

Alaska Hatchery Research Program

Question 2: What is the Extent and Annual Variability of Straying?



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Chief Fisheries Scientist for Salmon
Division of Commercial Fisheries
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Alaska Board of Fisheries Hatchery Committee
March 23, 2022

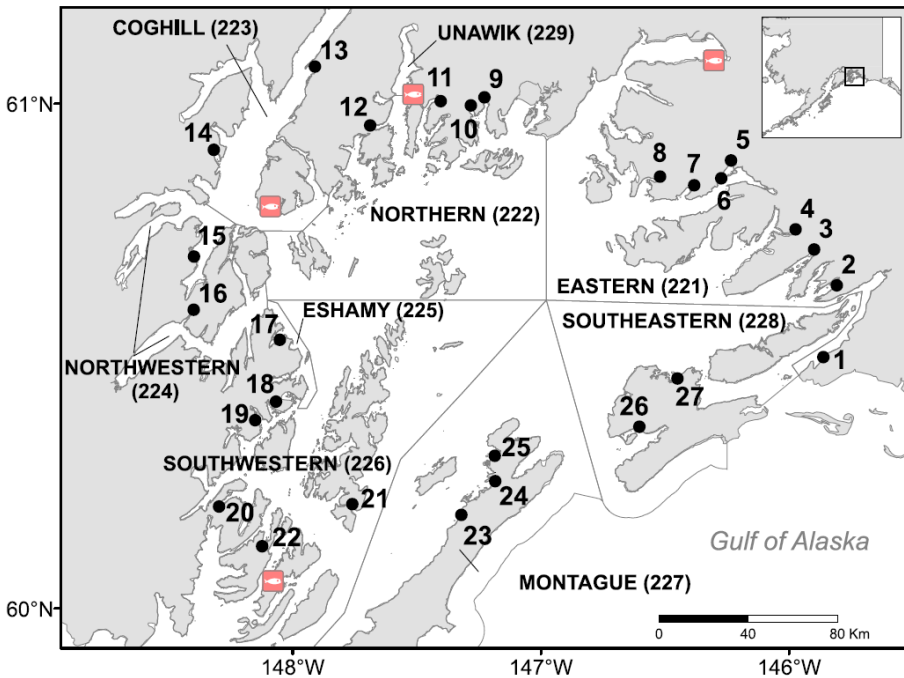
PWS Streams for Straying Study 2013-2015



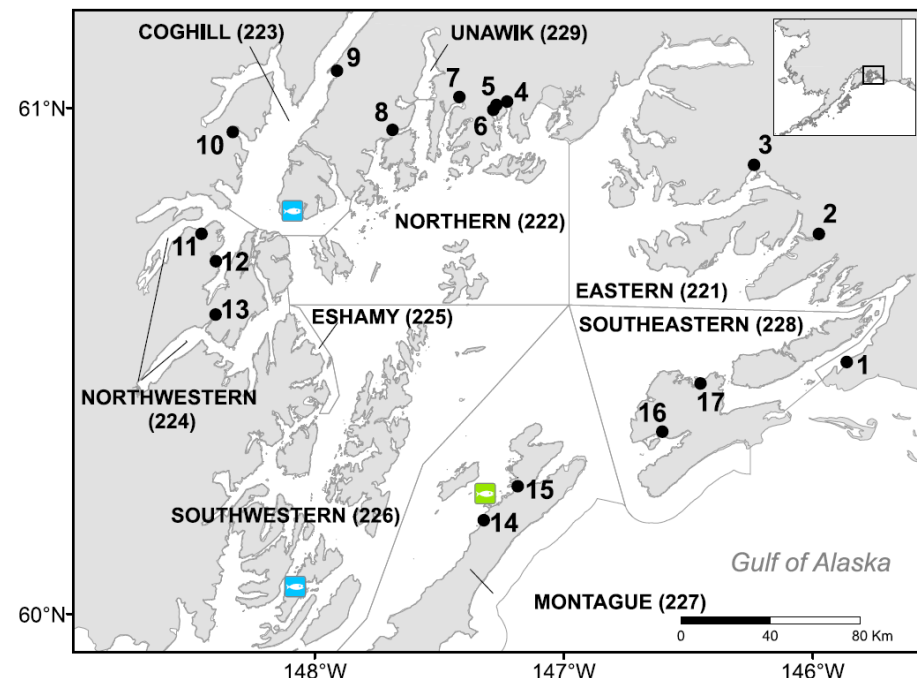
Pink



Chum



Range: 0.0% - 89.9%



0.0% - 96.5%

PWS Hatchery Proportions in Escapement

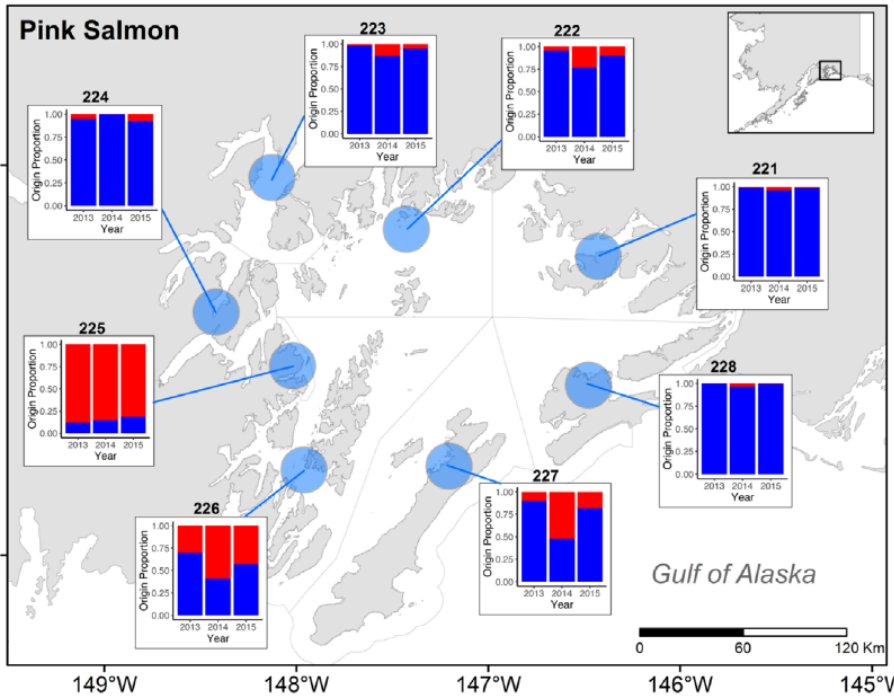
By District 2013-2015



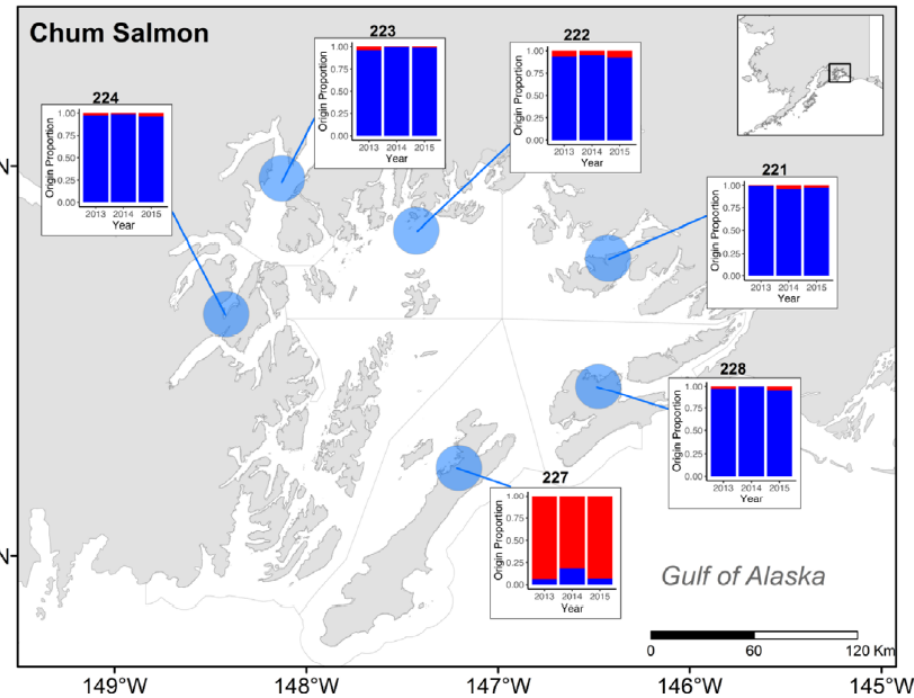
Pink



Chum



Range: 0.1% - 89.9%



0.0% - 84.6%

PWS Hatchery Proportions in Escapement

Soundwide

2013-2015

Species	2013	2014	2015
Pink	4.5%	14.7%	10.5%
Chum	2.8%	3.3%	9.2%

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FEATURED PAPER

Hatchery-Origin Stray Rates and Total Run Characteristics for Pink Salmon and Chum Salmon Returning to Prince William Sound, Alaska, in 2013–2015

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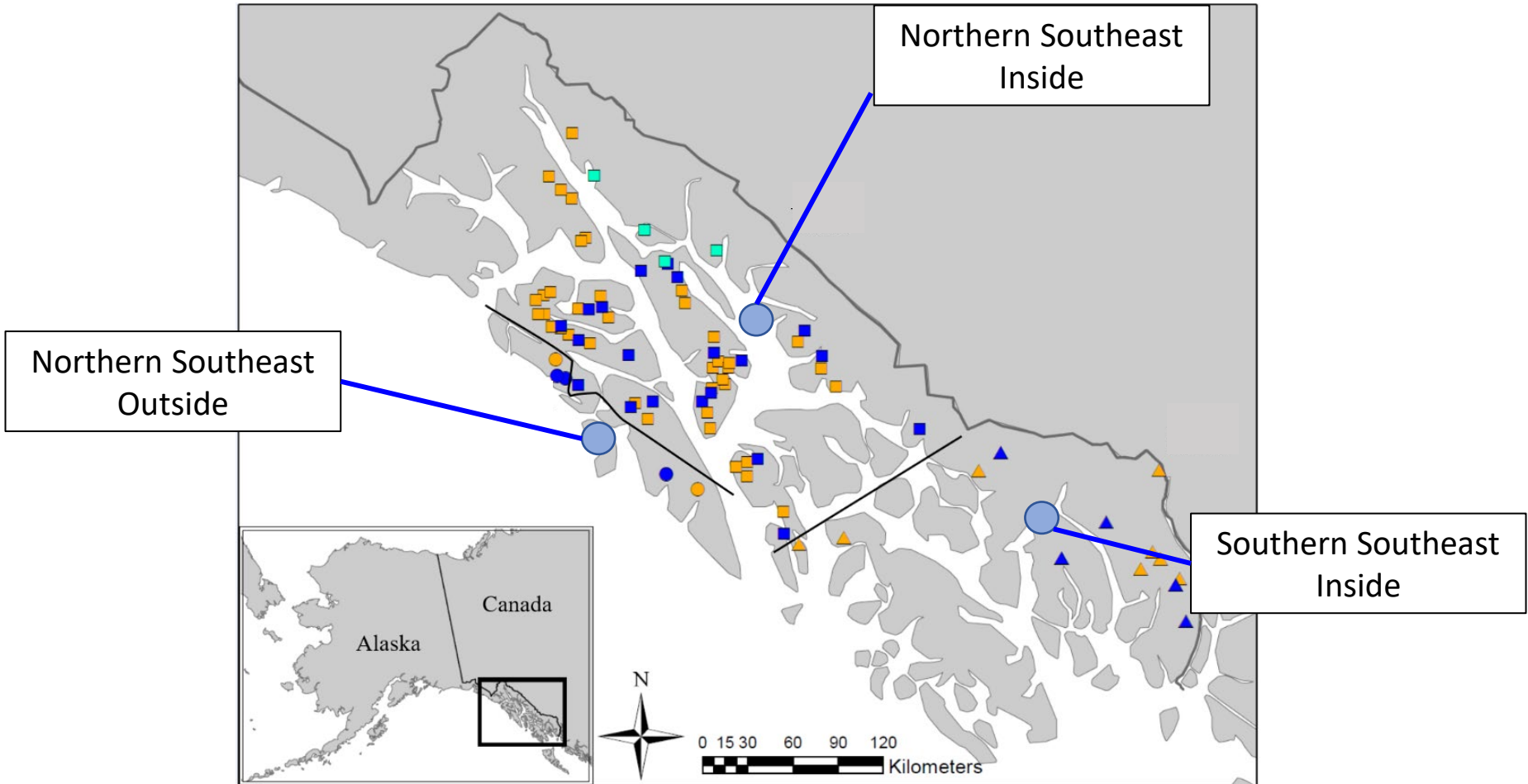
Department of Fish and Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, Alaska 99518, USA

SE Alaska Streams for Chum Salmon Straying Study

2013-2015



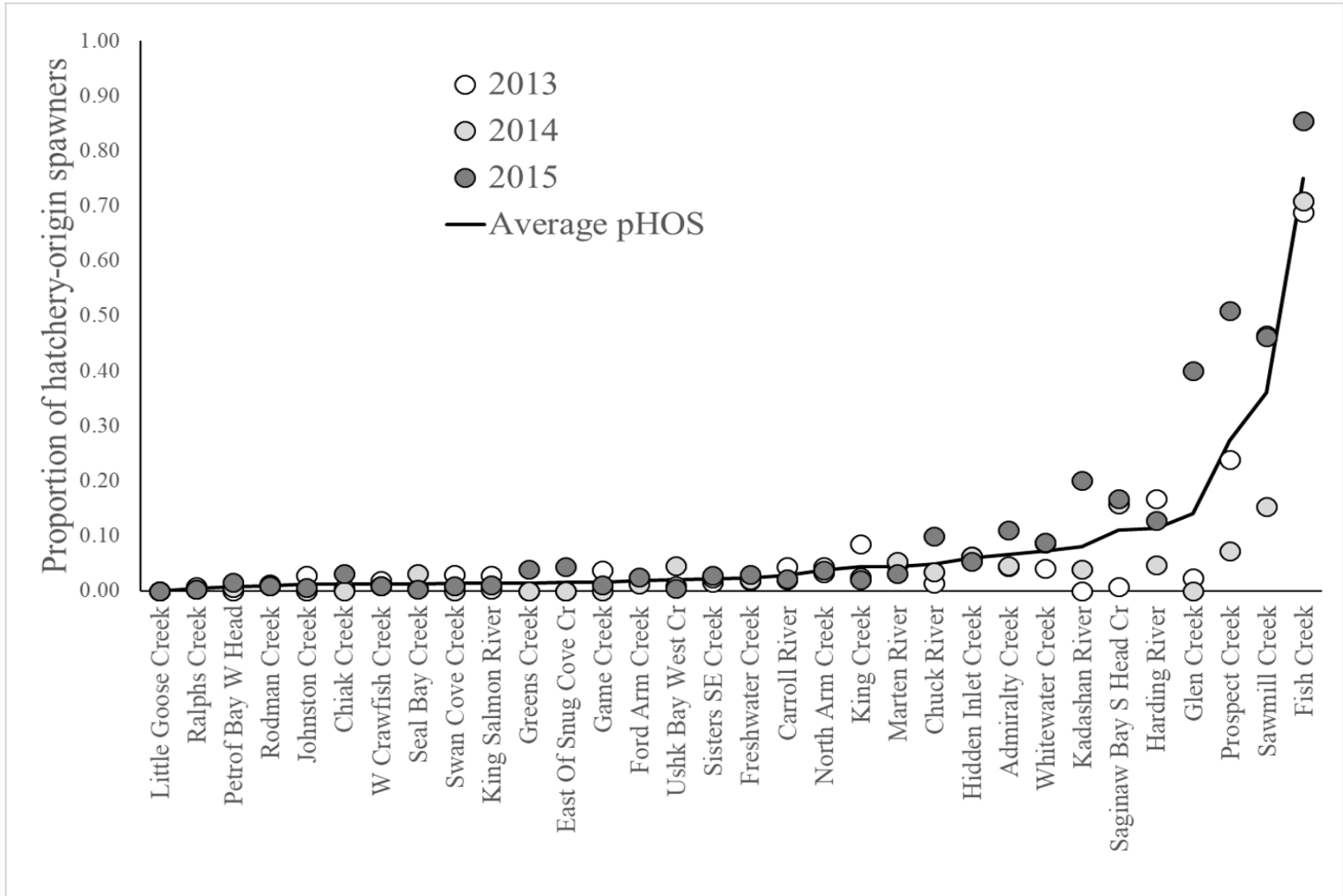
Chum



Josephson, R., et al. "Proportions of Hatchery Fish in Escapements of Summer-Run Chum Salmon in Southeast Alaska, 2013–2015." *North American Journal of Fisheries Management* 41.3 (2021): 724-738.

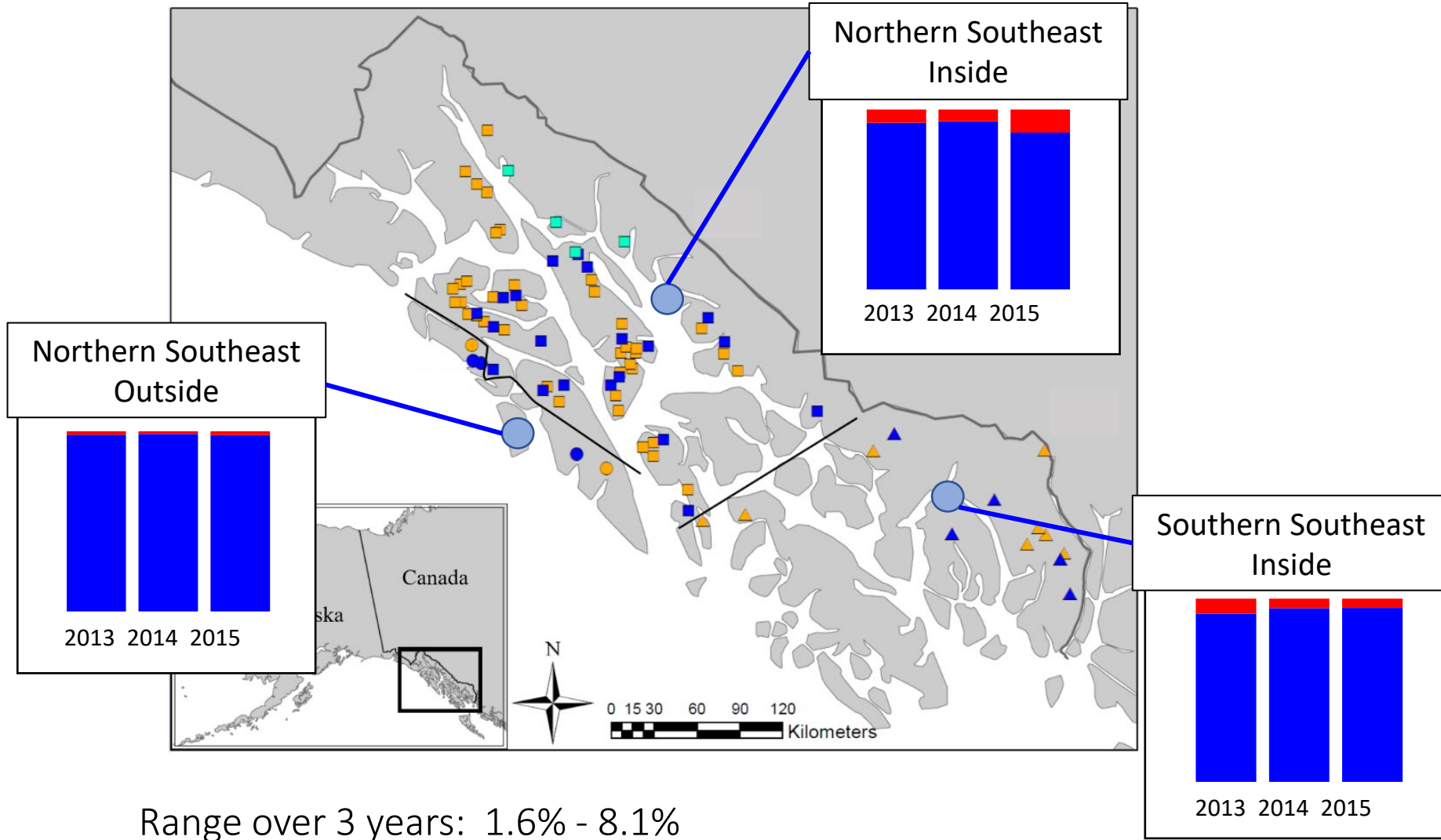
SEAK Chum Salmon Hatchery Proportions

Streams 2013-2015



SEAK hatchery proportions in Chum escapement

By Area 2013-2015



SEAK Hatchery Proportions in Chum Escapement

Region-wide 2013-2015

Species	2013	2014	2015
Chum	3.2%	3.1%	6.0%

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ARTICLE

Proportions of Hatchery Fish in Escapements of Summer-Run Chum Salmon in Southeast Alaska, 2013–2015

Ronald Josephson*¹ [and others]

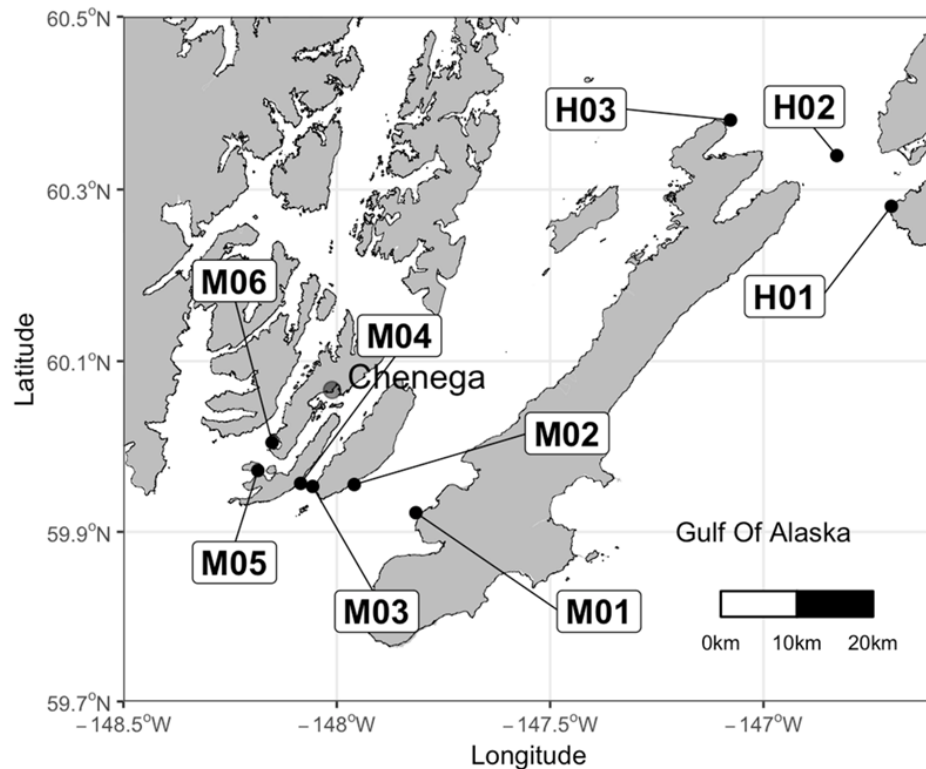
Alaska Department of Fish and Game, Division of Commercial Fisheries, 1255 West 8th Street, Juneau, Alaska 99802, USA

PWS Run reconstructions for Pink and Chum

2013-2015

Sources of information

1. Test fishery at entrances to PWS
 - Proportions of hatchery in run
 - Relative abundance of run
2. Commercial and cost recovery harvests
 - Proportion hatchery in harvest
 - Number of fish in harvest
3. Hatchery broodstock
4. Stream carcass surveys
 - Proportion hatchery in escapement
5. Stream escapement surveys
 - Index of escapement



PWS Run reconstructions for Pink and Chum

2013-2015

Ocean sampling

Proportions of hatchery fish in run

- Pink salmon: 55 - 86%
- Chum salmon: 51 - 73%

Species Common Name	Year	Hatchery Proportion	SE
Pink Salmon	2013	0.679	.016
	2014	0.864	.03
	2015	0.549	.004
Chum Salmon	2013	0.725	.019
	2014	0.511	.029
	2015	0.688	.015

PWS Run Reconstructions for Pink and Chum

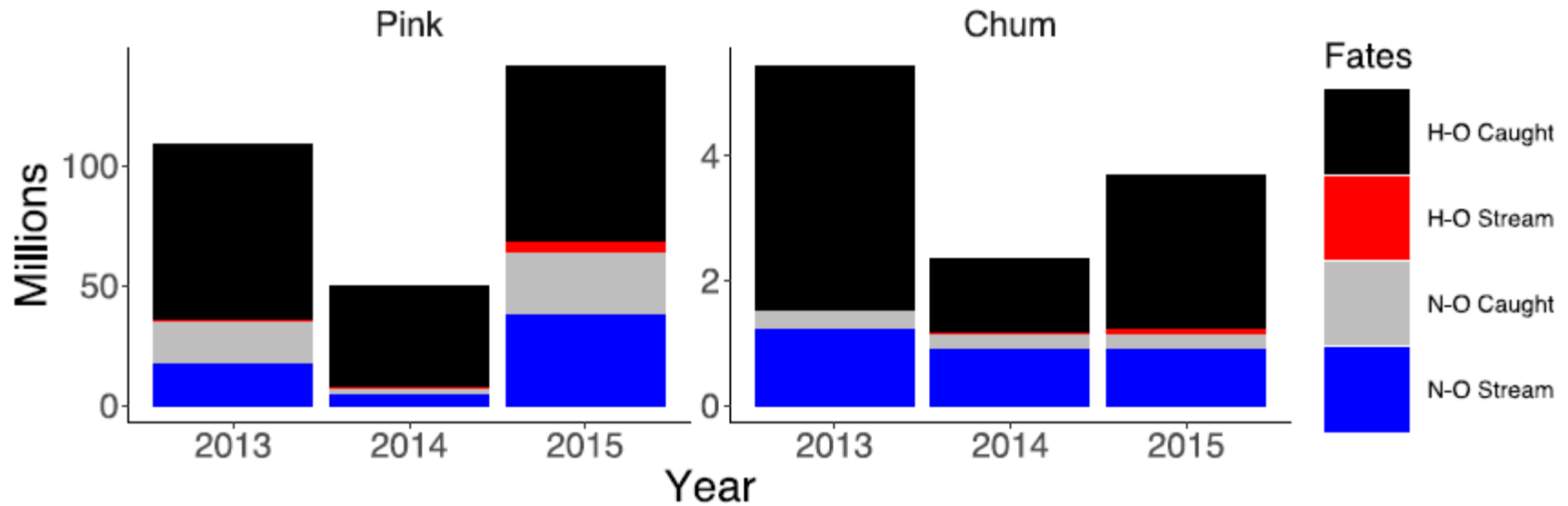
2013-2015

Wild and Hatchery run size estimates (Thousands)

Species Year	Natural spawners	Hatchery strays	Total spawners	Natural run	Hatchery run	Total run
Pink salmon						
2013	15,698	701	16,399	33,096	69,888	102,985
2014	5,130	741	5,872	6,960	42,757	49,718
2015	37,972	4,009	41,981	63,531	77,335	140,866
Chum salmon						
2013	894	50	944	1,141	3,007	4,148
2014	925	49	975	1,175	1,228	2,404
2015	890	28	919	1,128	2,484	3,612

PWS Run Reconstructions for Pink and Chum

2013-2015



Year	Harvest Rate			
	<u>Pink</u>		<u>Chum</u>	
	Wild	Hatchery	Wild	Hatchery
2013	0.50	0.99	0.17	0.99
2014	0.27	0.98	0.20	0.97
2015	0.40	0.94	0.19	0.96

PWS Run Reconstruction for Pink salmon

Hatchery and Stream Stray Rates 2013-2015

	2013	2014	2015
Straying out of Hatcheries	1.0%	1.6%	5.2%
Straying into Streams	4.5%	14.1%	10.5%

Questions?



PWS Streams for Straying Study

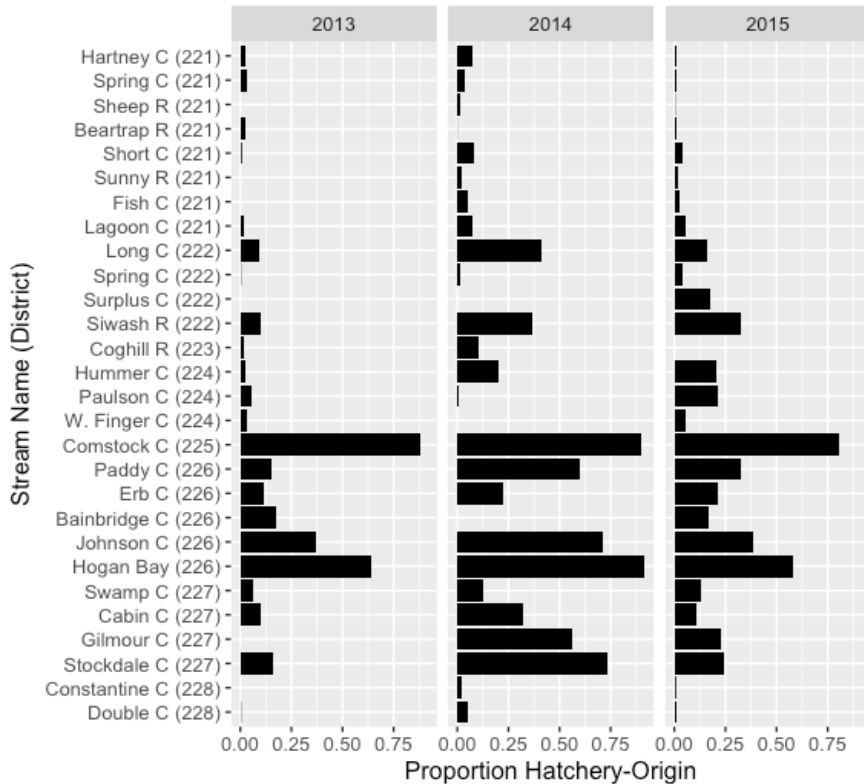
By Stream 2013-2015



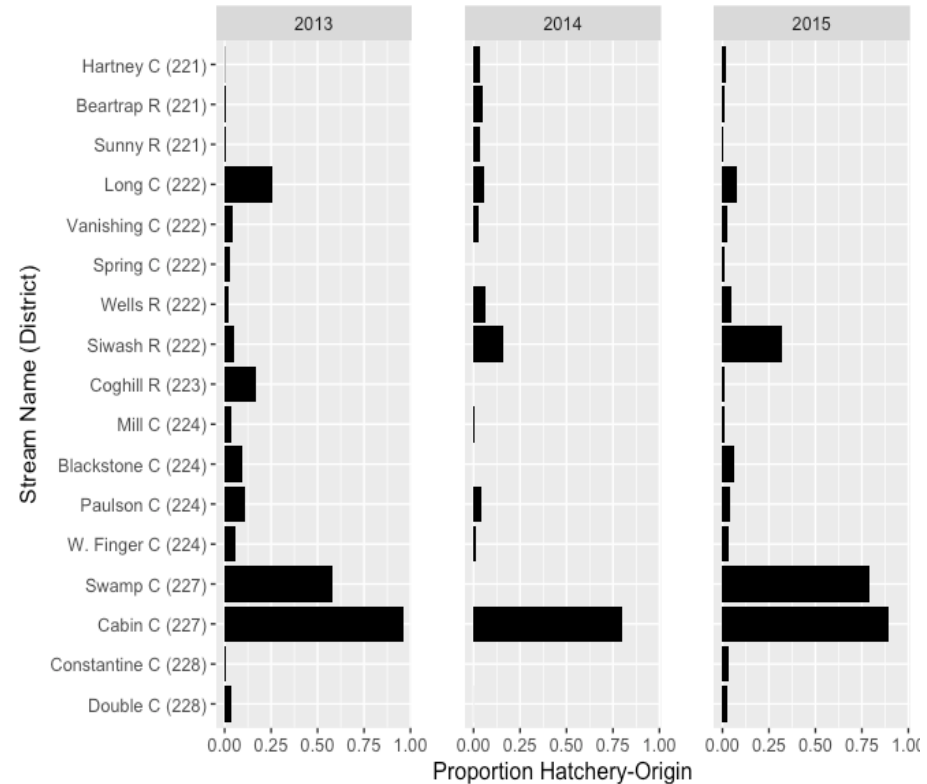
Pink



Chum



Range: 0.1% - 89.9%



0.0% - 84.6%

PWS Run reconstruction for Pink salmon, 2014

Stream
Harvest = Rate
12% Hatchery

