The effects of domestication on predation vulnerability

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Background

- Domestication can be described as natural selection in an artificial environment
- Hatcheries may increase survival of fish with certain traits that are useful in the hatchery environment (relaxation of natural selection)

Objective

- Is there differential predation mortality between offspring of wild and hatchery-reared spring chinook salmon caused by domestication?
- Lower survival of offspring of hatchery reared fish could limit the success of supplementation

Methods

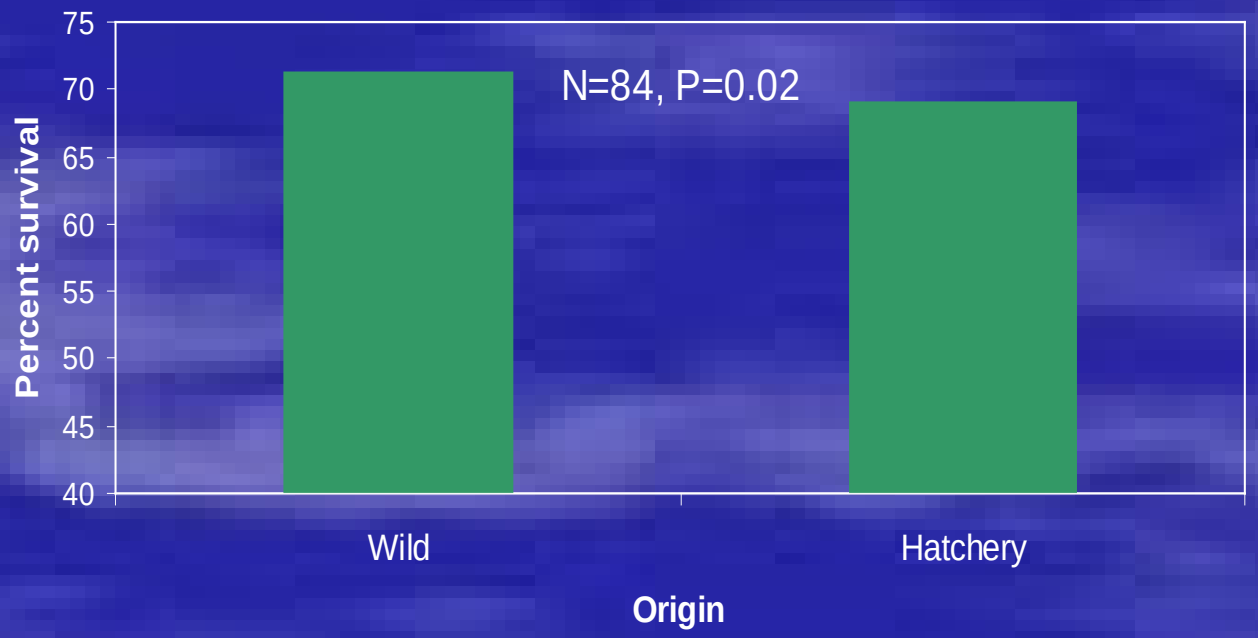
- Used juvenile offspring of returning hatchery and wild origin parents that are reared identically in the hatchery
- Our main test was for differences in survival between hatchery and wild origin

- 8 - 3m x 2.4m x 1.5m 3mm mesh net pens in a raceway were stocked with 2 rainbow trout and 2 torrent sculpins
- Size matched 100 fry of each origin, marked them, and released into each of the net pens

- Fry were fed maintenance ration Tues.-Thurs.
- At end of week survivors were recovered and enumerated
- Used the Wilcoxon matched pairs test for survival between origins

Results

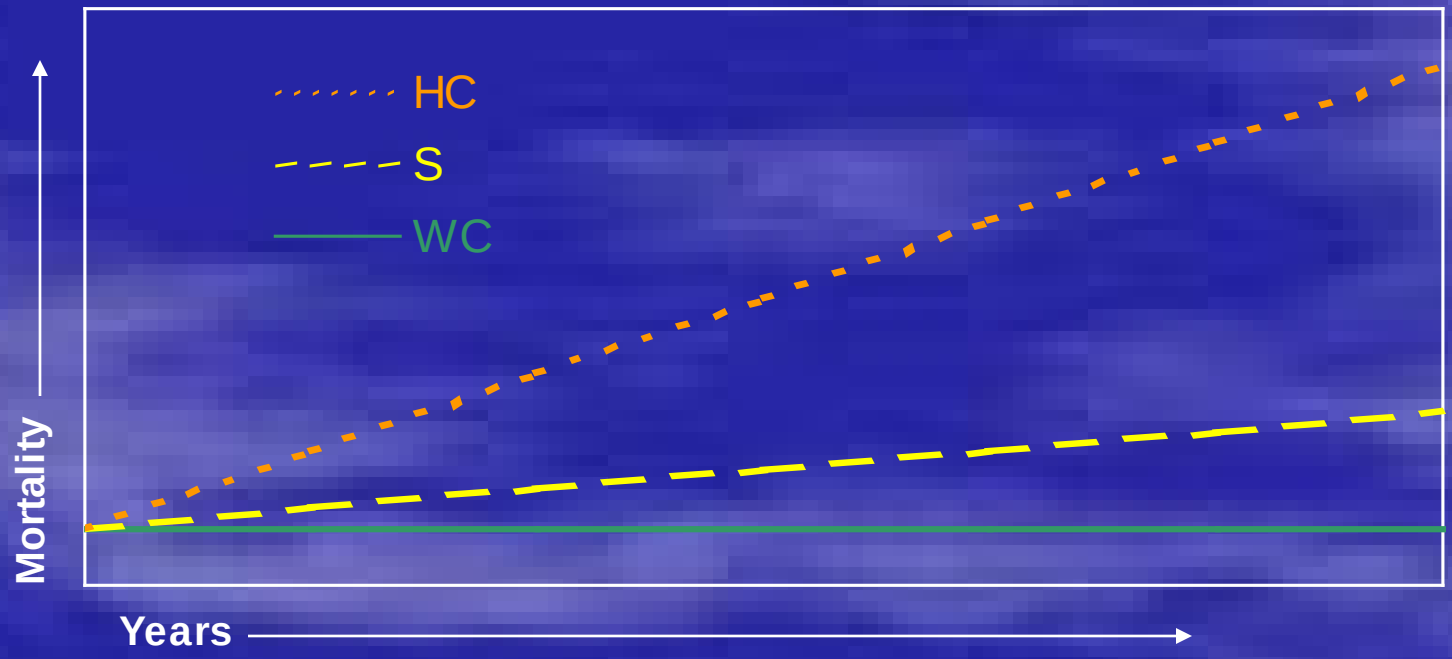
- Hatchery fish had significantly lower survival than wild fish



What does this mean?

- We found a statistically significant difference between hatchery and wild origin survival but again the difference was not large
- Much larger sample size than last year so much more power to detect a small difference
- As it was last year, unexpected. It will be interesting to see if this trend continues

- Track survival through time using the supplementation line, hatchery control line, and a wild control line from Naches broodstock



What's Next?

- Add wild control line from Naches stock