

Jun 21st, 11:10 AM - 11:30 AM

Population Level Response to 21st Century Fish Passage Infrastructure

Garth Wyatt
PGE West Side Hydro

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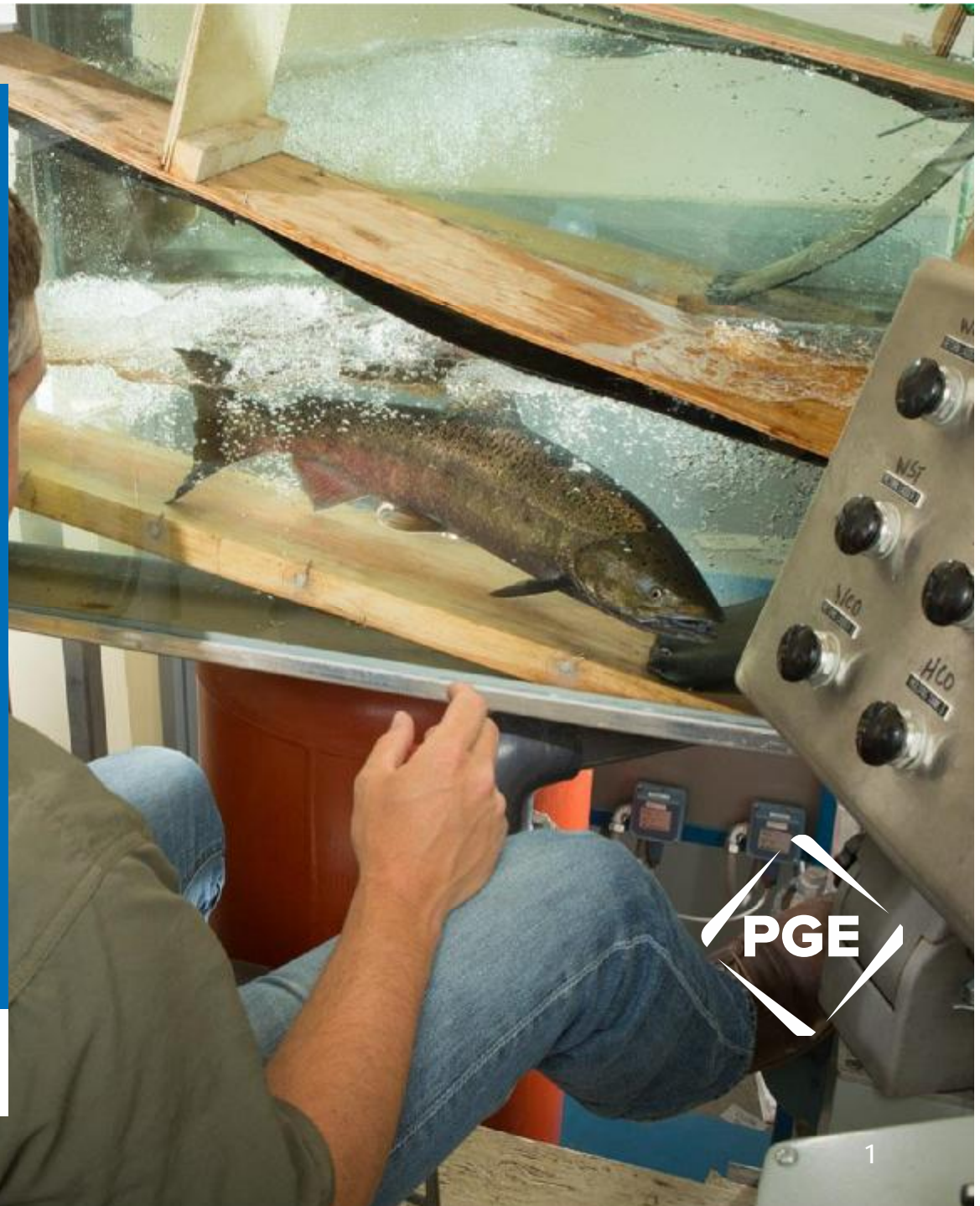
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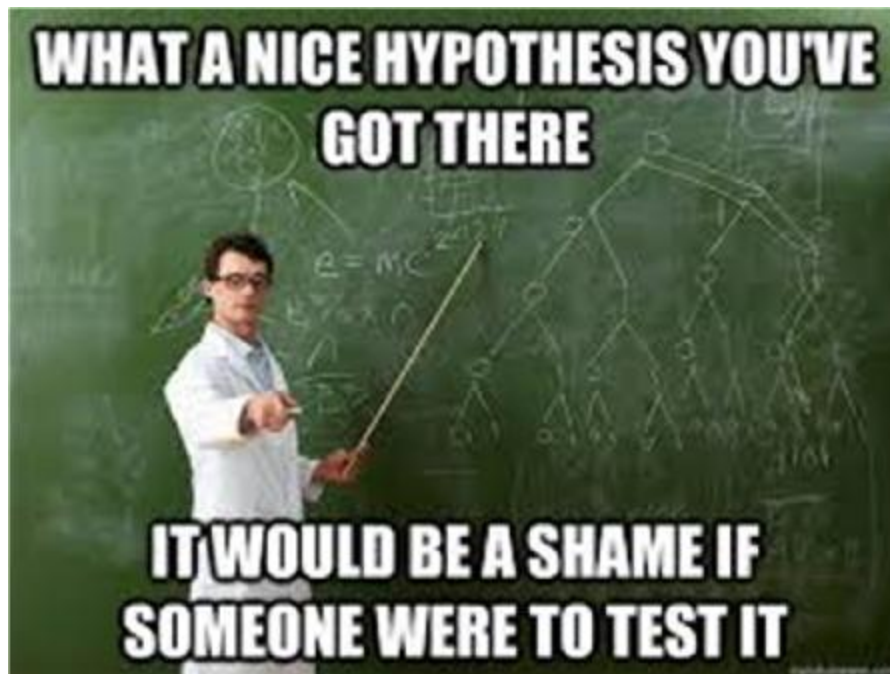
Population Level Response to 21st Century Fish Passage Infrastructure

Garth Wyatt, Fish Biologist
PGE West Side Hydro
6 / 21 / 2017



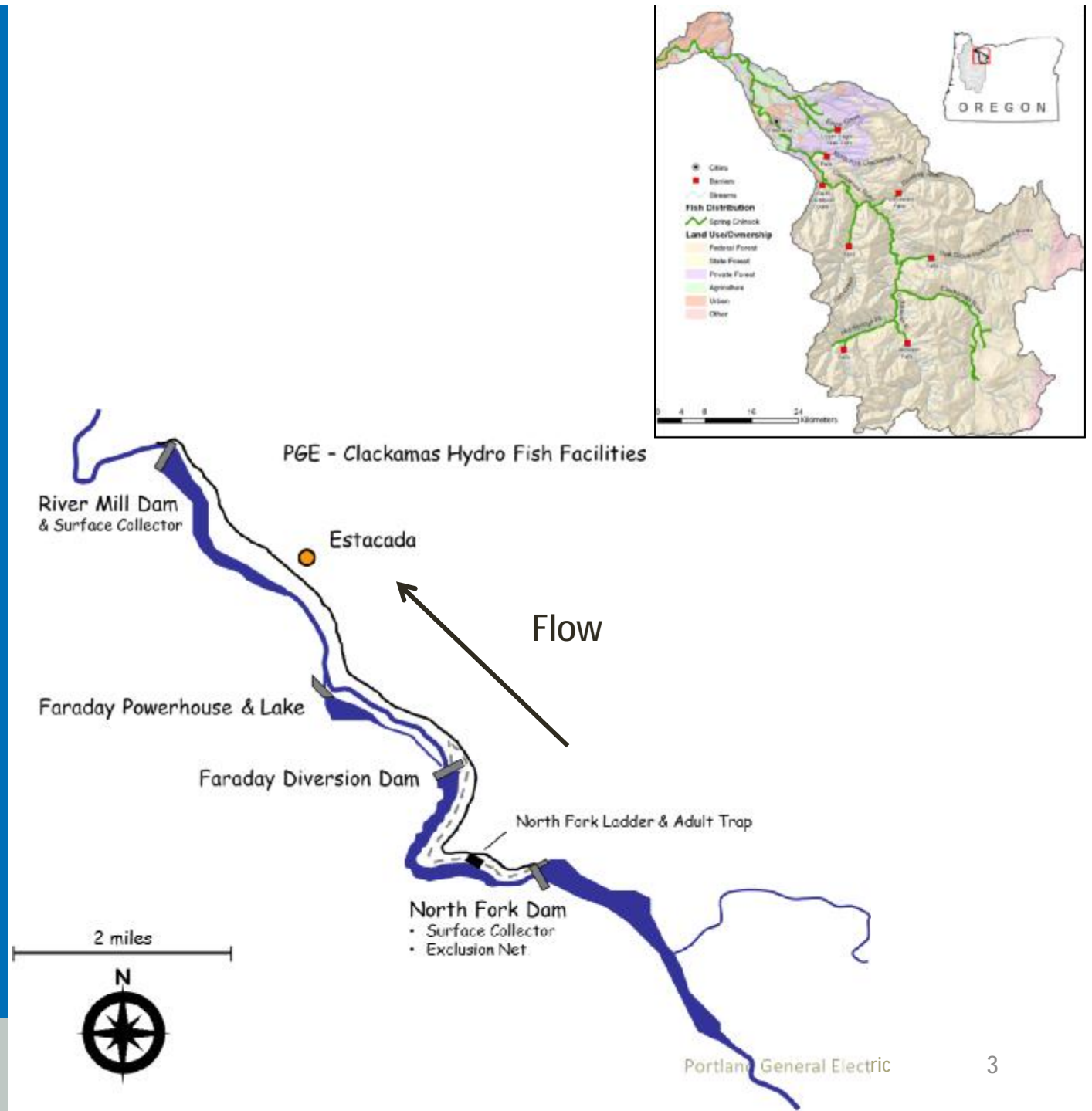
Disclaimer.....

- What you are about to hear is based off of 3-6 years of preliminary data and should be interpreted as observational trends.



Regulatory context:
97% smolt survival
standard for the
Clackamas Project

Safe, timely, and
effective passage for
upstream migrating fish



Setting the Stage: Historical Passage Overview

1. Intermittent upstream passage through 1909 -1917
2. No upstream passage 1917-1938
3. Hatchery fish management



Setting the Stage: Historical Guidance Findings

Capture efficiency estimates did not corroborate regional smolt to adult survival rates

- i.e. # of adults returning \neq regional SAR given the estimated number of outmigrants.

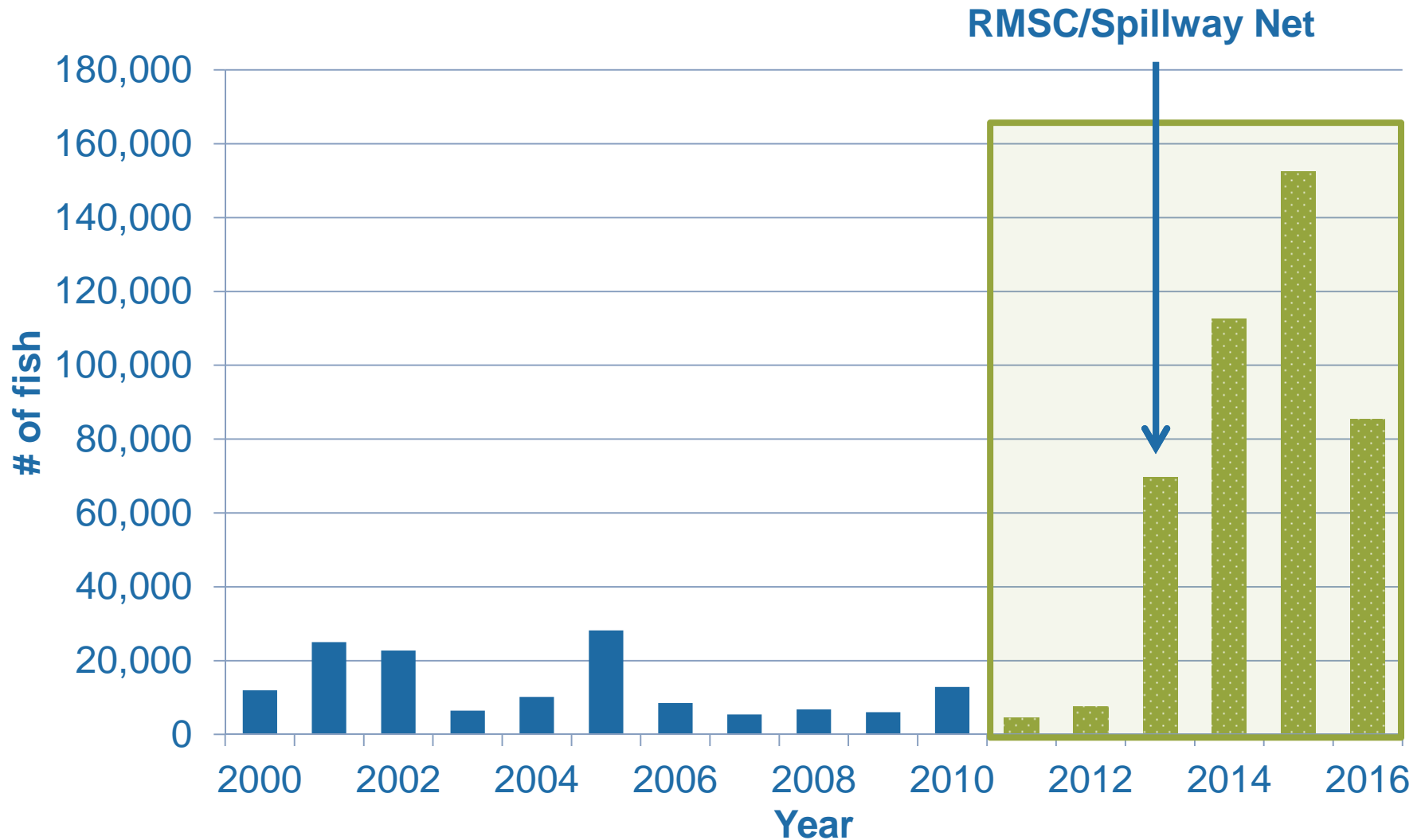
1. CHS
2. STW
3. WCO

“If you build it, they will come...”

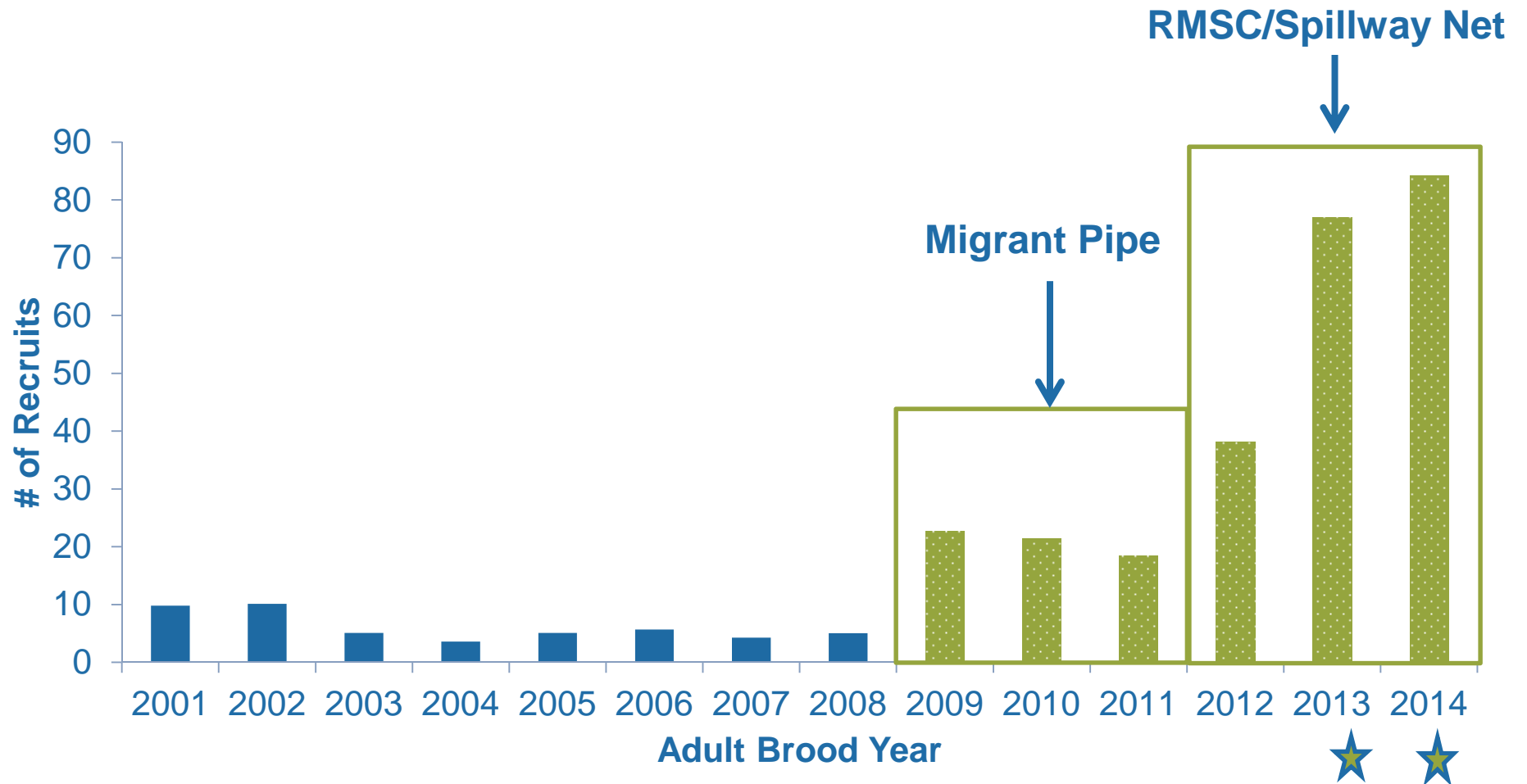
“Or were they already here...?”



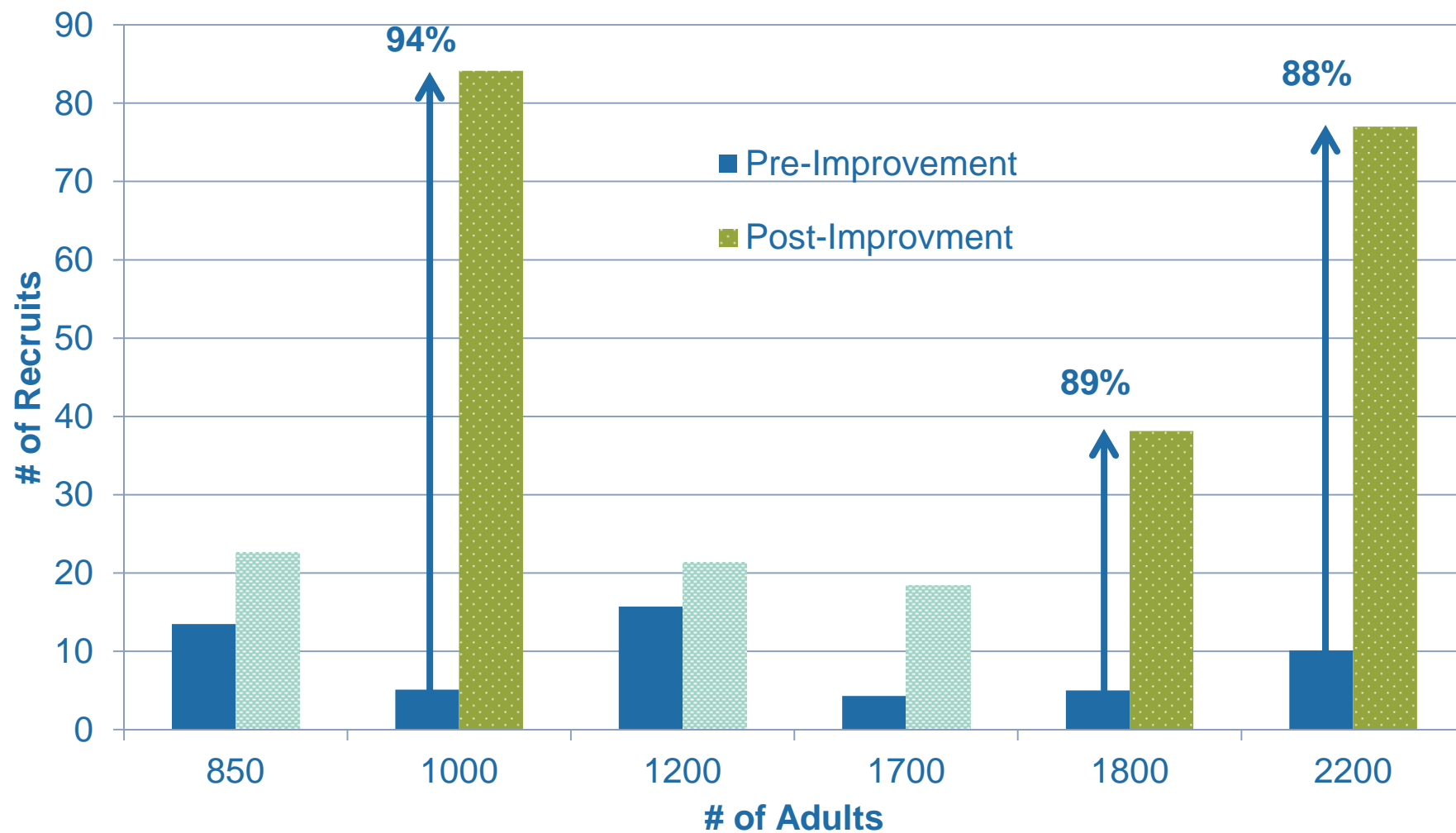
Setting the stage-WCH Outmigrant RY TOT



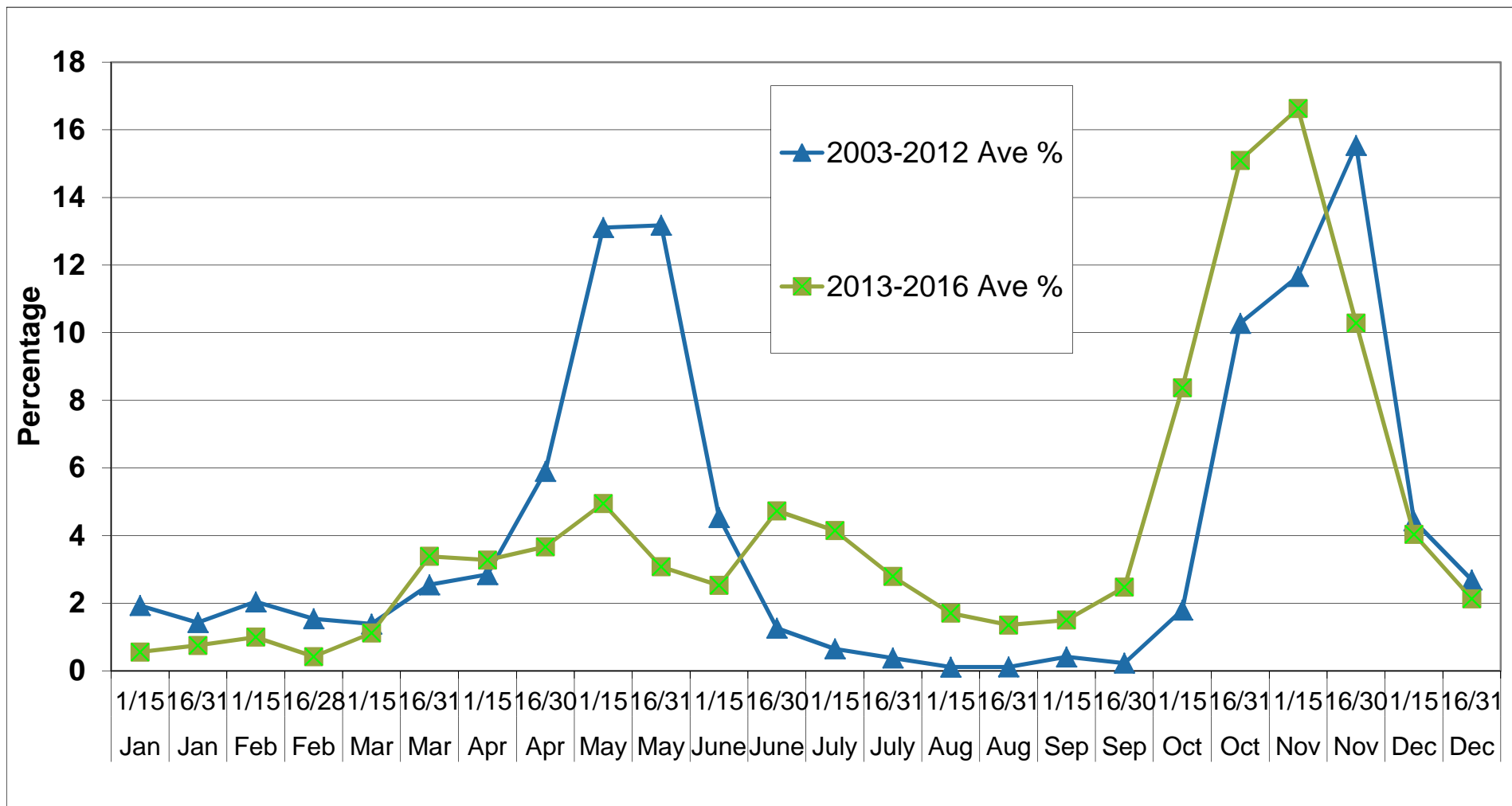
Chinook-Apparent Recruits Per Spawner



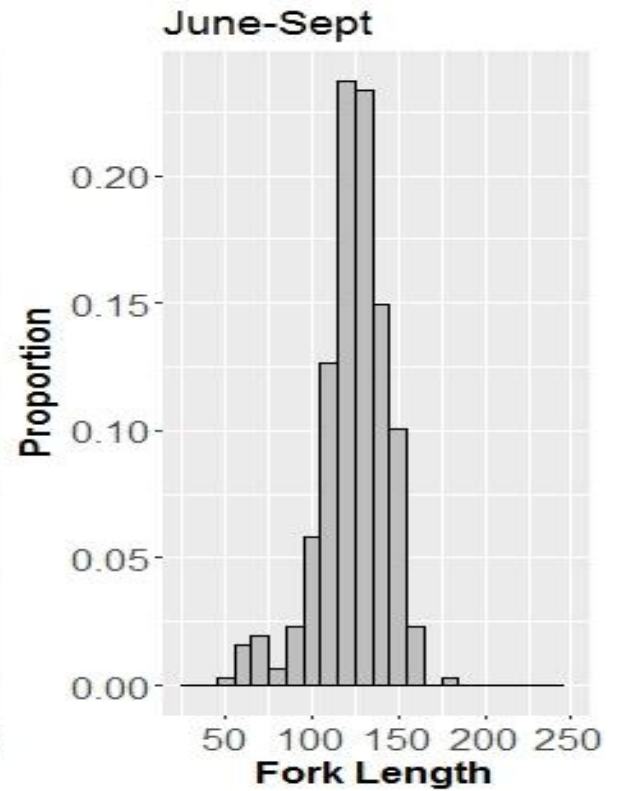
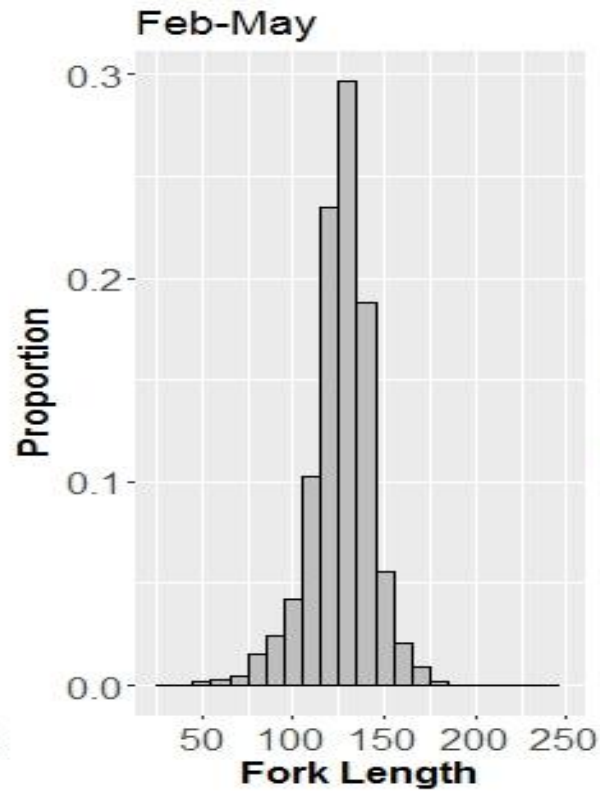
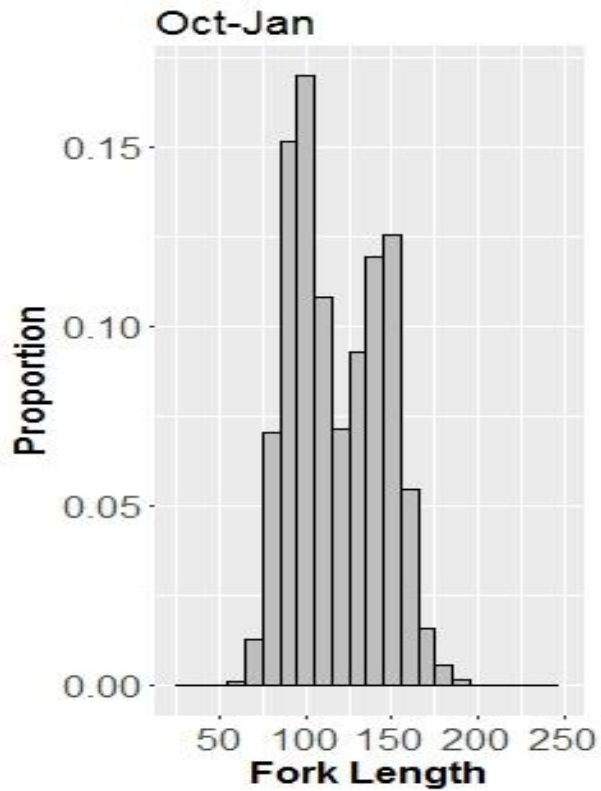
Comparable Run Year-Chinook Recruits per spawner



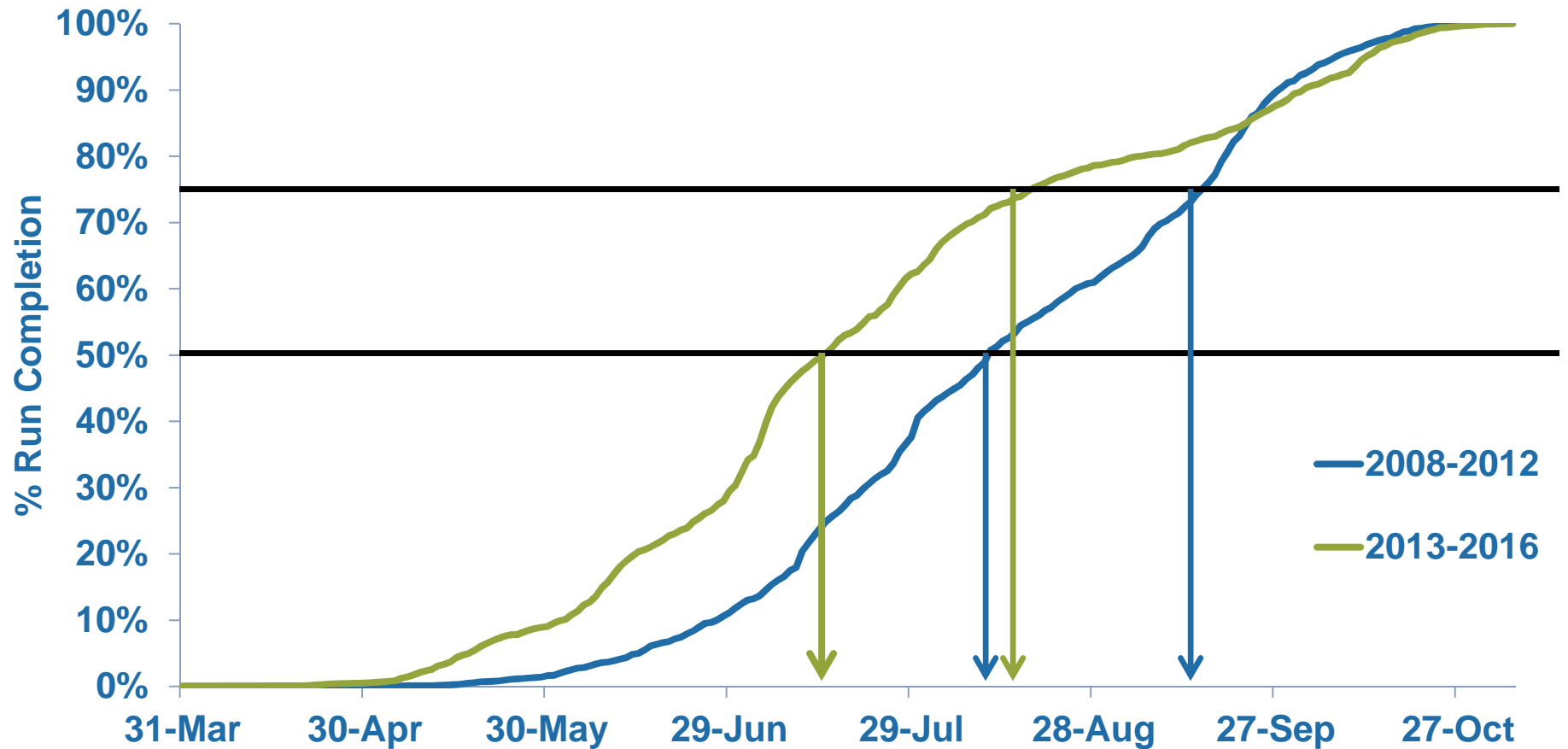
Setting the stage-CHS Bi-weekly run timing



Chinook Outmigrants Length Frequency

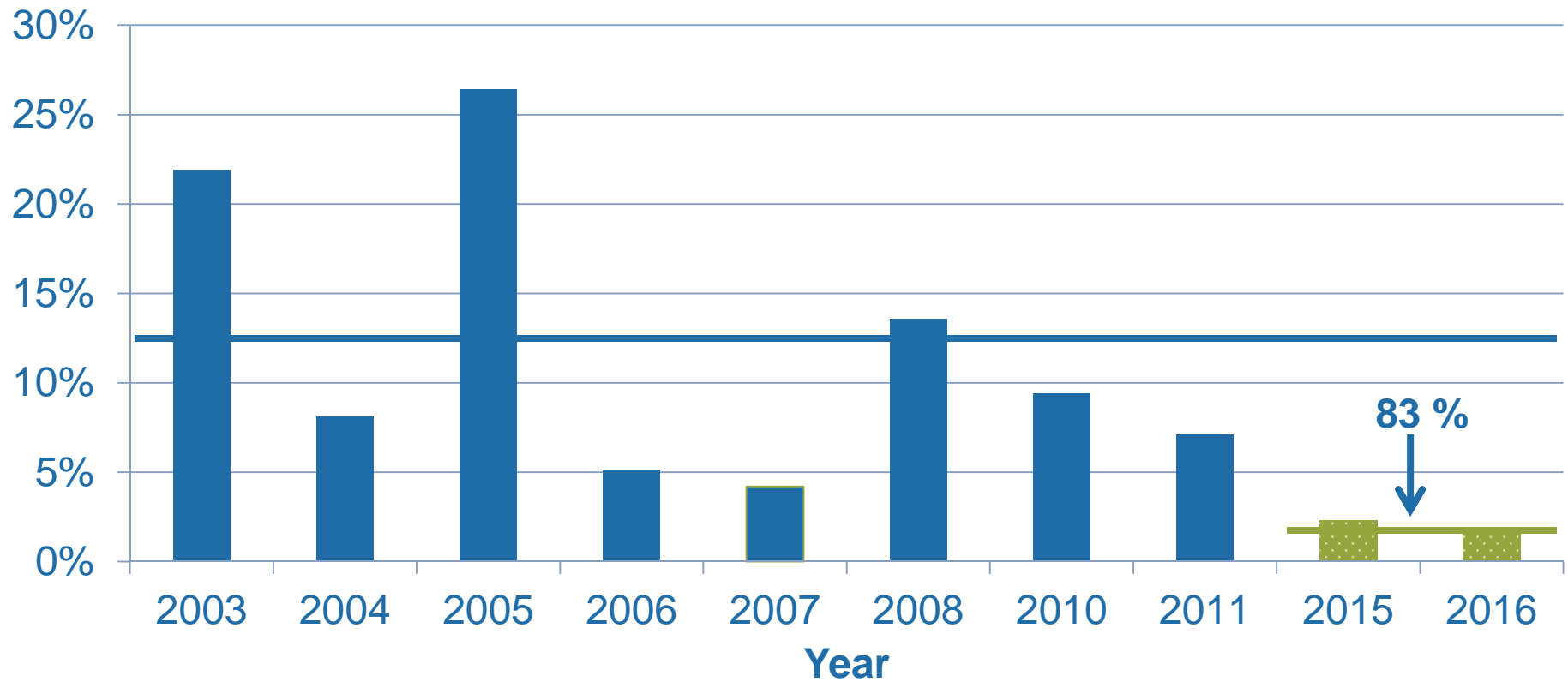


WCH Run timing to North Fork Trap

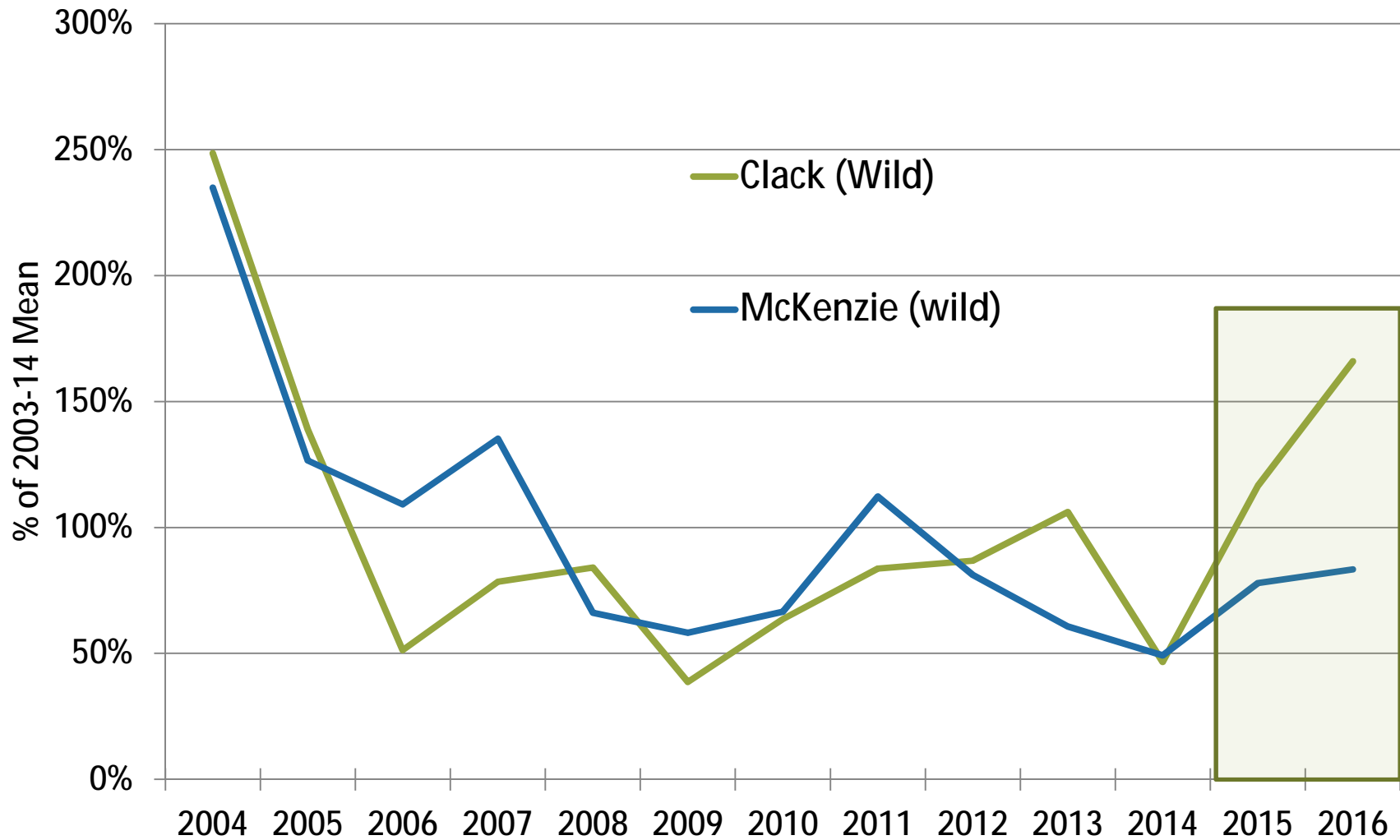


Clackamas Pre-Spawn Mortality Trend

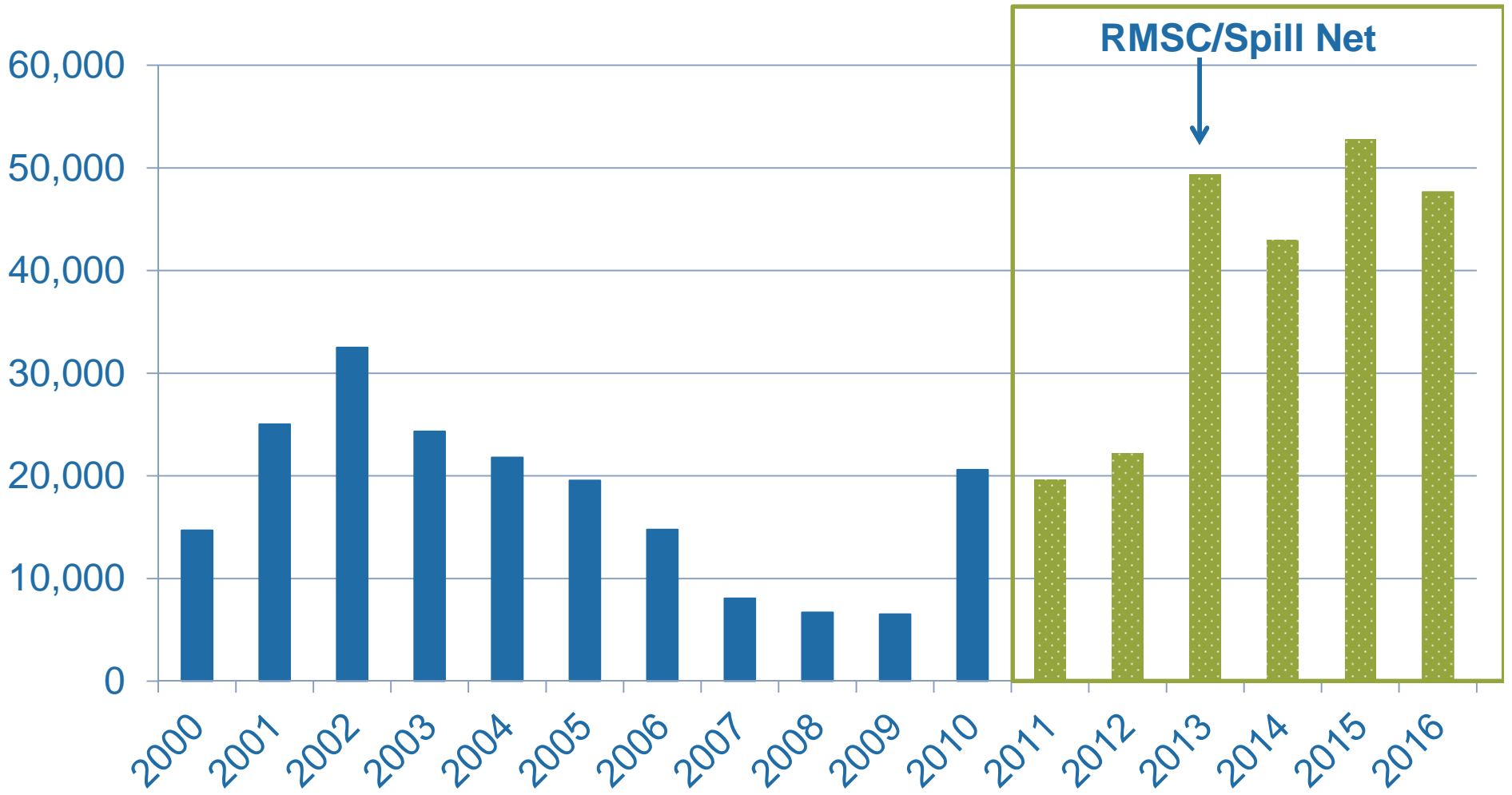
CHS prespawn mortality- ODFW 2017



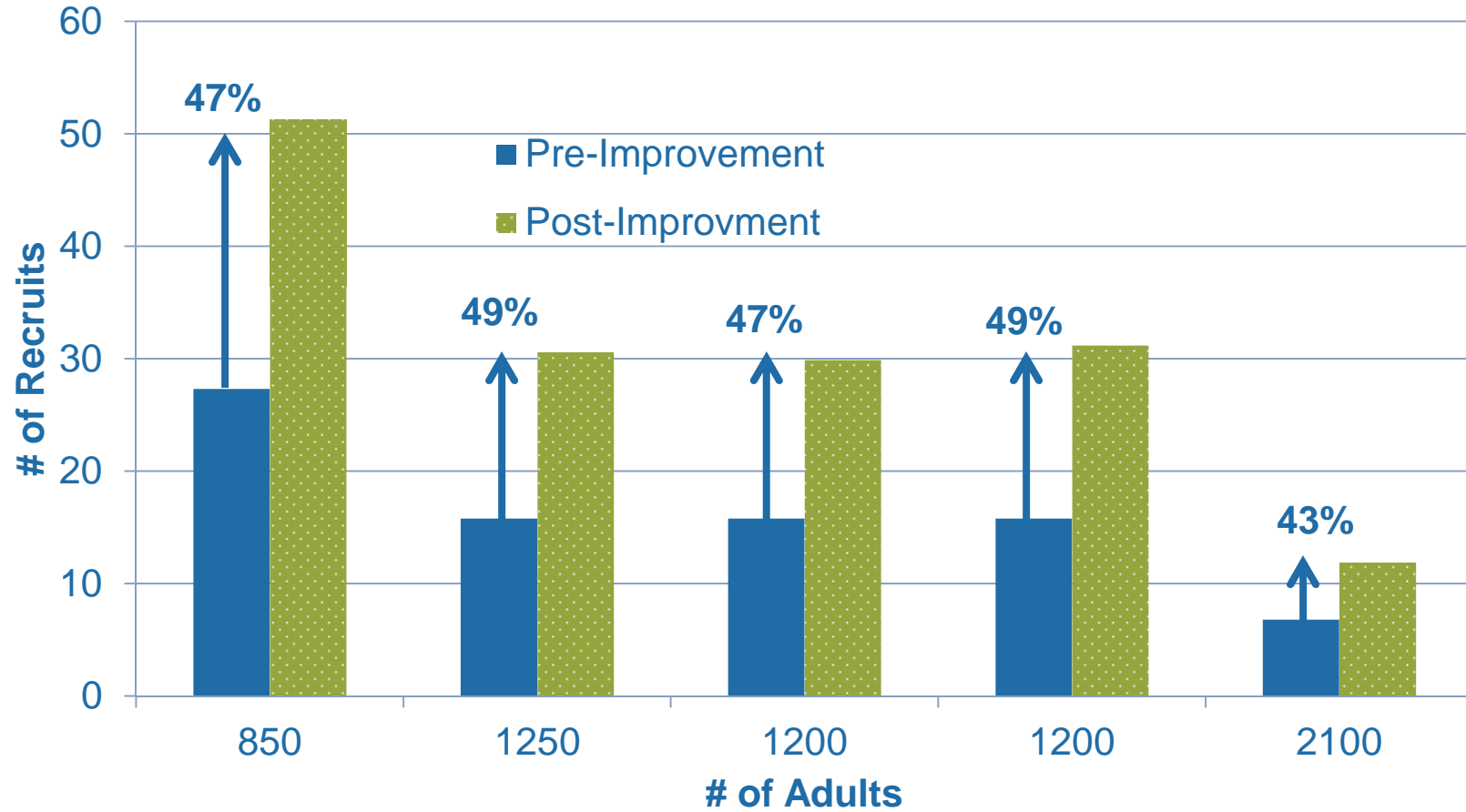
Clackamas vs. McKenzie



Winter Steelhead-Outmigrant RY TOT

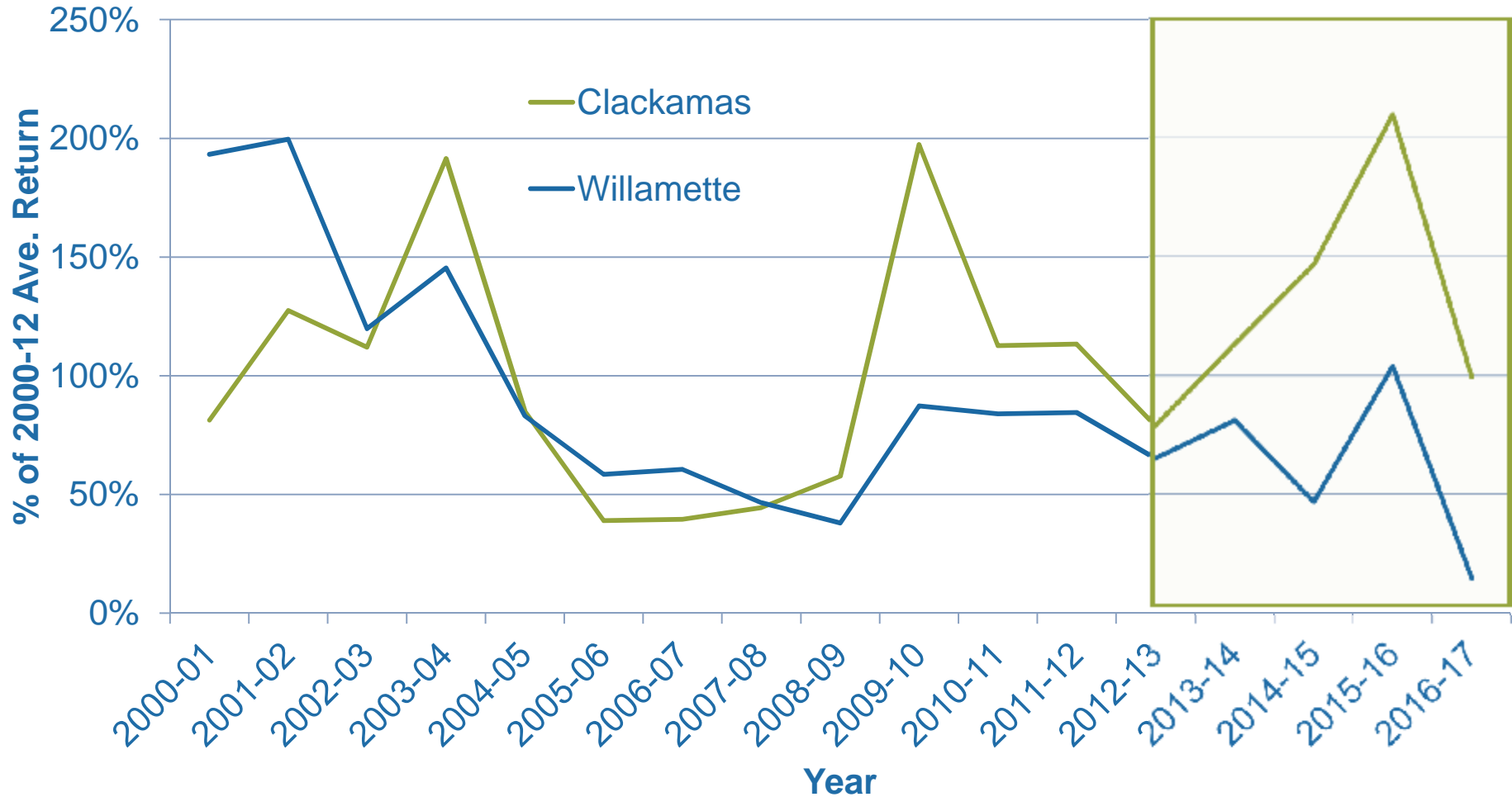


Winter Steelhead-Apparent R/S Improvement

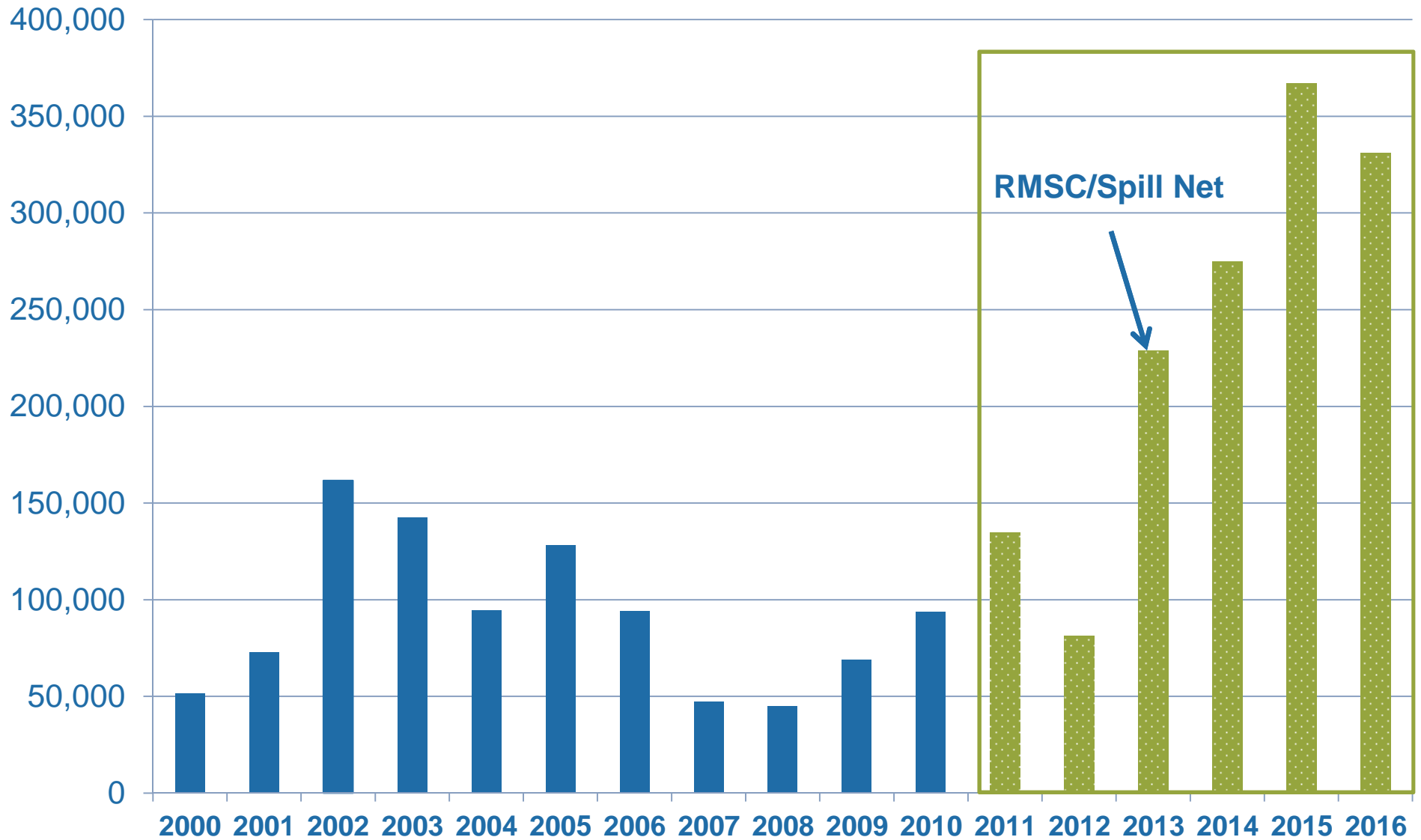


Clackamas Relative to Willamette Winter Steelhead

Wild STW



Big Picture-All species run year outmigrant count



So what's this all mean?

- Hopefully increasing the population viability by “widening” the hydrosystem bottleneck.....
 - Protraction of outmigration period (differential survival?)
 - Increase of life history strategies collected (portfolio effect?).
 - Increased collection efficiency has resulted in more recruits
 - Increased adult performance relative to the region
 - **All of this assumes....**

Thanks!

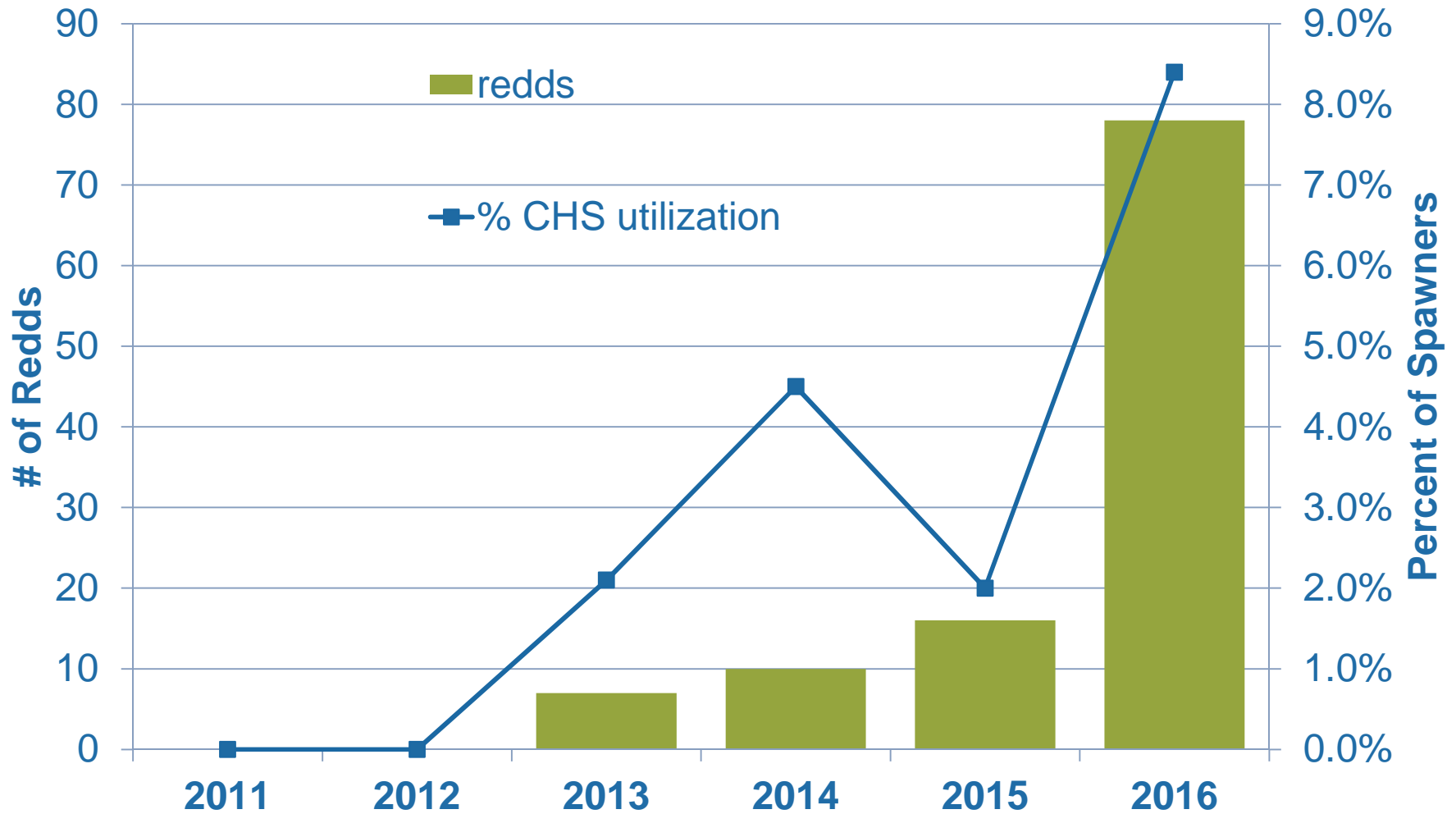
Acknowledgments

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Oak Grove Fork CHS Redds



2013 & 2014 RMSC Fish Collection Benefits

2013	Fish Collected		Estimate of Added Juveniles		Estimate of Added Adults		
Species	Smolts	Presmolts	Smolts	Presmolts	Smolts to Adult	Presmolts to Adult	Total Adults
Chinook	43,347	27,432	10,837	6,858	108	34	142
Coho	21,211	2,278	5,302	570	159 (477)	9 (28)	168 (505*)
Steelhead	5,407	473	1,351	118	68	3	71

2014	Fish Collected		Estimate of Added Juveniles		Estimate of Added Adults		
Species	Smolts	Presmolts	Smolts	Presmolts	Smolts to Adult	Presmolts to Adult	Total Adults
Chinook	58,890	67,410	14,722	16,853	147	84	231
Coho	30,474	5,258	7,619	1314	229	79	308
Steelhead	8,603	1,059	2,151	159	107	4	111

2015 & 2016 RMSC Fish Collection Benefits

2015	Fish Collected		Estimate of Added Juveniles		Estimate of Added Adults		
Species	Smolts	Presmolts	Smolts	Presmolts	Smolts to Adult	Presmolts to Adult	Total Adults
Chinook	56,300	67,905	14,075	16,976	141	85	226
Coho	20,028	5,720	5,007	1,430	150	21	171
Steelhead	4,610	877	1,152	219	58	5	63

2016	Fish Collected		Estimate of Added Juveniles		Estimate of Added Adults		
Species	Smolts	Presmolts	Smolts	Presmolts	Smolts to Adult	Presmolts to Adult	Total Adults
Chinook	16,205	15,572	4,051	3,893	41	19	60
Coho	26,609	9,217	6,652	2,304	200	35	235
Steelhead	4,828	942	1,207	235	60	6	66

2016 North Fork FSC Fish Collection Benefits

2016 RY	Fish Collected		Estimate of Added Juveniles		Estimate of Added Adults		
Species	Smolts	Presmolts	Smolts	Presmolts	Smolts to Adult	Presmolts to Adult	Total Adults
Chinook	16,727	6,042	1,857	670	19	9	27
Coho	106,673	86,757	4,800	3,904	144	59	203
Steelhead	34,953	7,204	1,153	237	57	7	64

Setting

Native Anadromous Fish Species:
Spring Chinook
Coho
Winter Steelhead
Pacific Lamprey

