaskan river systems flowing into the Bering Sea for entire year



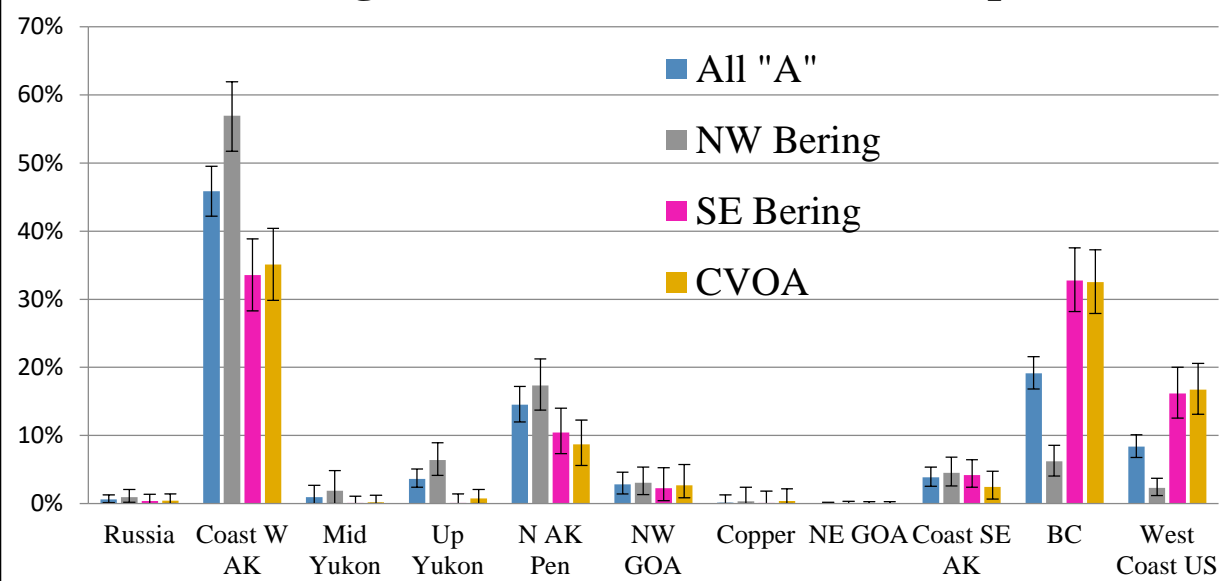
# BSAI "A" Area and Time Comparison



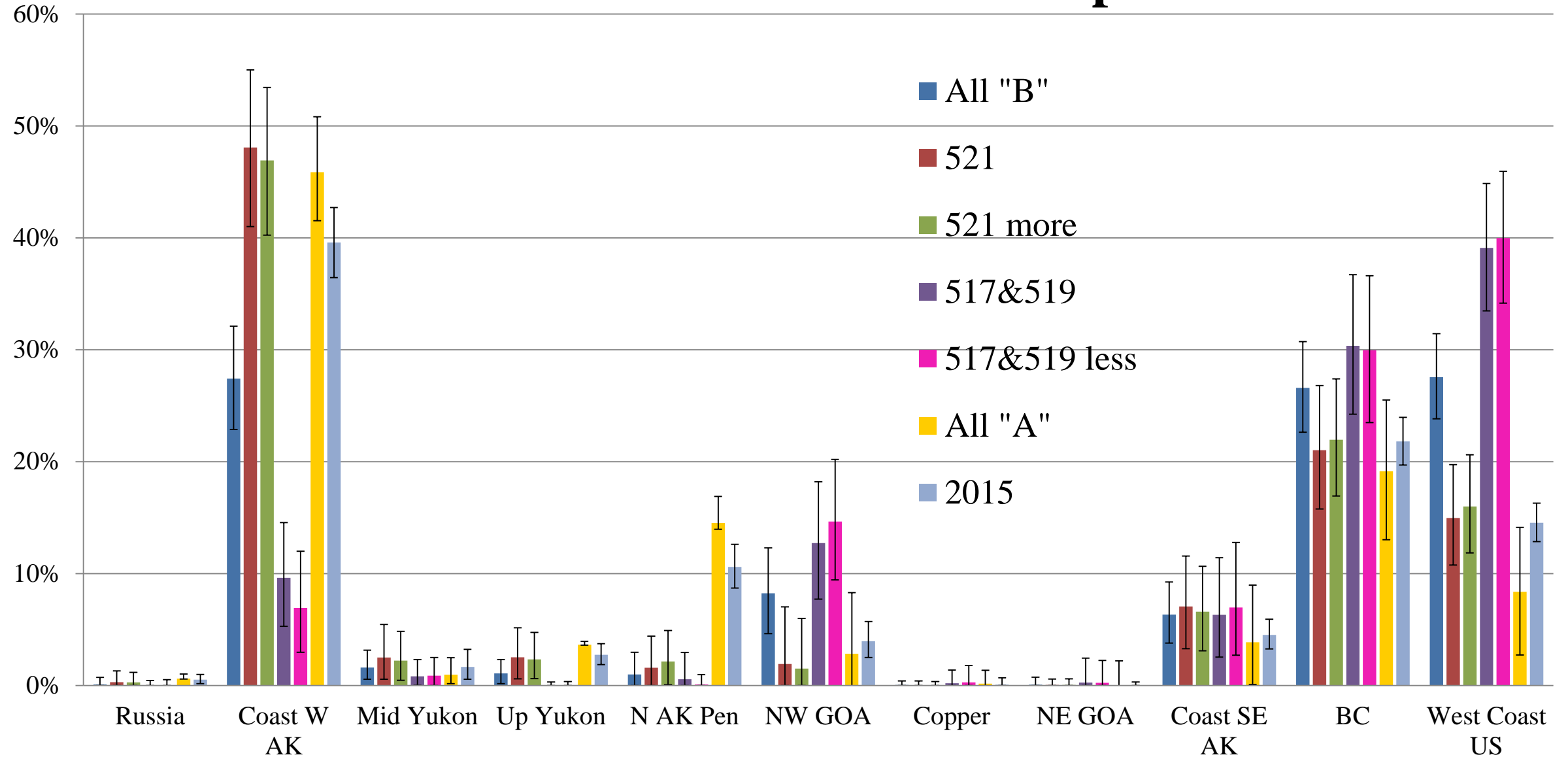


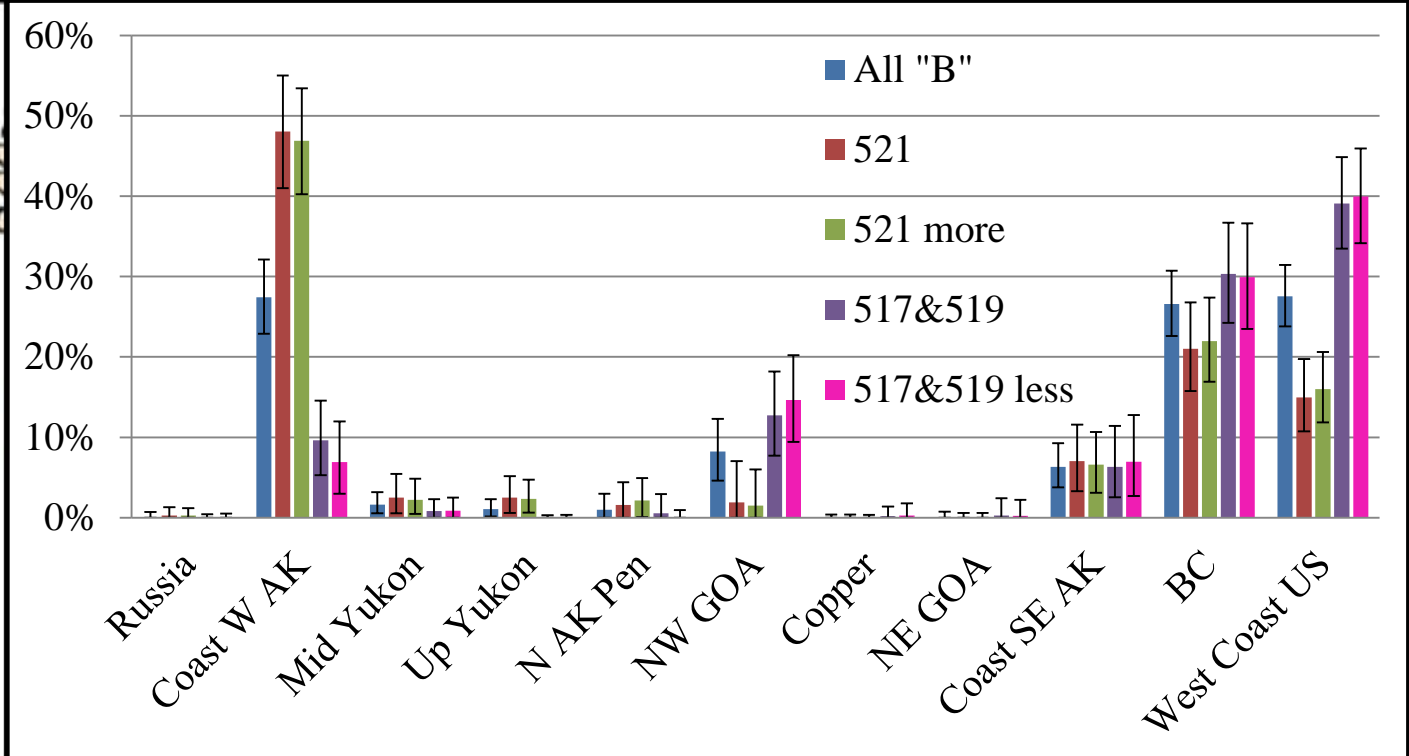
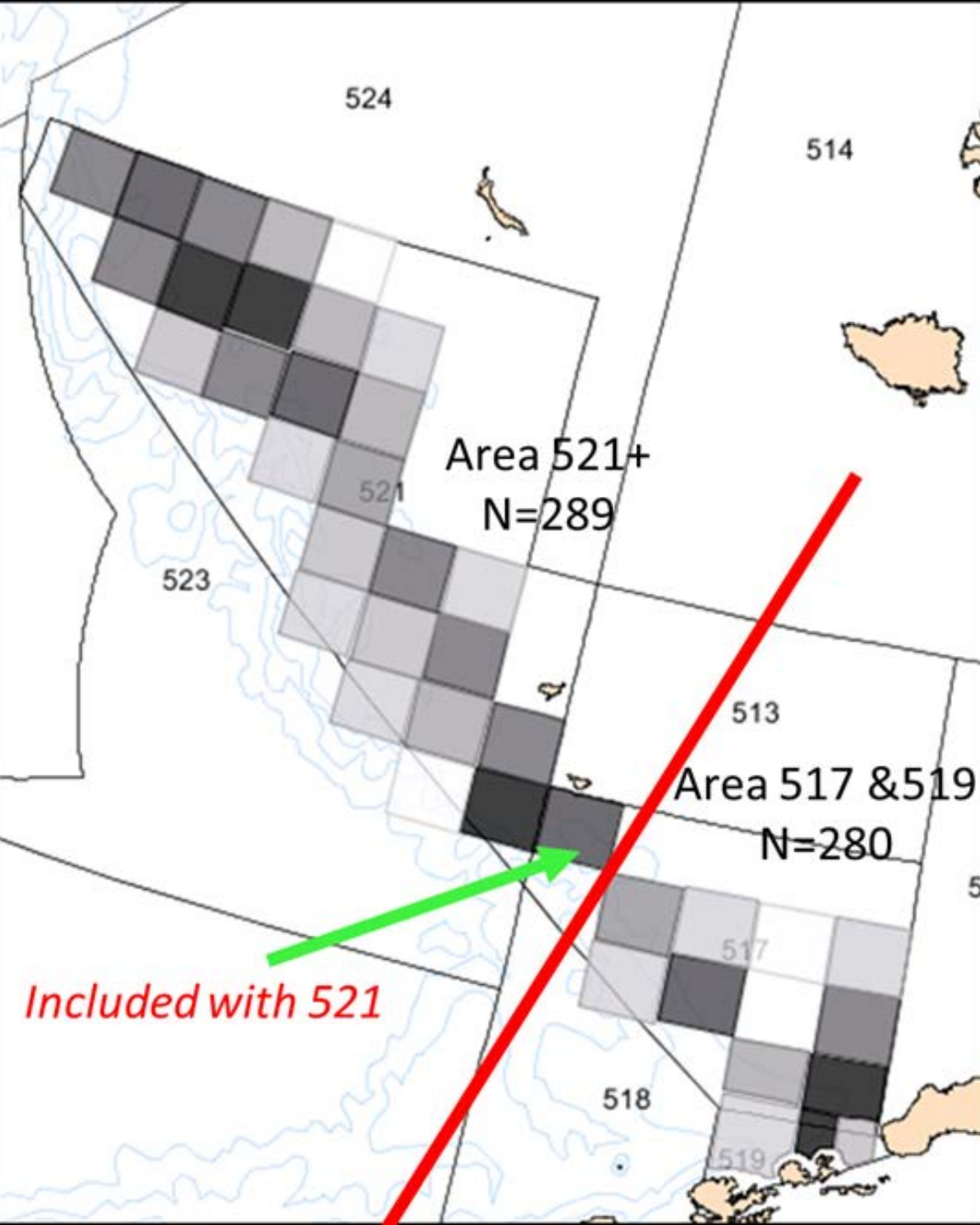


**Bering Sea "A" Area and Time Comparison**



# BSAI "B" Area and Time Comparison



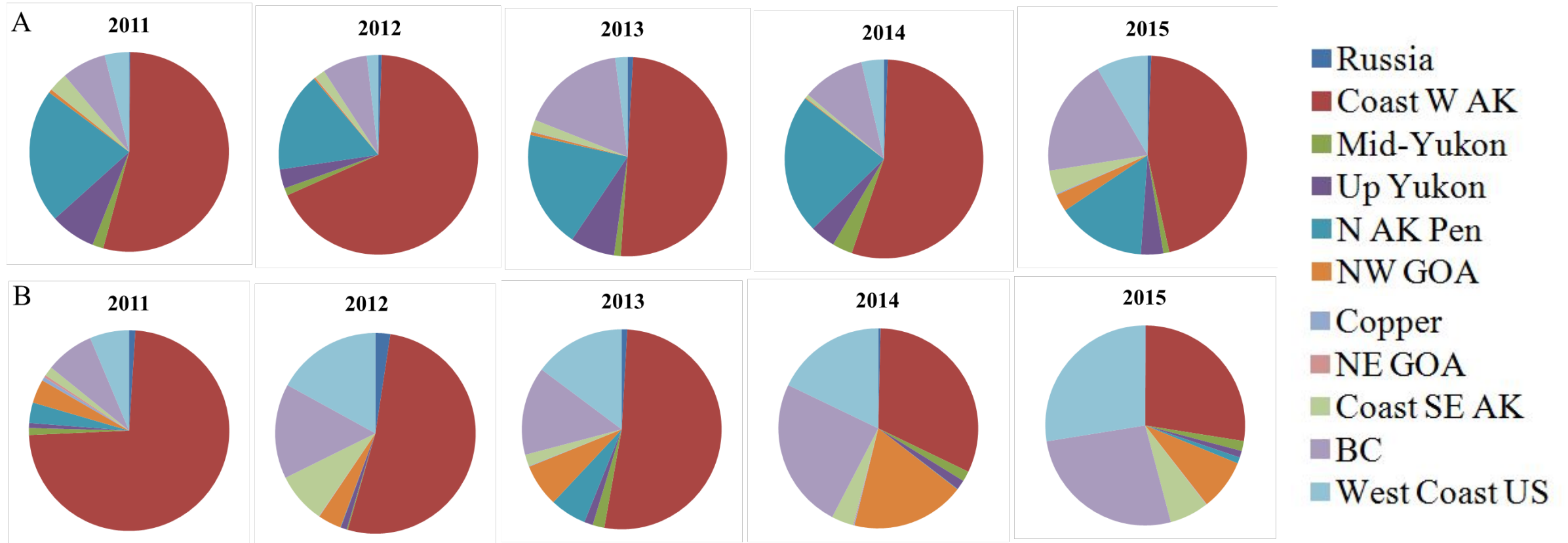


# 2015 Chinook Salmon Bering Sea Bycatch

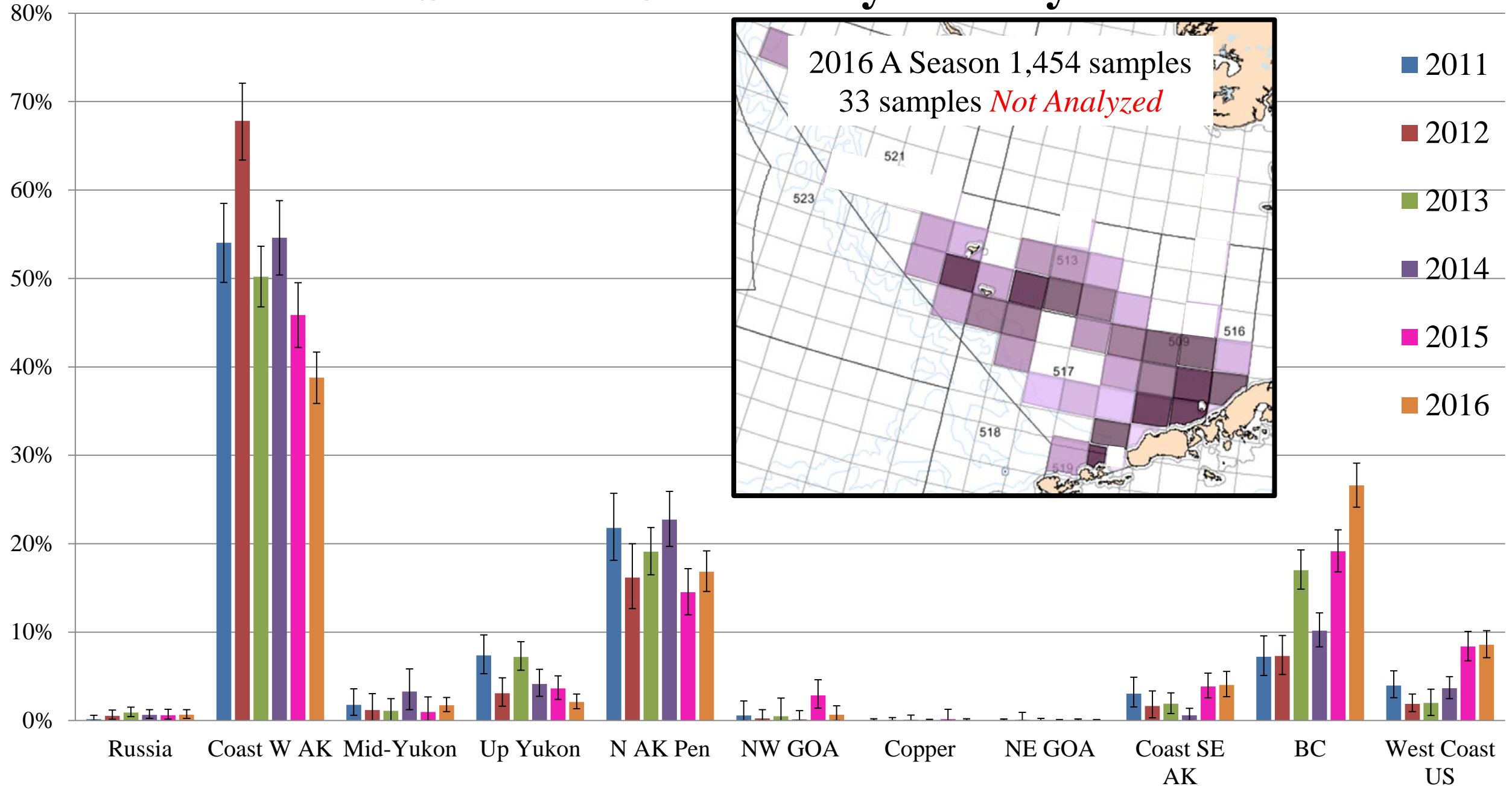
## Seasonal Stock Differences:

A Season: 1,181 samples

B Season: 576 samples



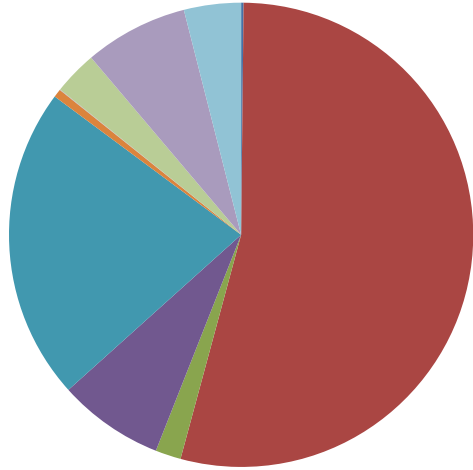
# BSAI "A" Chinook Bycatch by Year



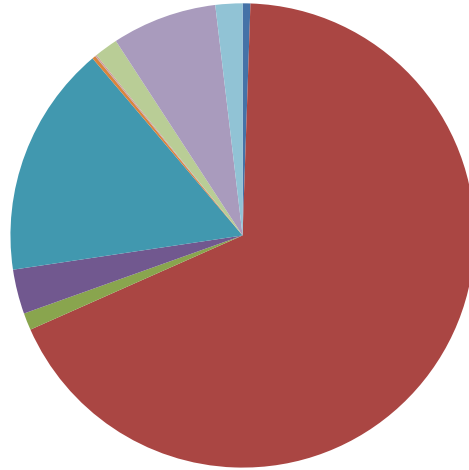
# 2016 Chinook Salmon Bering Sea Bycatch A season comparison

A Season: 1,454 samples  
33 samples *Not Analyzed*

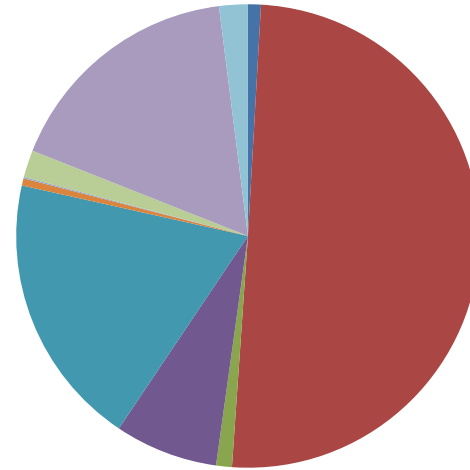
2011



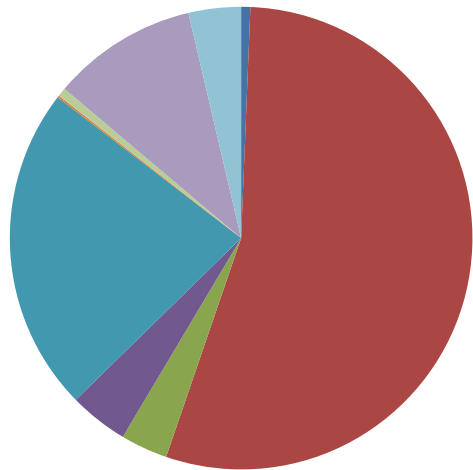
2012



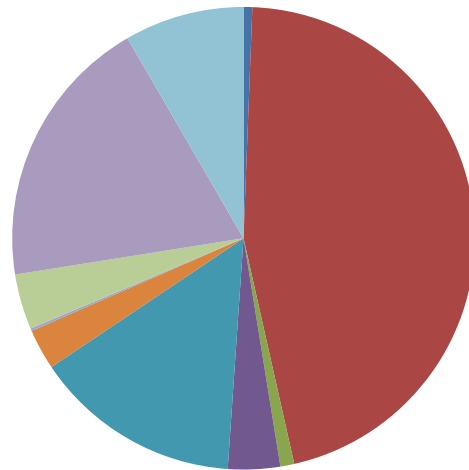
2013



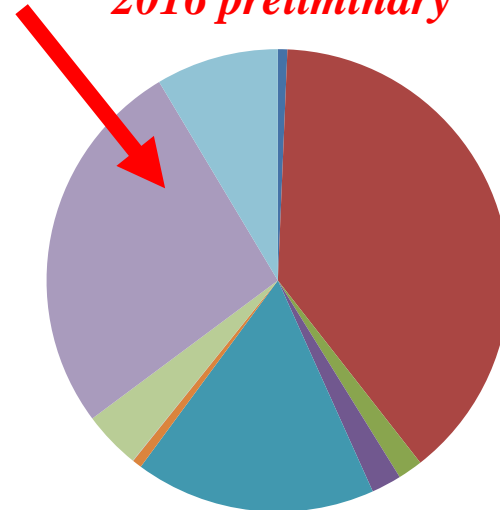
2014



2015



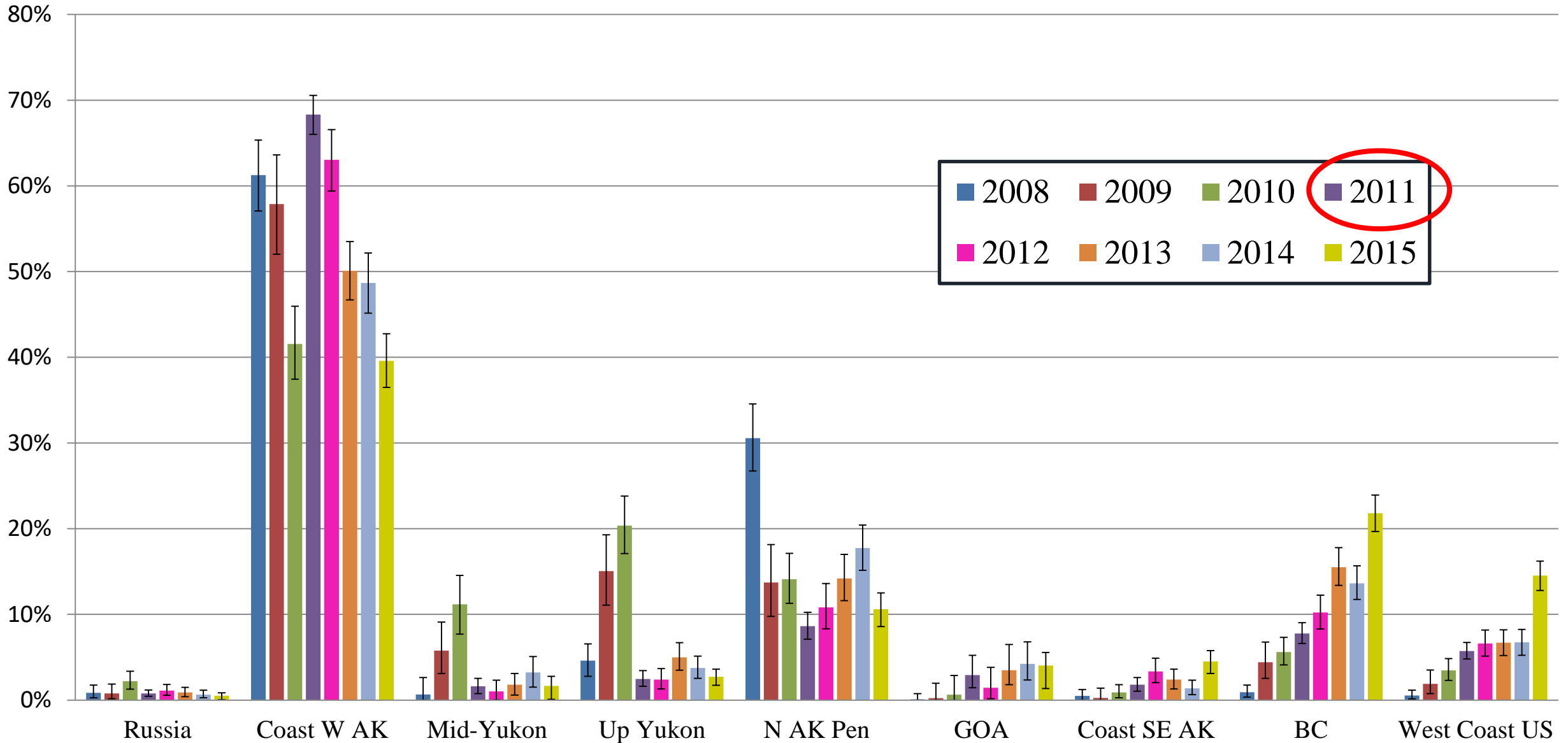
*2016 preliminary*



- Russia
- Coast W AK
- Mid-Yukon
- Up Yukon
- N AK Pen
- NW GOA
- Copper
- NE GOA
- Coast SE AK
- BC
- West Coast US



# BSAI Chinook Bycatch by Year



Science, Service, Stewardship



**NMFS-AFSC-343**

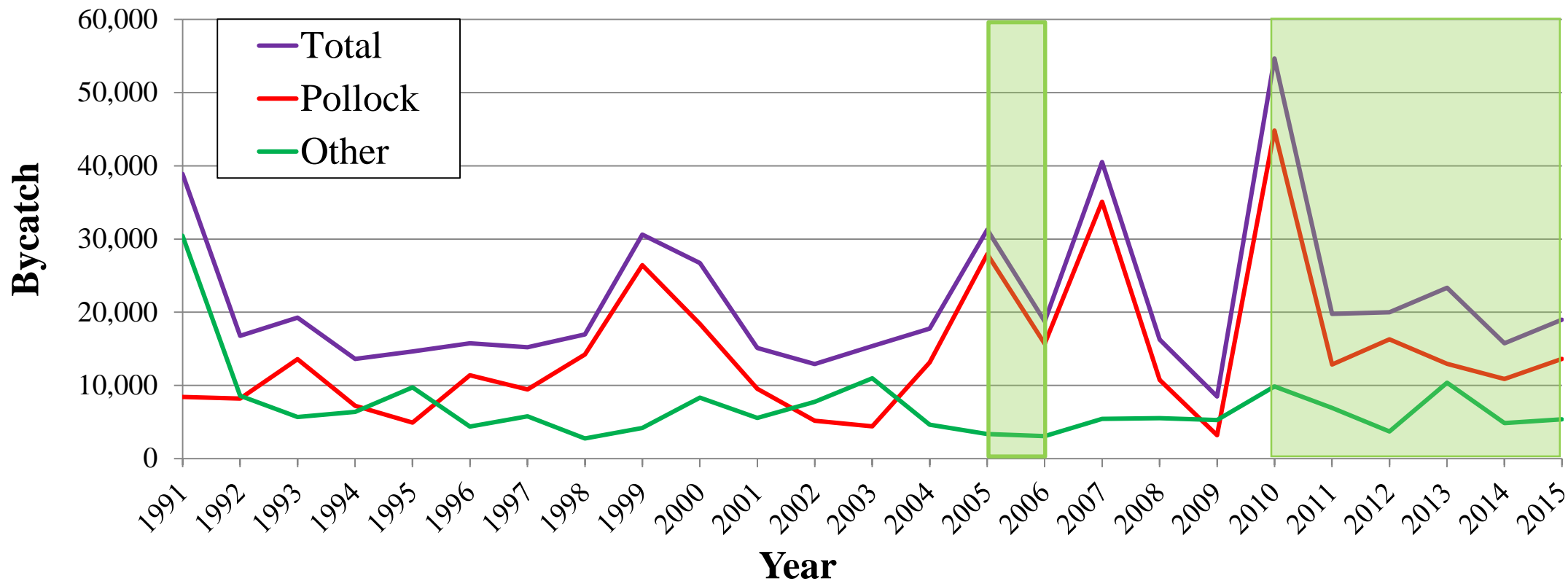
<http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-343.pdf>

# **Genetic Stock Composition Analysis to the Chinook Salmon Bycatch Samples from the 2015 *Gulf of Alaska* Trawl Fishery**

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

**NOAA  
FISHERIES  
SERVICE**

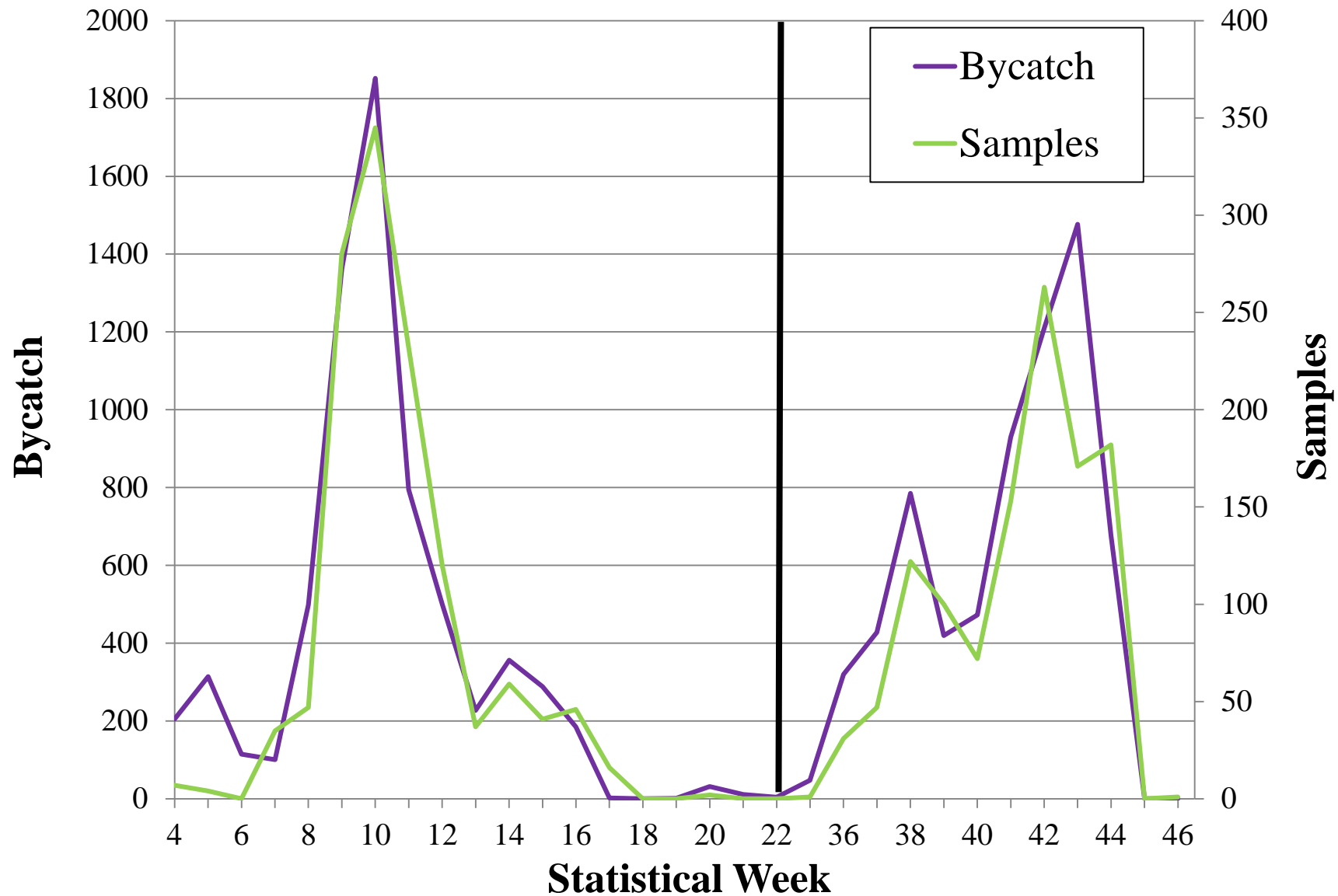
# 2015 Chinook Salmon GOA Bycatch



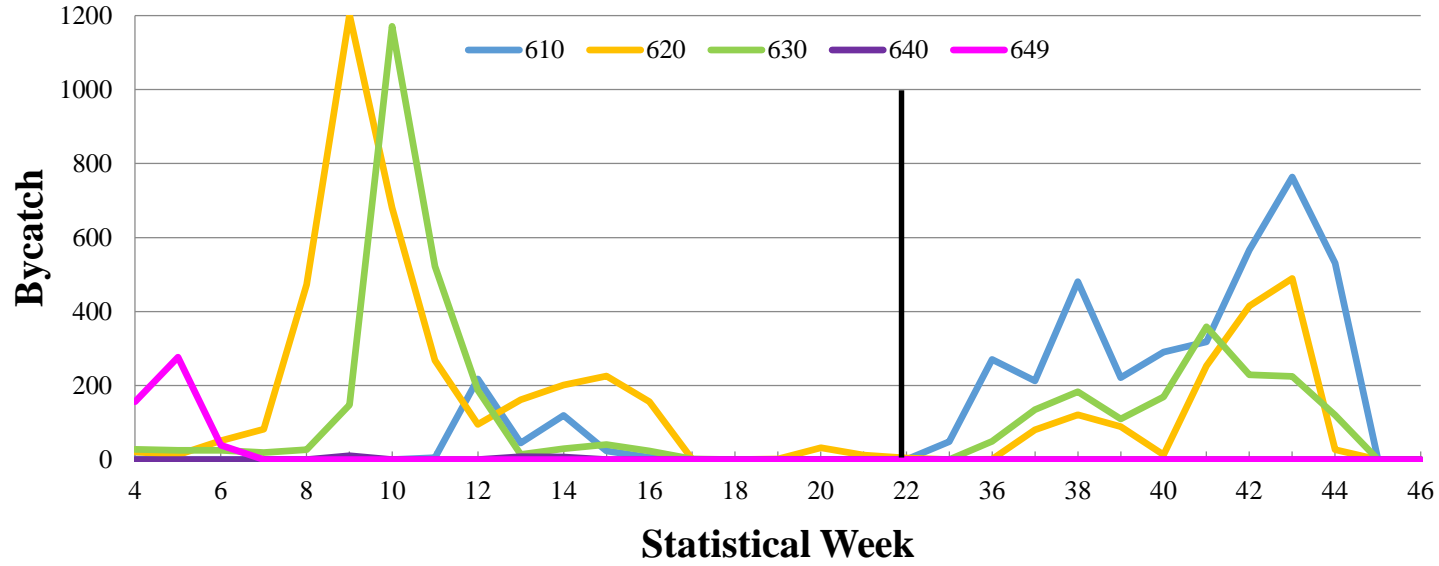
2005 – 2006: SNPs – 219 (Winter 2006), 62 (Summer 2005-6), 127 (Fall 2005-6) samples

2010 – 2015: SNPs – 161 (2010), 240 (2011), 948 (2012), 693 (2013), 1,163 (2014), and 2,414 (2015) samples.

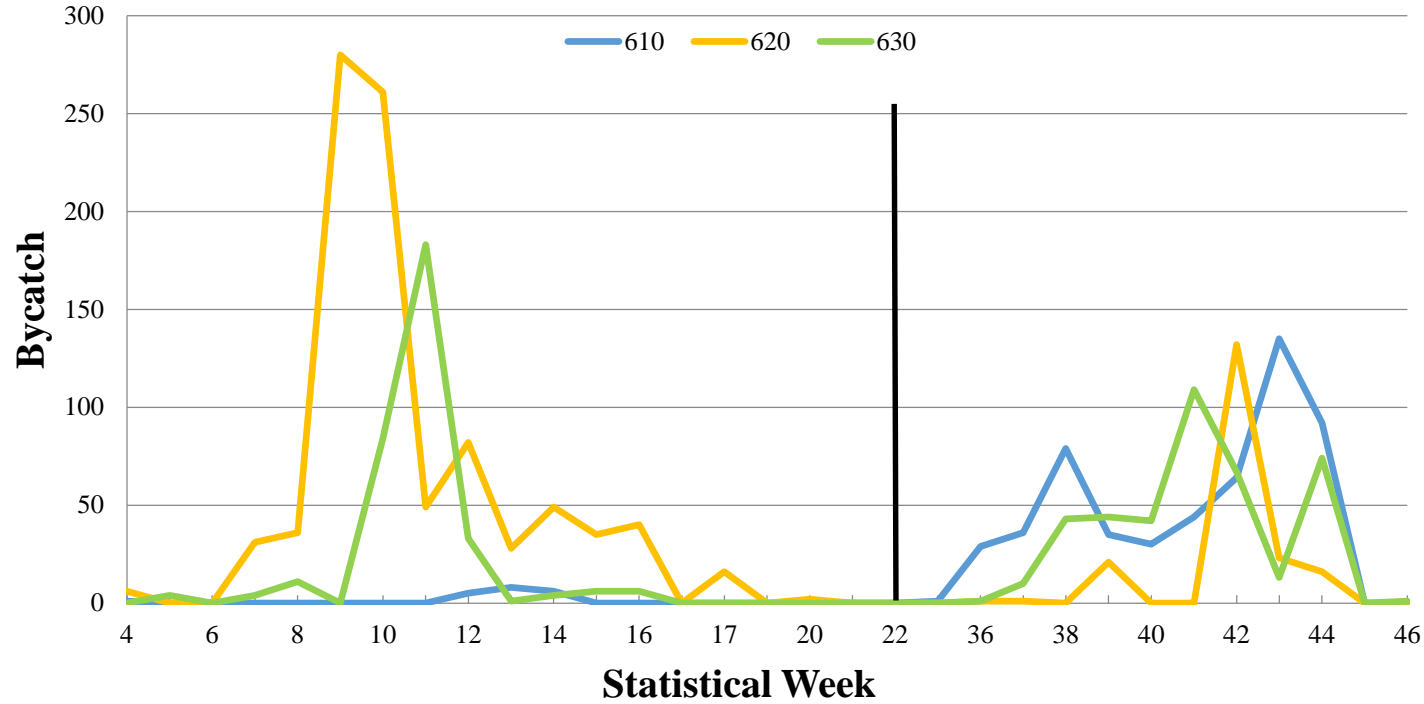
# 2015 Chinook Salmon GOA Bycatch - Pollock



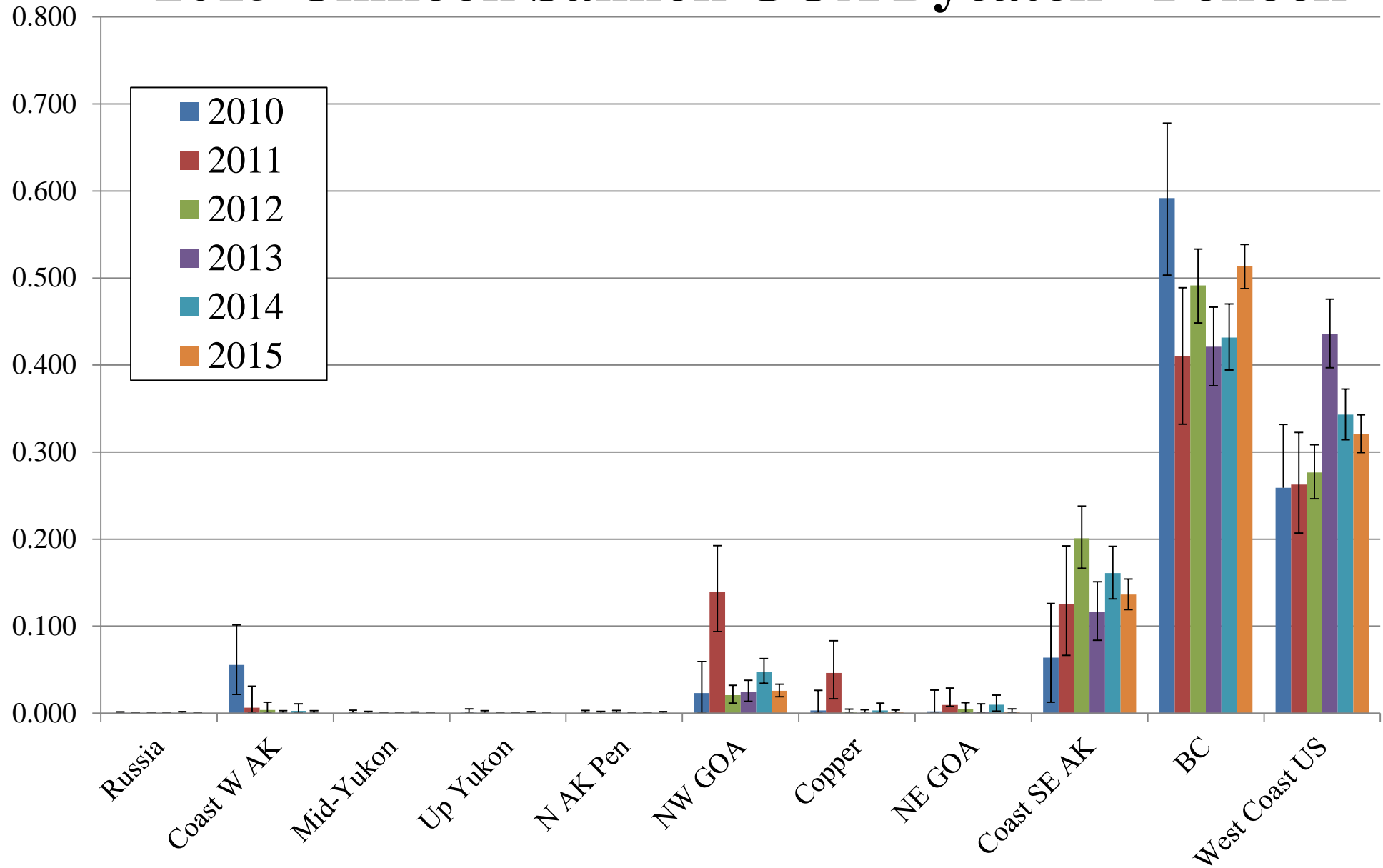
## 2015 Chinook GOA Bycatch



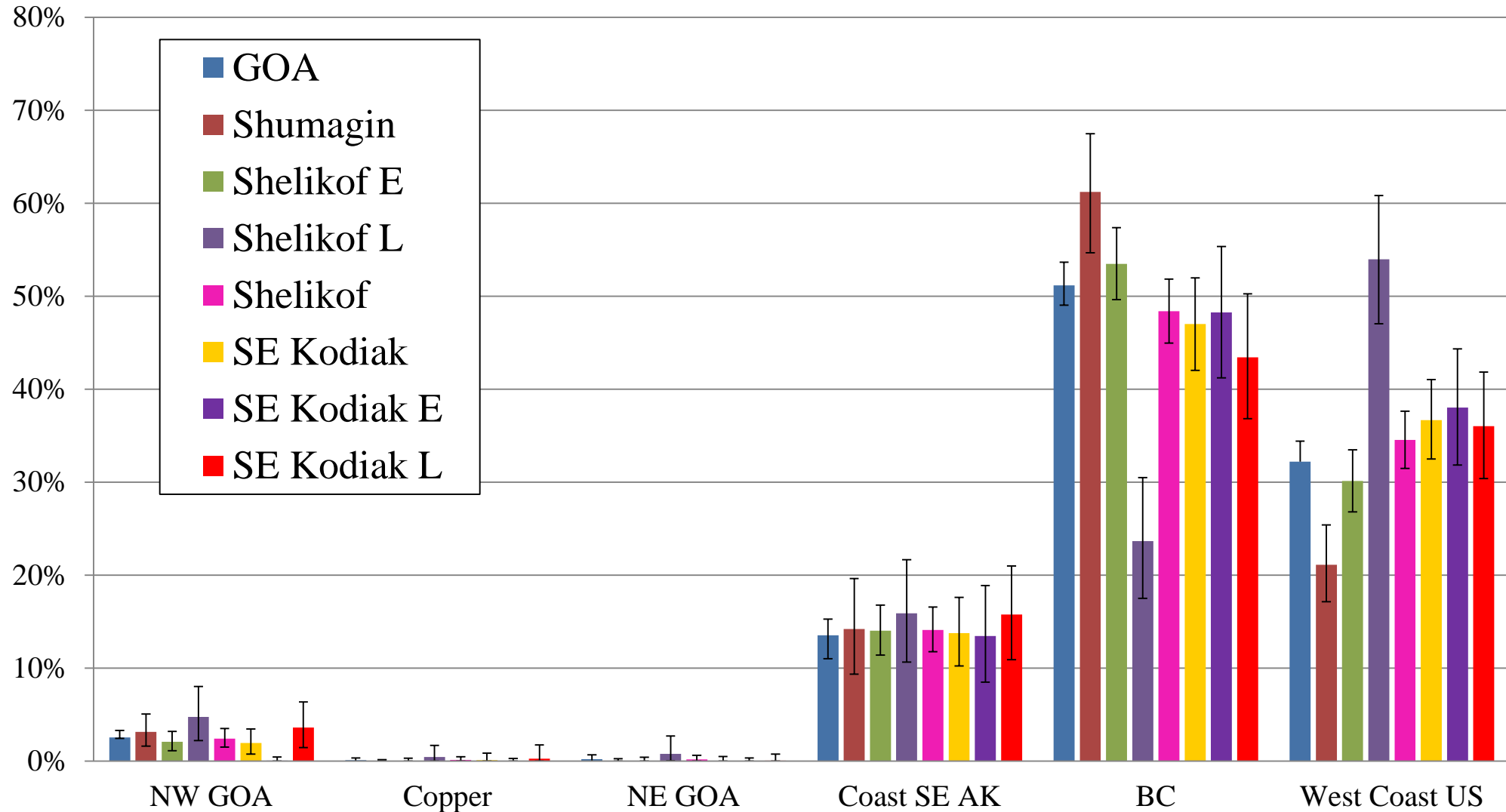
## 2015 Chinook GOA Samples

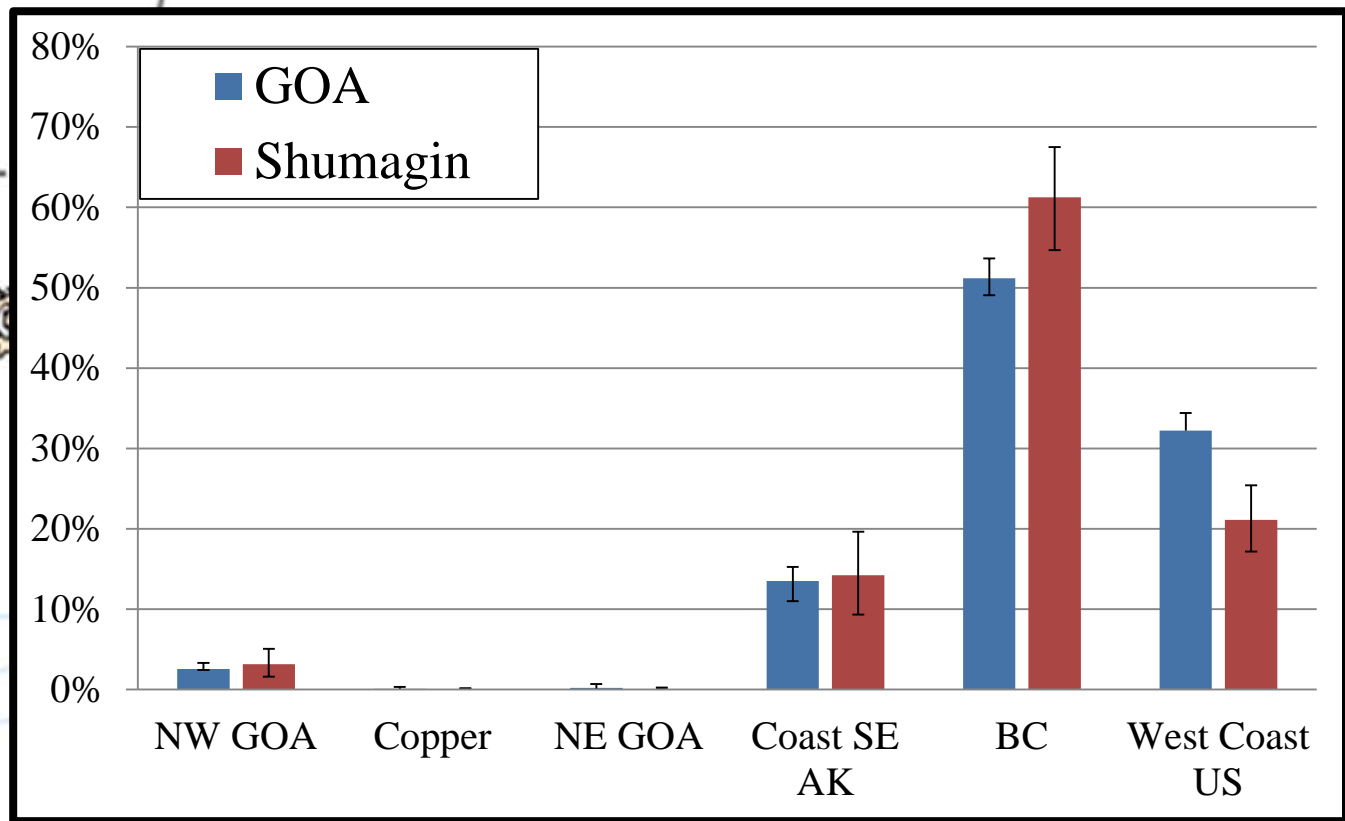
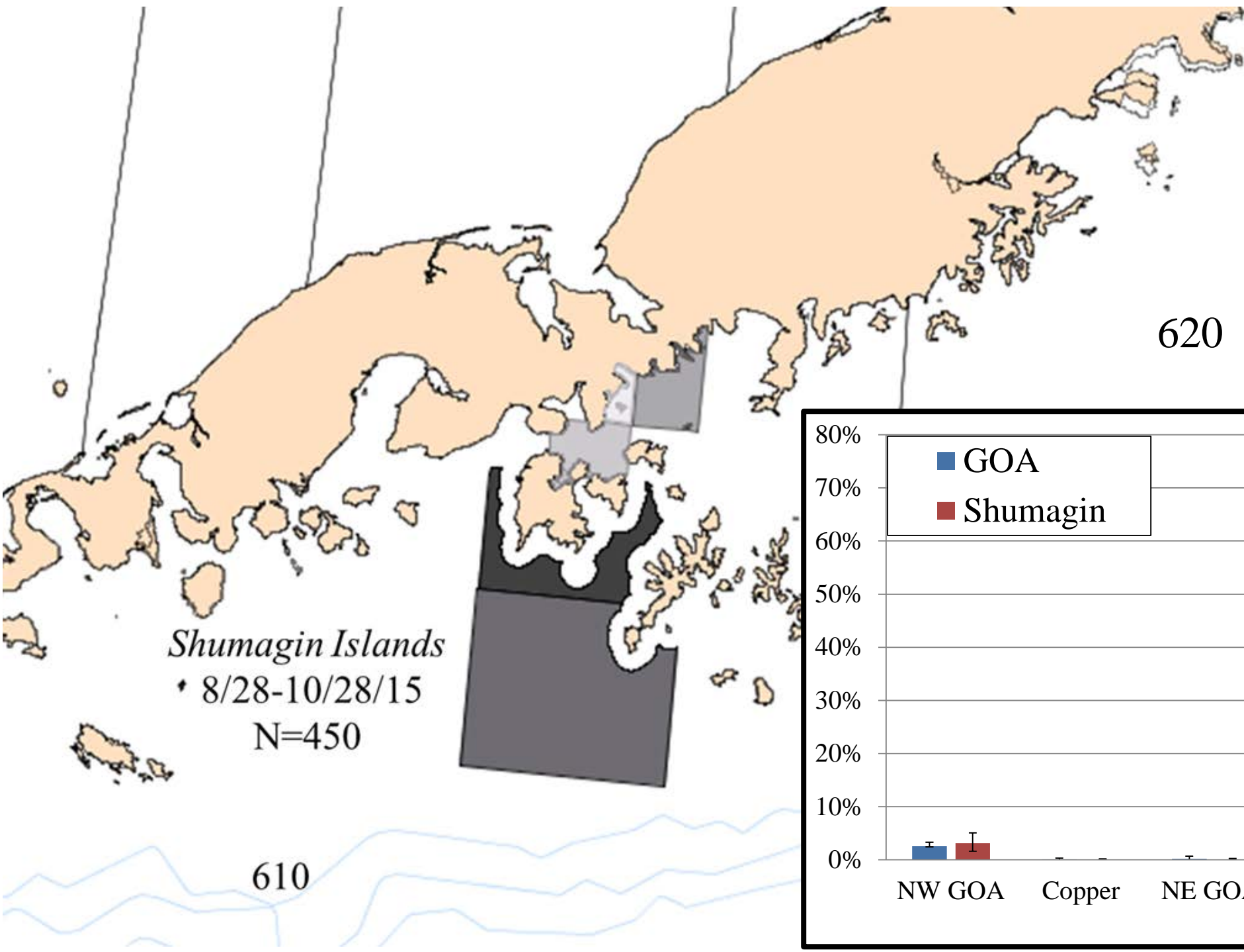


# 2015 Chinook Salmon GOA Bycatch - Pollock



# GOA by Area and Time Comparison





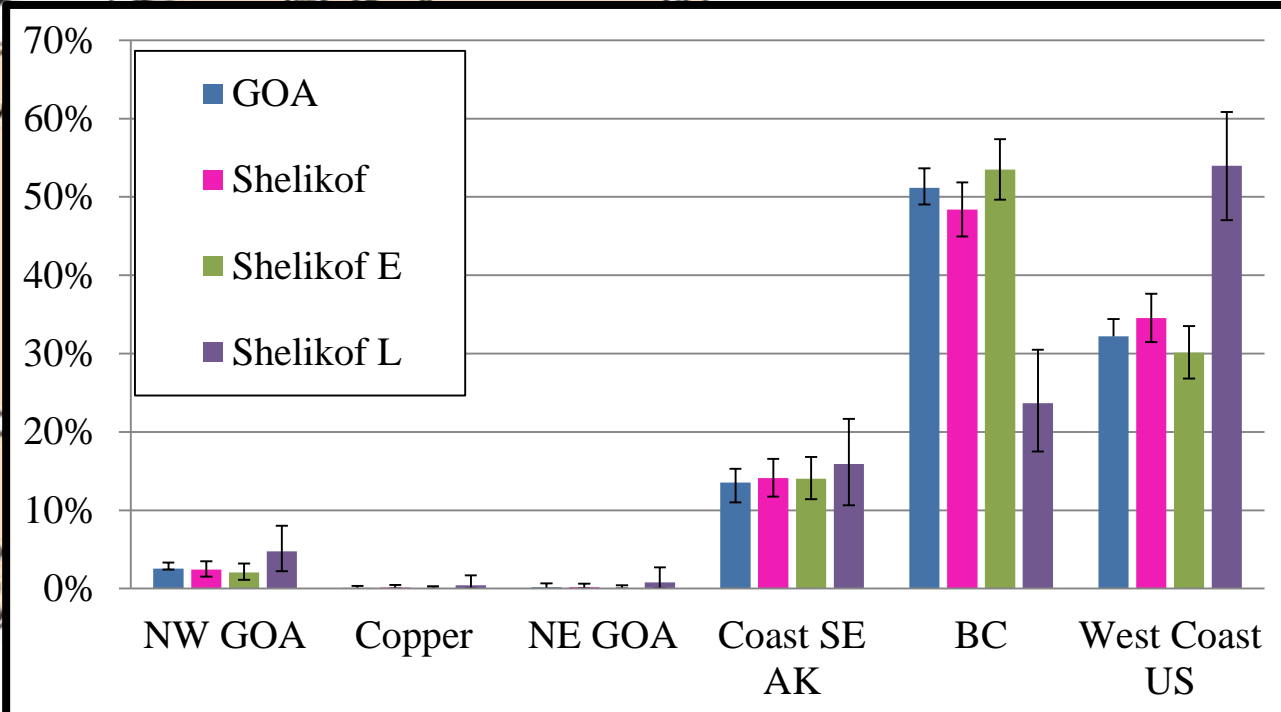
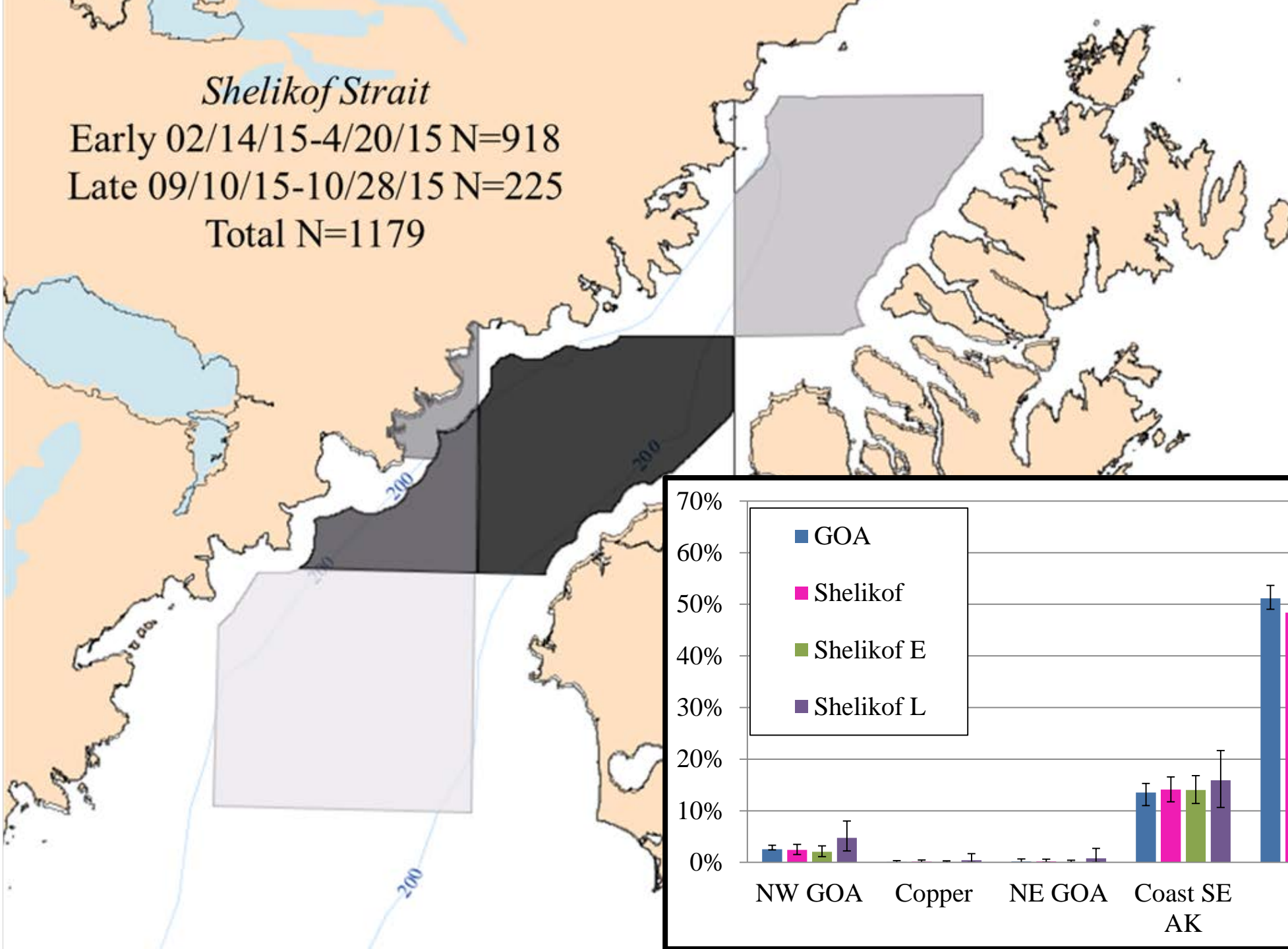


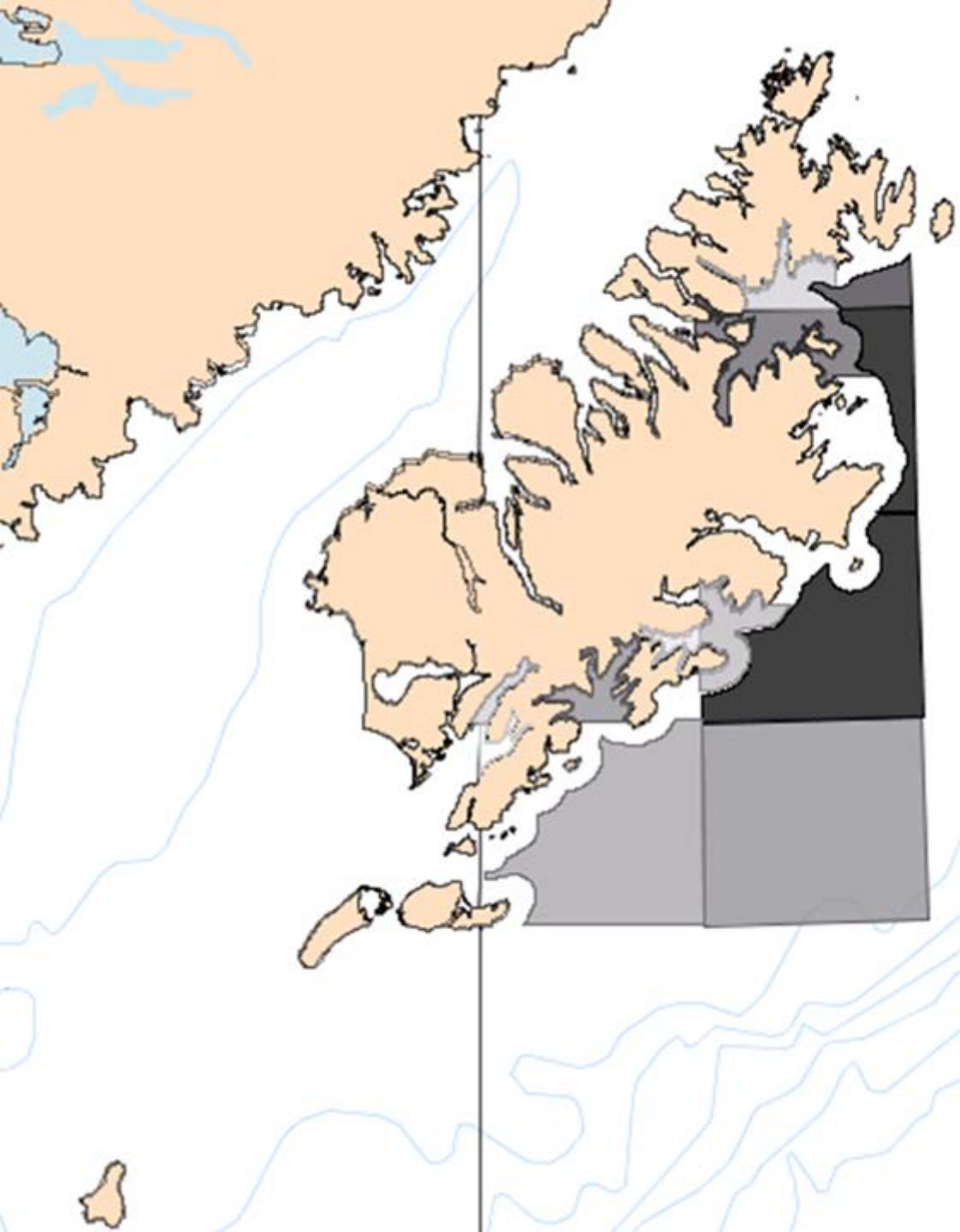
*Shelikof Strait*

Early 02/14/15-4/20/15 N=918

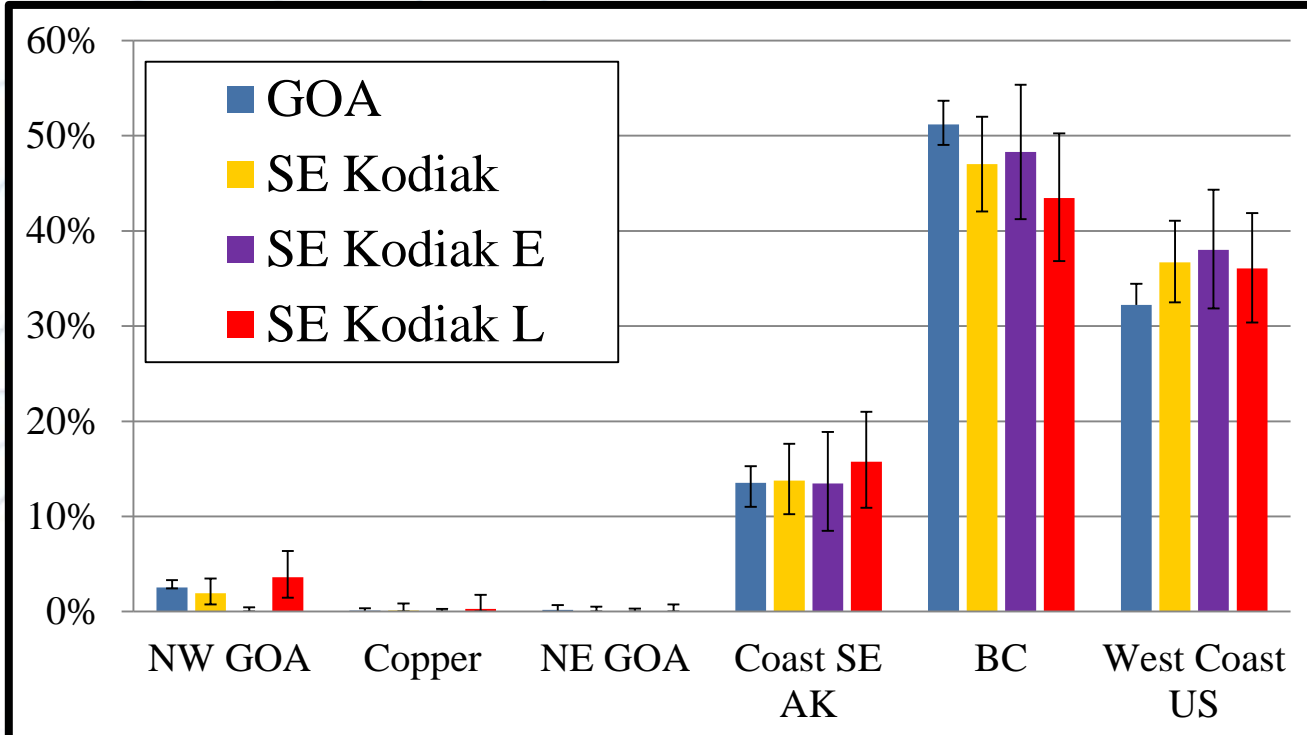
Late 09/10/15-10/28/15 N=225

Total N=1179

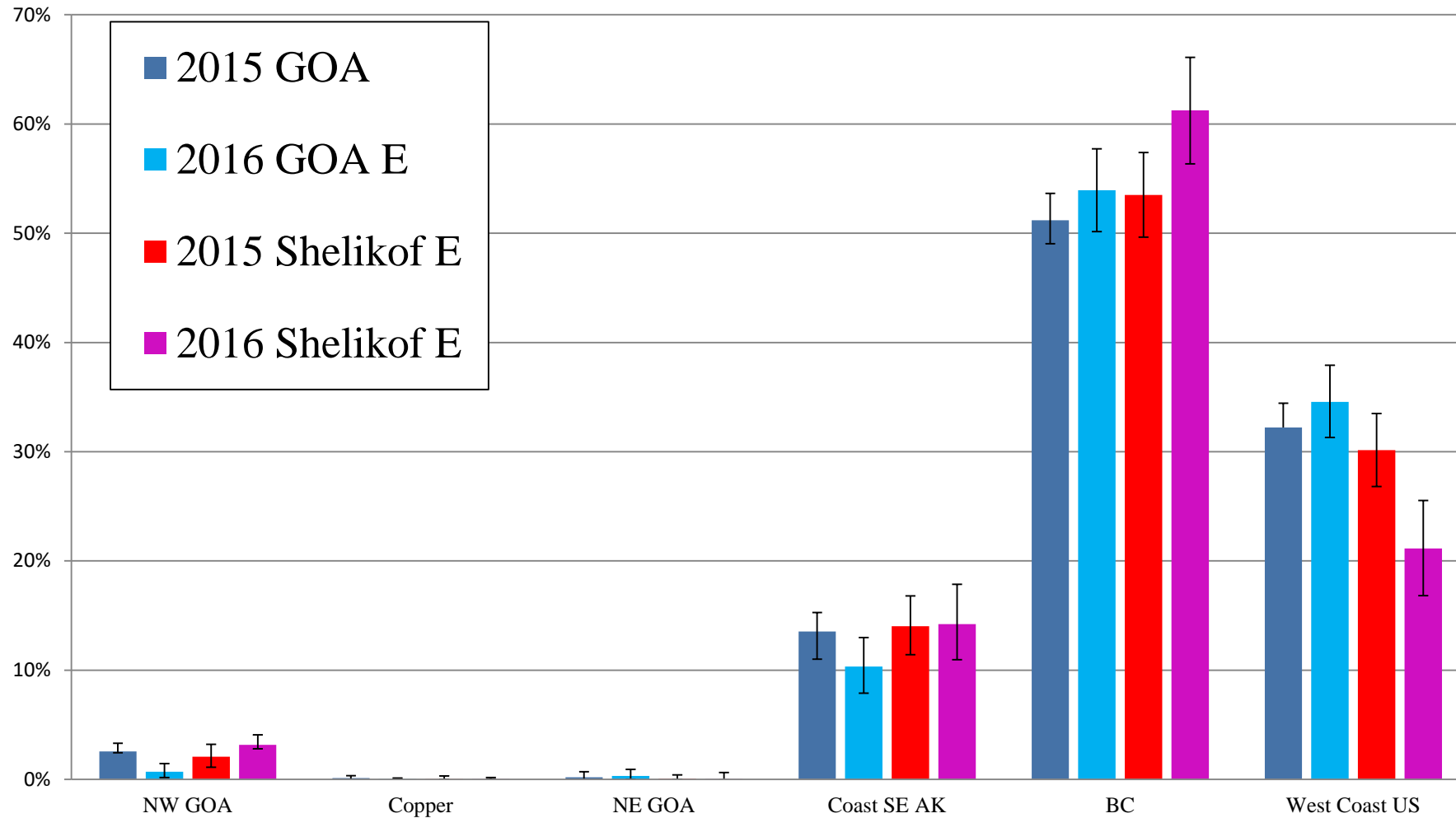




Southeast Kodiak Island  
 Early 2/14/15-4/07/15 N=262  
 Late 9/04/15-10/30/15 N=304  
 Total N=617

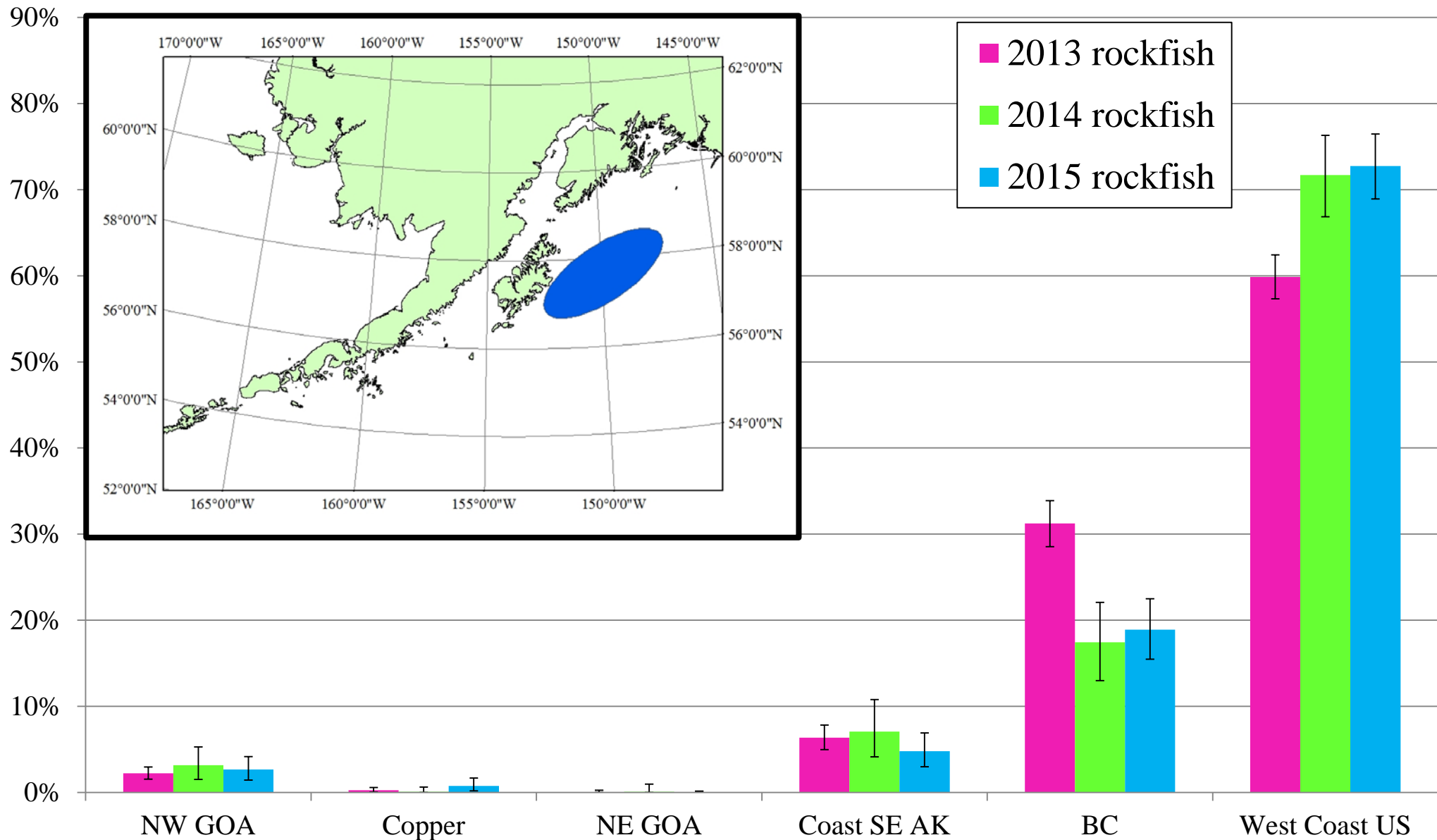


# 2015 GOA comparison with 2016 preliminary Data



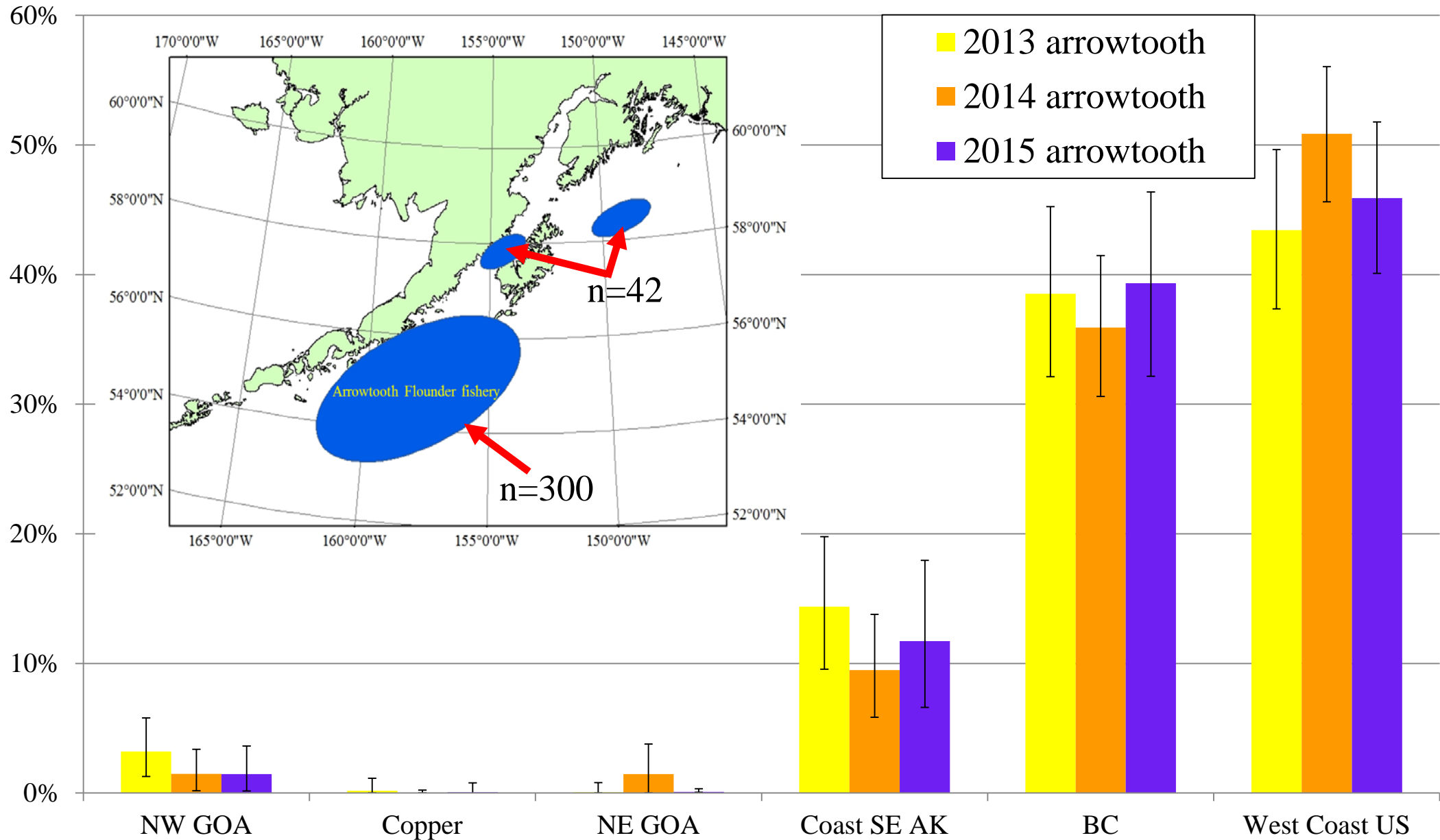
# Rockfish – GOA 2015 Chinook Bycatch

635 samples genotyped, May 4, 2015 to Nov 16, 2015



# Arrowtooth Flounder – GOA 2015 Chinook Bycatch

300 samples genotyped, April 7, 2015 to May 22, 2015



# Acknowledgements

## NMFS

Chris Kondzela

Sharon Wildes

Jackie Whittle

North Pacific Groundfish and

Halibut Observer Program

Alaska Region

## AKFIN

Rob Ames

Bob Ryznar

## ADF&G

Bill Templin

Andrew Munro

## Alaska Groundfish Data Bank

Julie Bonney

Katy McGauley

## Alaska Seafood Cooperative

John Gauvin

Estimated Number of fish

Region	<i>Bering Sea</i>	<i>Bering Sea "A"</i>	<i>Bering Sea "B"</i>	<i>Gulf of Alaska</i>
Russia	93	75	5	0
Coastal West Alaska	7256	5644	1651	5
Middle Yukon River	304	119	97	0
Upper Yukon river	502	448	65	0
North Alaska Peninsula	1943	1785	60	3
Northwest Gulf of Alaska	724	349	496	353
Copper river	11	21	3	16
Northeast Gulf of Alaska	4	2	4	23
Coastal Southeast Alaska	828	475	381	1857
British Columbia	3998	2355	1603	6990
West Coast U.S.	2665	1030	1659	4365
<b><i>Total</i></b>	<b><i>18329</i></b>	<b><i>12304</i></b>	<b><i>6025</i></b>	<b><i>13612</i></b>

# Acknowledgements

## NMFS

Chris Kondzela

Sharon Wildes

Jackie Whittle

North Pacific Groundfish and  
Halibut Observer Program

## AKFIN

Rob Ames

Bob Ryznar

## ADF&G

Bill Templin

Andrew Munro

## Alaska Groundfish Data Bank

Julie Bonney

Katy McGauley

## Alaska Seafood Cooperative

John Gauvin





# 2015 GOA comparison with 2016 preliminary Data

