

Dynamics of Trophy Brown Trout and Stunted Yellow Perch in an Arizona Mountain Reservoir

Chuck Mordhorst

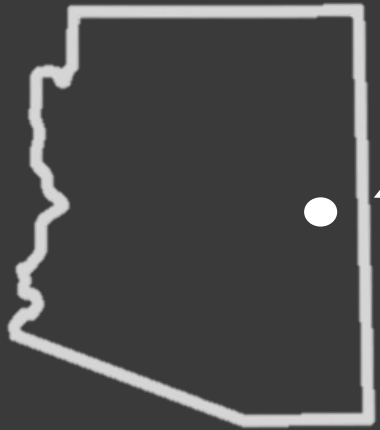
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Location of Study



River Reservoir

- Greer, White Mountains
- 50 acre reservoir
- 8,200 ft
- 1896, West Fork Little Colorado River
- Brown Trout, Apache Trout, Yellow Perch, Rainbow Trout

Background

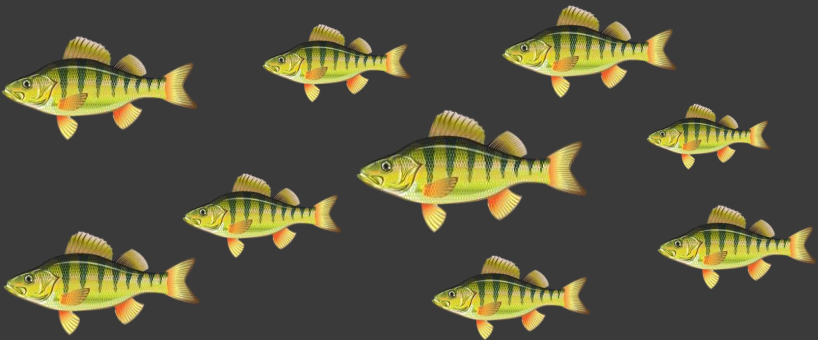


- Trophy Brown Trout fishery
 - 22 inches or 558 mm
- Highly Utilized fishery
- Anglers expressed a desire for a higher-density of Brown Trout

Background



- Low density large Brown Trout
 - Beaver dam complex limits spawning
- High density small Yellow Perch
 - Density dependent growth



Background



Background



Question?

Can we increase the number of Brown Trout?



Question?

Can we increase the number of Brown Trout?



Without negatively impacting the size of Brown Trout?

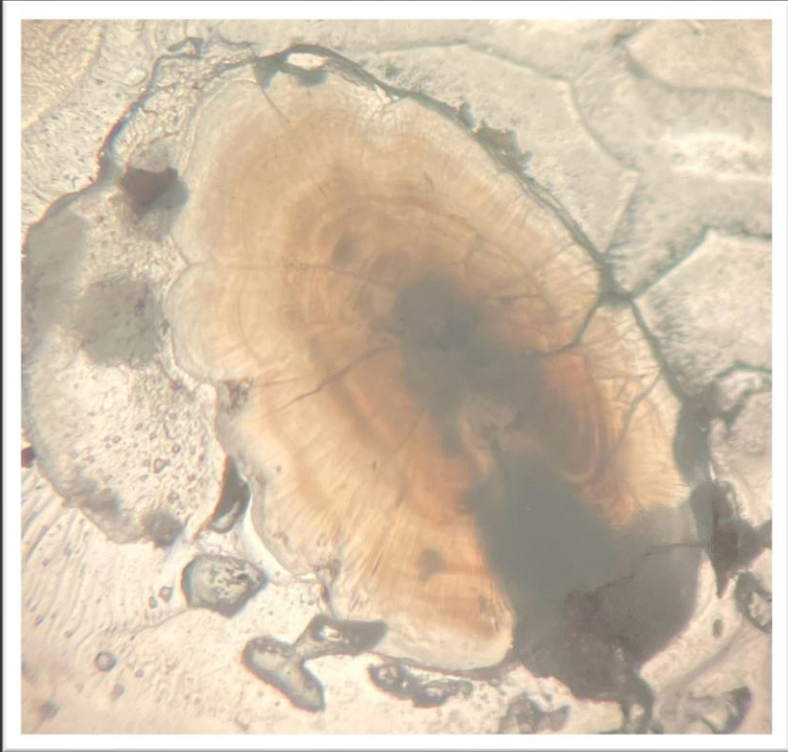
Project Goal

- Determine if the Yellow Perch population is stunted and to what extent

Implications for Management

- Would increasing the number of Brown Trout result in increased predation on Yellow Perch, lowering their density, and releasing them from density dependent growth (stunting)?

Methods



- Night boat electrofishing
- Length and weight
- 77 Yellow Perch
 - 10 mm length bins
- Whole otolith aging

Results

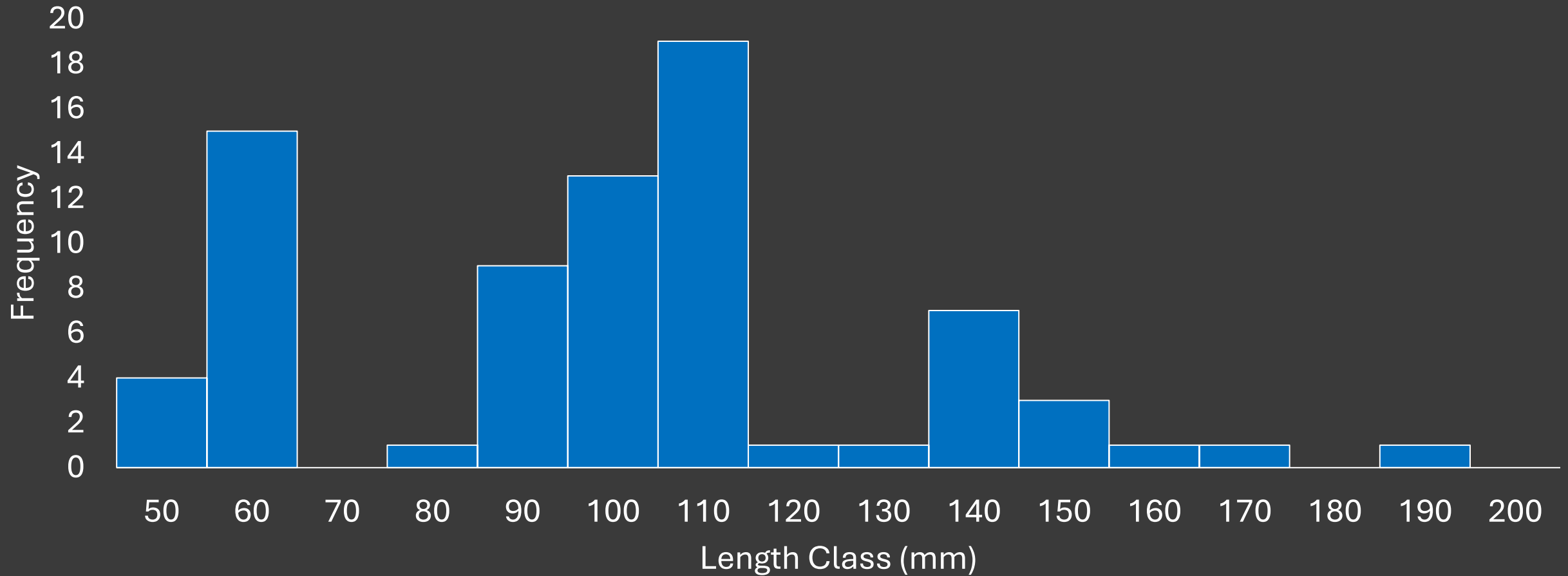


- Yellow Perch Density 284/hr
- Brown Trout Population estimate 330



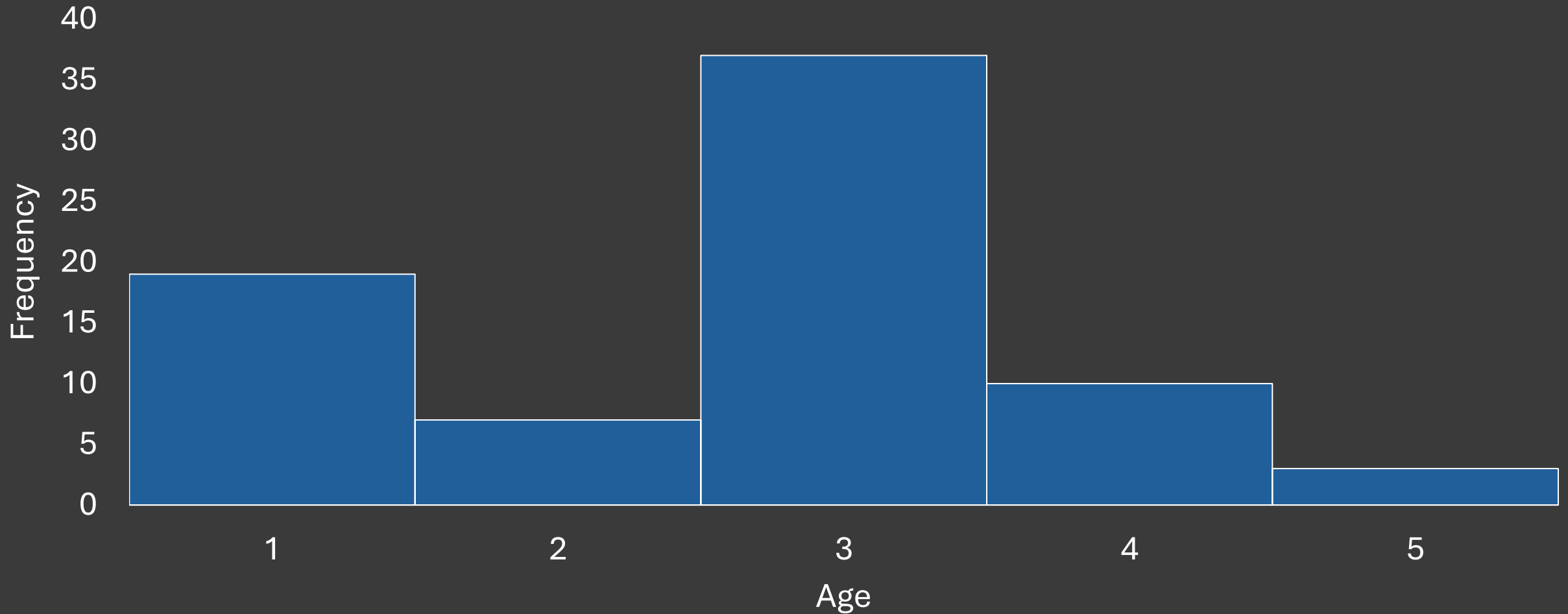
Length Frequency

Yellow Perch



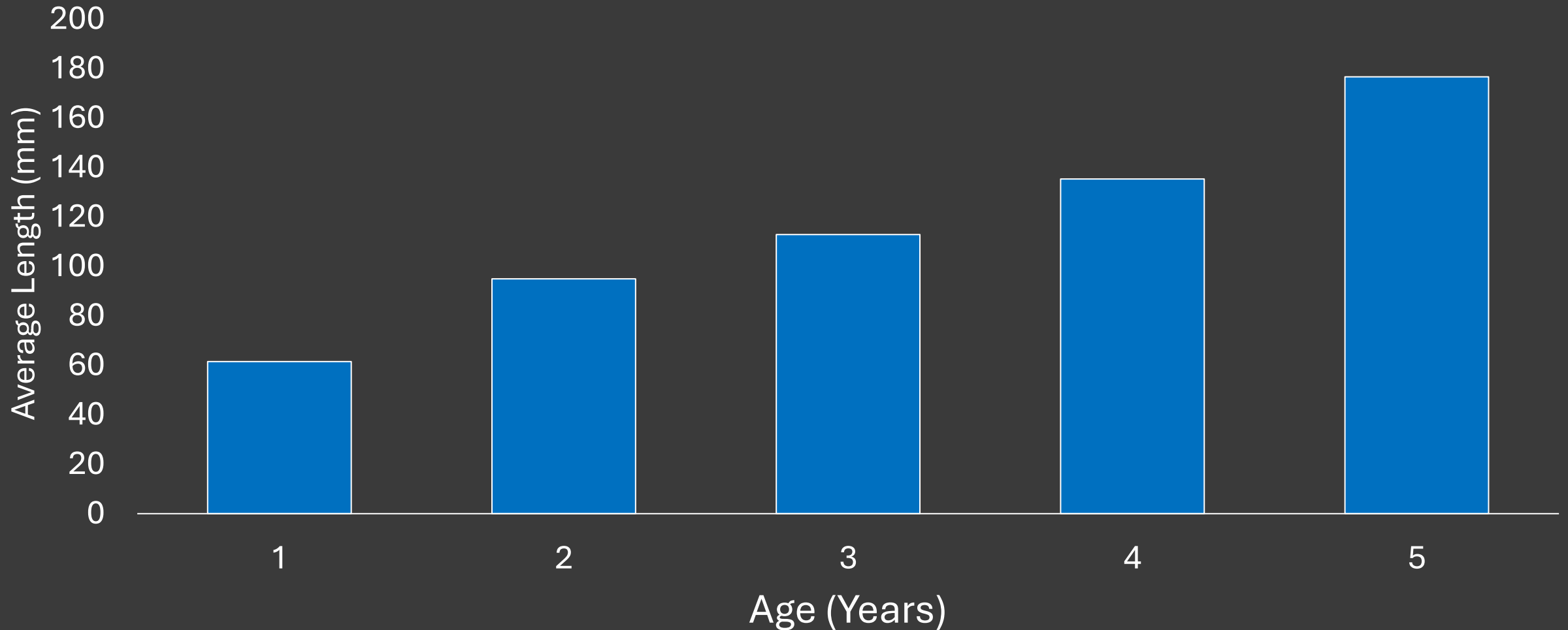
Age Frequency

Yellow Perch



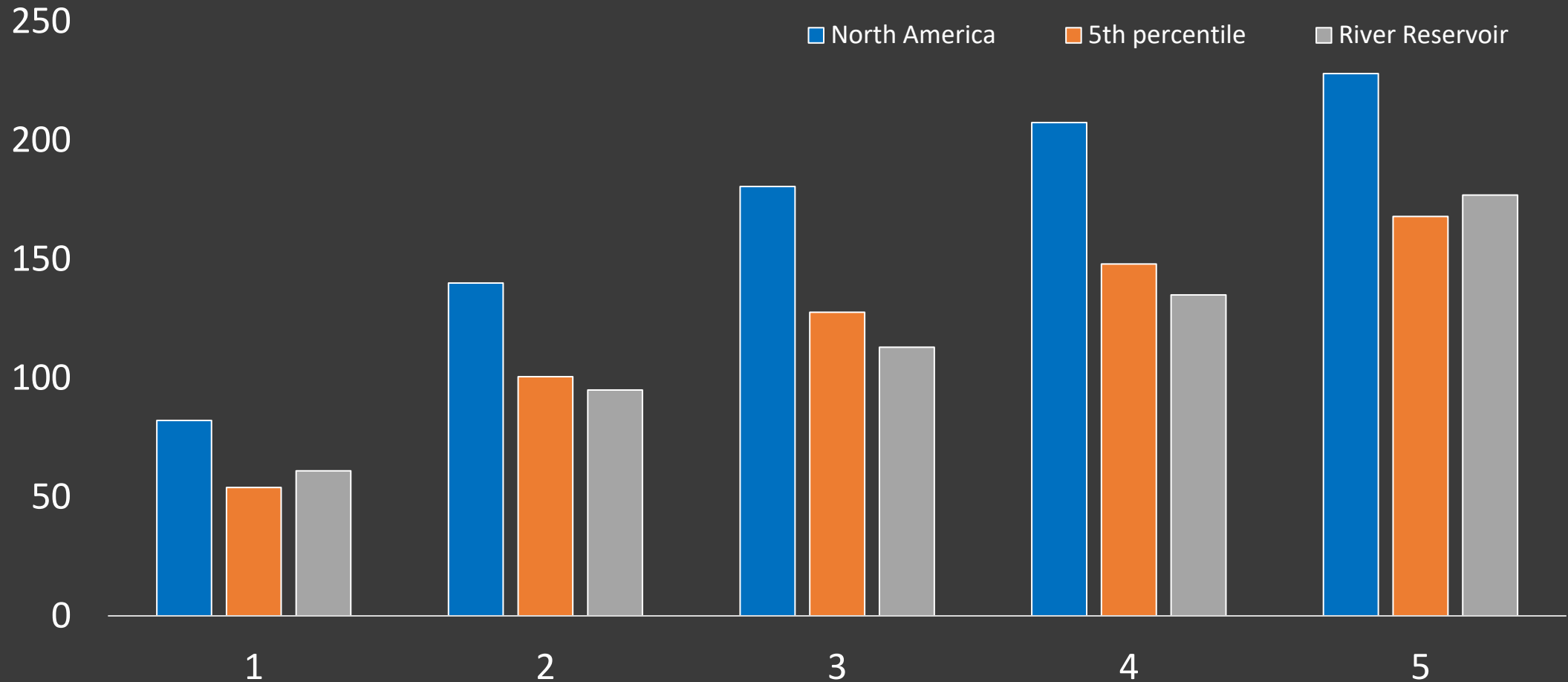
Length at Age Comparisons

Yellow Perch Average Length at Age



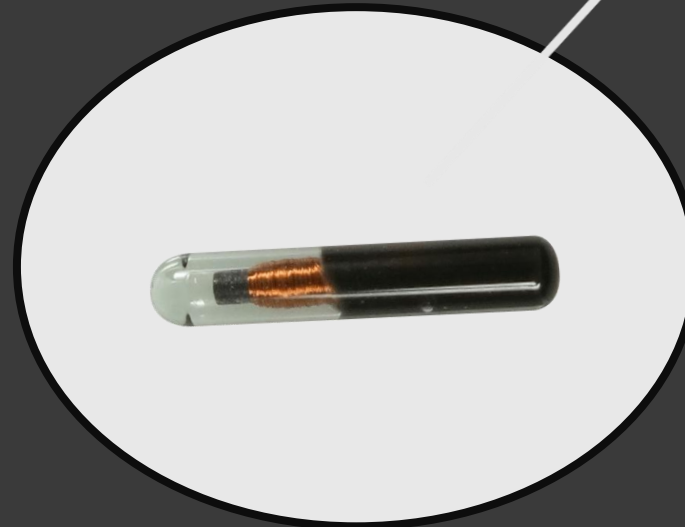
Length at Age Comparisons

Yellow Perch



The Plan

- Translocate Brown Trout
 - Upstream from Little Colorado River
- PIT tag Brown Trout
 - Growth rates
 - Upstream movement
- Monitor Yellow Perch size
 - 30% of Brown Trout Body size



Citations

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