



# Lees Ferry Fishery

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# AZGFD Objectives – Lees Ferry Fishery



- Long-term monitoring of trout population
- Assess angler use of fishery
- Detect invasive fish species
- Work with the Bureau of Reclamation, the Adaptive Management Workgroup, National Park Service, U.S. Fish and Wildlife Service and other partners to conserve the sport fishery and native fish downstream





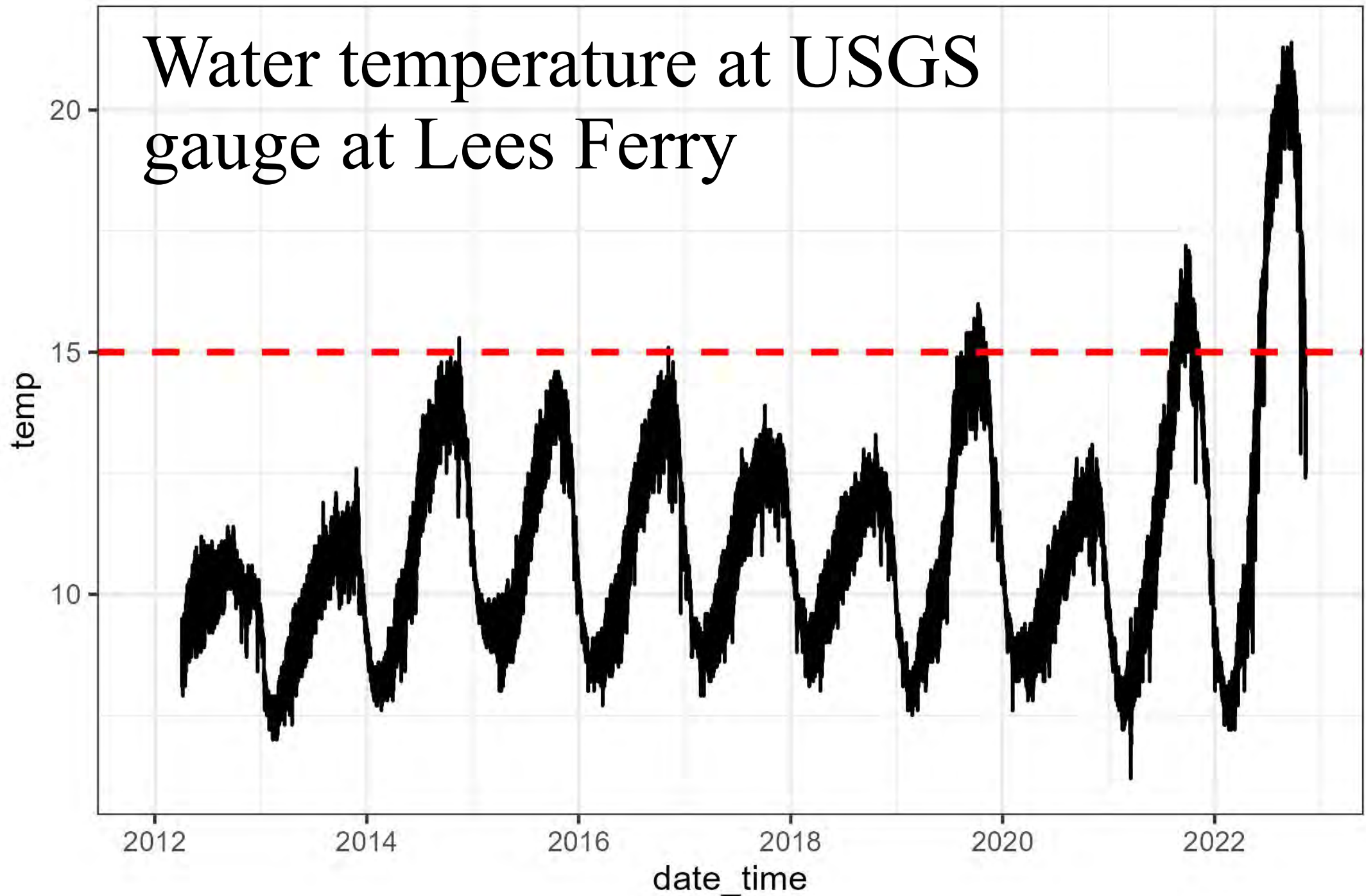
# Methods

- Standardized electrofishing:
  - spring, summer, fall (n= 40/trip)
  - Nonnative fish sampling (summer, fall)
- Angler surveys (creel):
  - 6 days/month
  - + Grand Canyon Monitoring and Research Center creel
- Citizen science
- Game camera





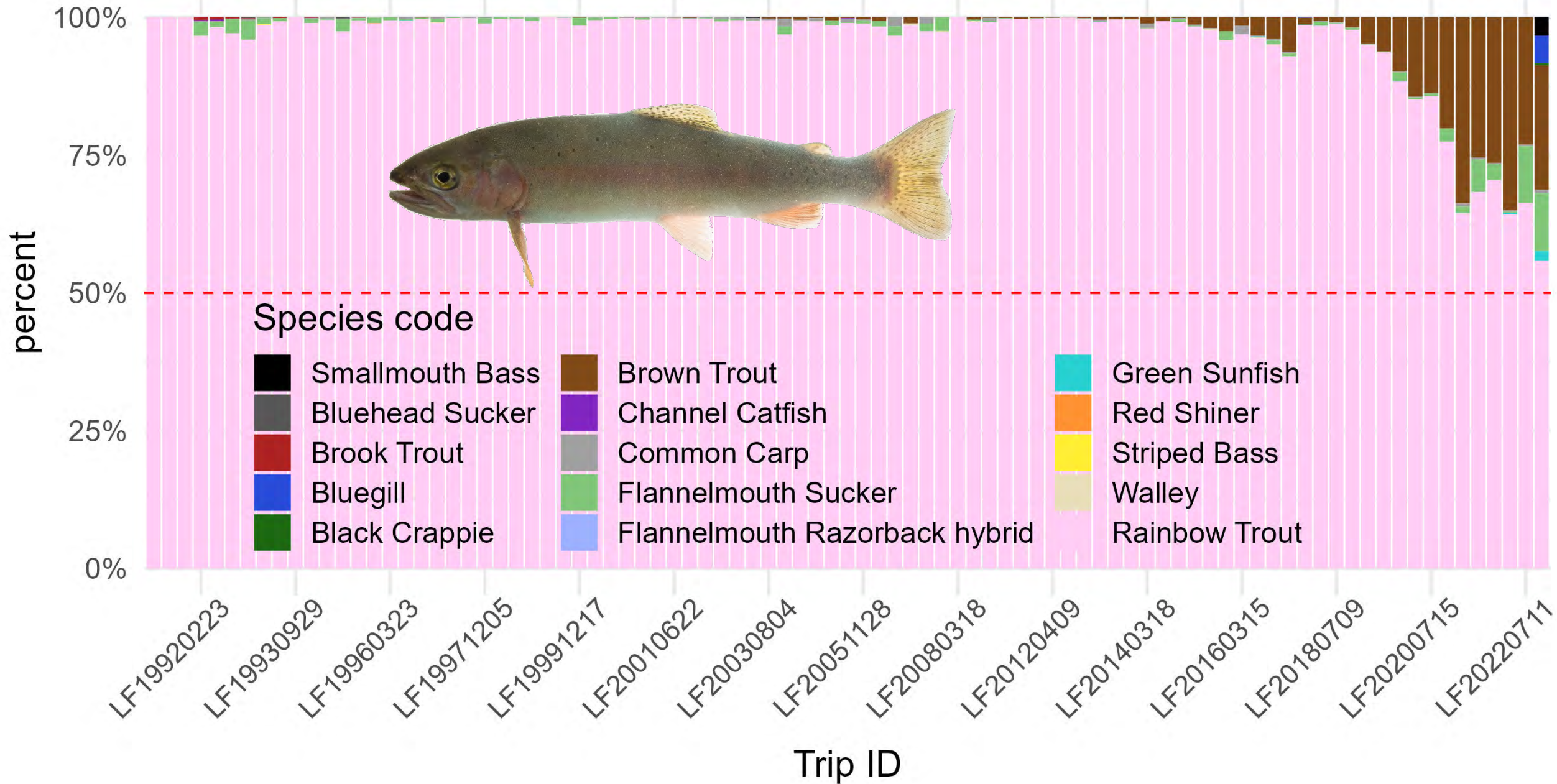
# Water temperature at USGS gauge at Lees Ferry



# 2020- Present

- Increase of nonnative warmwater and coolwater fish
  - **Green Sunfish**: 2015 **reproduction** and removals, and detected every year since
  - **Channel Catfish**: 1<sup>st</sup> record in creel ever in 2021 (1976-2022)
    - Spawning/reproduction: 21-24 °C
  - **Common Carp**: **REPRODUCED** in 2022
    - Spawning/reproduction: 20-25 °C
  - **Smallmouth Bass**: **REPRODUCED** in 2022
    - Spawning/reproduction: 15-26 °C
  - **Flannelmouth Sucker** juveniles captured in 2022 (141, 185 mm TL)



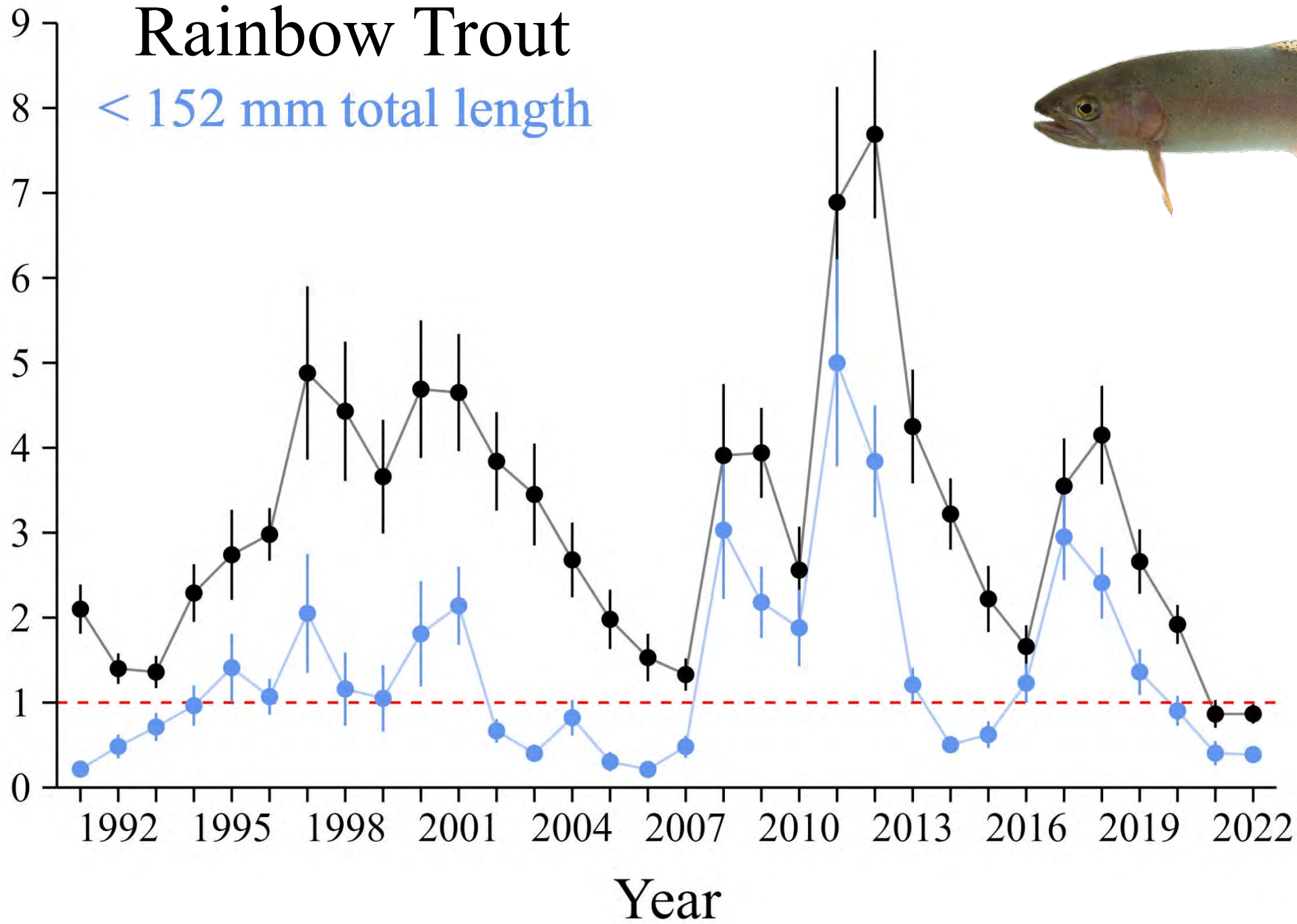


# Rainbow Trout

< 152 mm total length

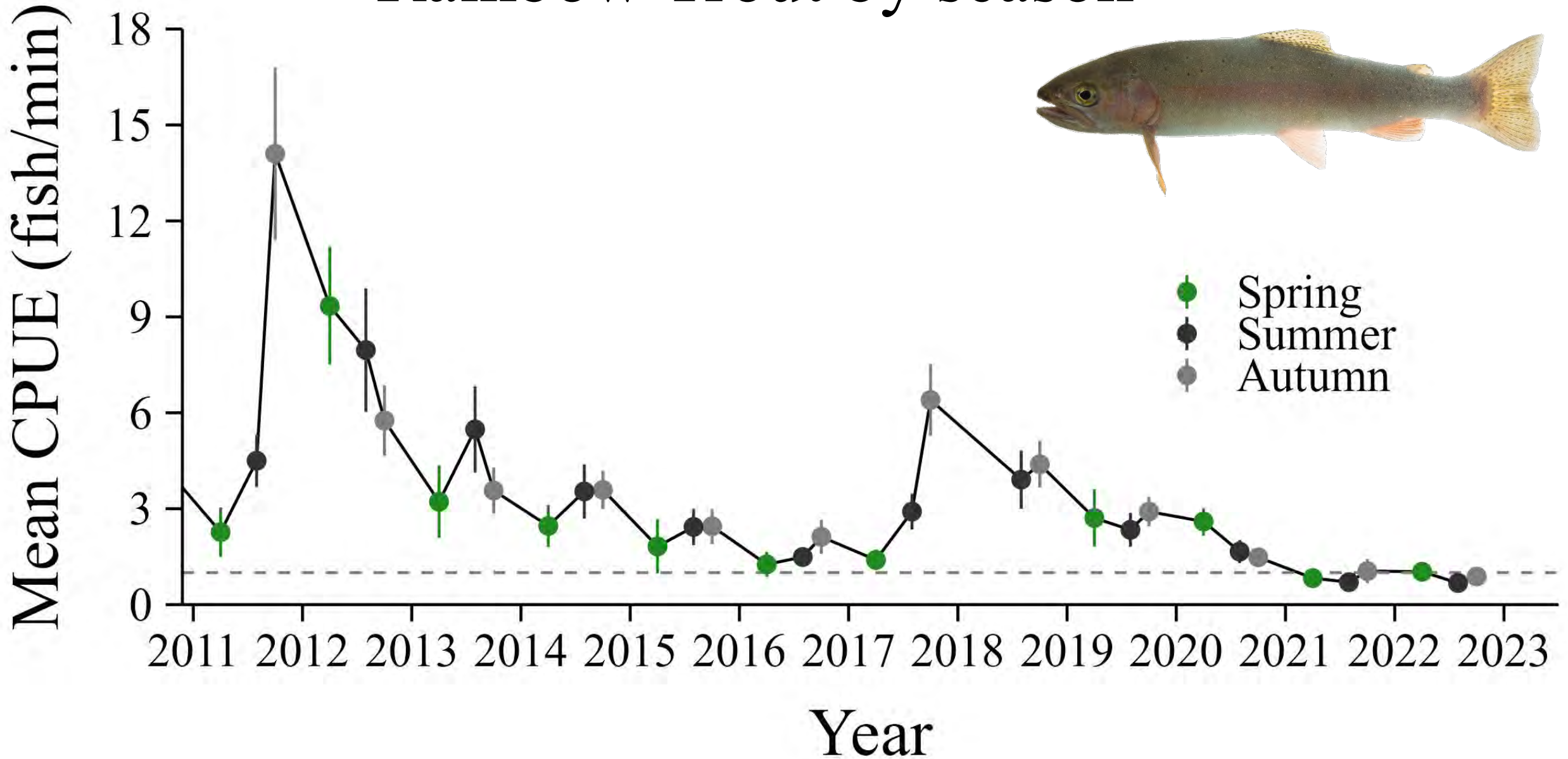


Mean CPUE (fish/min)

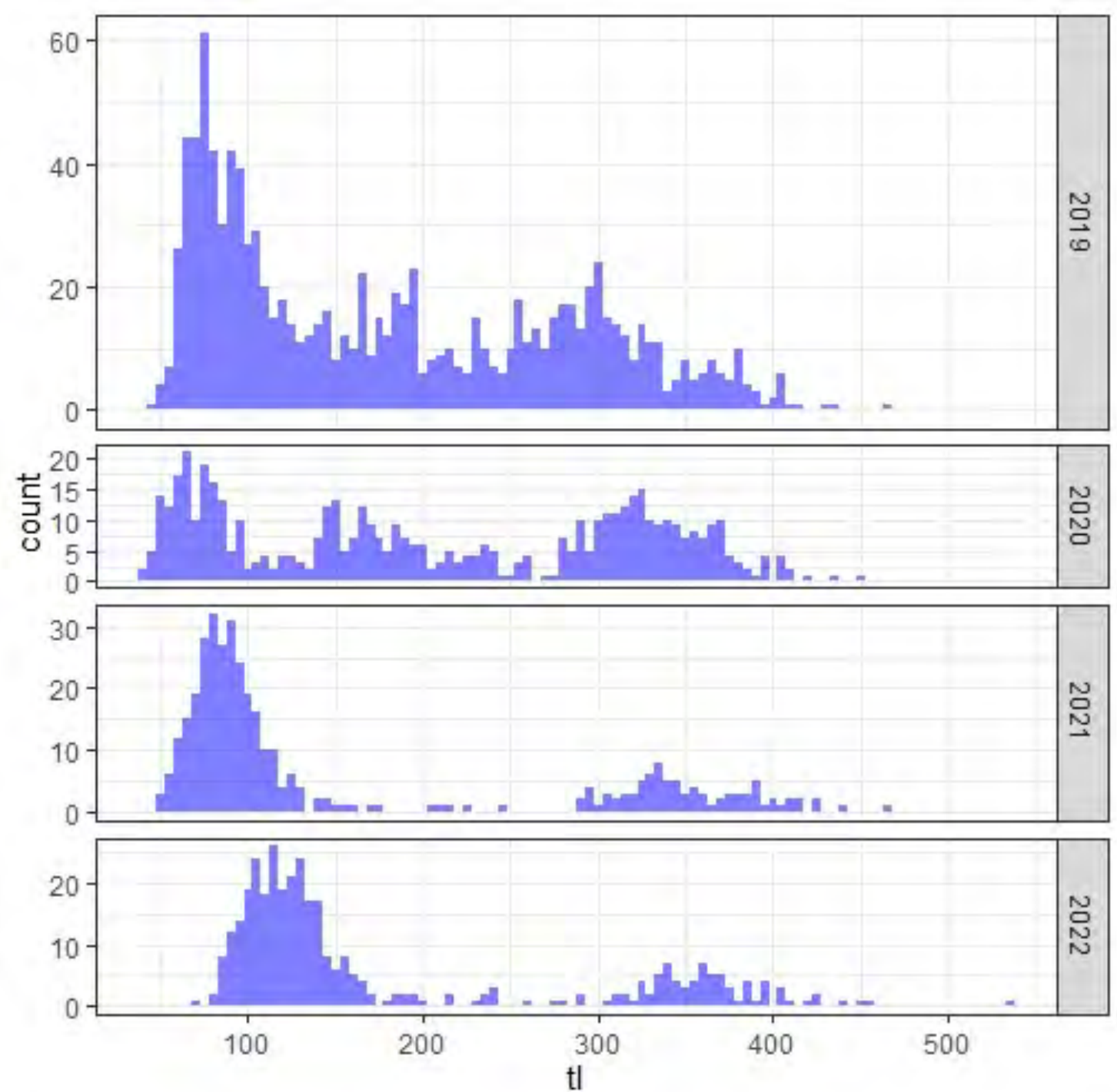




# Rainbow Trout by season

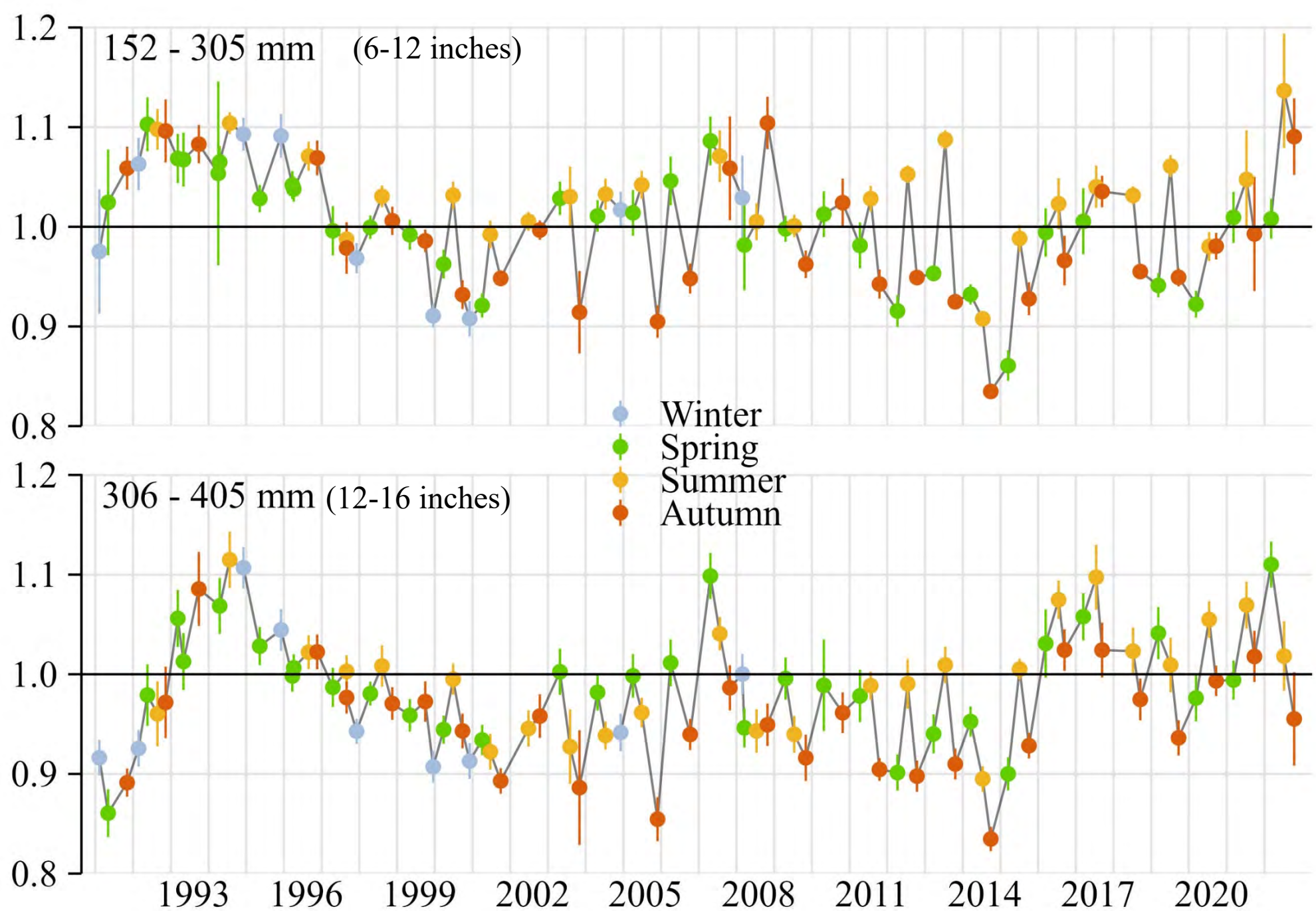


# Fall Rainbow Trout length frequency histograms



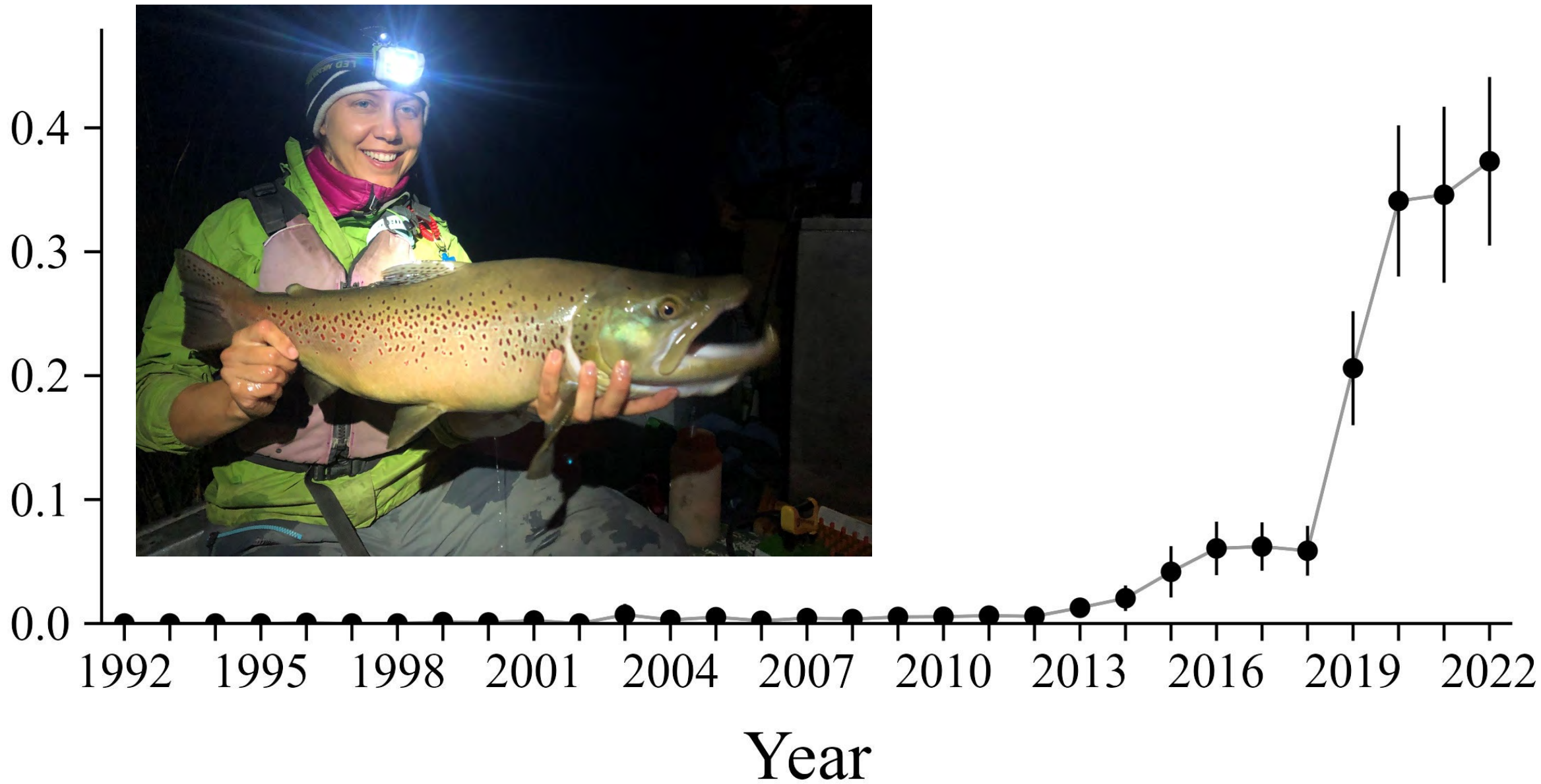
# Rainbow Trout relative condition

$K_n$

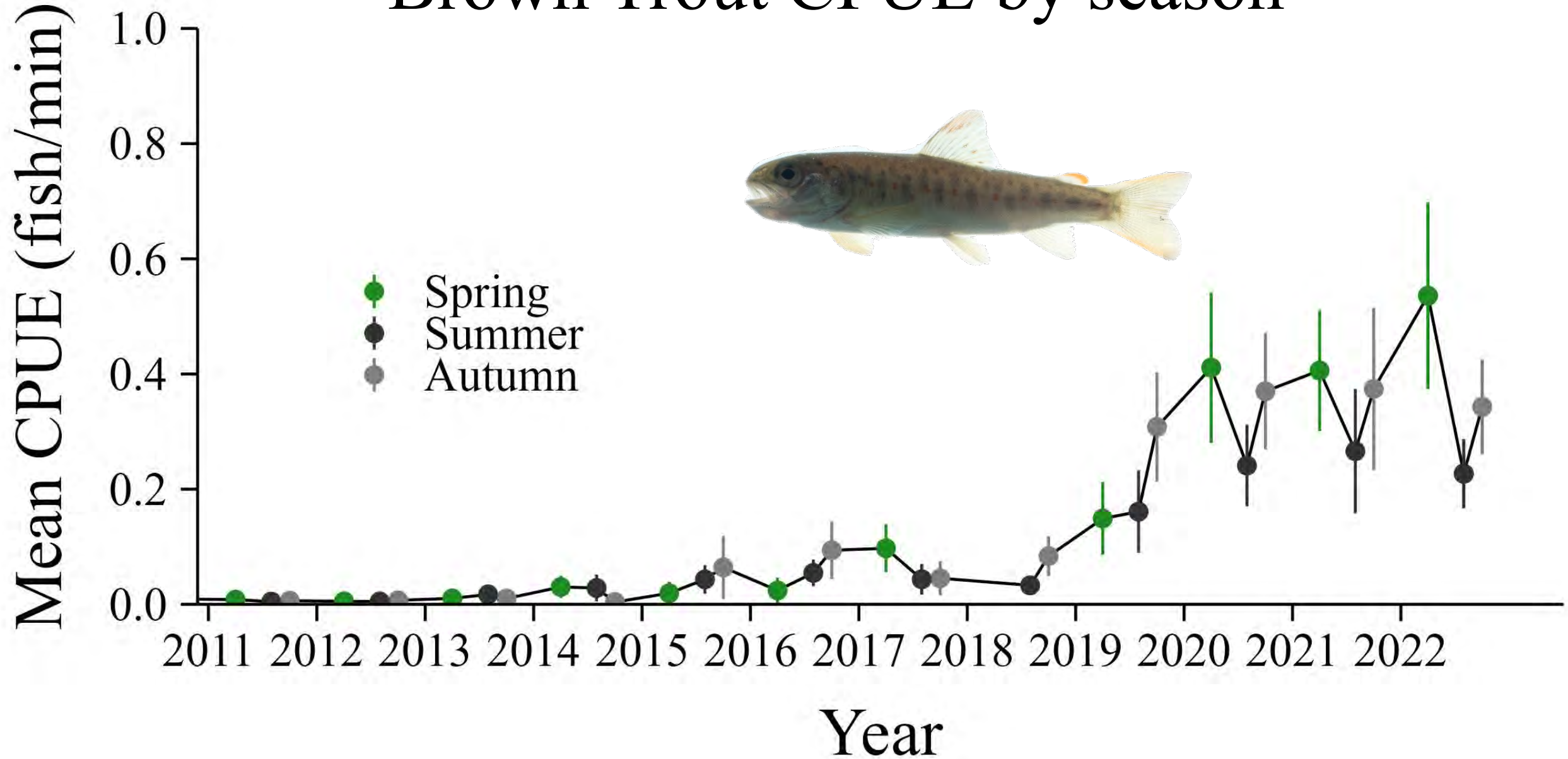


# Brown Trout

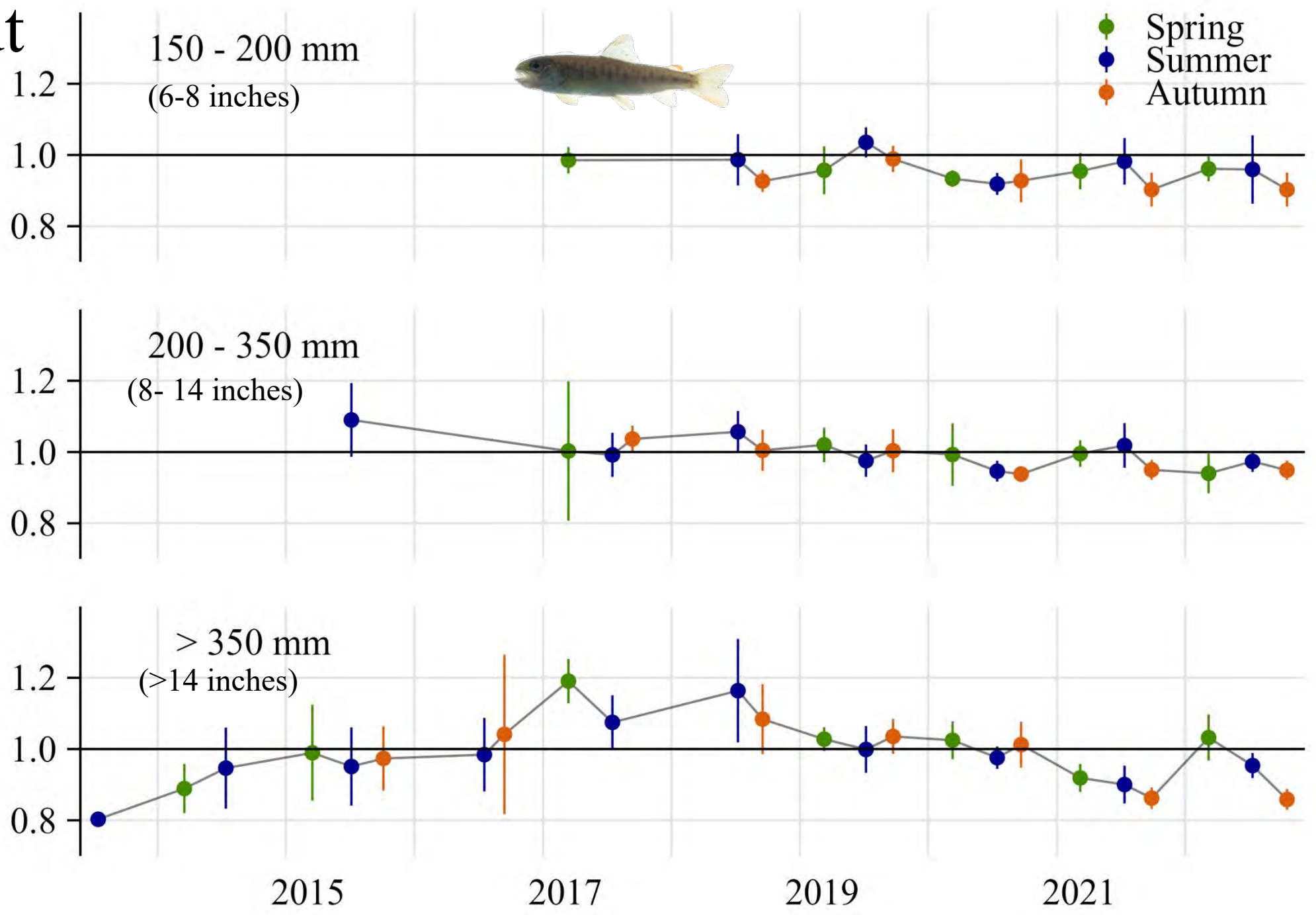
Mean CPUE (fish/min)



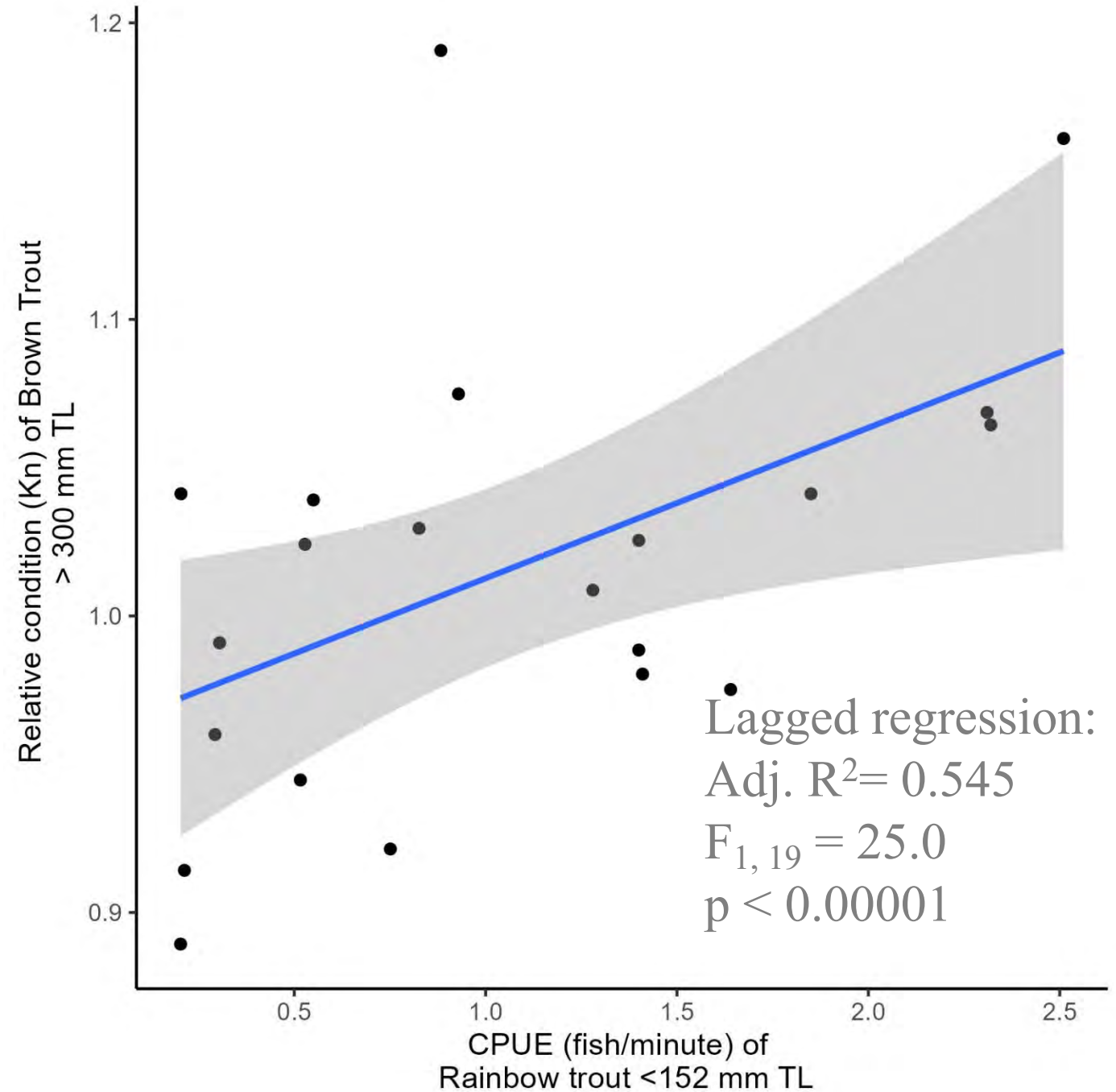
# Brown Trout CPUE by season



# Brown Trout relative condition



# Large Brown Trout condition and small rainbow trout CPUE



# 2022 Angler surveys (creel)

- AZGFD/GCMRC
- 98 days, 1,111 anglers
  - Walk-in area (n=181)
  - Boat ramp (n=929)

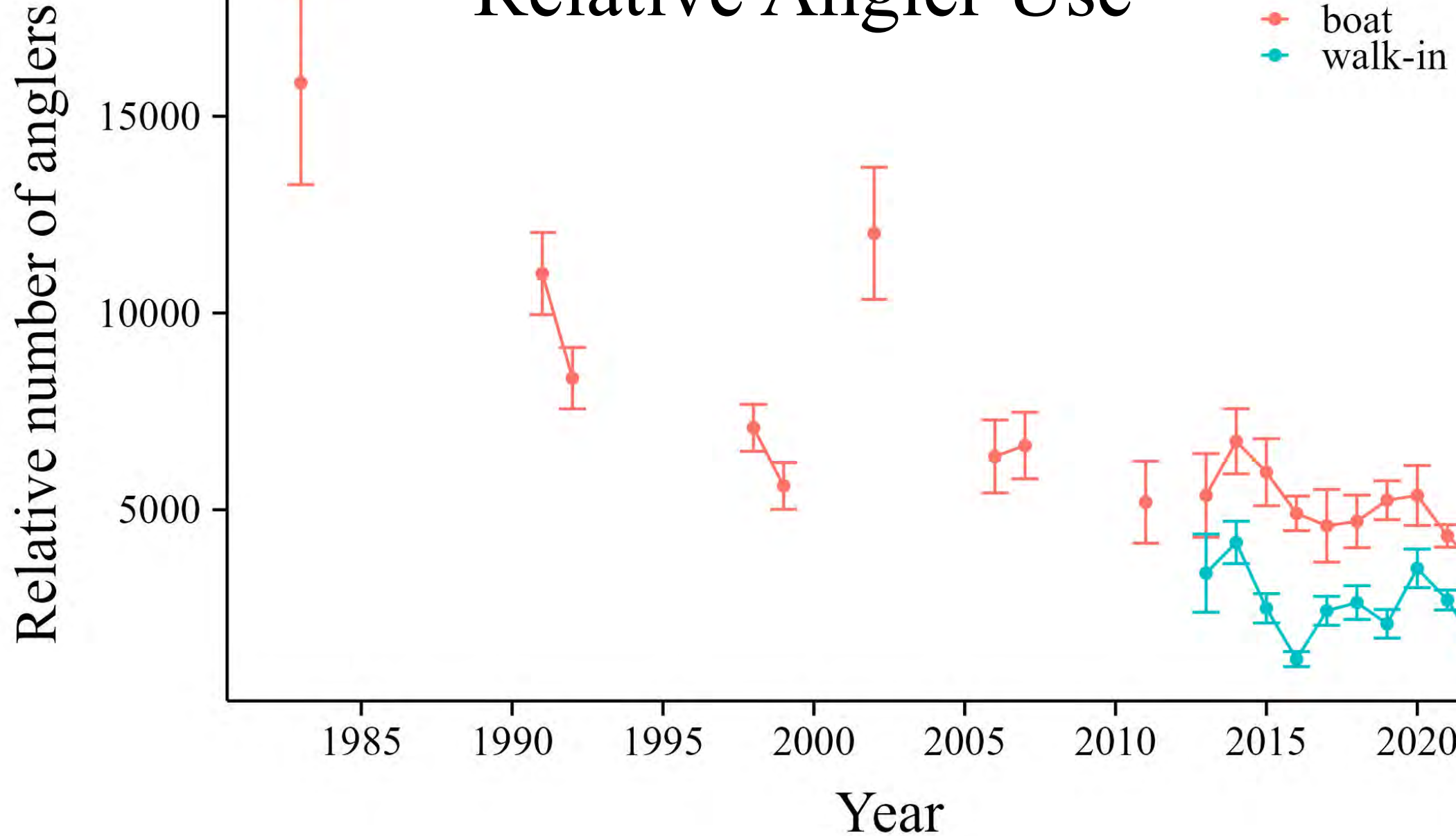


 **USGS**  
science for a changing world

Preliminary data do not quote or cite



# Relative Angler Use

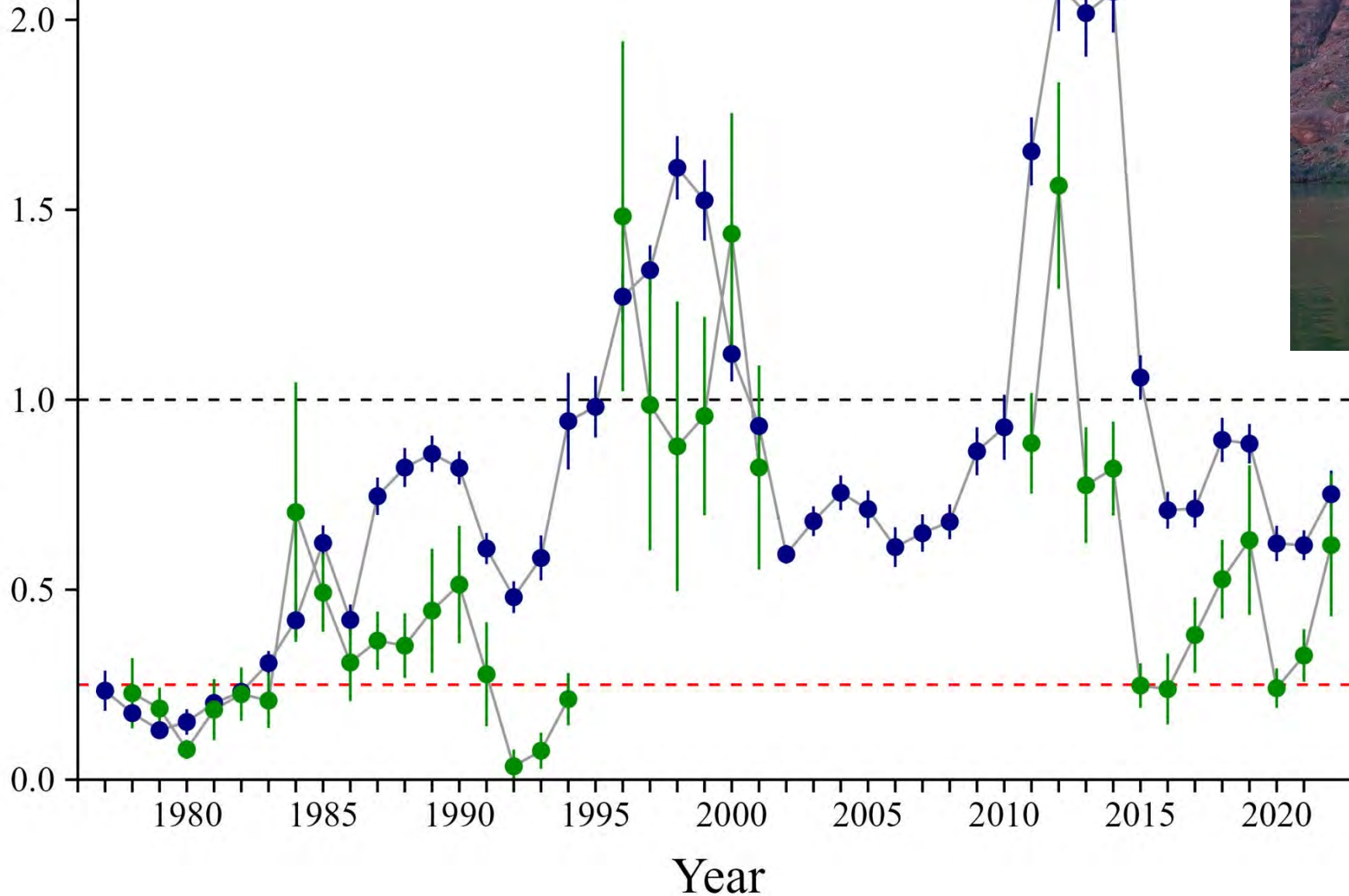


# Angler Rainbow Trout CPUE (fish/hour)

● boat  
● walk-in



Mean CPUE (fish/hour)

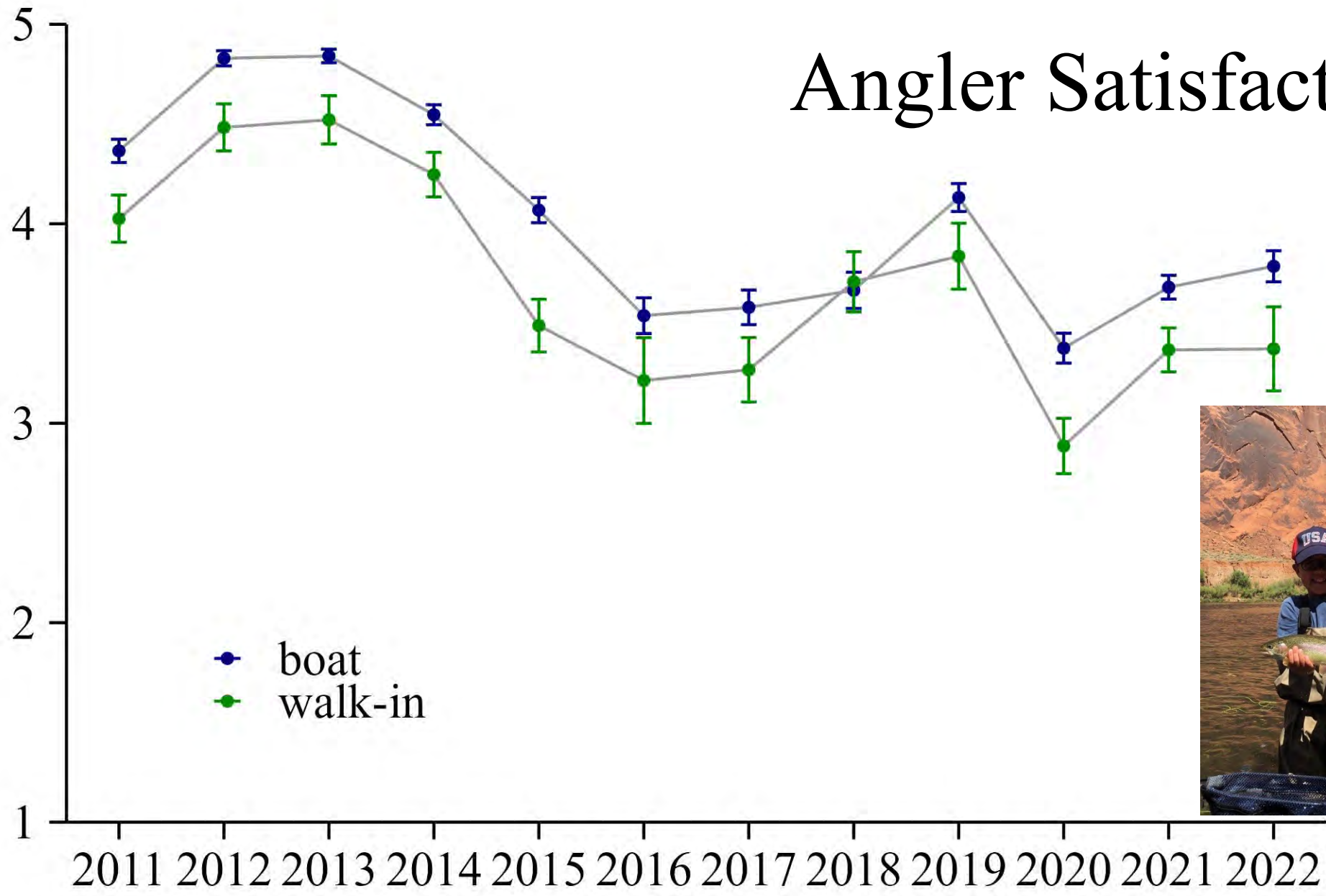


Caught a fish

- 79 % boat anglers
- 55 % walk in anglers

# Angler Satisfaction

Angler Satisfaction  
(Annual mean)



Year

Photo [Lees Ferry Anglers](#)

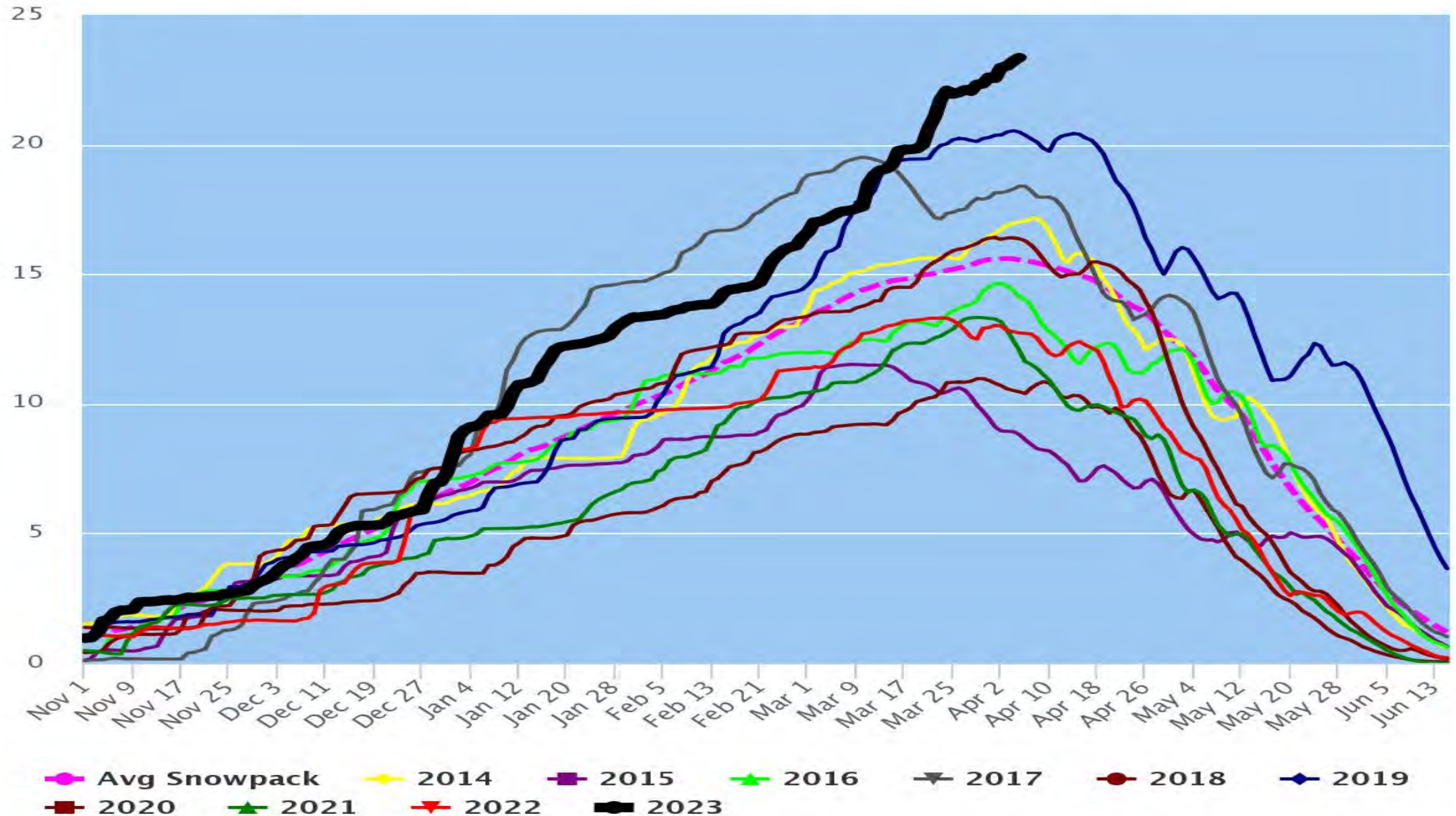


# Lees Ferry Summary

- Future of the Rainbow Trout fishery?
  - Warming water
  - Low dissolved oxygen
  - Increasing warmwater/coolwater fish
  - Decreasing numbers of Rainbow Trout
  - We need to do what we can to keep Lees Ferry cold
  - Good news
    - This past wet year likely bought us a little time

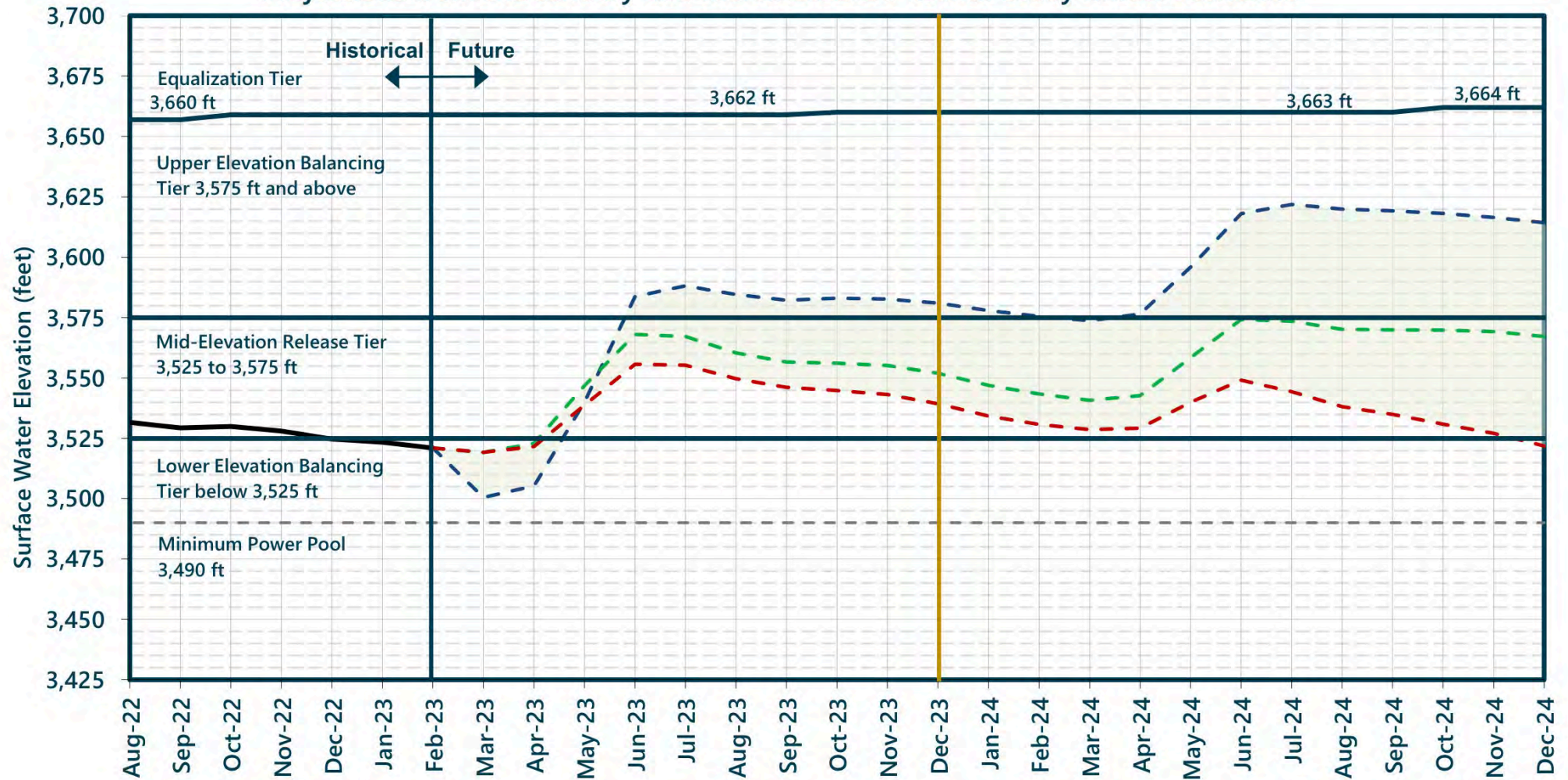
# Upper Colorado Basin Snowpack (SWE past 10 years)

SWE is the inches of water in a volume of snow, measured by weight



# Lake Powell End of Month Elevations<sup>1</sup>

Projections from the January and March 2023 24-Month Study Inflow Scenarios

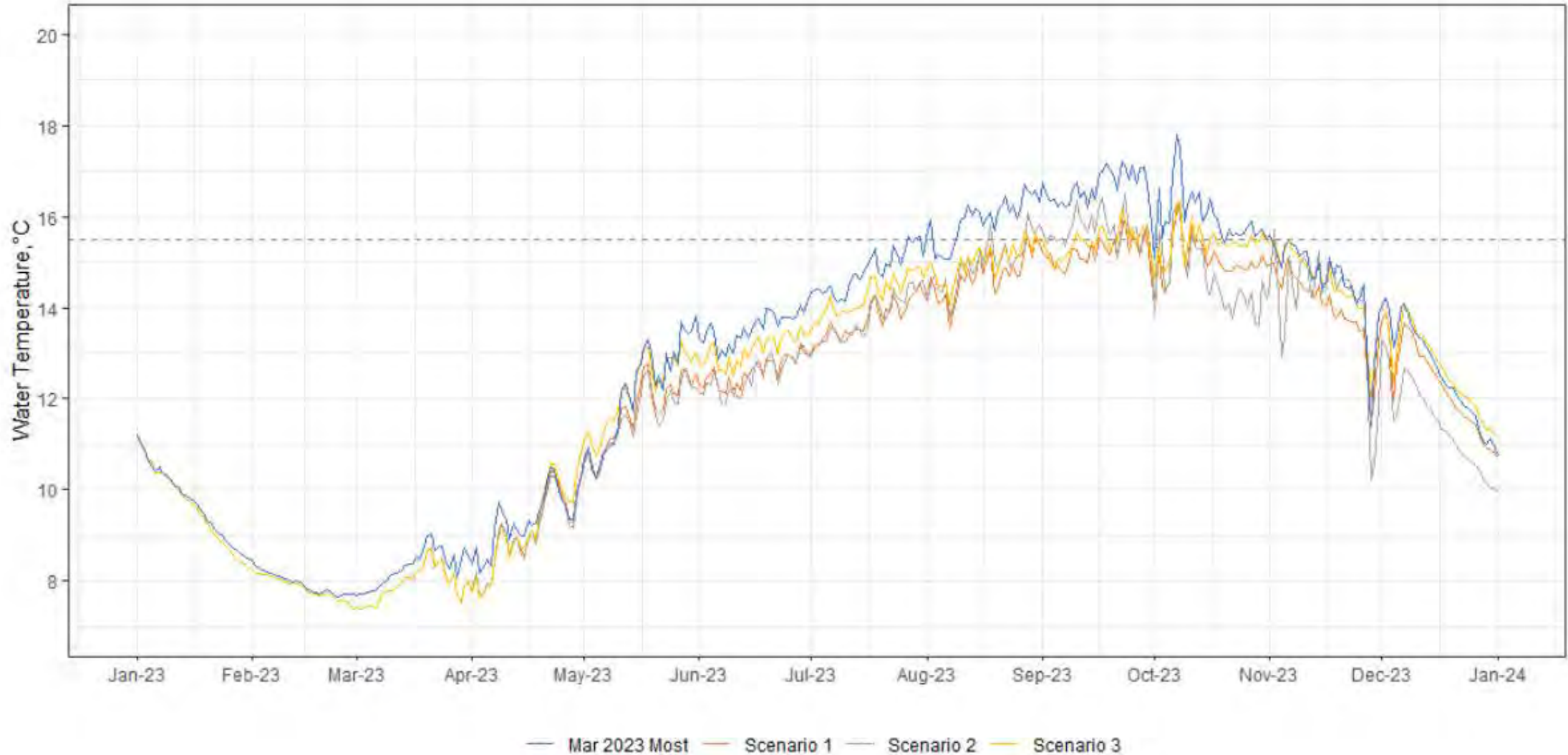


- Historical Elevations
- - - January 2023 Maximum Probable Inflow with a Lake Powell release of 9.50 maf in WY 2023 and 7.48 maf in WY 2024
- - - March 2023 Most Probable Inflow with a Lake Powell release of 7.82 maf in WY 2023 and 7.48 maf in WY 2024
- - - March 2023 Minimum Probable Inflow with a Lake Powell release of 7.26 maf in WY 2023 and 7.09 maf in WY 2024

<sup>1</sup> Projected Lake Powell end of month physical elevations from the latest 24-Month Study inflow scenarios. The Drought Response Operations Agreement (DROA) is available online at: <https://www.usbr.gov/dcp/finaldocs.html>.



# Glen Canyon Dam Release Temperature



# Acknowledgements

- AZGFD – past and present employees
  - Abby Feddern
  - Seth Pierce
  - Ryan Staskey
- GCMRC: Lucien Bucci, Seth, Ann-Marie Bringhurst, Lucas Bair
- CEIBA: Scott Davis, Jeremy Swindlehurst
- NPS: Jeff Arnold
  
- ASU: Brenna Jungers
- Steve Harding



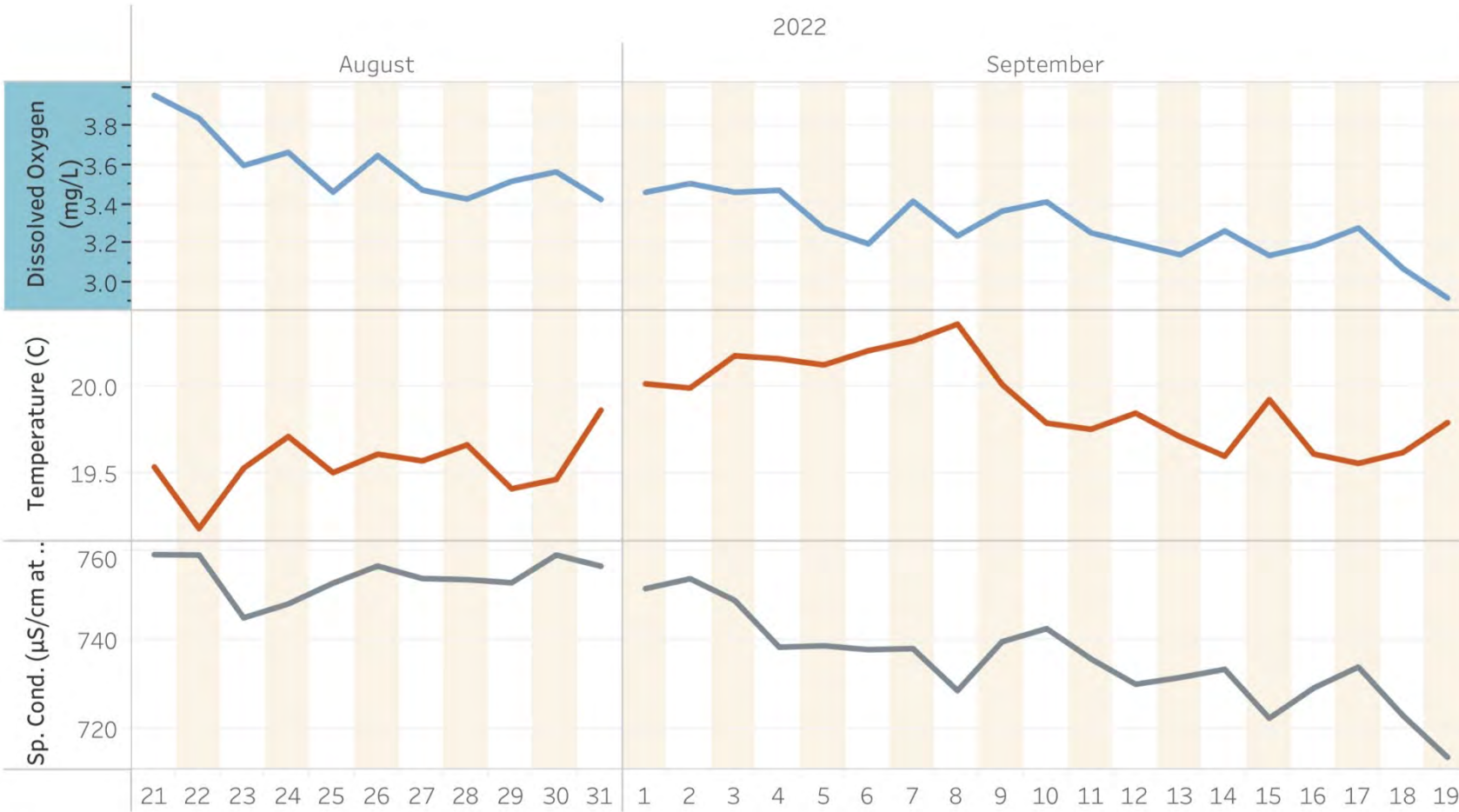


# Daily Water Quality Data at Glen Canyon Dam

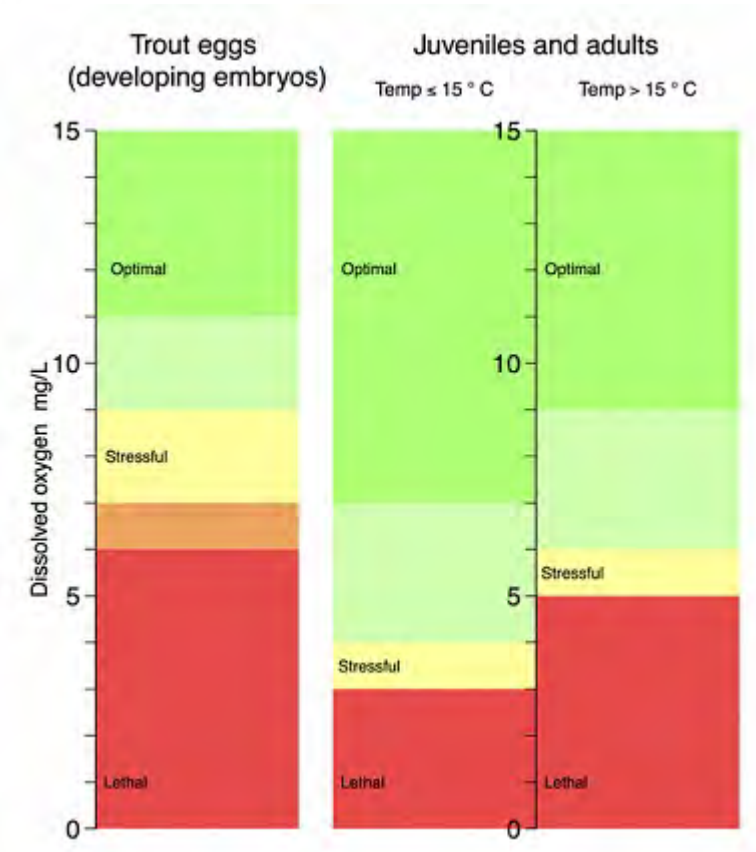
[Downl..](#)

## Dam

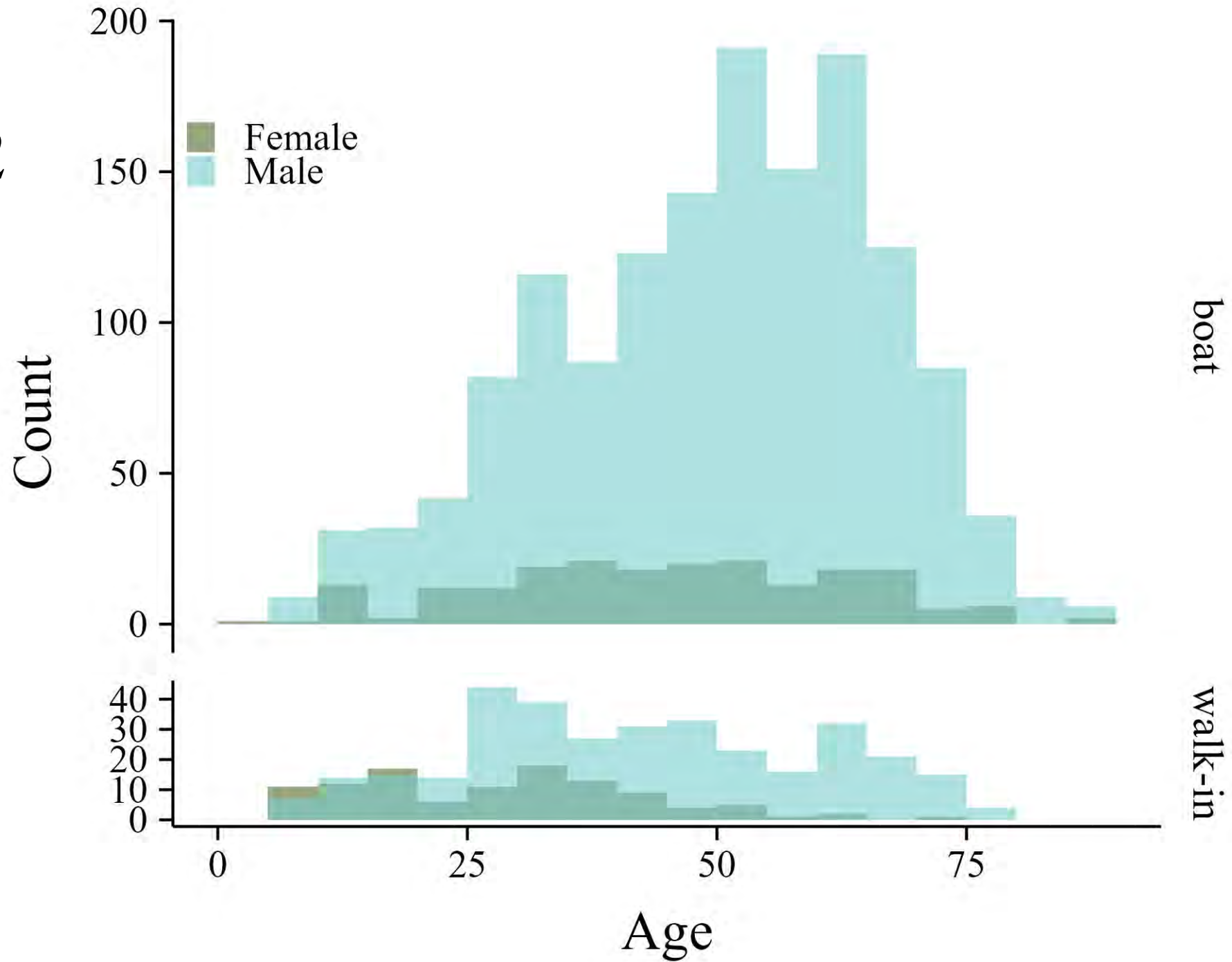
Daily Dissolved Oxygen & Temperature Values



The trends of daily average Dissolved Oxygen, Temperature and Specific Conductance shown for the past 30 days.



# Demographics of anglers 2022



# Sampled Sites in Lees Ferry reach for 2022

