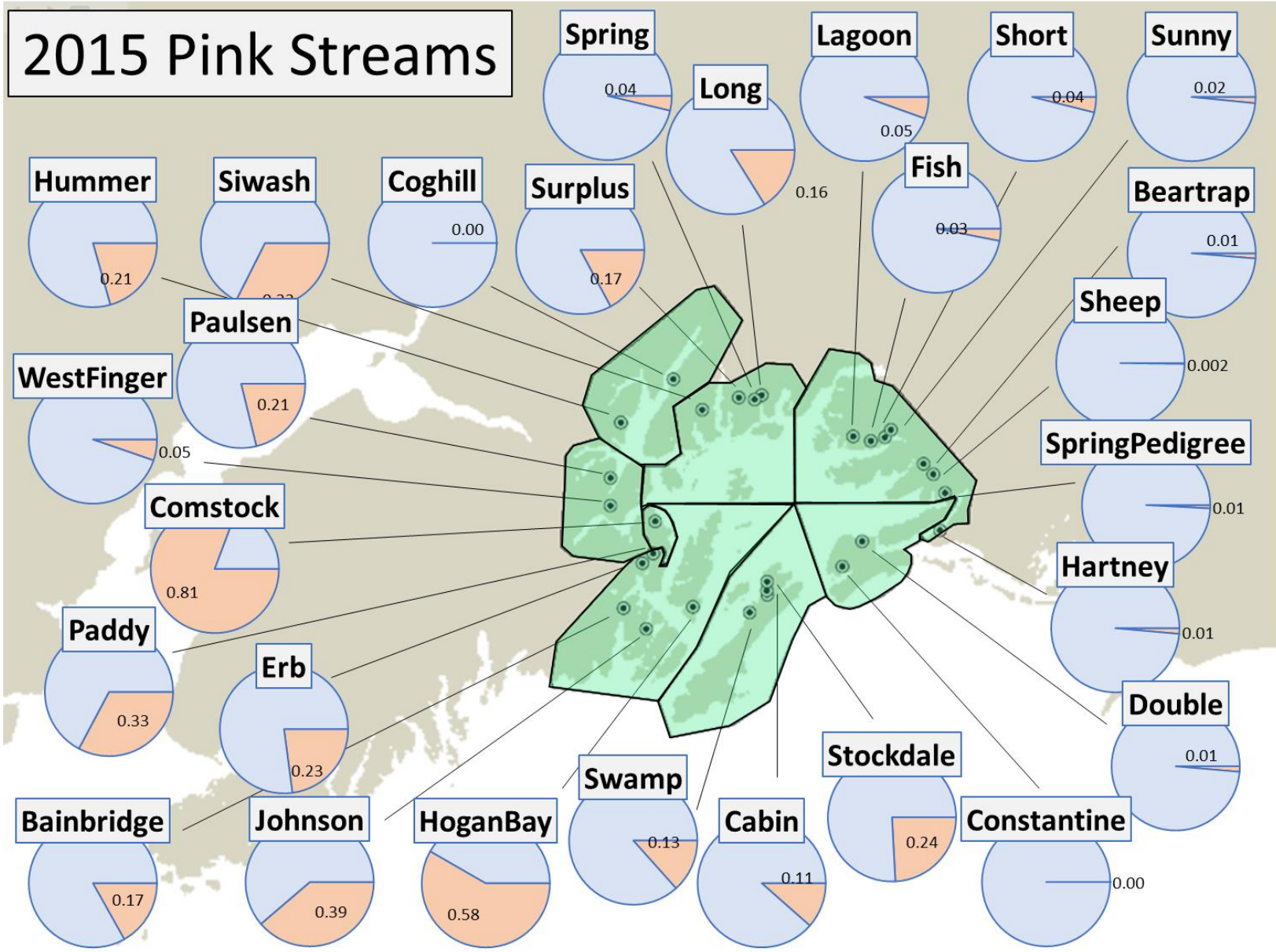


Study Question 2: What is the Extent and Annual Variability of Straying?

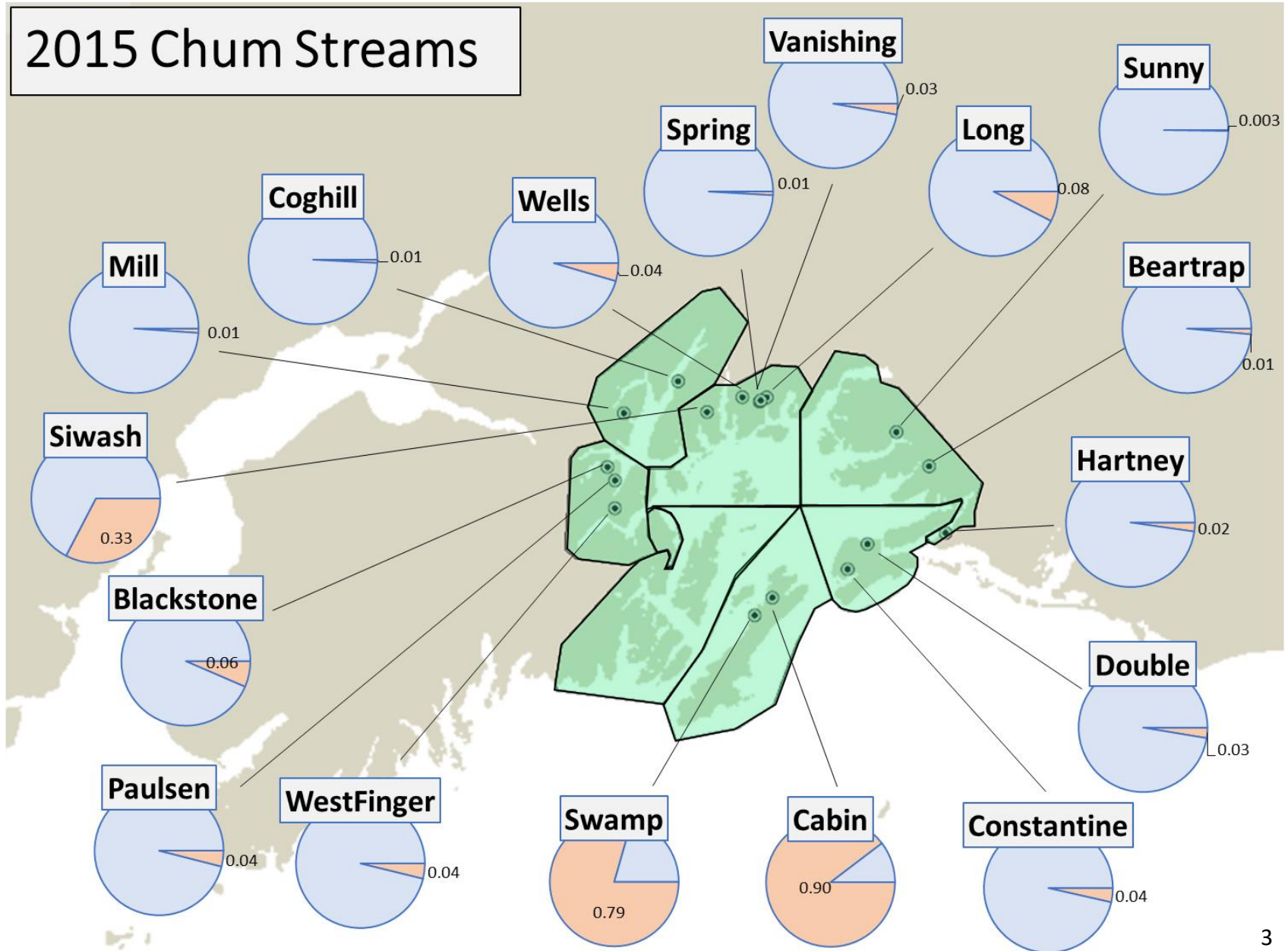


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Alaska Department of Fish and Game
Alaska Board of Fisheries Hatchery Committee
March 7, 2020

PWS Pink salmon hatchery proportions in streams

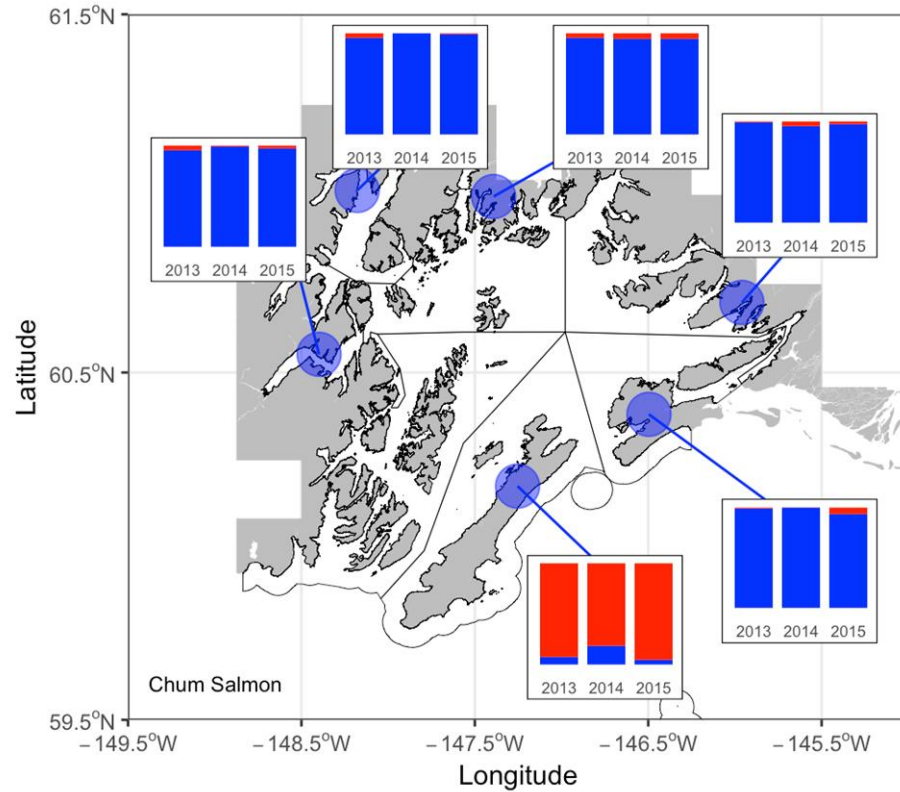
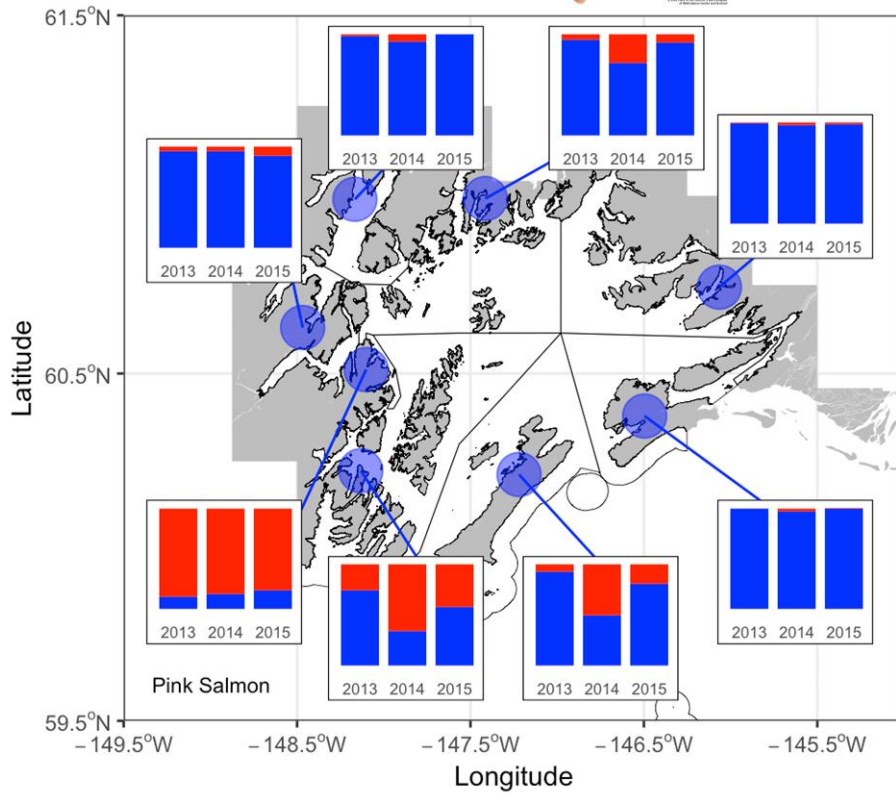


PWS Chum salmon hatchery proportions in streams



PWS Hatchery Proportions in Escapement by District

2013-2015



Range: 0.1% - 89.9%

0.0% - 84.6%

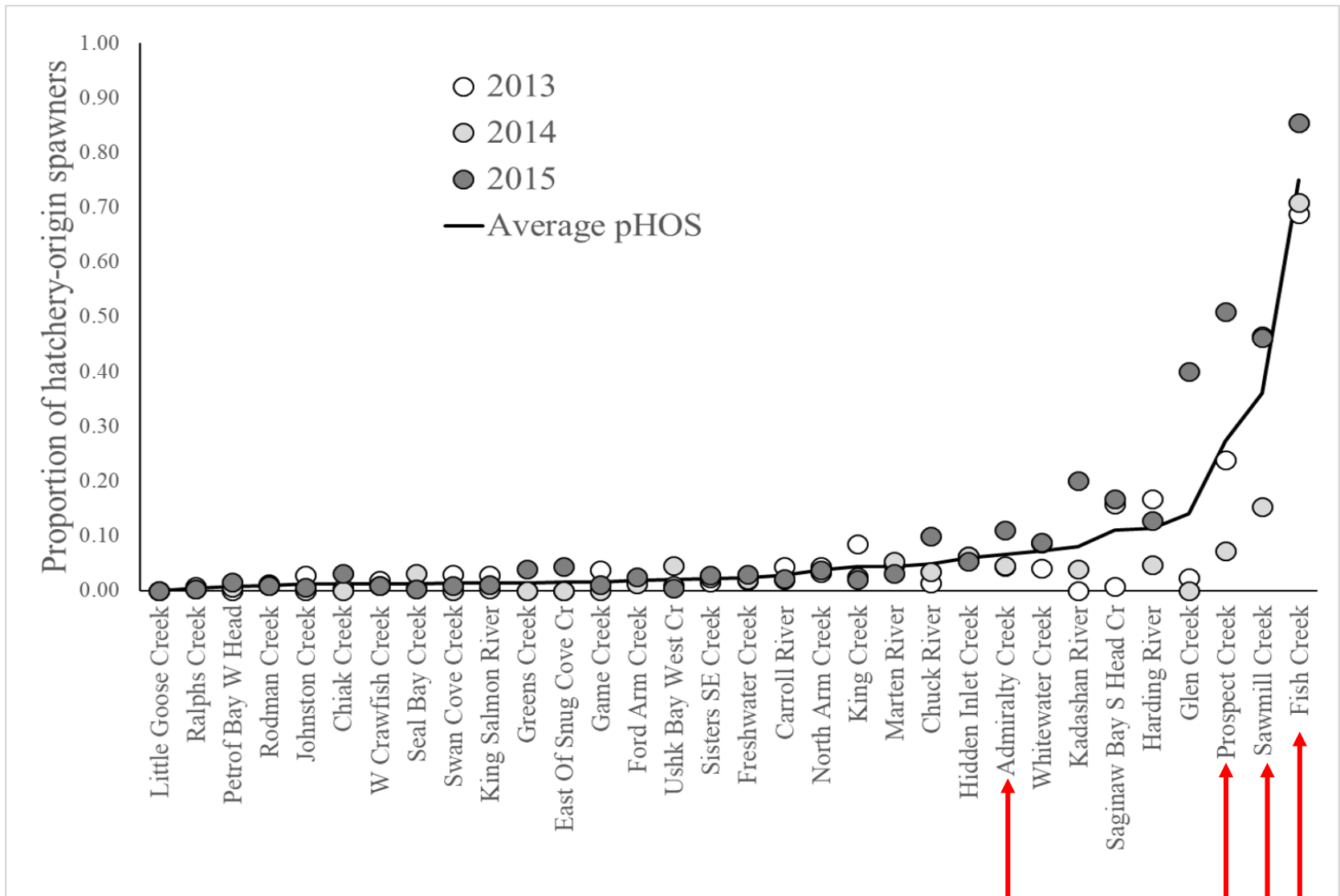
PWS hatchery proportions in escapement

2013-2015

Species	2013	2014	2015
Pink	4.4%	14.8%	9.5%
Chum	2.8%	3.2%	3.1%

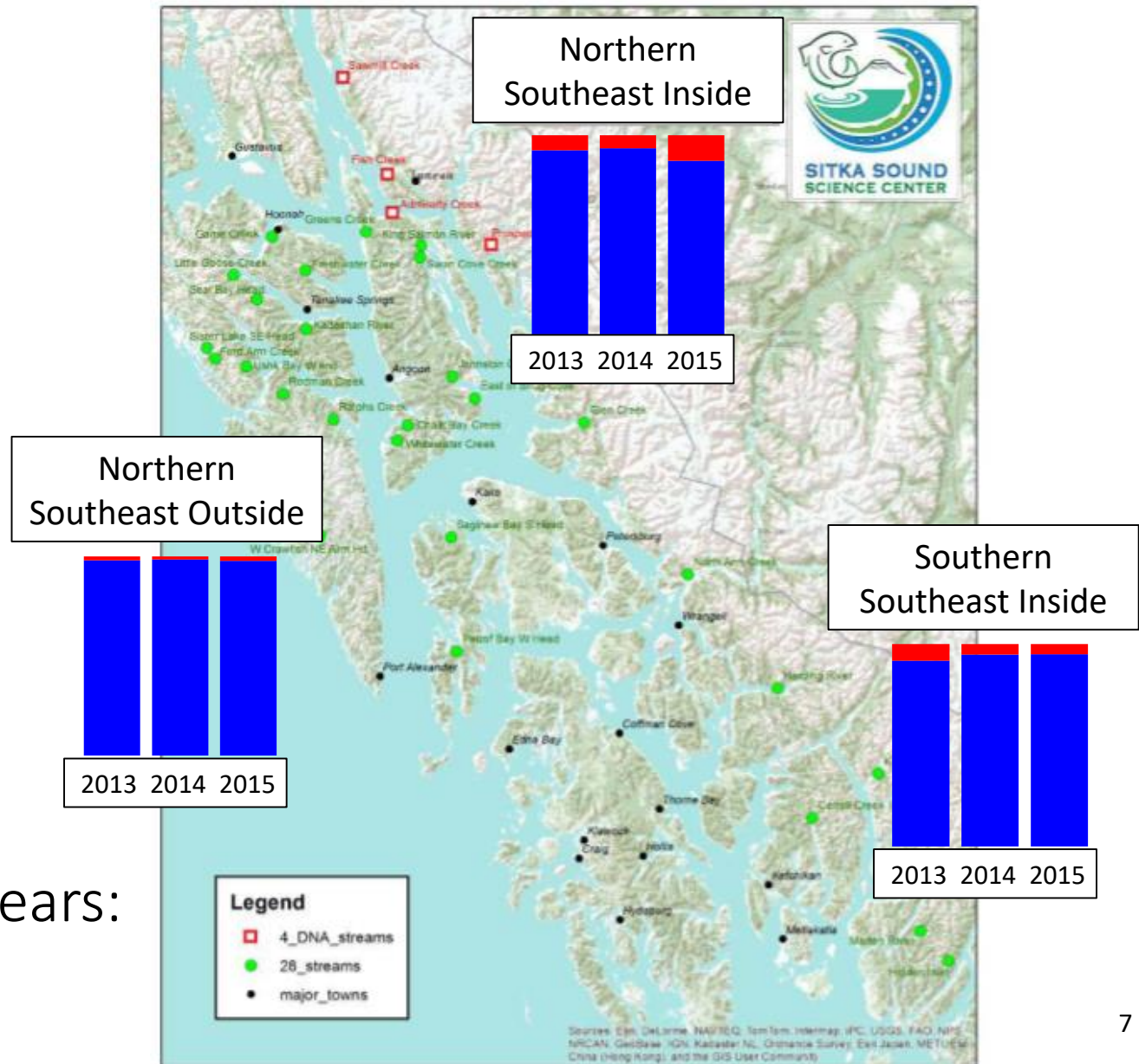
Knudsen et al. *Submitted*. Hatchery fish straying, run sizes, escapement, and harvest rates of adult Pink Salmon and Chum Salmon returning to Prince William Sound, Alaska in 2013-2015. *Mar. Coast. Fish.*

SEAK Chum salmon hatchery proportions in streams 2013-2015



Fitness streams

SEAK hatchery proportions in Chum escapement by area 2013-2015



Range over 3 years:
1.5% - 12.7%

SEAK hatchery proportions in Chum escapement

2013-2015

Species	2013	2014	2015
Chum	7.3%	5.4%	9.2%

Josephson et al. *In prep.* Proportions of hatchery fish in escapements of summer-run Chum Salmon in Southeast Alaska, 2013-2015 N. Am. J. Fish. Manage.

Prince William Sound Run Reconstruction Pink and Chum salmon



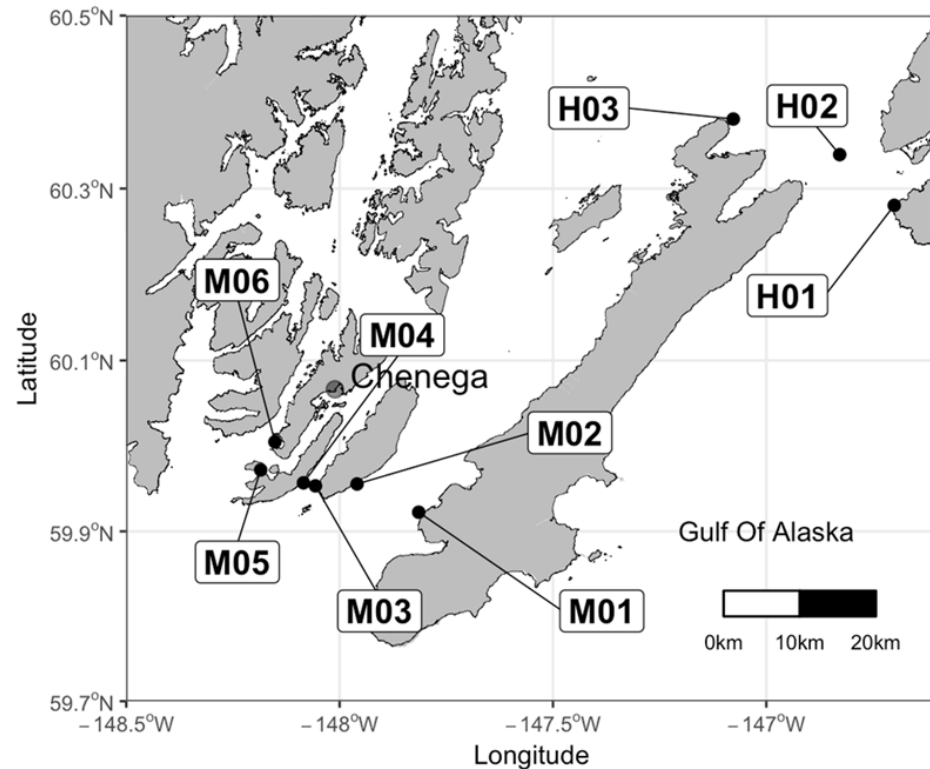
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PWS Run reconstructions for Pink and Chum

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

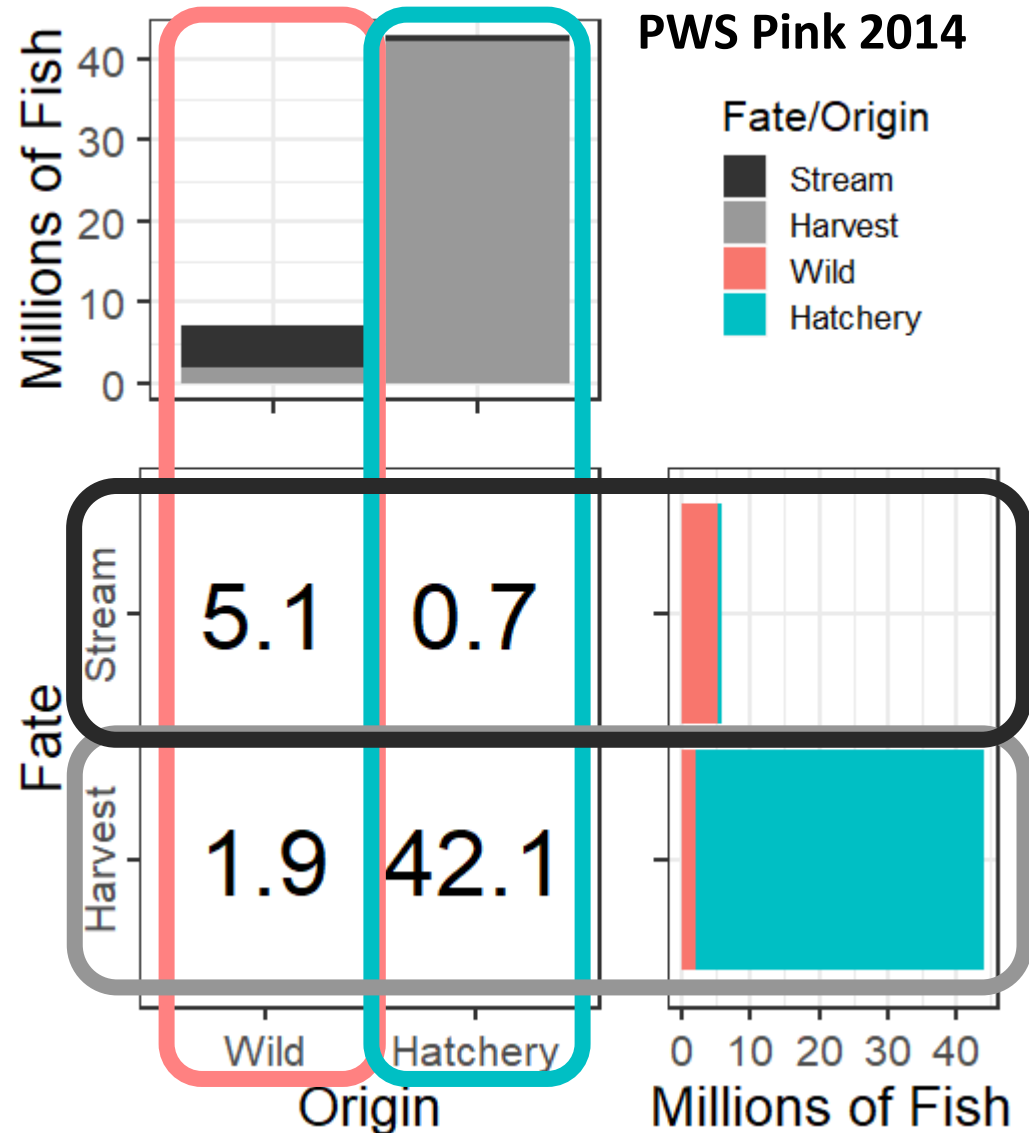
Wild and Hatchery run size estimates (Thousands)

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

Knudsen et al. 2016. *Interactions of Wild and Hatchery Pink Salmon and Chum Salmon in Prince William Sound and Southeast Alaska.*

PWS Run reconstruction for Pink salmon, 2014

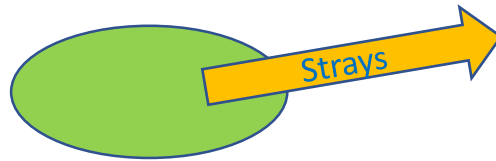
Stream
Harvest = Rate
12% Hatchery



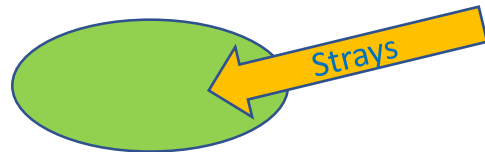
PWS Run reconstruction for Pink salmon

2013-2015

	2013	2014	2015
Hatchery Donor Stray Rate	1.0%	1.6%	5.2%



Stream Recipient Stray Rate	4.3%	12.1%	9.5%
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Questions?

