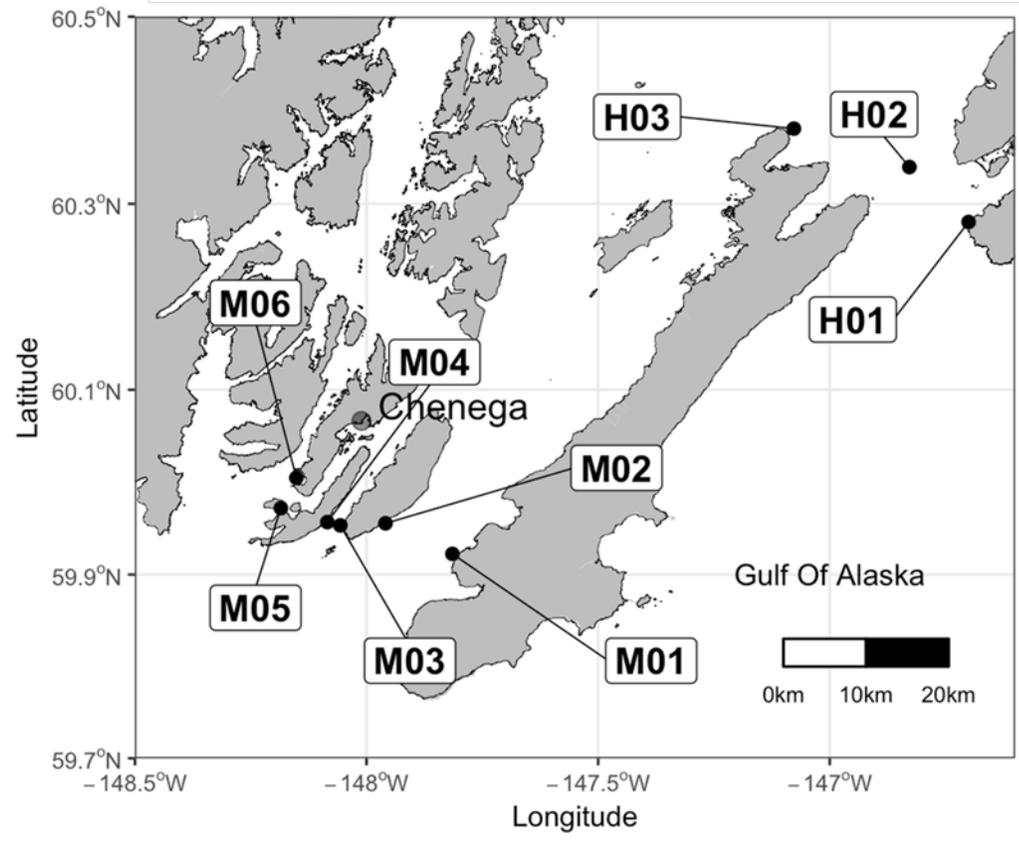
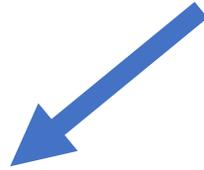


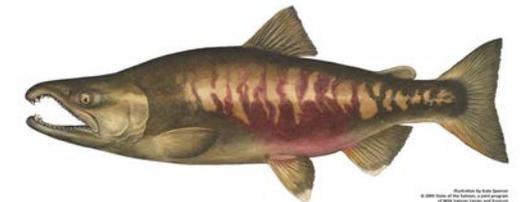
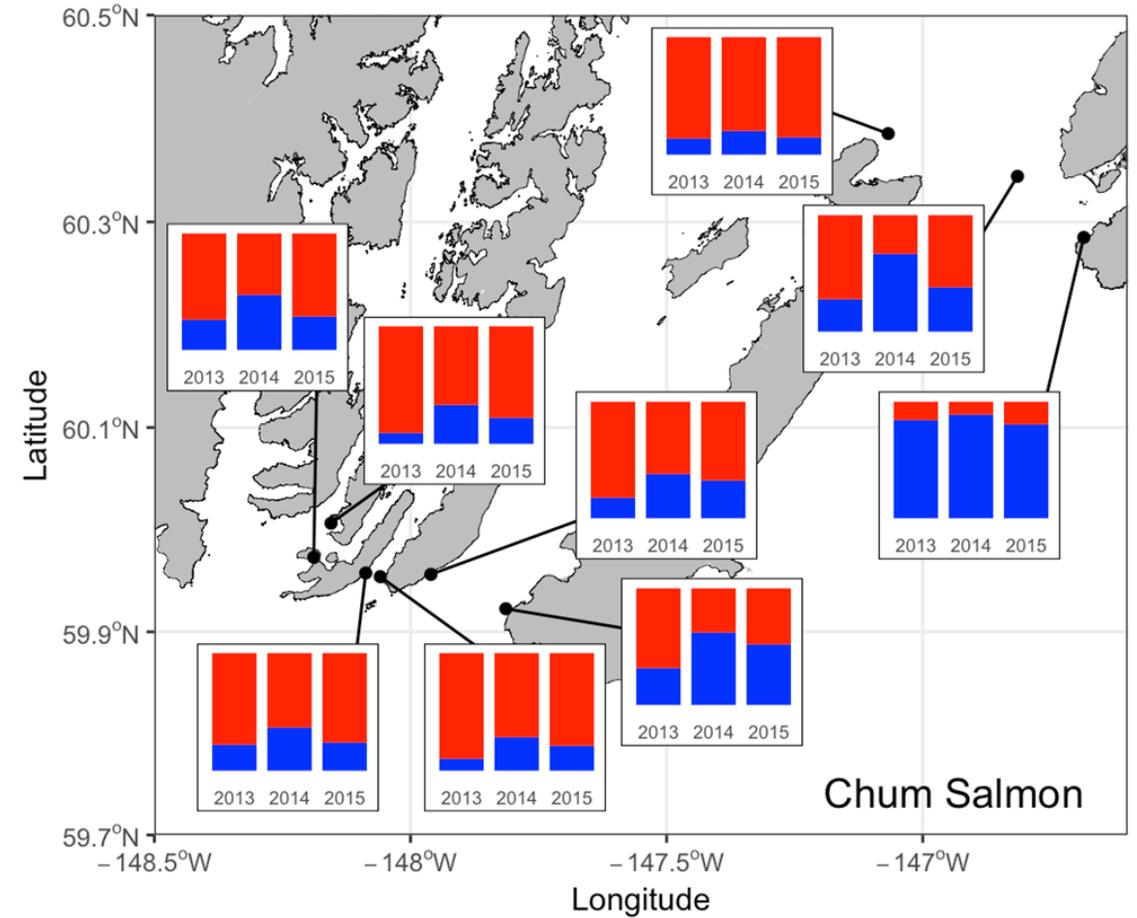
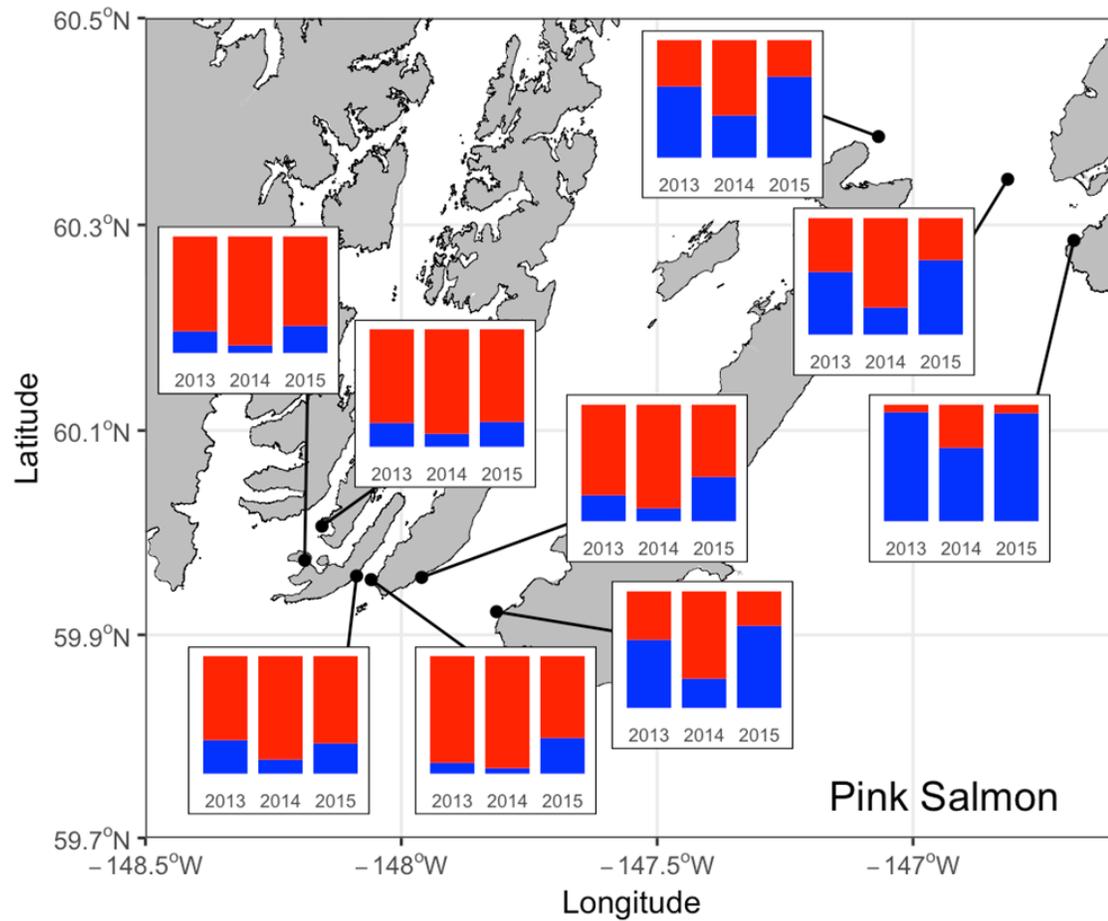
Ocean sampling



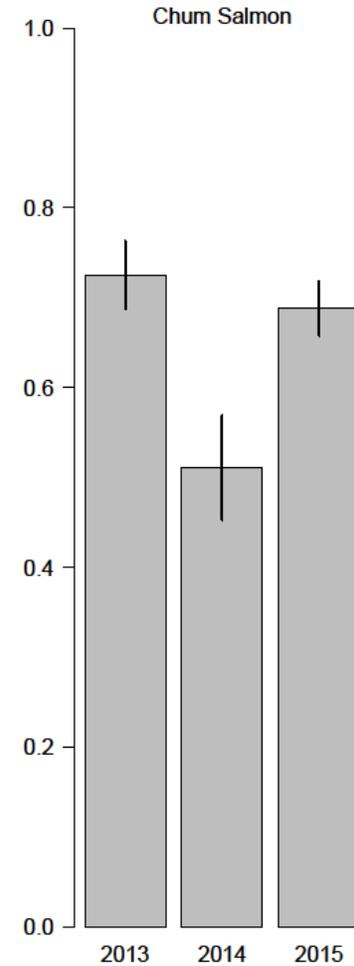
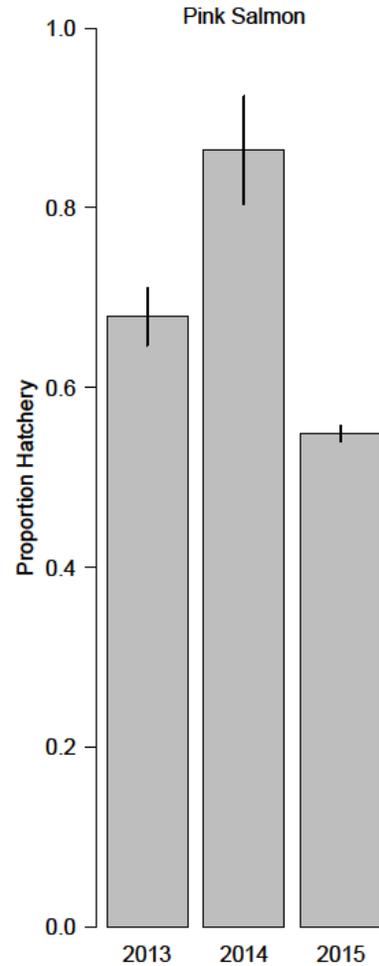
Ocean test fishing



Annual summary of hatchery fractions



Hatchery fraction in PWS run



Estimating Run size

Derivation:

A) Run Size (H) = Catch (H) + Spawning Abundance (H)

B) Run Size (W) = Catch (W) + Spawning Abundance (W)

C) Run Size (H) = Run Size \times Fraction comprised of hatchery salmon ($\equiv p$)

D) Run Size (W) = Run Size \times (1 - p)

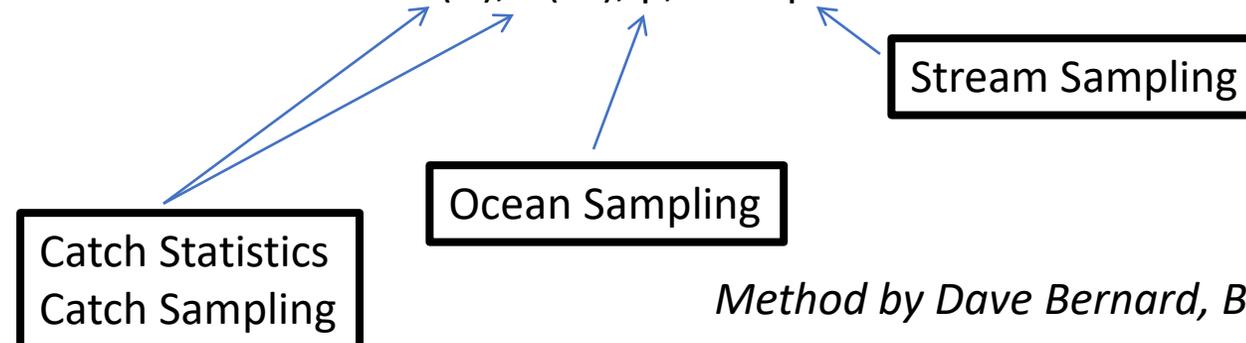
E) Spawning Abundance (H) = Spawning Abundance \times Fraction hatchery salmon ($\equiv q$)

F) Spawning Abundance (W) = Spawning Abundance \times (1 - q)

G) Run Size \times p = Catch (H) + Spawning Abundance \times q

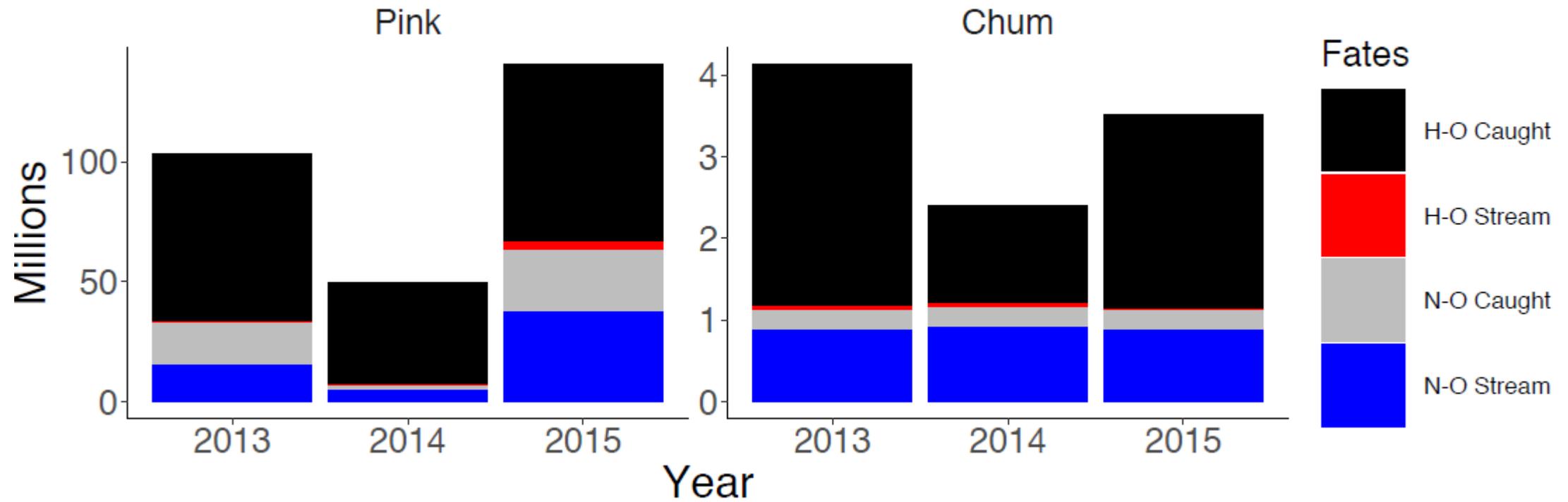
H) Run Size \times (1 - p) = Catch (W) + Spawning Abundance \times (1 - q)

Spawning Abundance = Function of C(H), C(W), p, and q



Method by Dave Bernard, Bernard Consulting, LLC

Run Estimation



Key Metrics from Run Estimation

Harvest rate on natural-origin Pink and Chum Salmon:

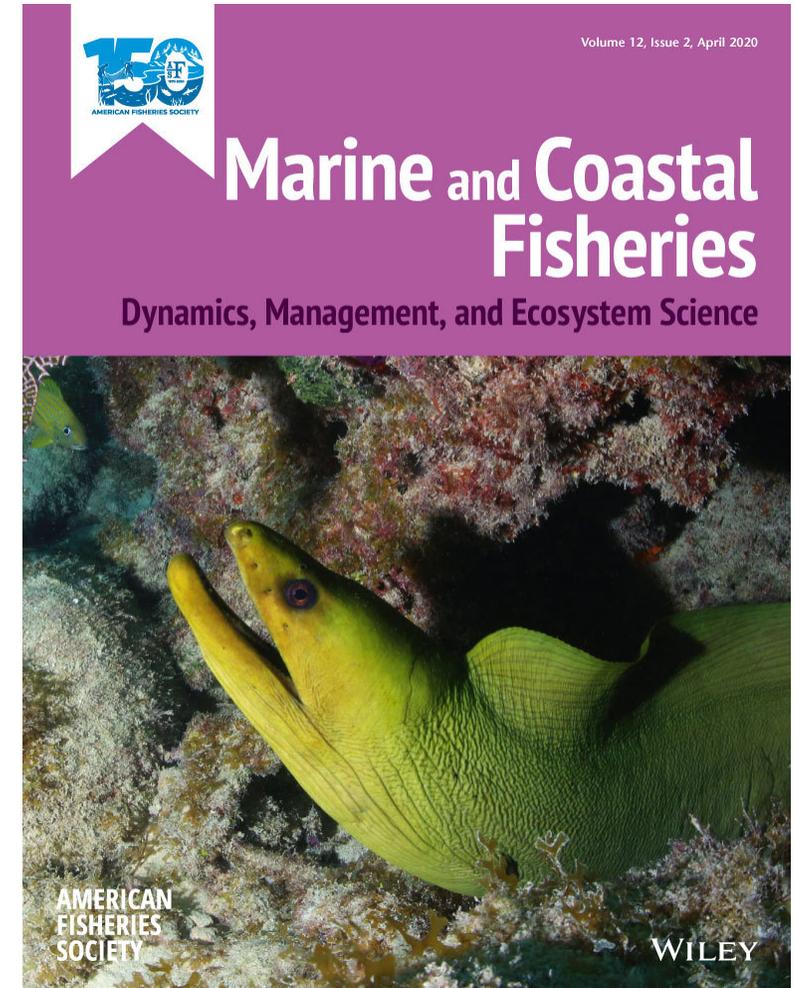
Species	2013	2014	2015
Pink	52.6%	26.3%	40.2%
Chum	21.6%	21.3%	21.1%

Hatchery stray rate of Pink and Chum Salmon:

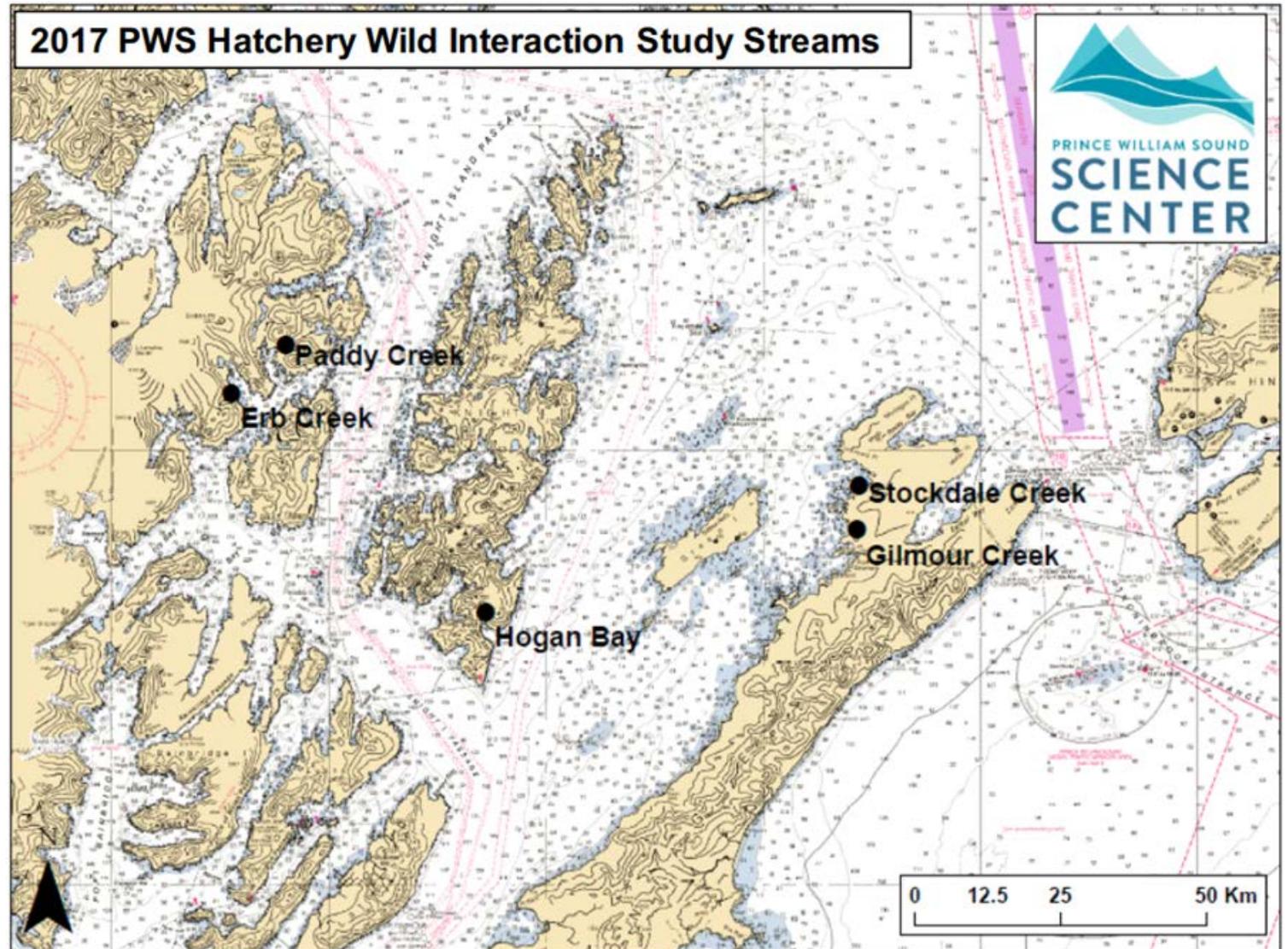
Species	2013	2014	2015
Pink	1.0%	1.7%	5.2%
Chum	1.6%	4.0%	1.1%

Manuscript accepted (with revisions)

- Knudsen, Rand, Gorman, Bernard, and Templin. *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*



Pedigree Streams



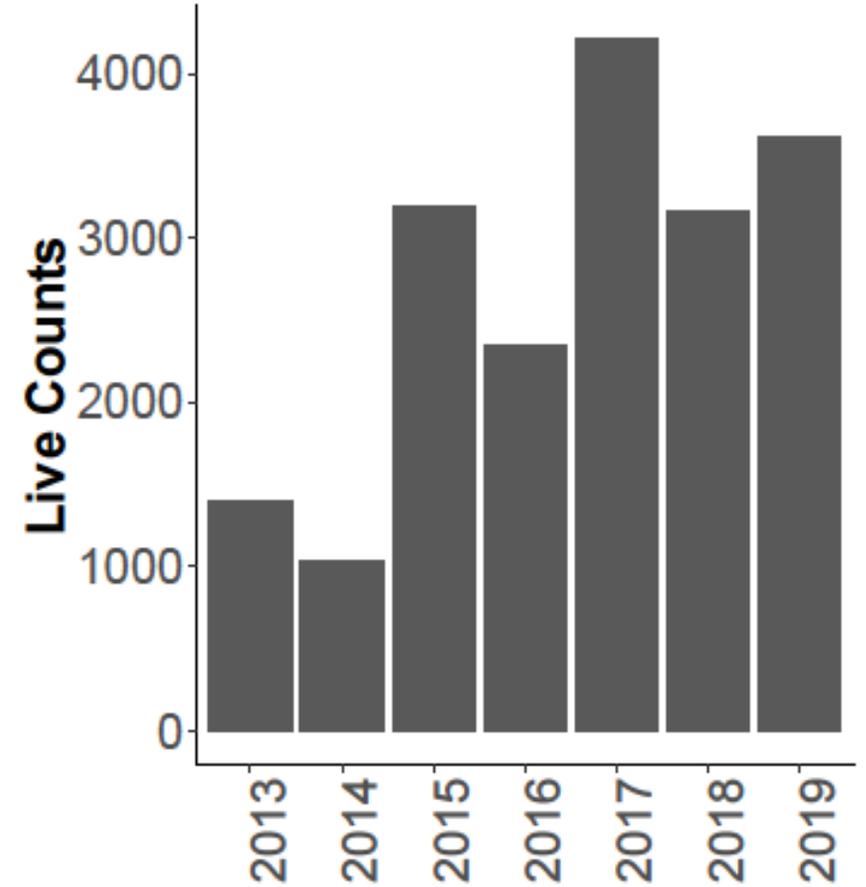
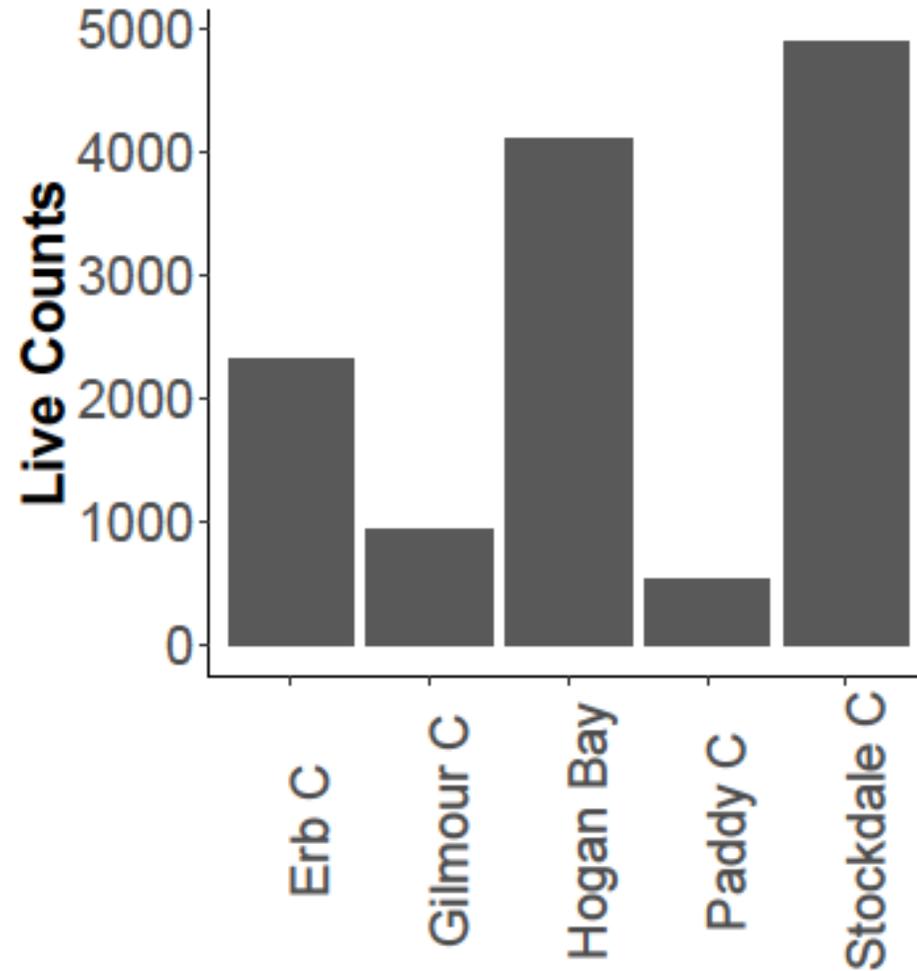
Live and Dead Counts

PC: Brad von Wichmann, Babkin Charters

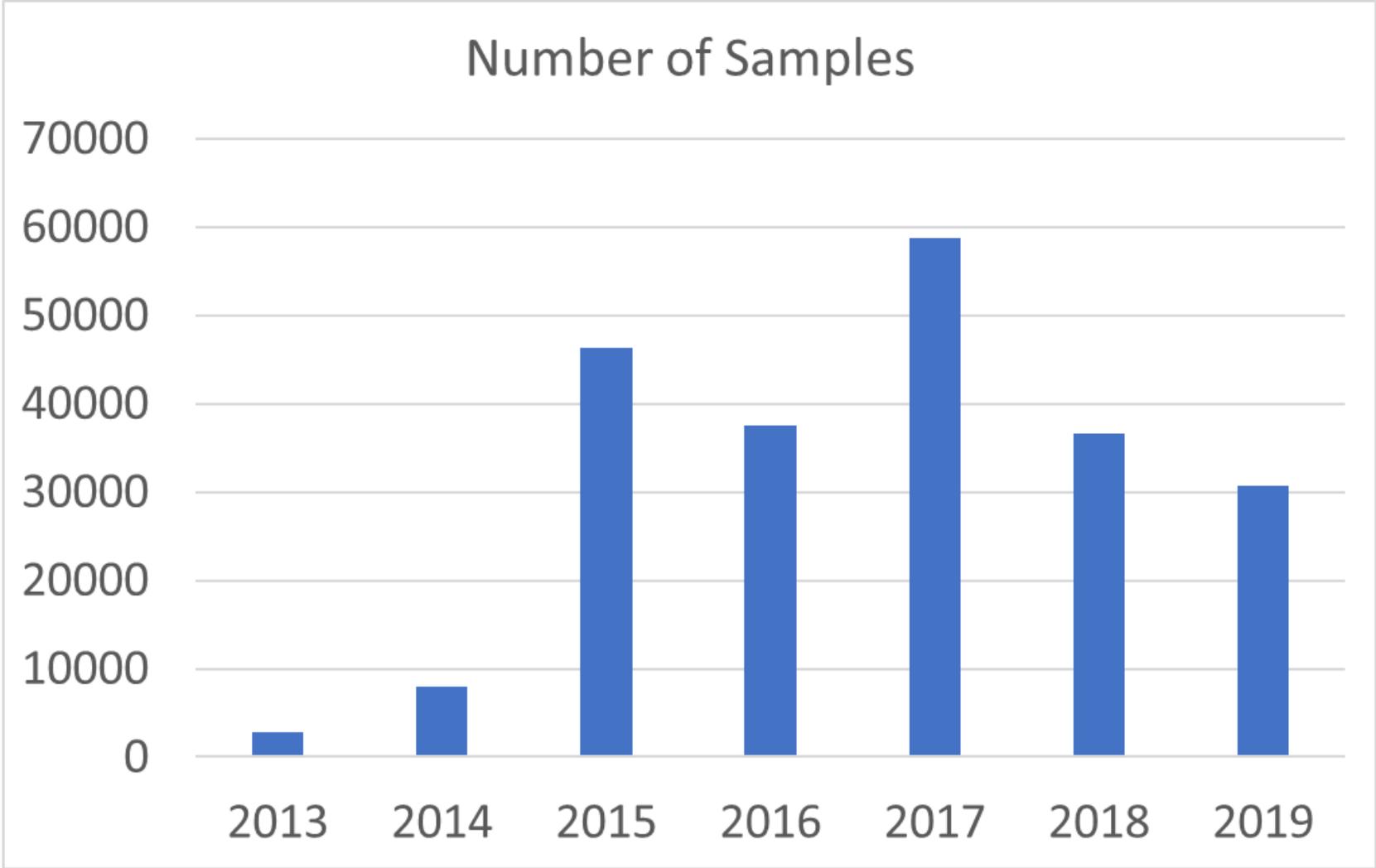


Spawner abundance

- Greatest in Hogan and Stockdale, Erb intermediate, and Paddy and Gilmour low
- Odd year dominance
- Escapement increasing

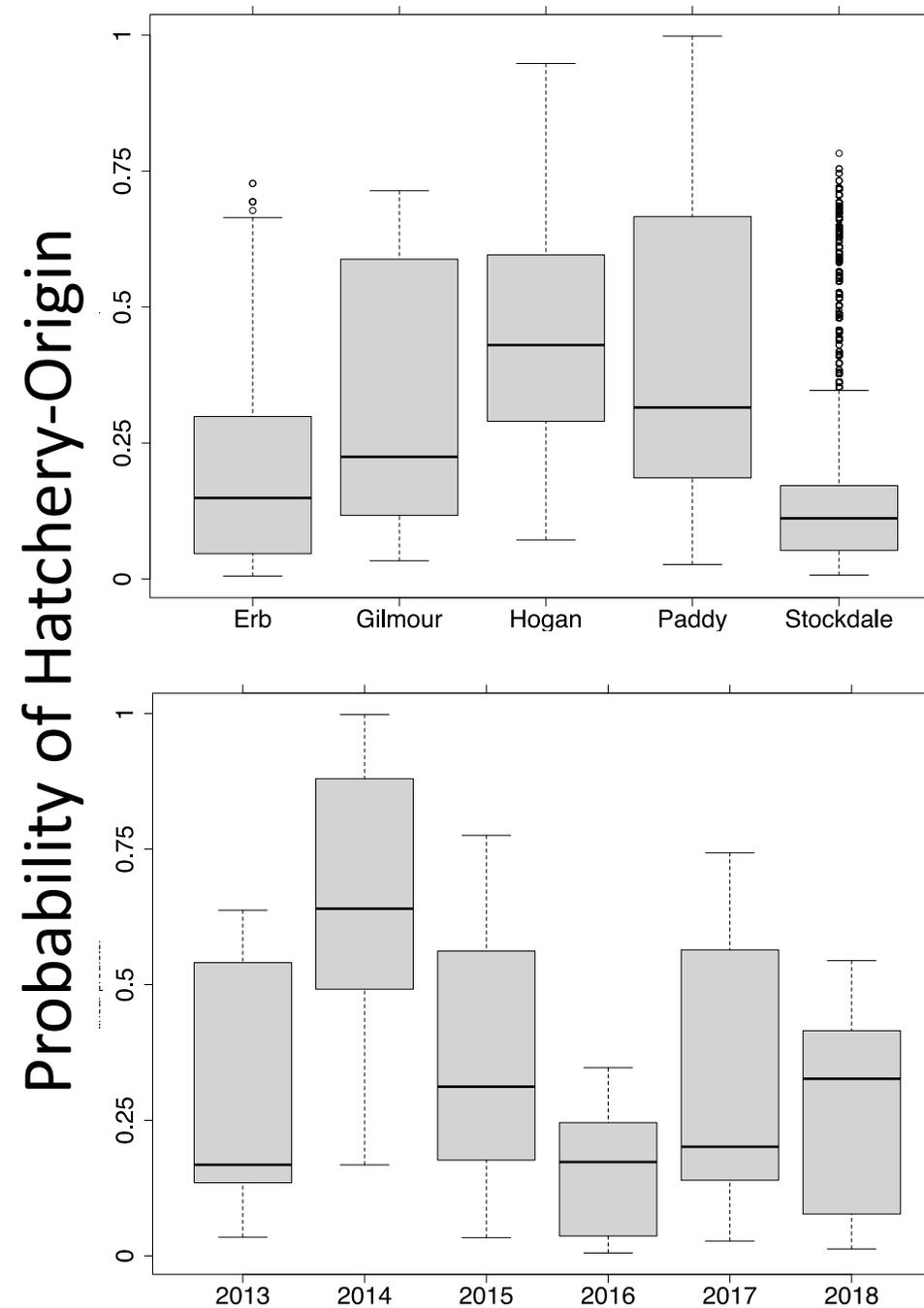


AHRP Samples, By Year

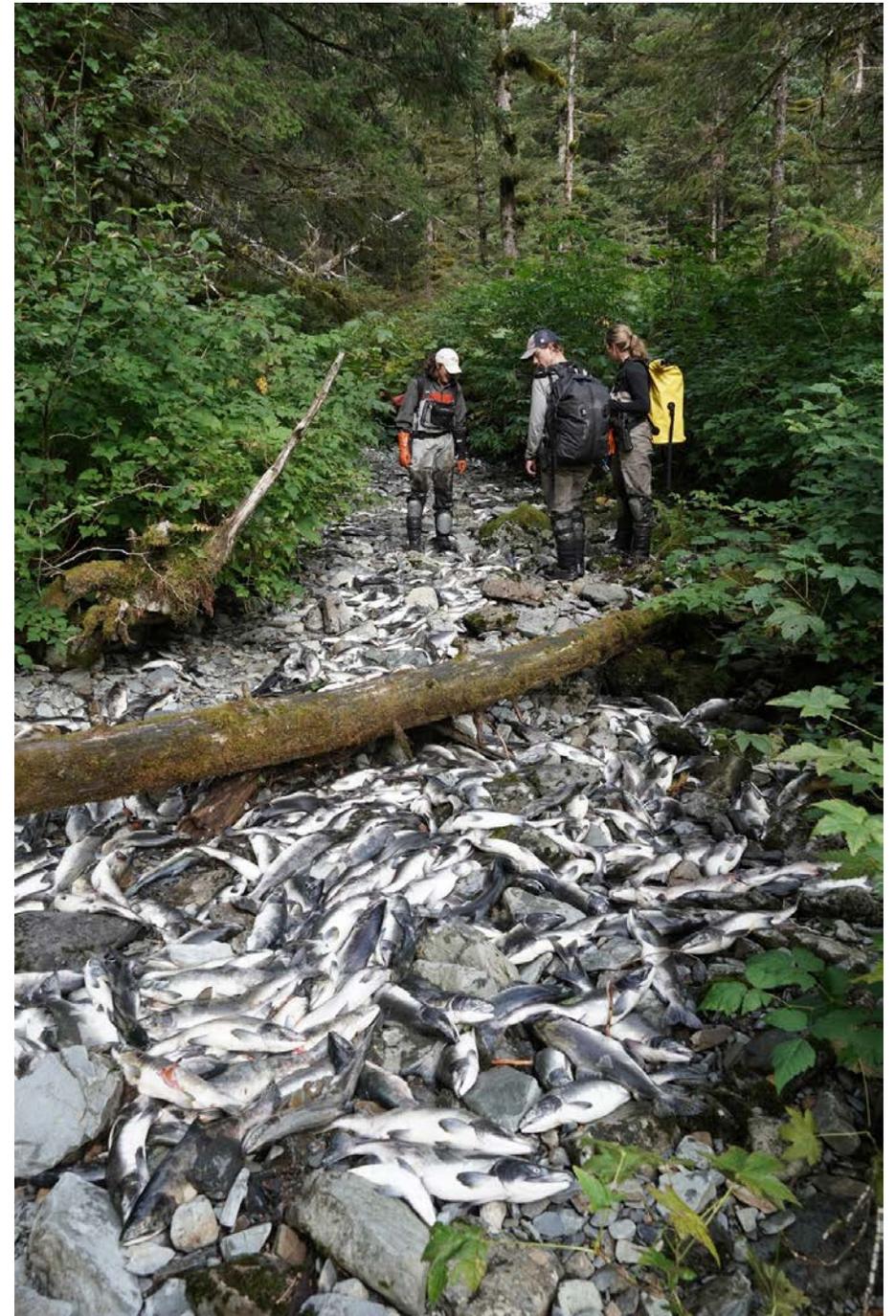


Pedigree Streams

- Hogan tends to attract hatchery fish.
- Hatchery fraction has been relatively low in recent years.



Prespawn Mortality in 2019



PC: Brad von Wichmann, Babkin Charters

Proposed ecological studies

