

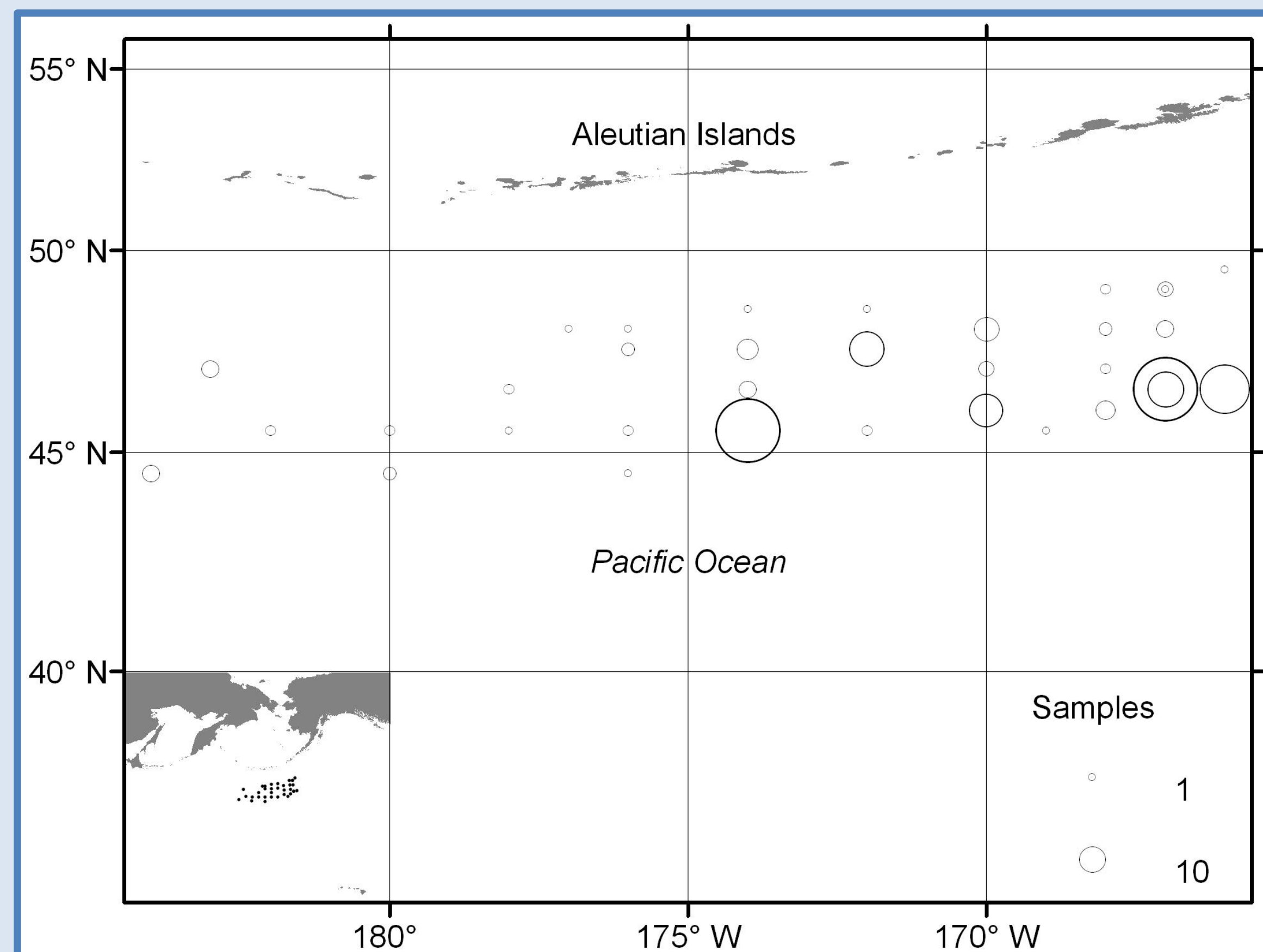
Genetic Stock Identification of Overwintering Chum Salmon in the North Pacific Ocean

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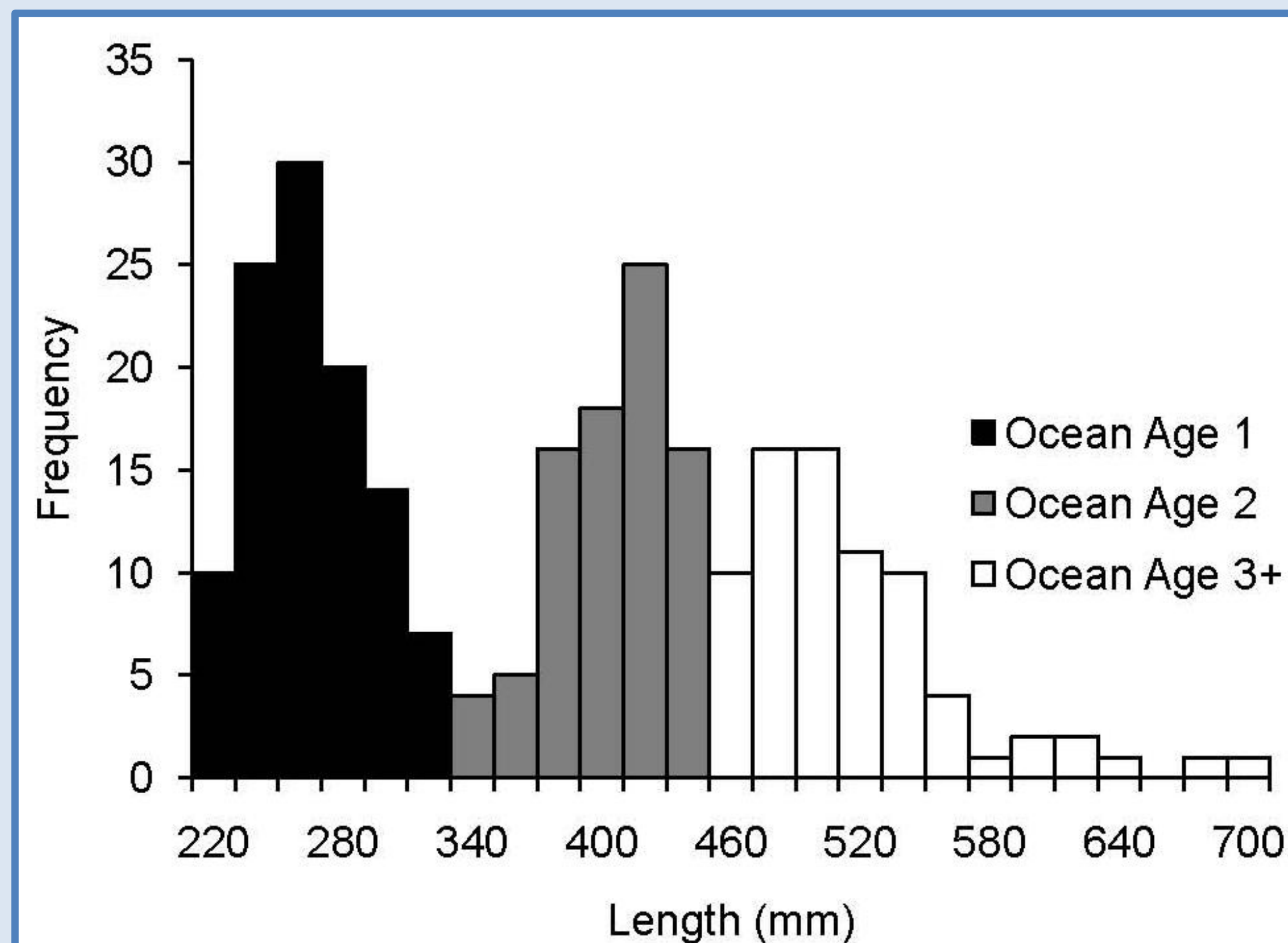
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Samples



Locations in the North Pacific Ocean (NPO) where chum salmon were collected by the R/V *TINRO*, winter 2009

Analysis



Length - frequency histogram (20 mm bins) of winter chum salmon collected in the NPO

Results & Discussion

Baseline reassignment accuracy and stock composition estimates (proportion, SD in parentheses) of winter chum salmon in the NPO

	Baseline accuracy 100% simulation	Stock composition			
		All <i>n</i> = 265	Ocean age 1 <i>n</i> = 106	Ocean age 2 <i>n</i> = 84	Ocean age 3+ <i>n</i> = 75
East Asia	0.89 (0.01)	0.30 (0.03)*	0.48 (0.05)*	0.14 (0.04)*	0.14 (0.05)*
North Asia	0.85 (0.02)	0.56 (0.04)*	0.25 (0.05)*	0.82 (0.05)*	0.74 (0.07)*
Western Alaska	0.96 (0.01)	0.03 (0.01)*	0.07 (0.04)	0.01 (0.02)	0.01 (0.01)
Upper Yukon	0.93 (0.02)	0.00 (0.01)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)
Southwest Alaska	0.82 (0.02)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
EGOA/PNW	0.98 (0.01)	0.11 (0.03)*	0.19 (0.04)*	0.03 (0.02)	0.11 (0.05)*

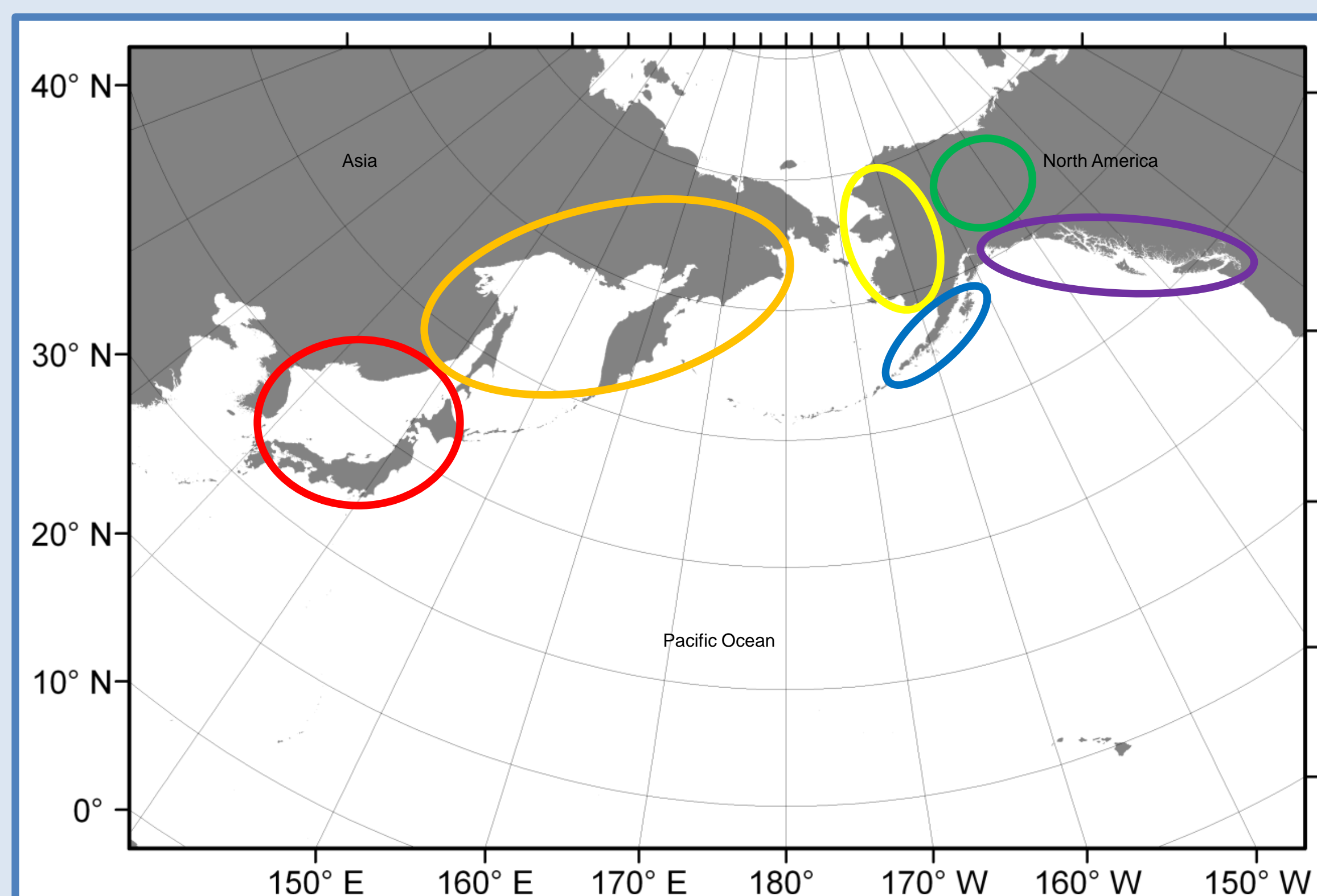
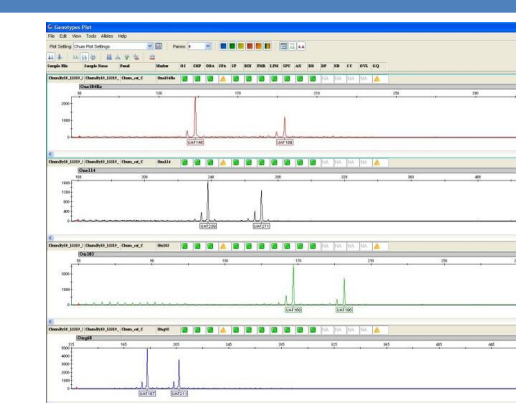
*Stock composition estimate significantly greater than 0 at the 5% level

- Ocean age 1 chum salmon mostly East Asian
 - Common in the western/central study area
- Ocean age 2-3+ fish mostly North Asian
- Smaller proportions of ocean age 1 & 3+ EGOA/PNW
 - Broader distribution than previously described

Chum salmon sample info

Date	Location		<i>n</i> (ocean age) (0.1/0.2/0.3+)
	Latitude	Longitude	
15-Feb	44.5°N	176°E	5 (5/0/0)
17-Feb	45.5°N	178°E	2 (2/0/0)
18-Feb	47.0°N	177°E	5 (0/3/2)
20-Feb	45.5°N	180°E	2 (0/0/2)
20-Feb	44.5°N	180°E	3 (3/0/0)
23-Feb	45.5°N	178°W	1 (0/0/1)
23-Feb	46.5°N	178°W	2 (1/1/0)
24-Feb	48.0°N	177°W	1 (1/0/0)
24-Feb	48.0°N	176°W	1 (0/0/1)
25-Feb	47.5°N	176°W	3 (0/0/3)
26-Feb	45.5°N	176°W	2 (0/0/2)
26-Feb	44.5°N	176°W	1 (1/0/0)
27-Feb	45.5°N	174°W	50 (45/5/0)
27-Feb	46.5°N	174°W	5 (0/4/1)
28-Feb	47.5°N	174°W	7 (0/0/7)
28-Feb	48.5°N	174°W	1 (1/0/0)
28-Feb	48.5°N	172°W	1 (0/0/1)
1-Mar	47.5°N	172°W	17 (13/0/4)
2-Mar	45.5°N	172°W	2 (0/0/2)
2-Mar	46.0°N	170°W	16 (10/0/6)
2-Mar	47.0°N	170°W	4 (2/0/2)
3-Mar	48.0°N	170°W	9 (1/0/8)
3-Mar	49.0°N	168°W	2 (1/0/1)
4-Mar	48.0°N	168°W	3 (3/0/0)
4-Mar	47.0°N	168°W	2 (0/0/2)
5-Mar	46.0°N	168°W	6 (5/1/0)
5-Mar	45.5°N	169°W	1 (0/0/1)
6-Mar	46.5°N	166°W	32 (2/20/10)
6-Mar	46.5°N	167°W	50 (3/40/7)
7-Mar	46.5°N	167°W	18 (6/6/6)
8-Mar	48.0°N	167°W	5 (1/3/1)
8-Mar	49.0°N	167°W	4 (0/0/4)
9-Mar	49.0°N	167°W	1 (0/0/1)
9-Mar	49.5°N	166°W	1 (0/0/1)

- 11 polymorphic microsatellite loci
- 381 population Department of Fisheries and Oceans Canada (DFO) baseline
- 100% SPAM simulations for baseline accuracy
- Stock compositions estimated with BAYES



Map of chum salmon baseline groups.
 East Asia, North Asia, Western Alaska, Upper Yukon, Southwest Alaska, Eastern Gulf of Alaska/Pacific Northwest (EGOA/PNW)

Our results support seasonal migration model of Dr. S Urawa

- Japanese & Russian fish spend 1st winter in western NPO
 - Japanese chum salmon seasonal migrations:
 - North to Bering Sea 2nd summer
 - Southeast to Gulf of Alaska 2nd & 3rd winters
 - Russian chum salmon seasonal migrations:
 - North to Bering Sea 2nd summer
 - South to central NPO 2nd & 3rd winters



Acknowledgements

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