Chignik Sockeye Disaster Research

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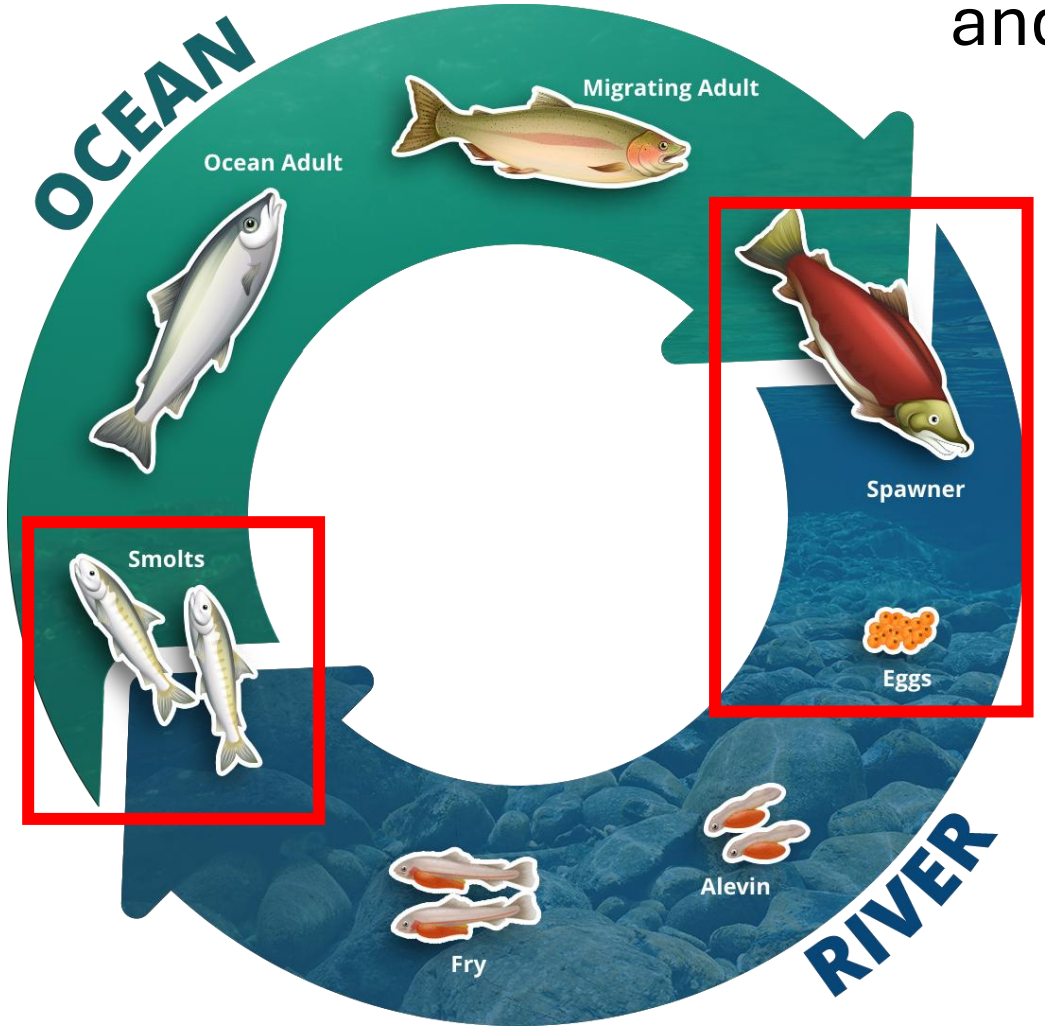
The team

- UAF – Drs. Peter Westley and Curry Cunningham
  - Drs. Megan McPhee and Greg Breed
- Chignik Intertribal Coalition – George Anderson
- ADFG – Heather Finkle, Tyler Dann
- UW-FRI

Project aims to assess

Redd characteristics and winter changes



Smolt body size and outmigration timing

Fecundity (egg number and size)

Leverage ADFG data

23 years (1994-2016, n > 40k)

- Fork length
- Body condition (mass ~ length)
- Age – 0, 1, 2

8 years (2009-2016, n = 4244)

- Genetic assignment
  - Early & Late Run
  - Age – 1, 2

Specifically focused on body size and outmigration patterns in the lead up to the 2018 brood years

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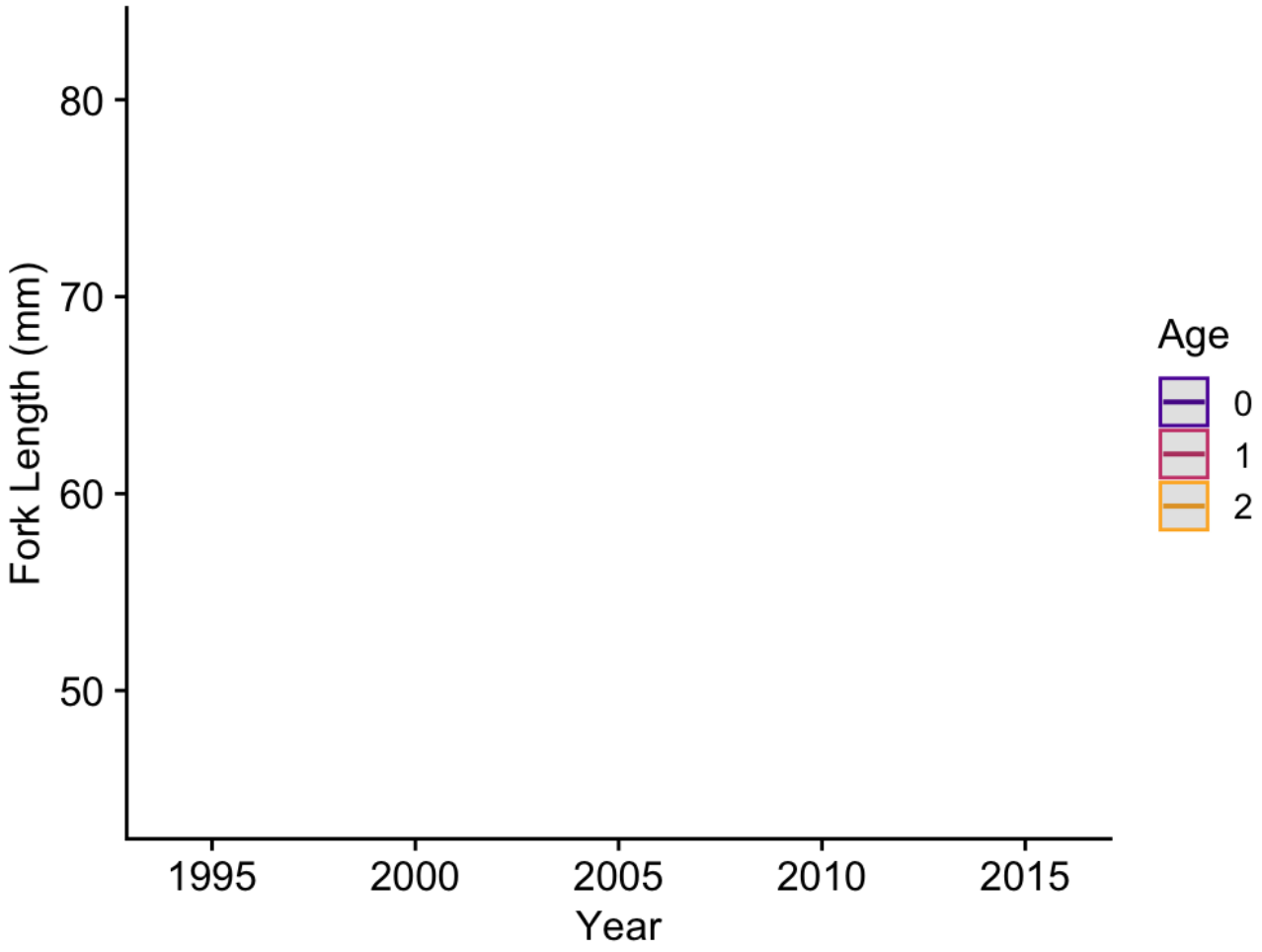
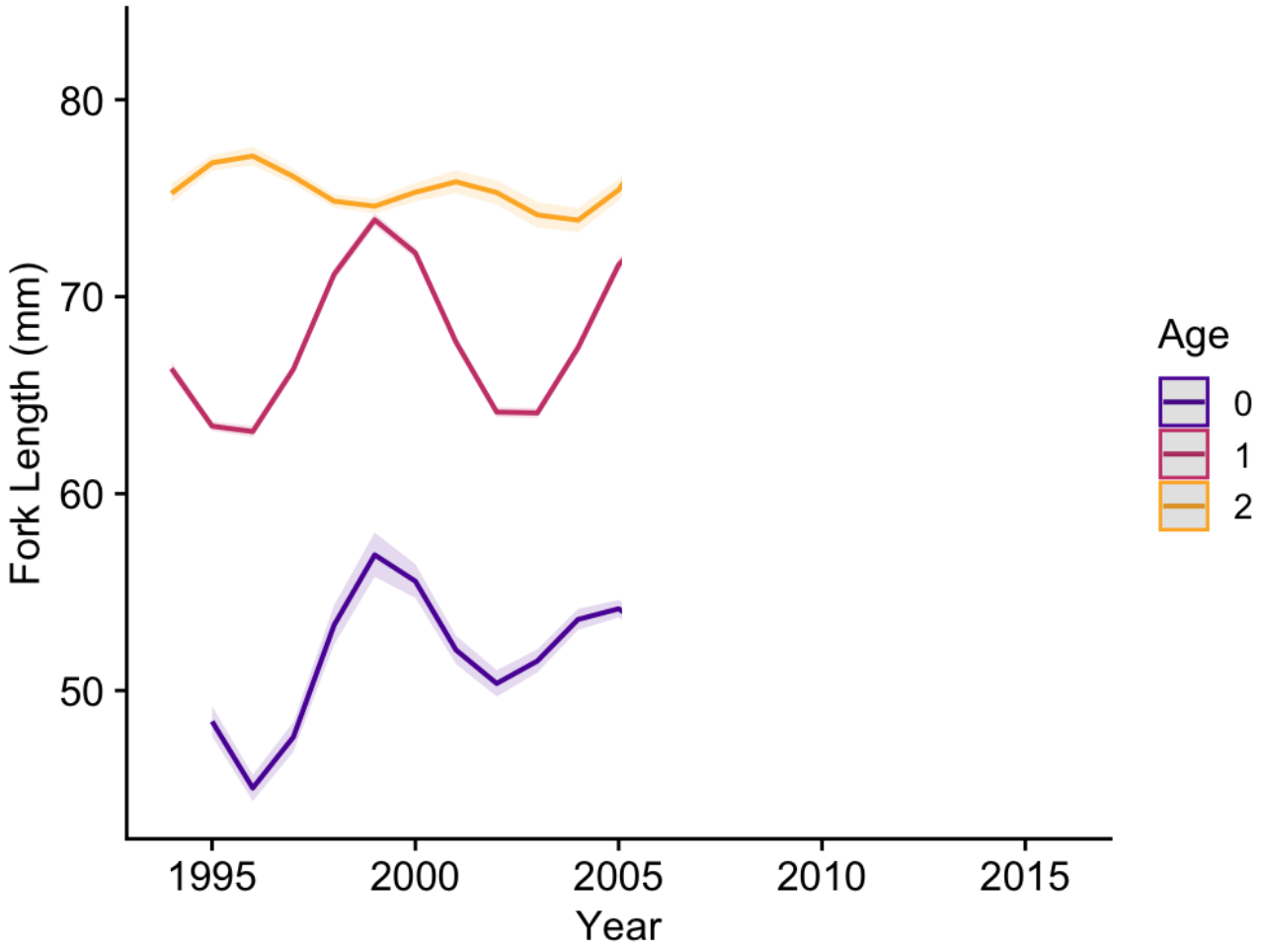
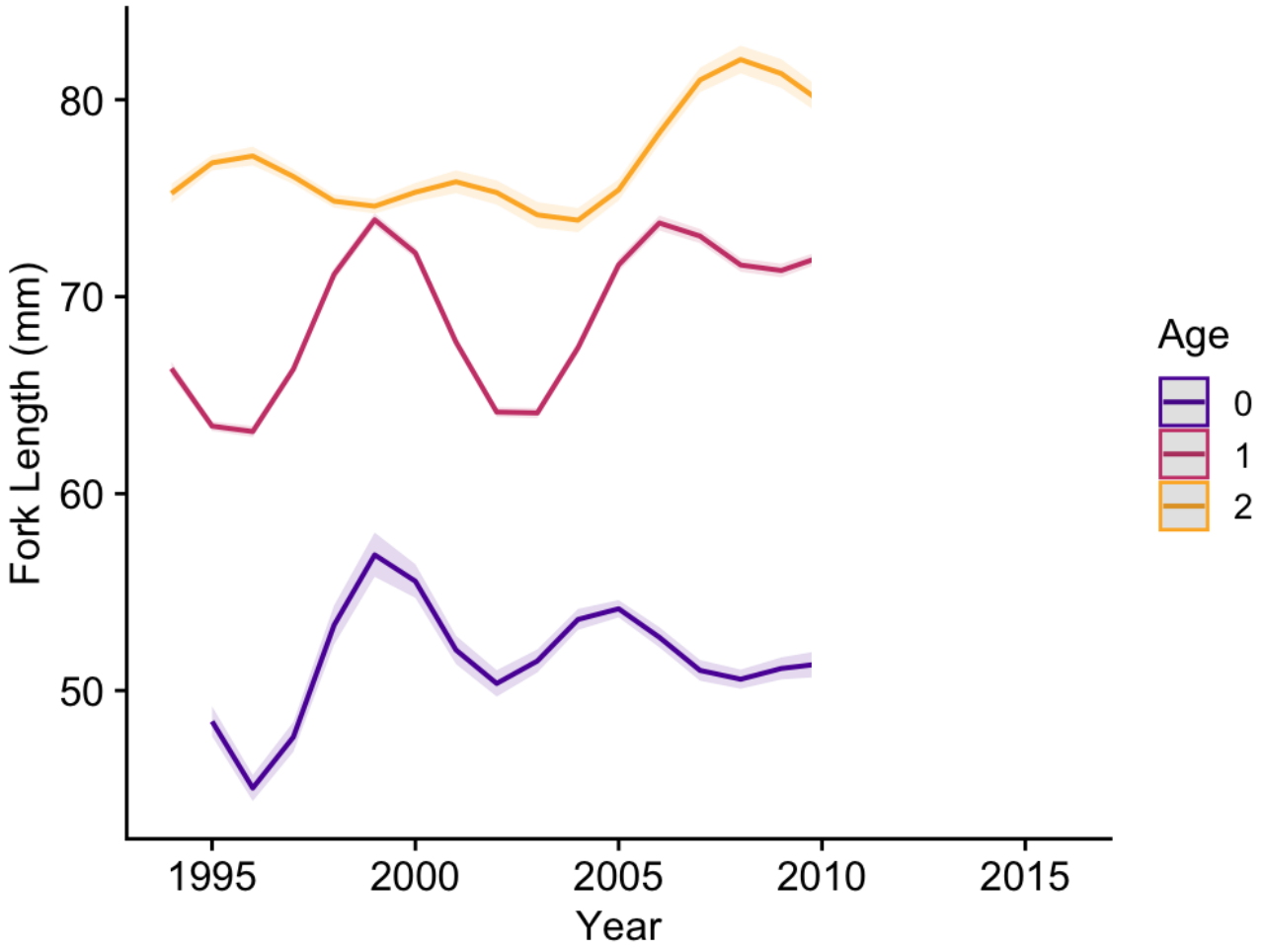
Fork length – possibly important for survival



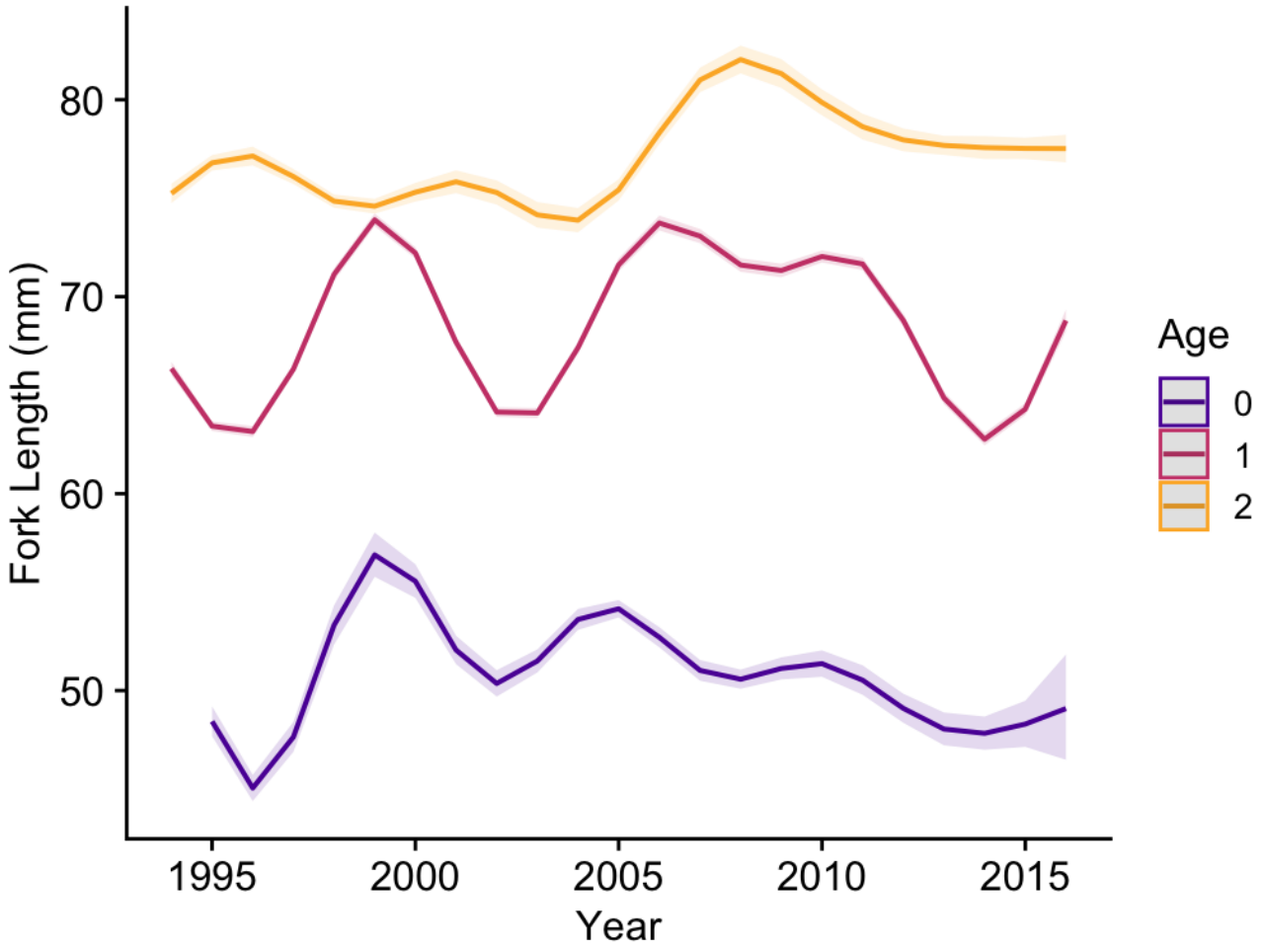
Fork length: Large variation early



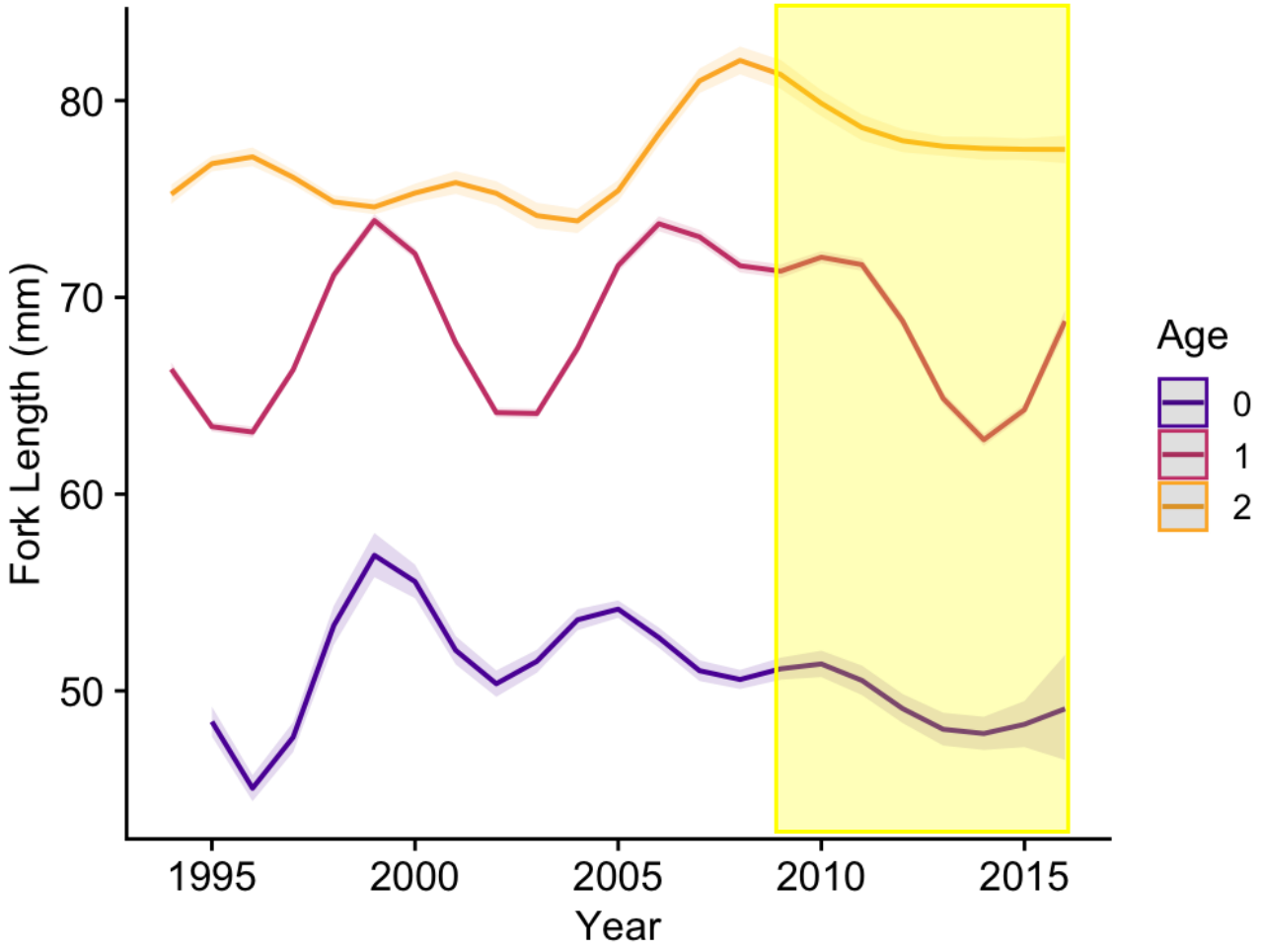
Fork length: Longer in the mid-late 2000's



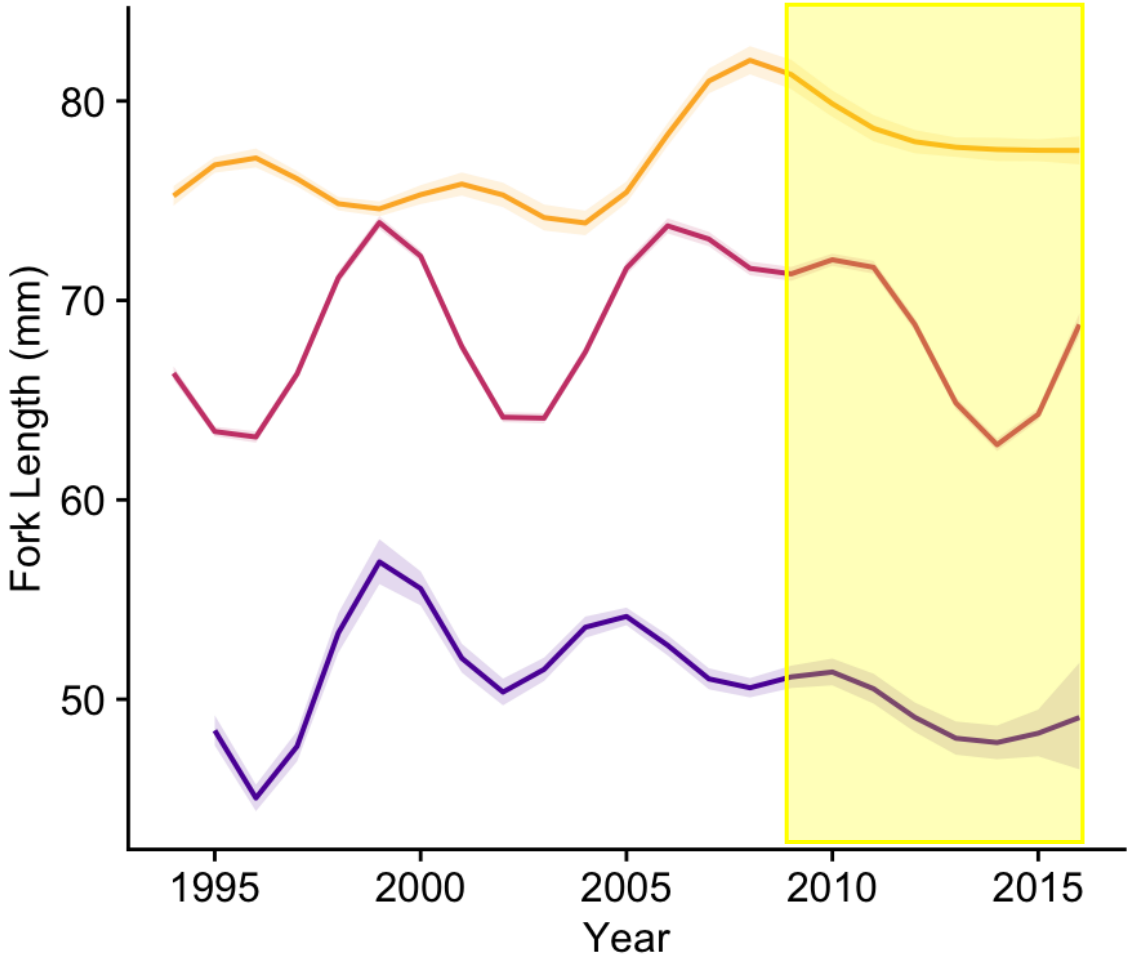
Fork length: Declines in the 2010's

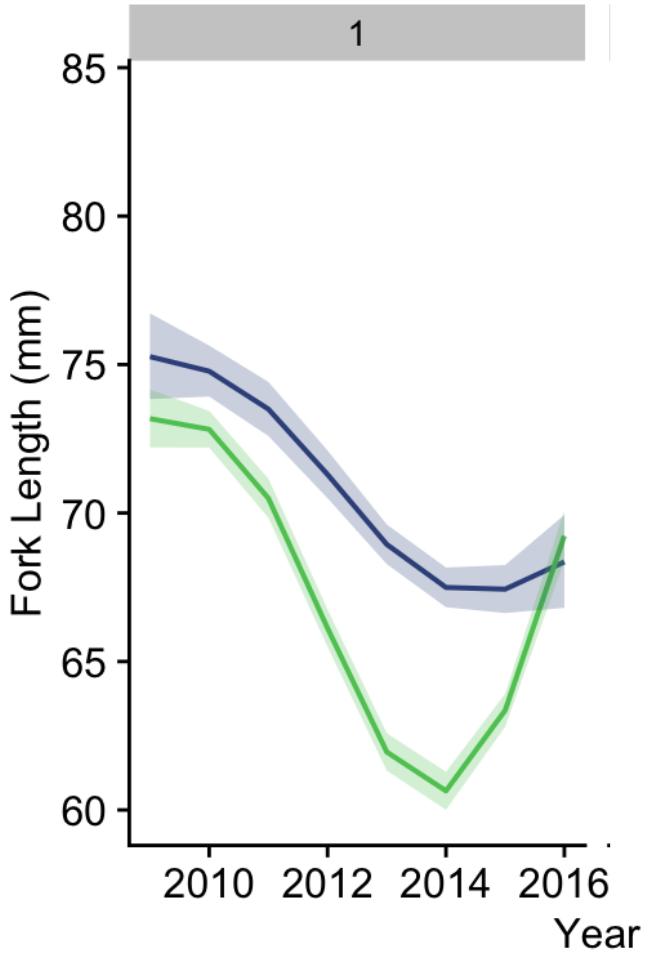


Stock-specific patterns

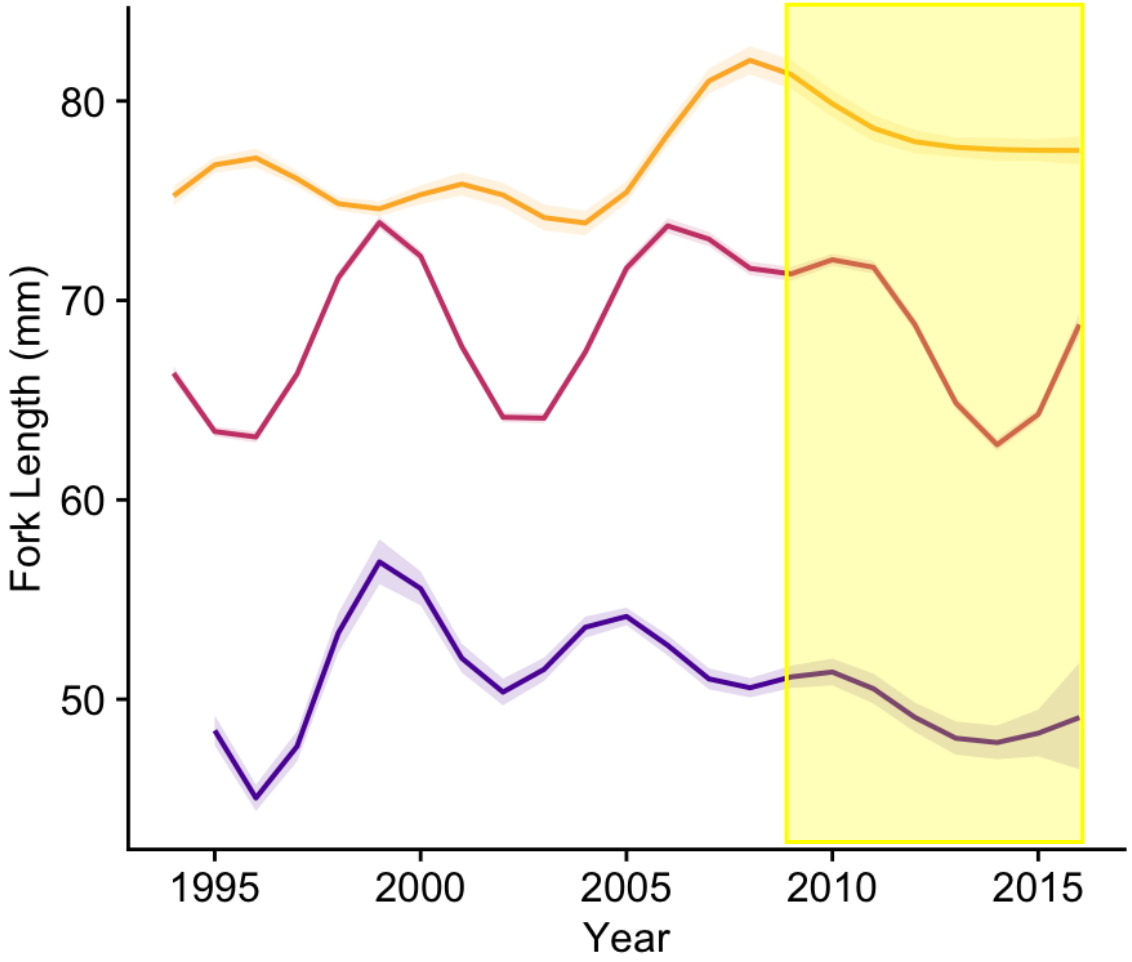


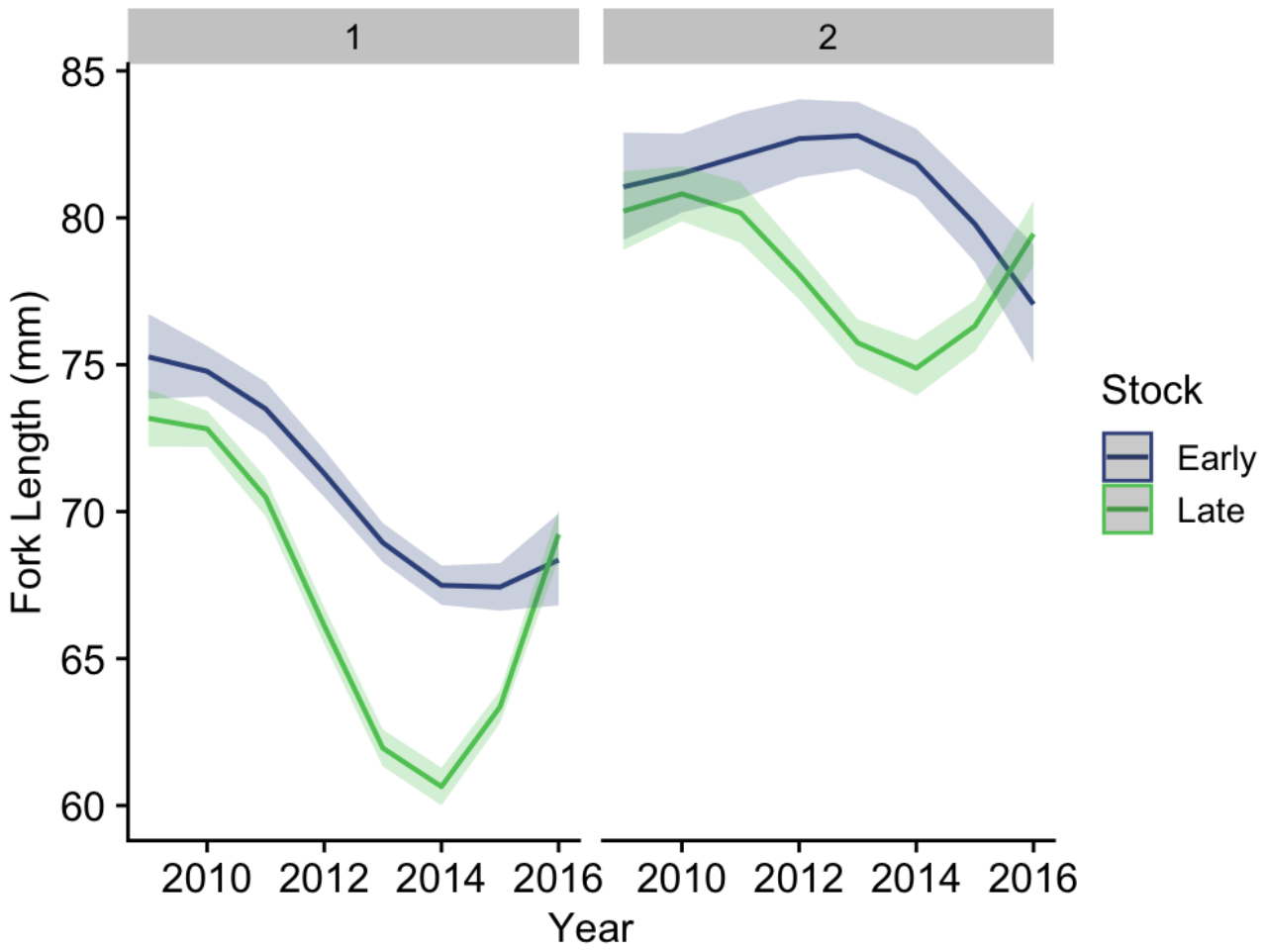
Age 1 smolts: declines, more pronounced for late run



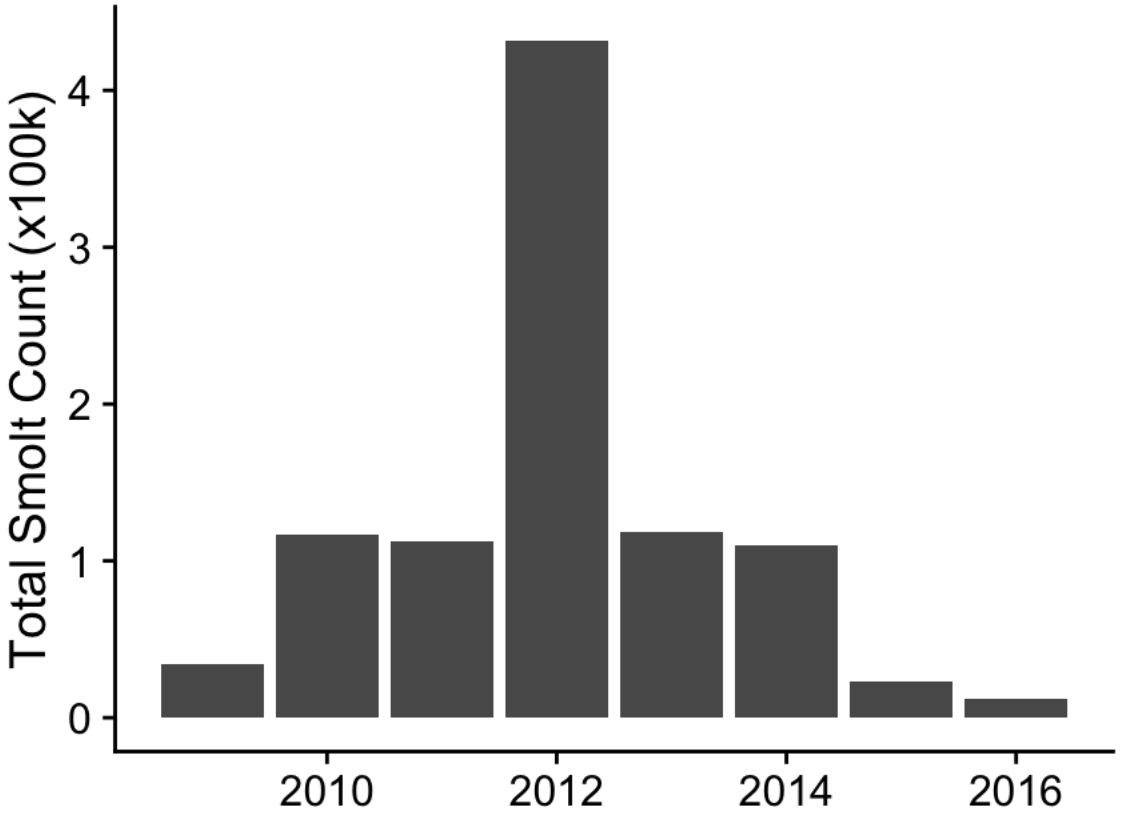


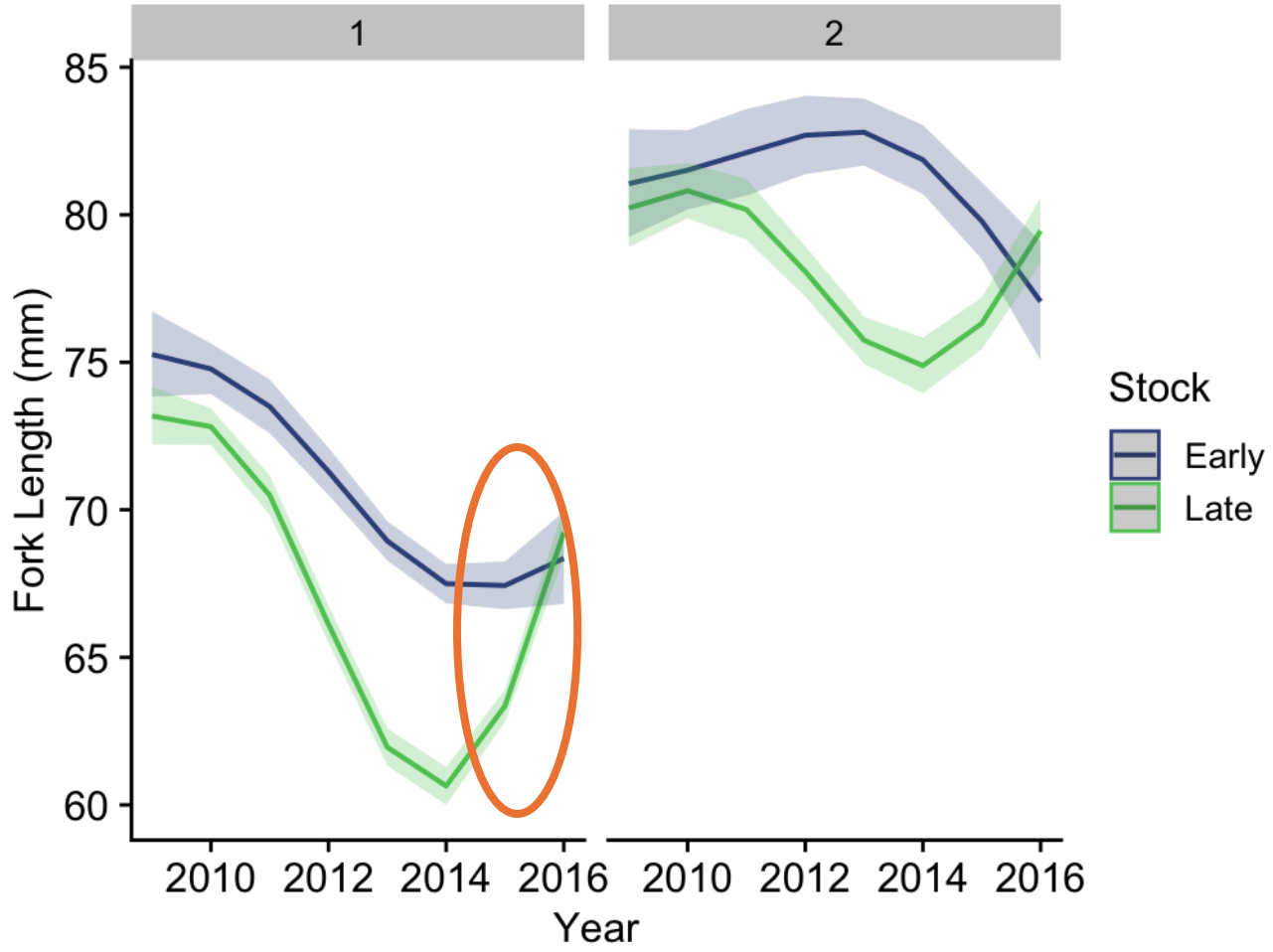
Age 2 smolts: opposing trends



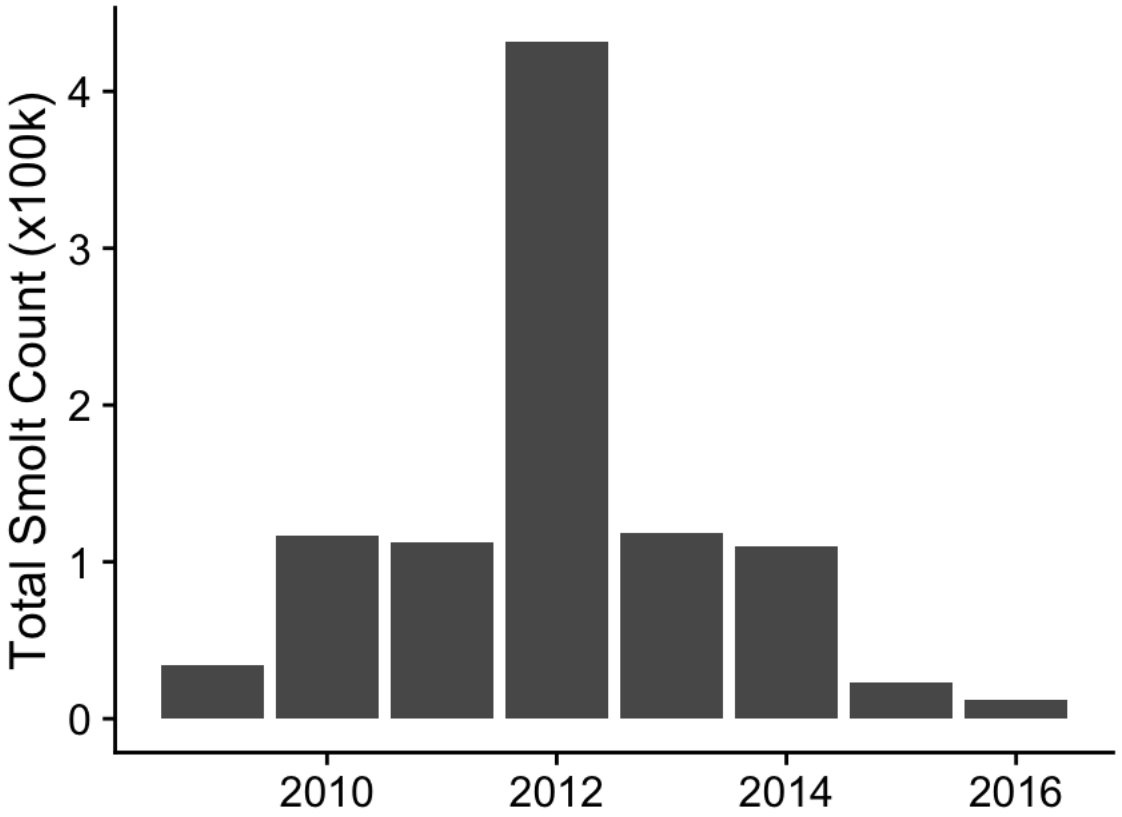


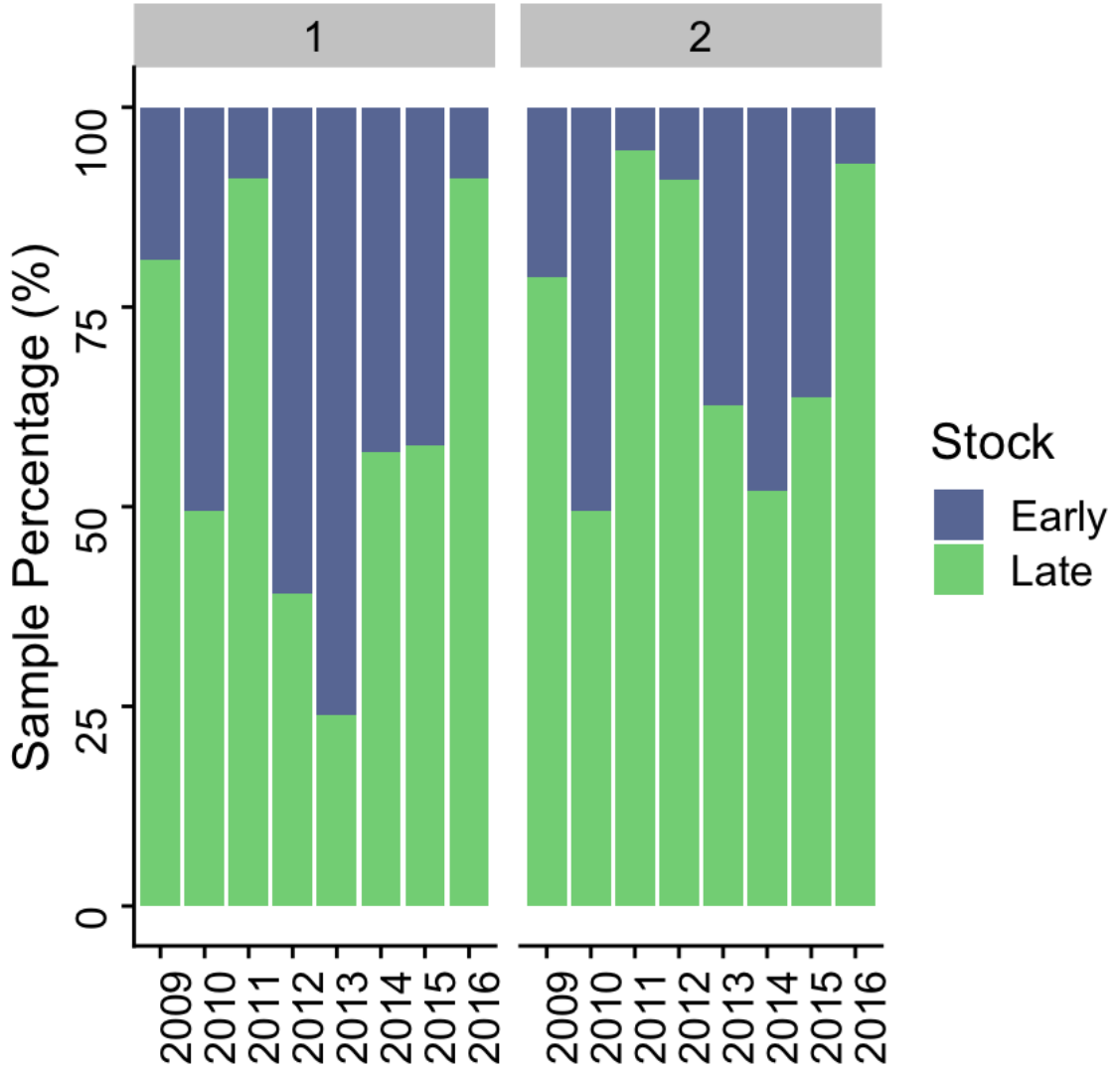
Total smolt catch in the screw traps was low in 2015 and 2016, combined with increase in lengths after 2014 may indicate fewer fry competing for resources



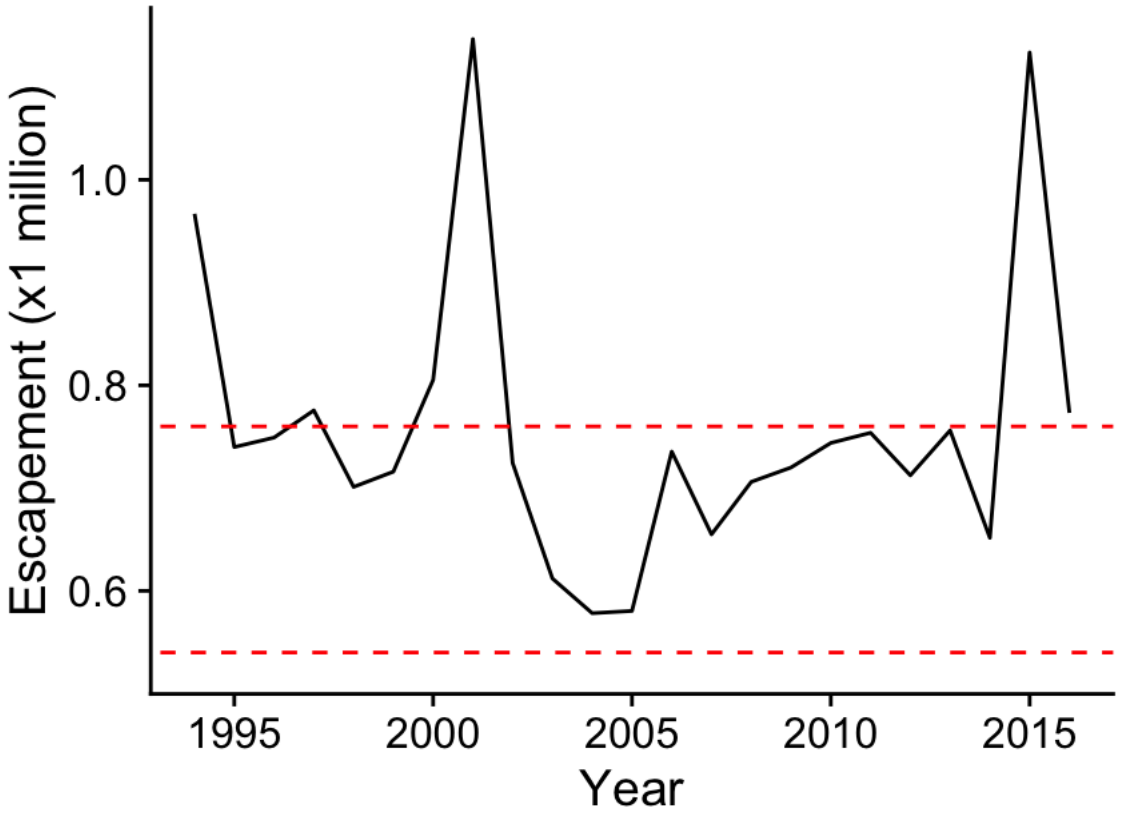


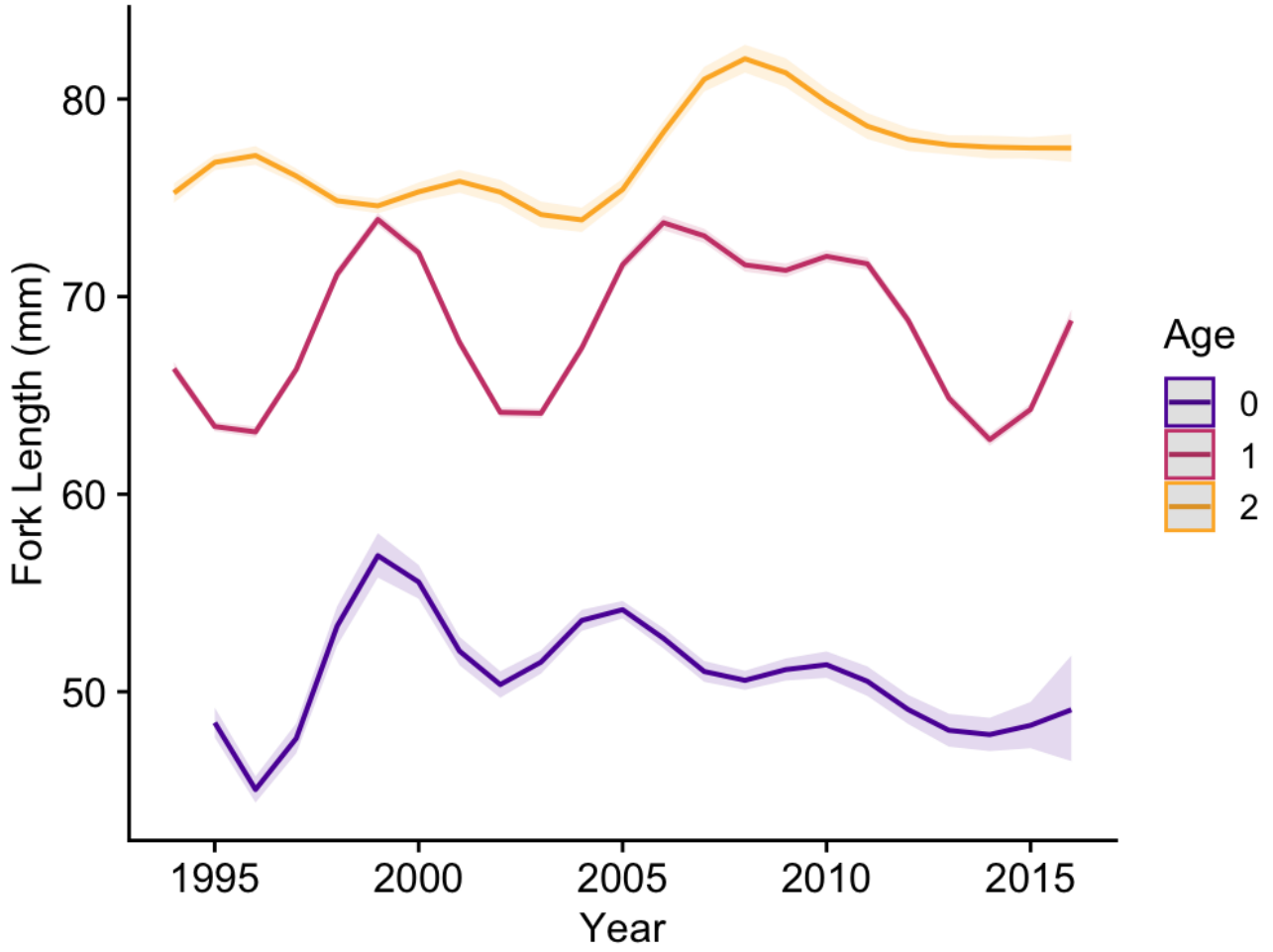
Many late run smolts were one year old, thus assuming late run rears in Chignik Lake for two years may be inaccurate



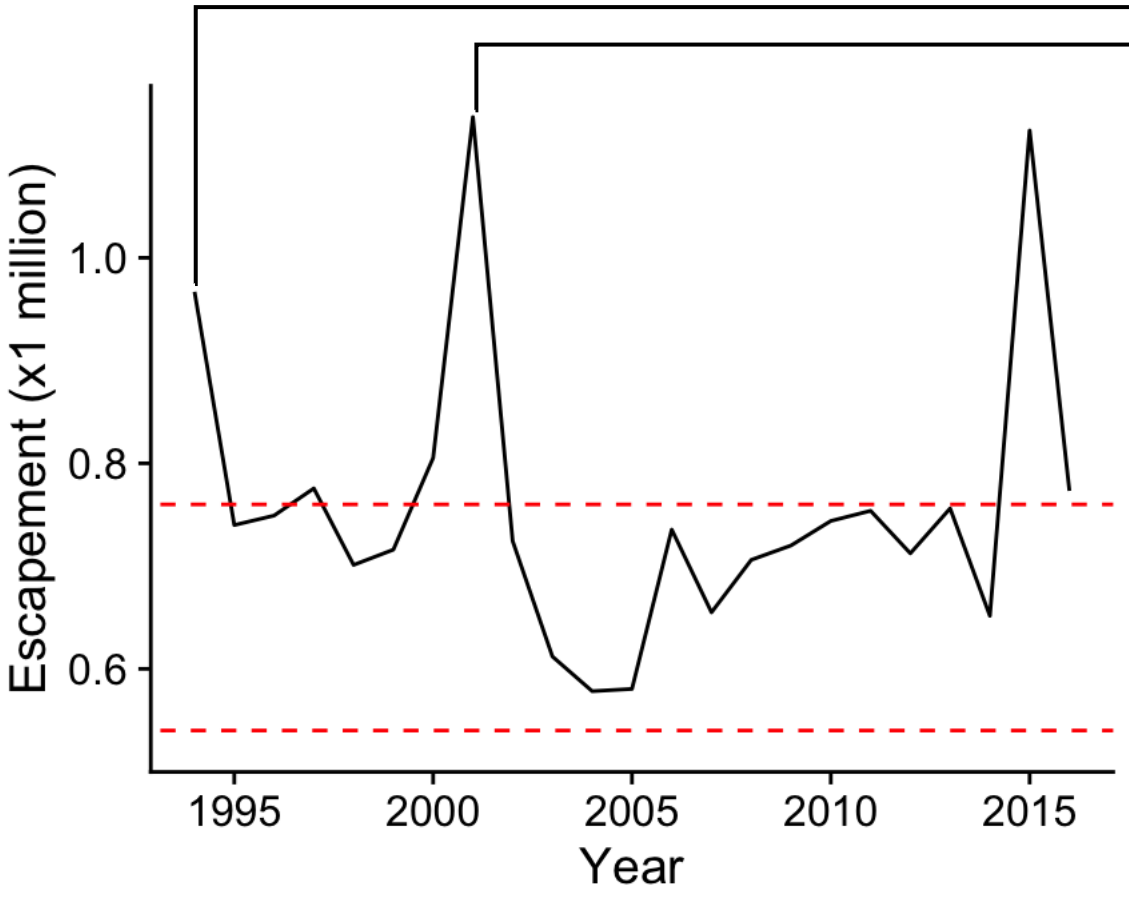


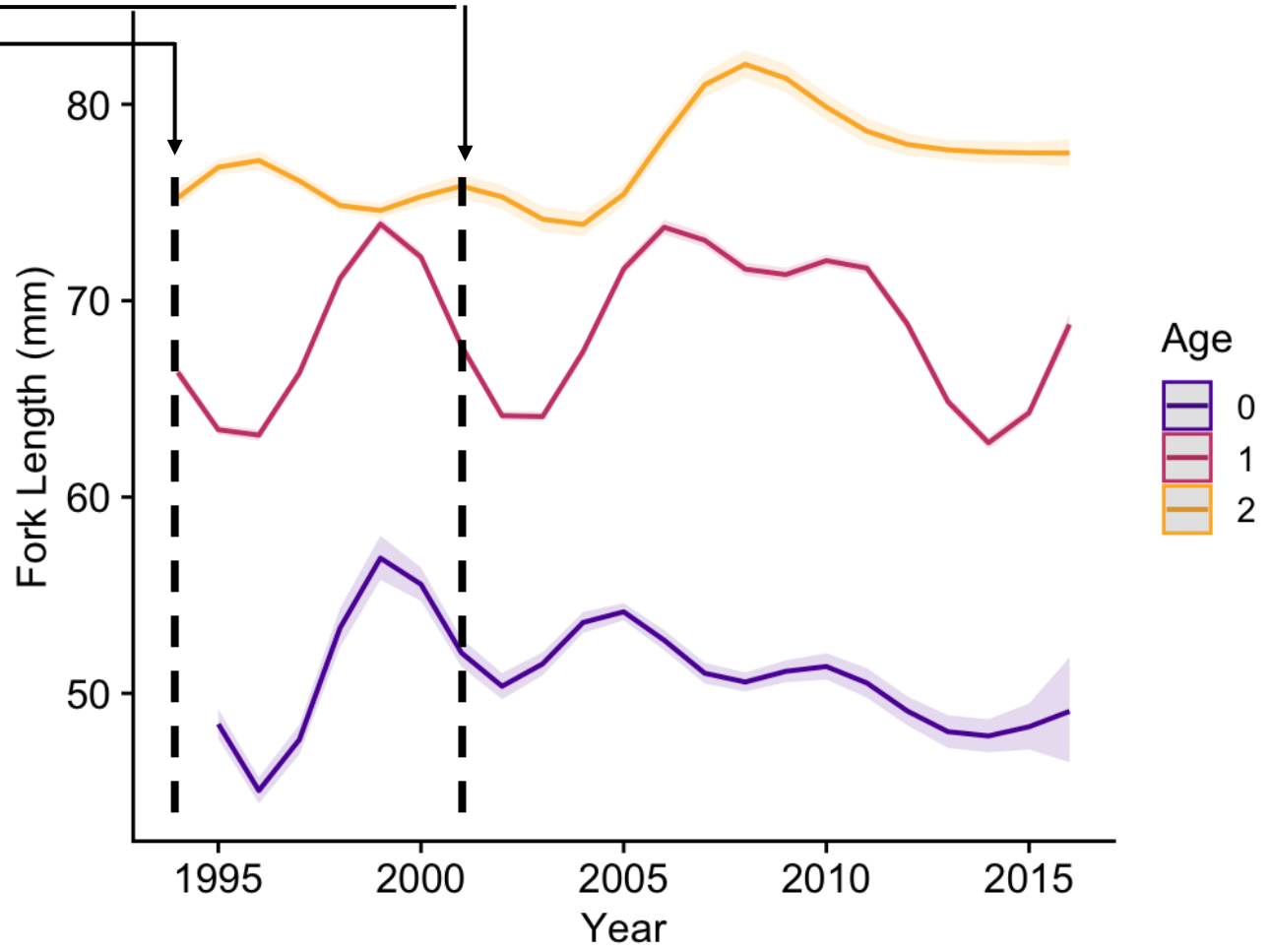
Escapement -> Fork length



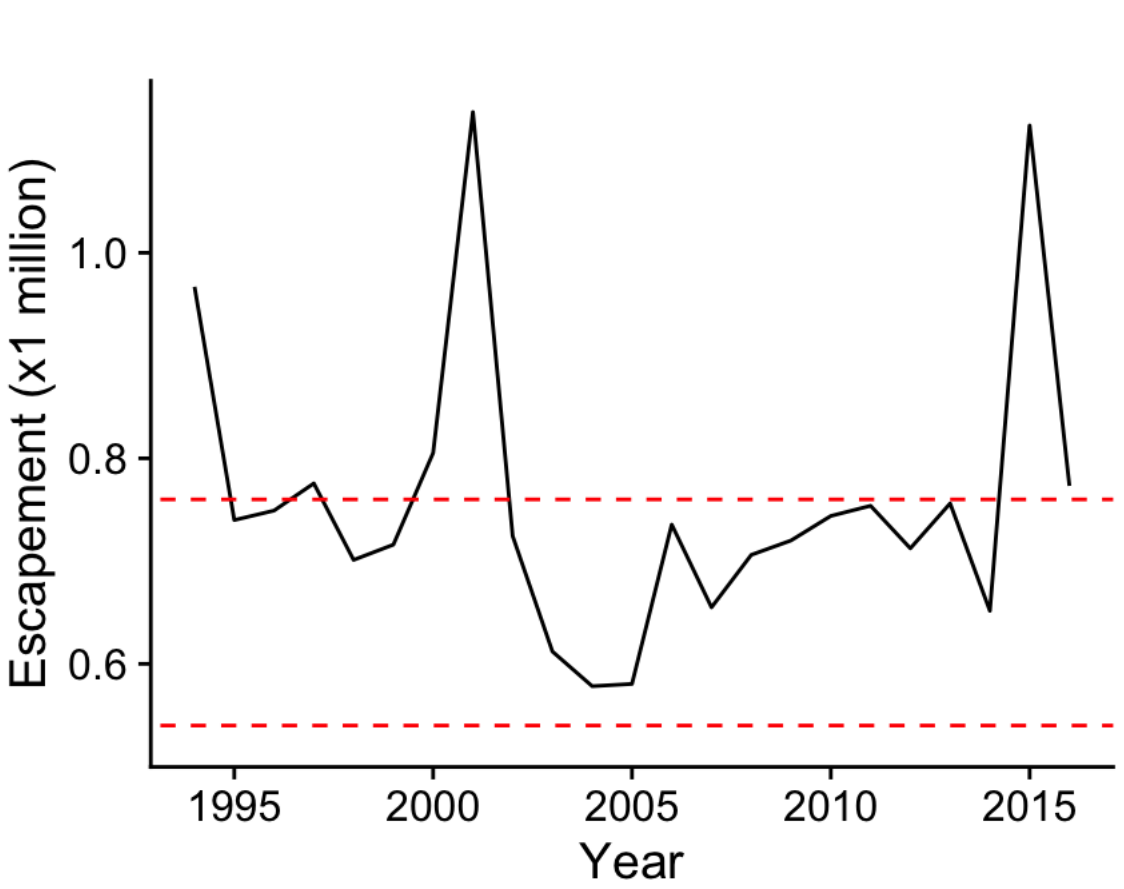


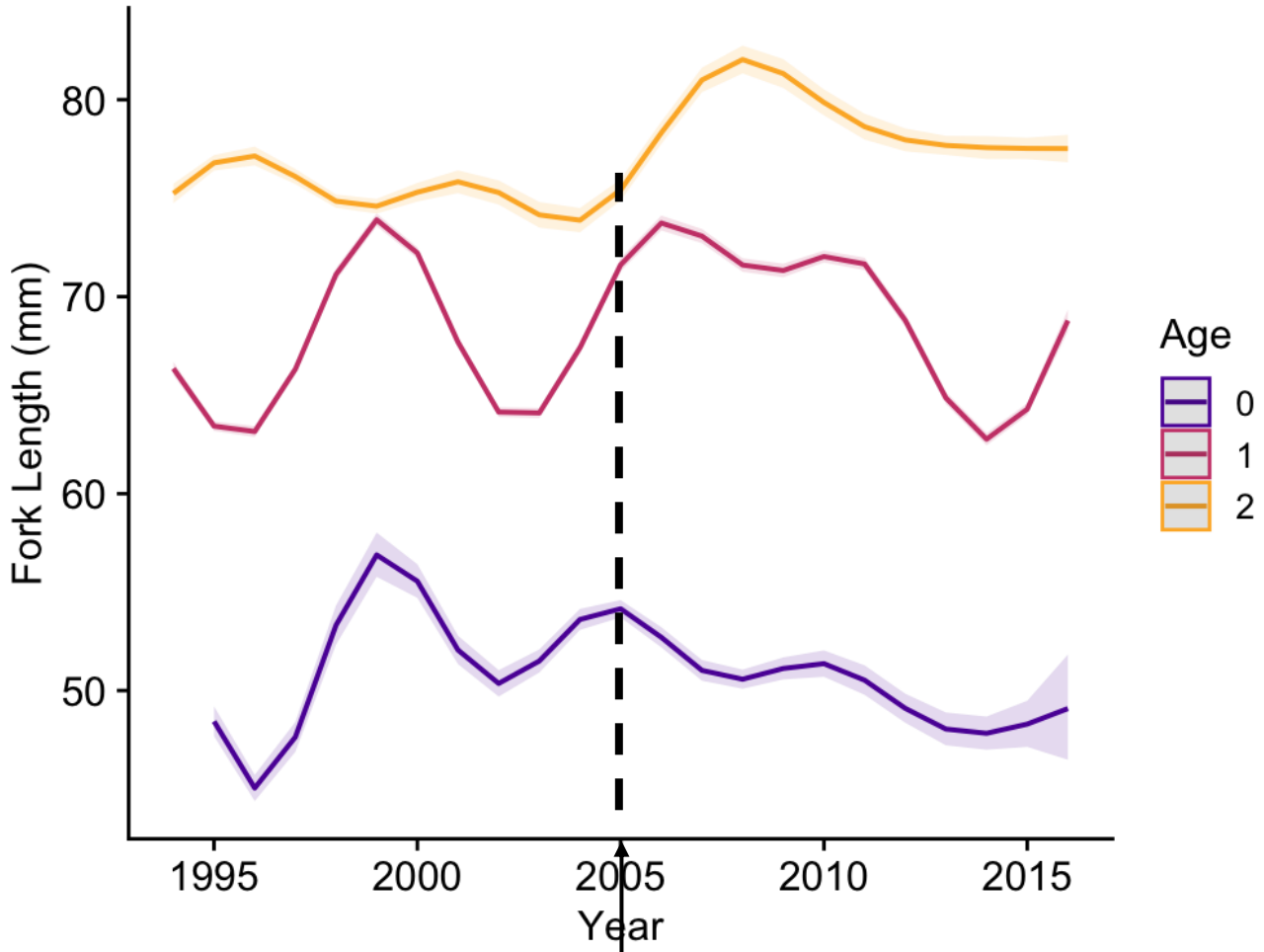
High escapement followed by reduced length





Low escapement followed by elevated length





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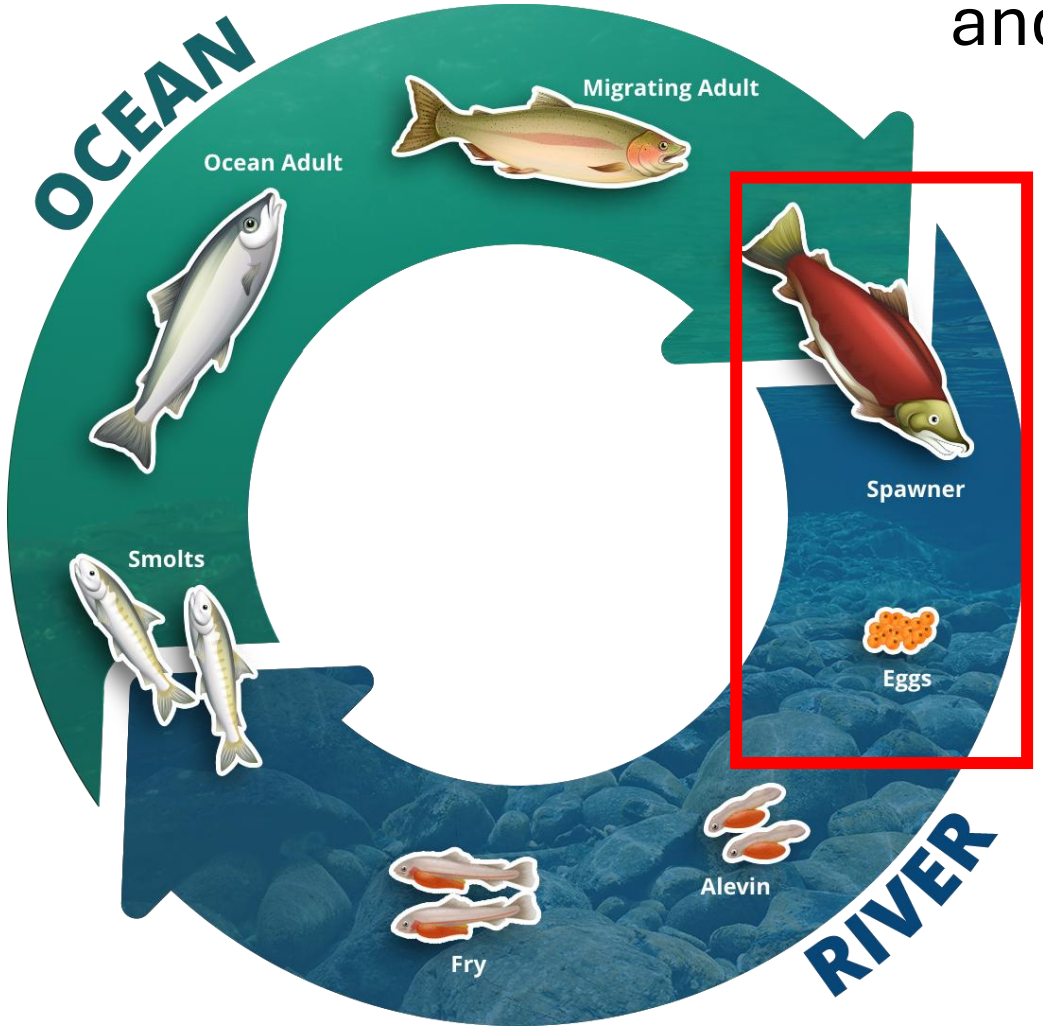
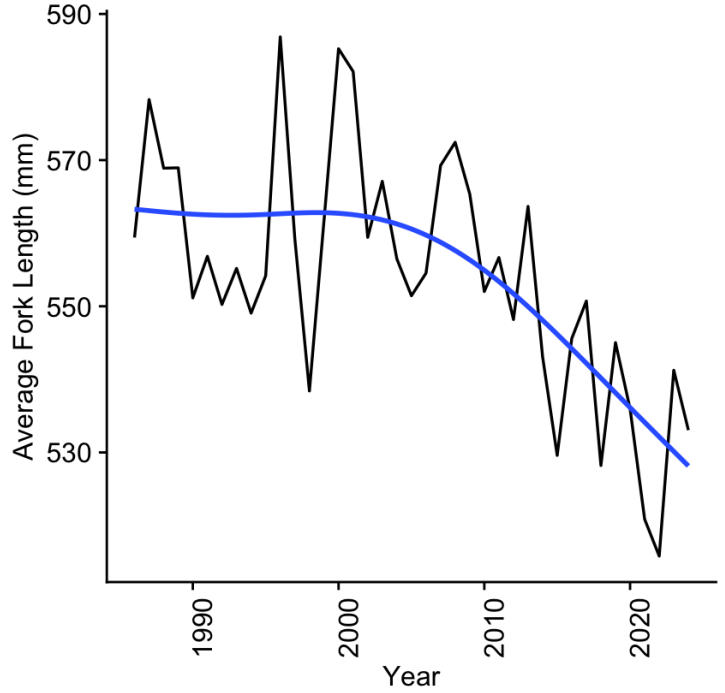


Fecundity (egg number and size)

2025 Plan

- Collect females in August 2025
  - Measure body size, count and weigh eggs
- Survey redds
  - Depth, substrate size
- Deploy scour monitors
- Collect winter weather data



March 18th 2025, ESA/Sentinel