

Hatchery management effects on juvenile and adult Chinook salmon survival



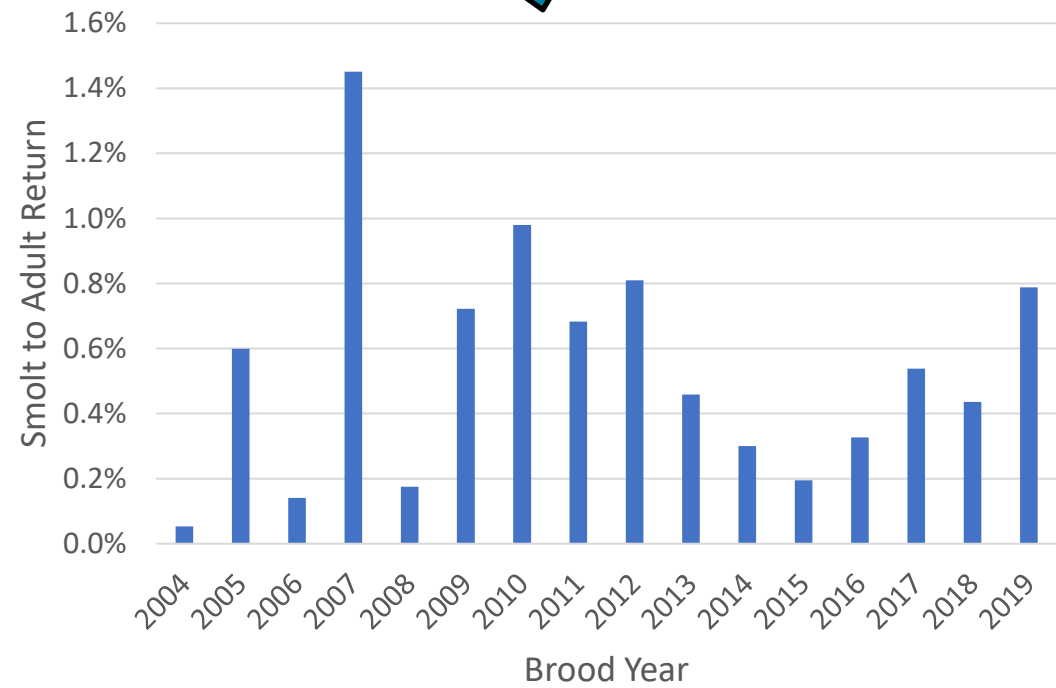
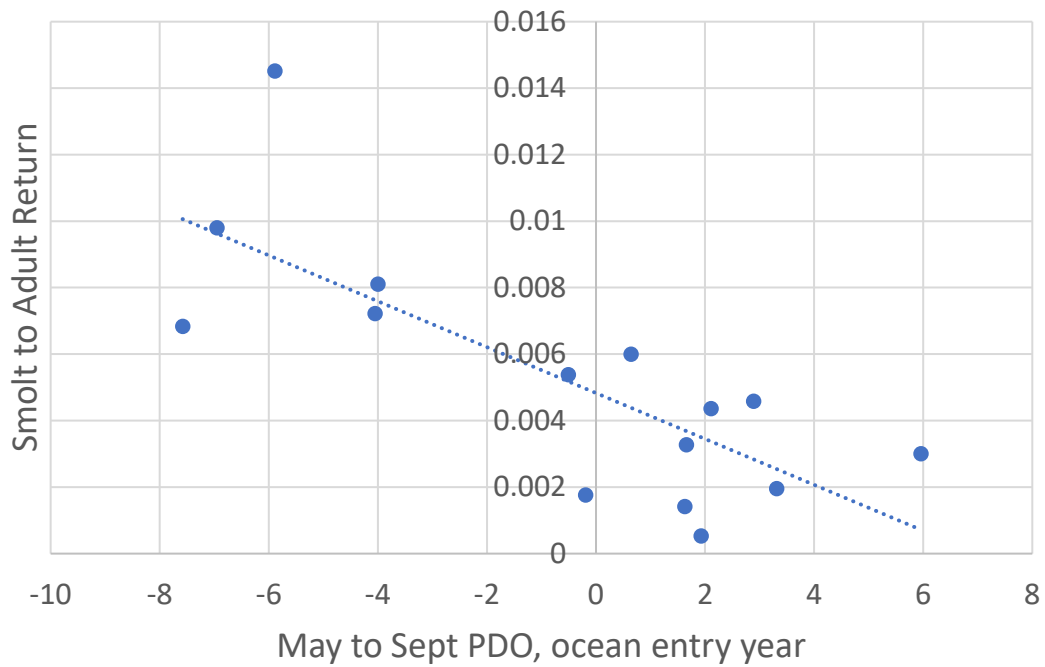
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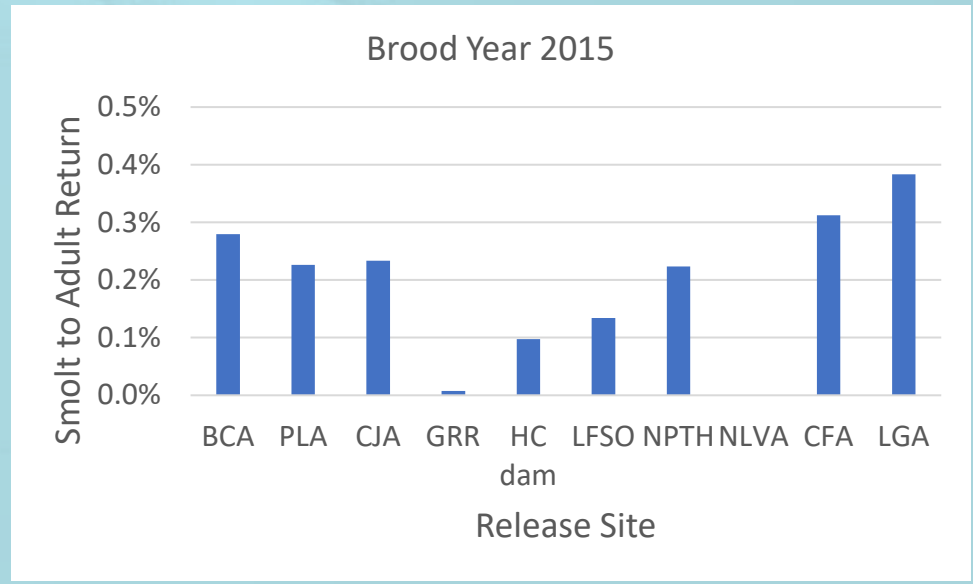
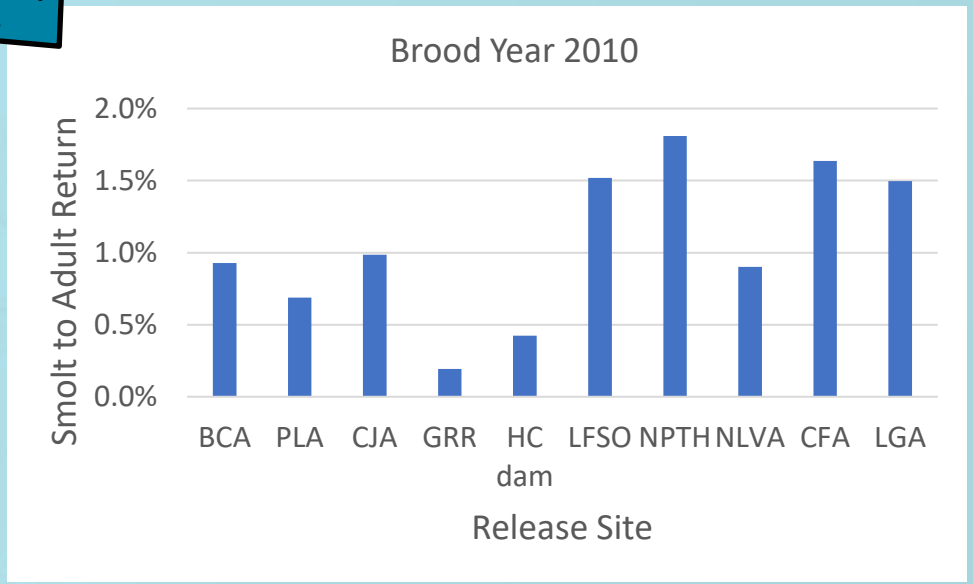
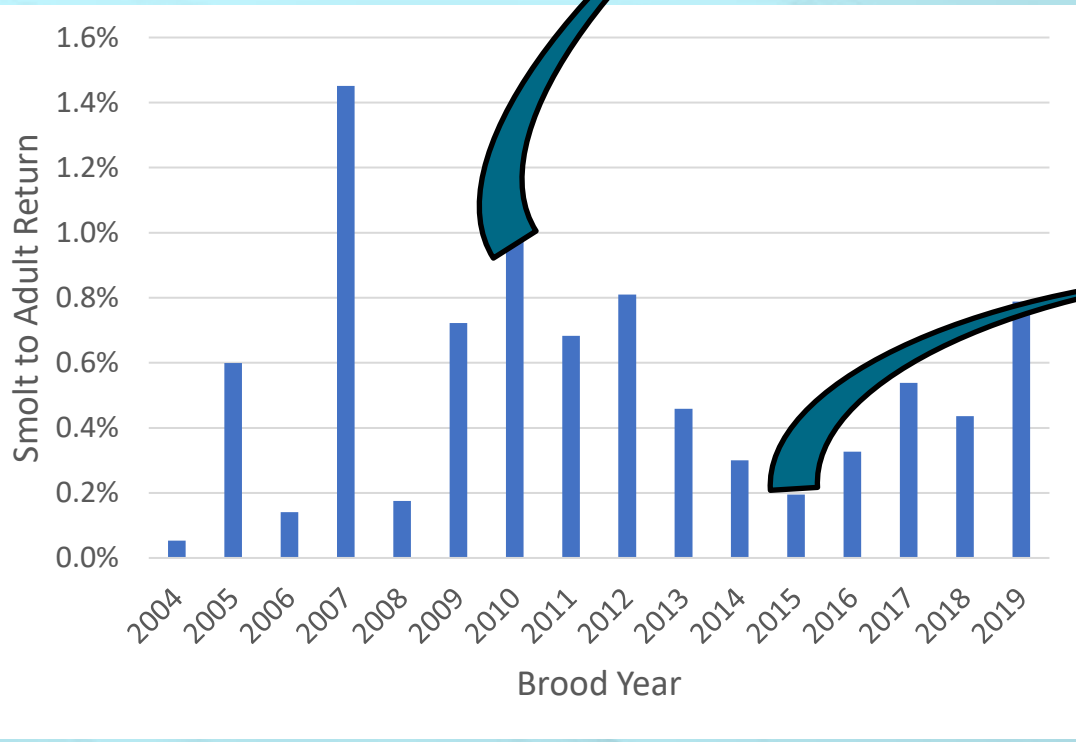


Outline

- ▣ Spring Chinook – Dworshak National Fish Hatchery
 - Annual juvenile and adult survival patterns
 - Early/late release timing – preliminary results
- ▣ Fall Chinook – FCAP groups
 - Early/late release timing

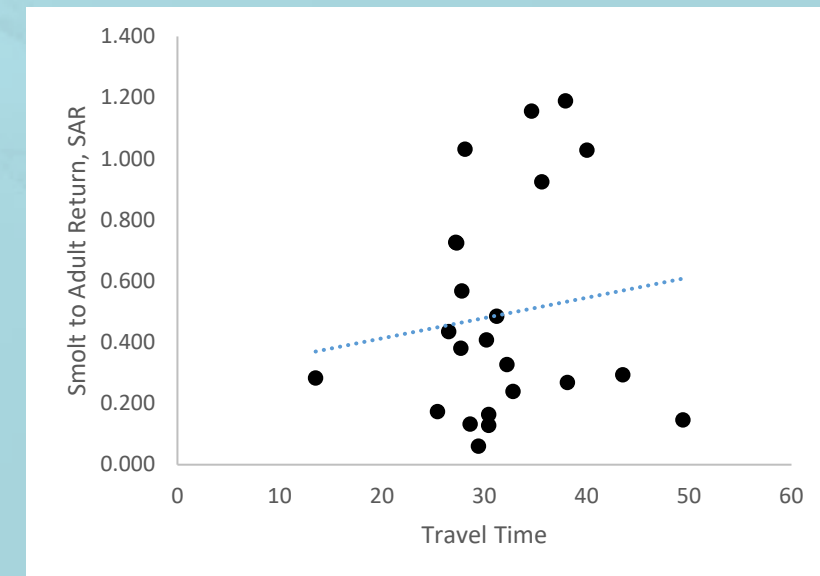
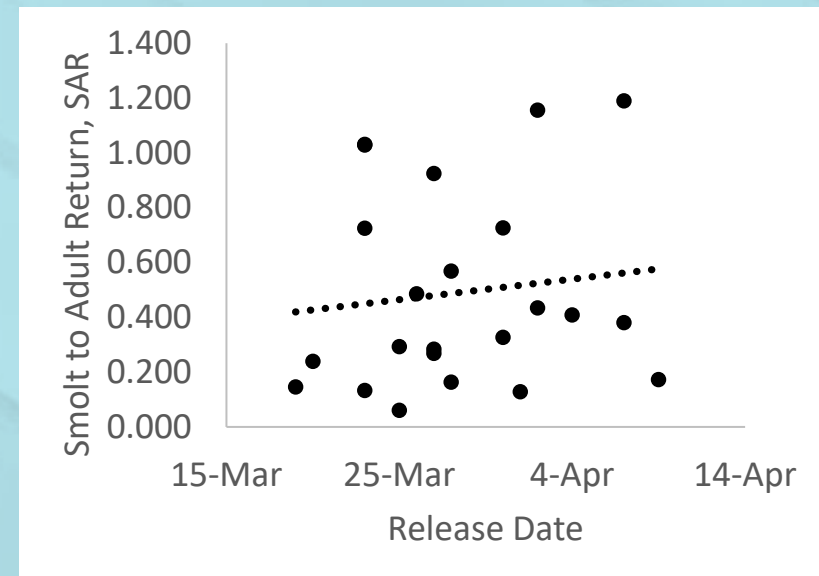
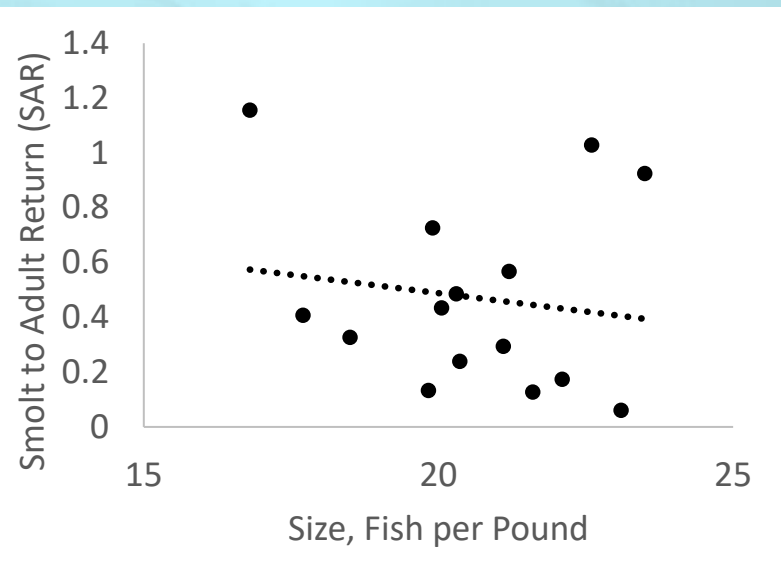
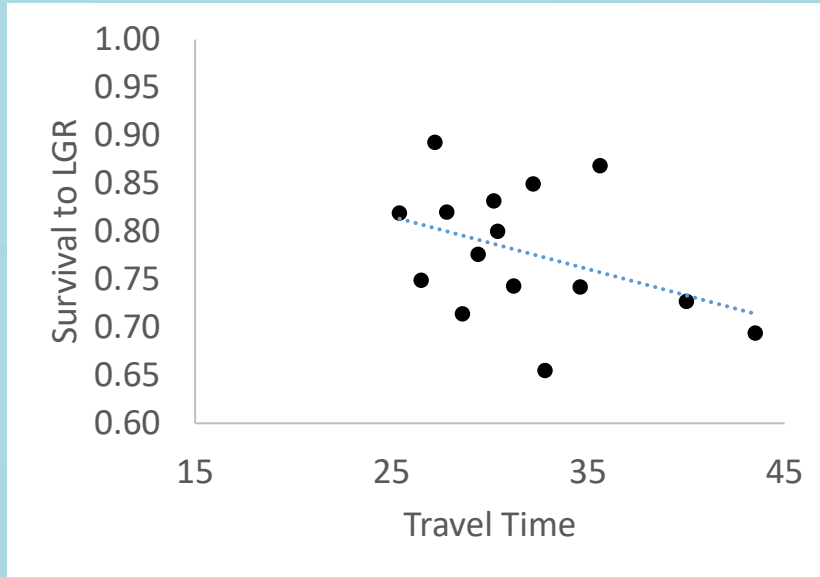
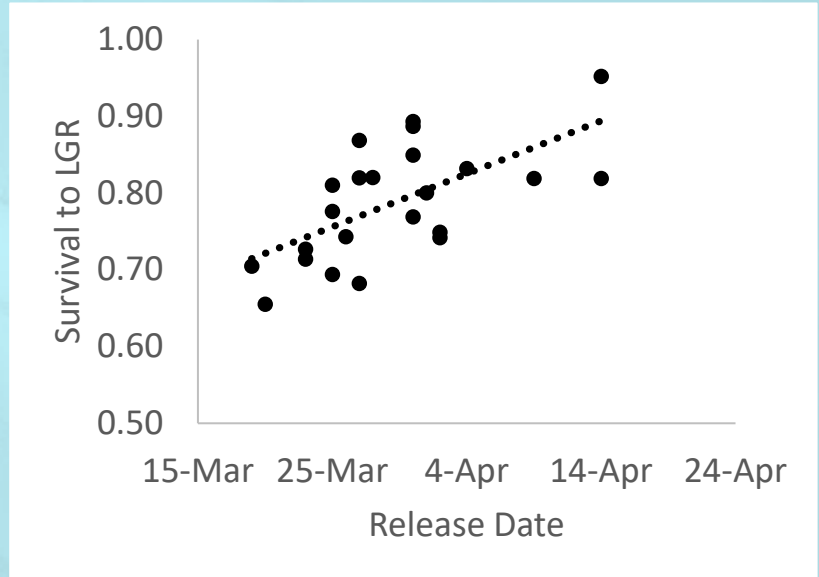
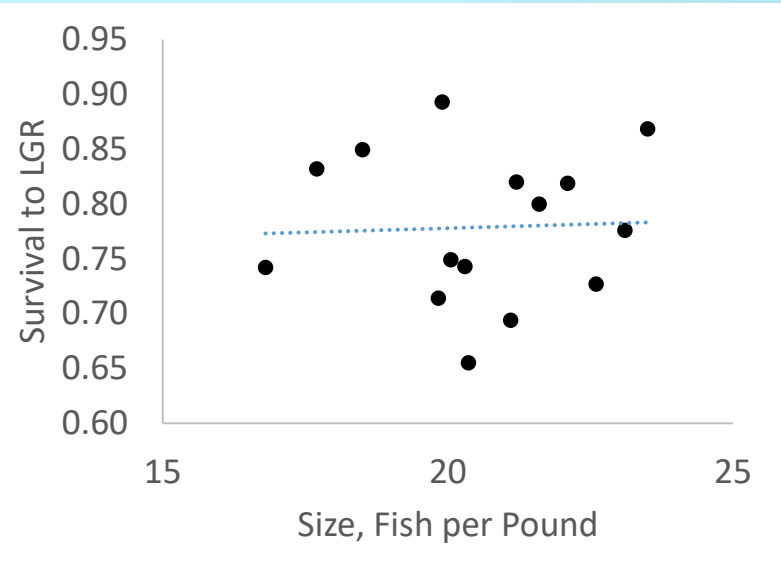


Ocean



Management

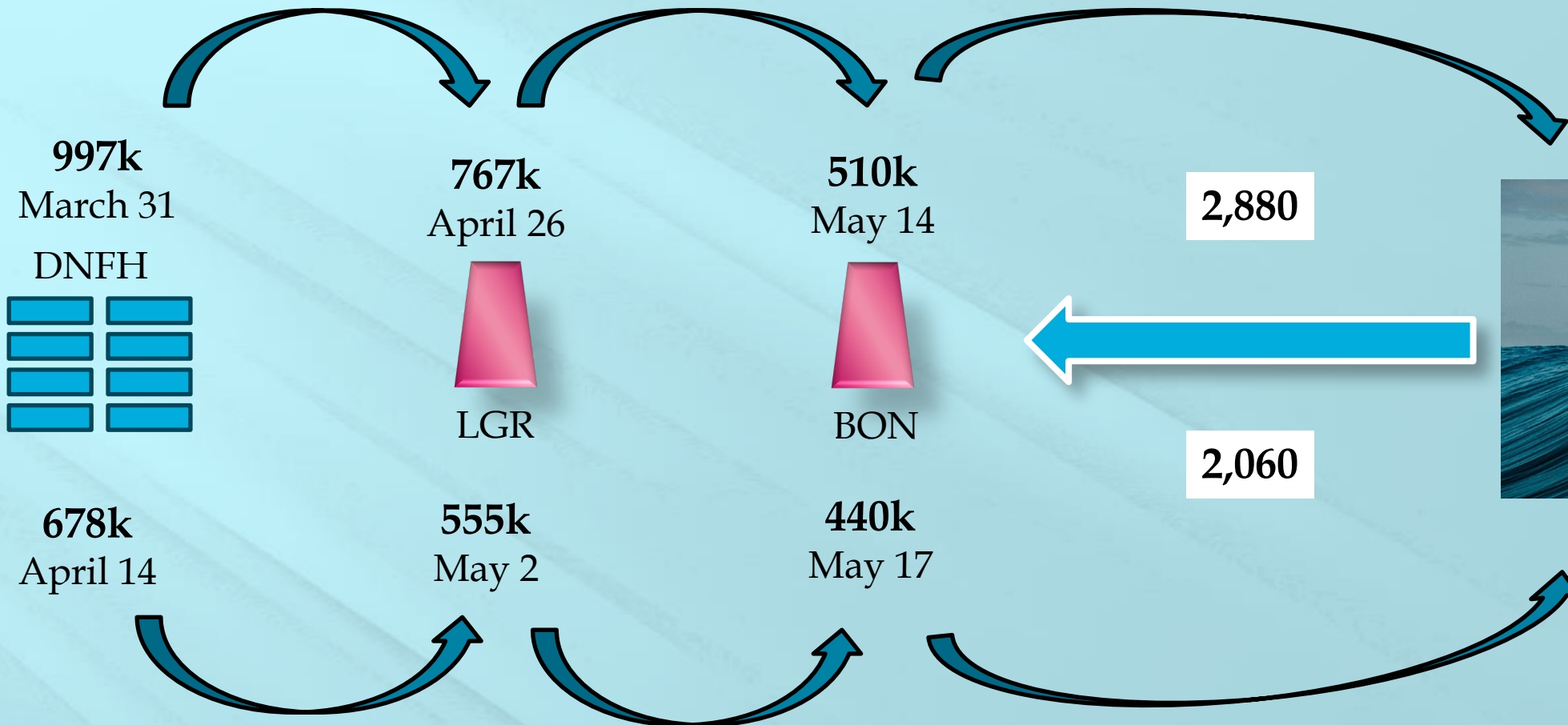
DNFH spring Chinook



DNFH spring Chinook salmon Early/late release study

Brood Year	Release timing	Travel Time	Juvenile Survival
2019	Early	28.8	0.77
	Late	19.0	0.82
2020	Early	27.0	0.89
	Late	17.5	0.95
2021	Early	15.0	0.81
	Late	14.5	0.84
2022	Early	19.3	0.64
	Late	15.2	0.70

Brood Year 2019 early/late release: DNFH Chinook salmon



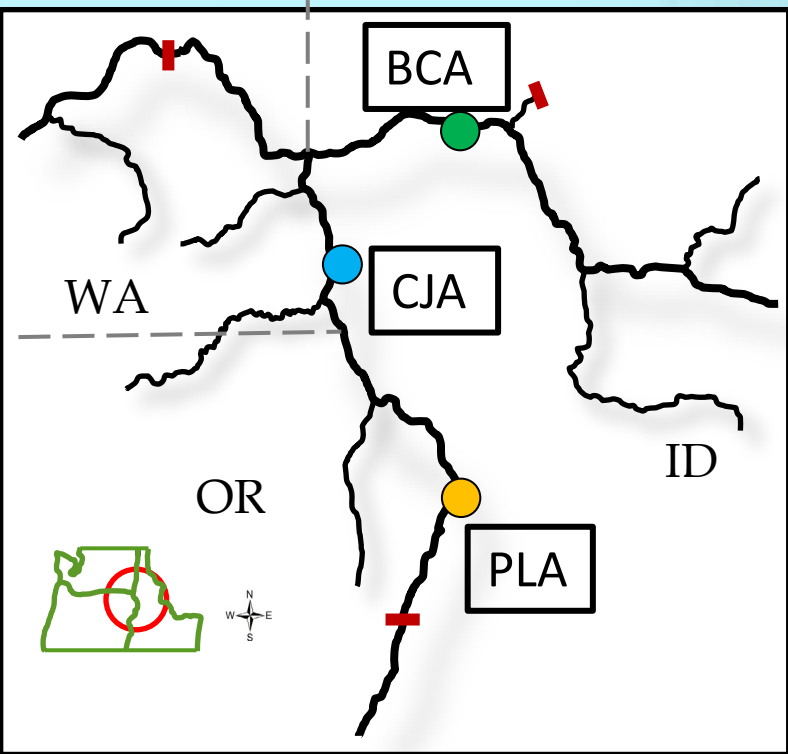
Brood Year 2019 early/late release: DNFH Chinook salmon

	<u>Juveniles</u>			<u>Adults</u>	<u>SAR</u>
	release	LGR	BON	BON	rel - BON
Early	997,228	766,868	509,584	2,880	0.29%
Late	677,455	554,836	440,346	2,060	0.30%
	1,674,683	1,321,704	949,929	4,940	-5.0%

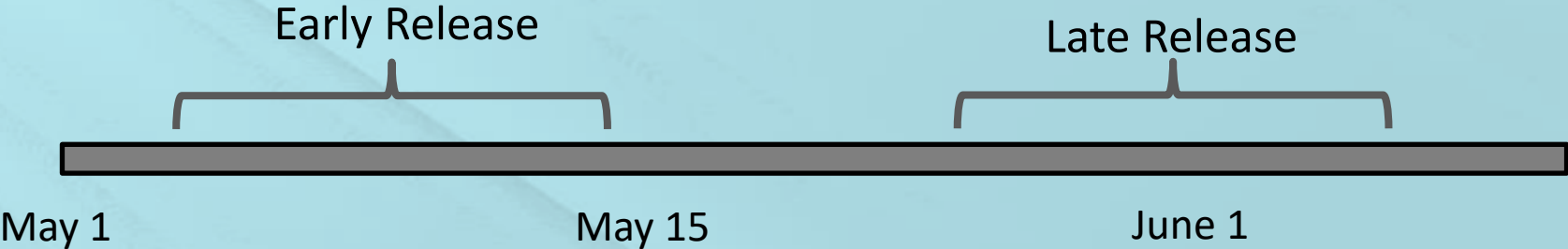
Early/late release: DNFH Chinook salmon

	BY19	BY20
Early/late SAR difference	-5.0%	-14.6%
all Early	4,837	6,187
all Late	5,093	7,247
Difference	-256	-1,060

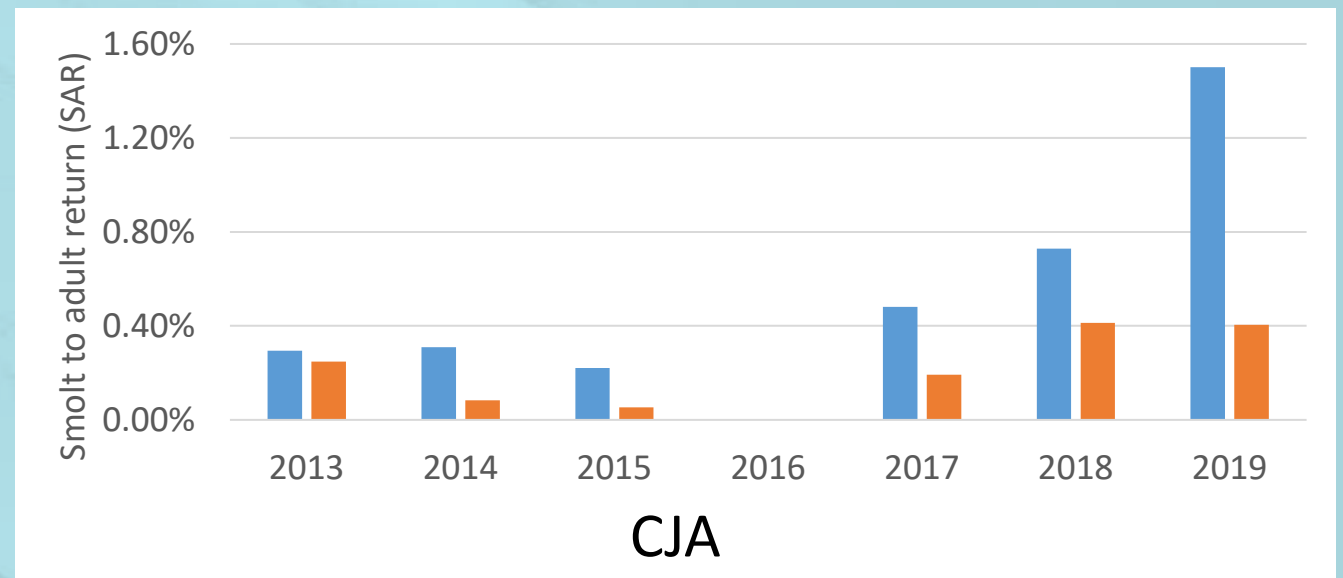
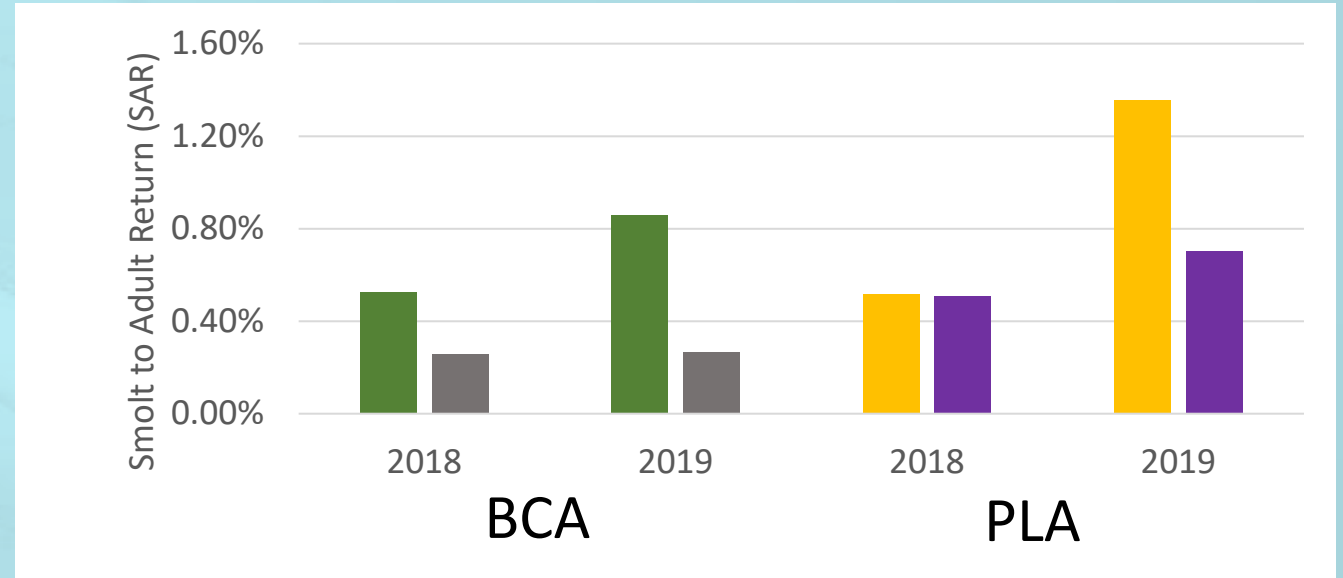
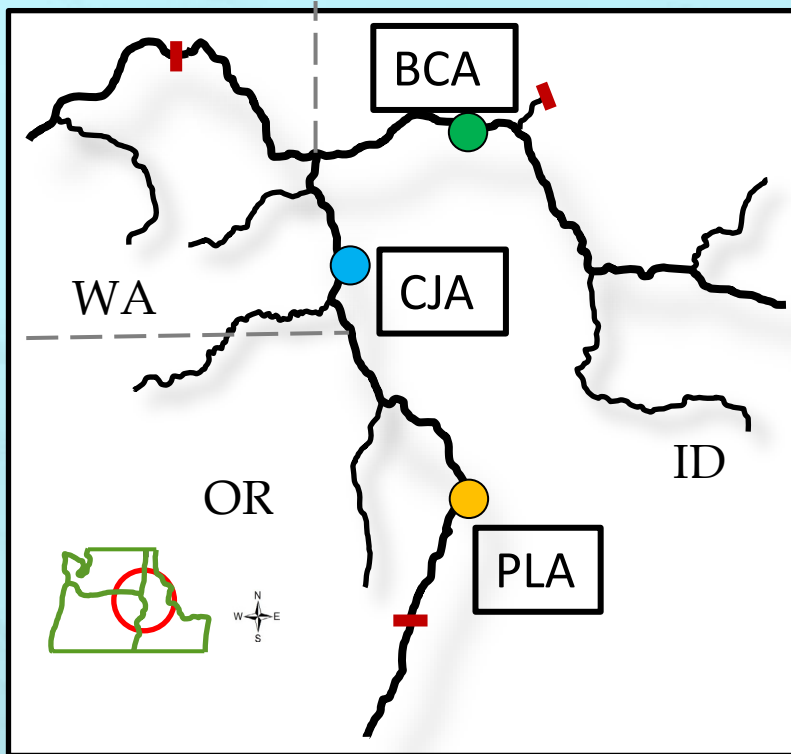
Fall Chinook Early/Late Release Timing



Release stage/time	Release/migration Year						2019-2024 Ave
	2019	2020	2021	2022	2023	2024	
BCAe	0.53	0.72	0.63	0.61	0.88	0.61	0.66
BCAI	0.65	0.74	0.67	0.84	0.75	0.69	0.72
CJAe	0.64	0.72	0.67	0.53	0.75	0.76	0.68
CJAI	0.85	0.79	0.80	0.84	0.73	0.59	0.77
PLAe	0.65	0.63	0.45	0.55	0.59	0.54	0.57
PLAI	0.55	0.68	0.48	0.62	0.82	0.52	0.61



Fall Chinook Early/Late Release Timing - SAR



Conclusions and Recommendations

- Annual survival patterns are dominated by the Ocean
- DNFH Spring Chinook early/late release groups
 - Early release < late release
 - Too early to tell
 - Confirm adult return results with PBT
 - Evaluate returns from burrows ponds
- FCAP Fall Chinook
 - Early release > late release
- Hatchery management actions can optimize survival and adult returns