

Movement and Habitat Use of Yellowstone Cutthroat Trout and Utah Chub in Henrys Lake, Idaho

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Cutthroat Trout

- 14 subspecies
- Distribution has been greatly reduced
 - Habitat loss
 - Interactions with nonnative species



Yellowstone Cutthroat Trout

- Ecological value
- Economic value
 - Popular sport fish



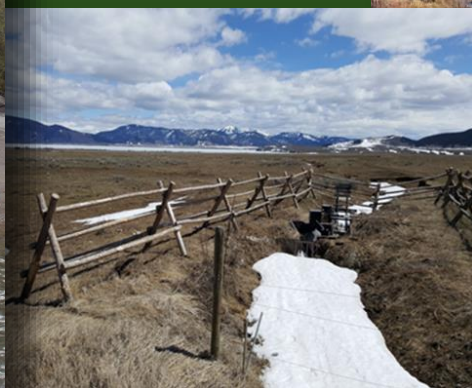
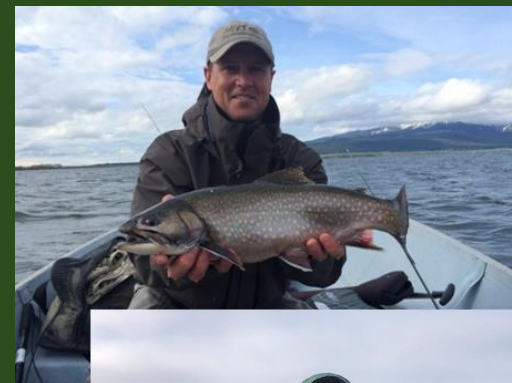
Yellowstone Cutthroat Trout

- Species of conservation concern
 - Habitat loss
 - Interactions with nonnative species



Henrys Lake, Idaho

- Trophy trout fishery
- Conservation efforts
 - Instream habitat improvement
 - Riparian fencing
 - Hatchery supplementation



Utah Chub

- Documented in 1993



Utah Chub

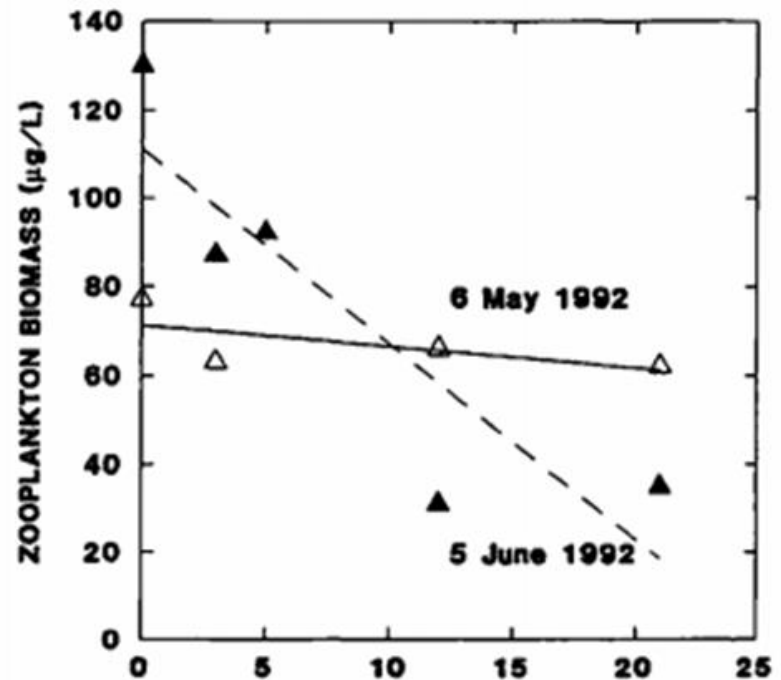
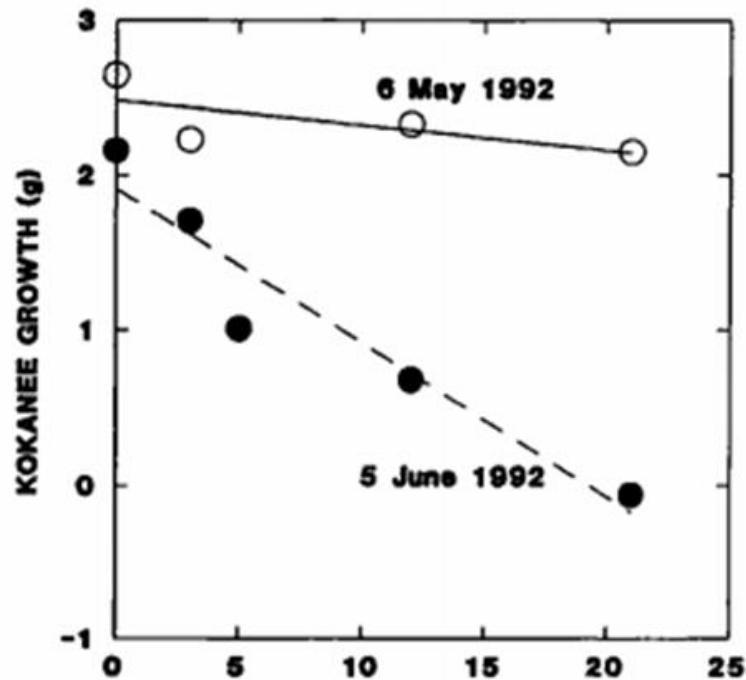
- Plastic life history
- Abundant
- Potential interactions
 - Space
 - Resources



Utah Chub

COMPETITION BETWEEN KOKANEES AND UTAH CHUB

507



NUMBER OF UTAH CHUB PER ENCLOSURE

Henrys Lake, Idaho

- Catch rates
- Growth
- Body condition



Potential Mechanisms

- Environmental characteristics
 - Temperature
- YCT population characteristics
 - Density dependence
- Interactions with UTC
 - Prey resources
 - Space



Objectives

1. Evaluate population dynamics of Yellowstone Cutthroat Trout and Utah Chub using historic data
2. Describe movement and habitat use of Yellowstone Cutthroat Trout and Utah Chub

Objective 1: Methods

- Historic data (1950 to present)
 - Annual gillnet surveys
 - Length
 - Weight
 - Hard structures



Objective 1: Methods

- Long-term trends
 - Catch rates
 - Length structure
 - Age structure
 - Body condition
 - Growth
 - Mortality



Objective 1: Results

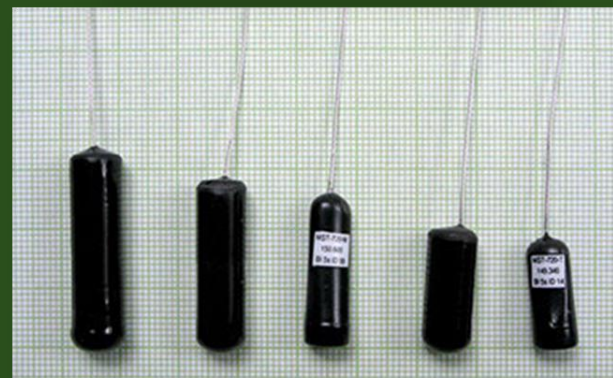
- Stay tuned!!

Objectives

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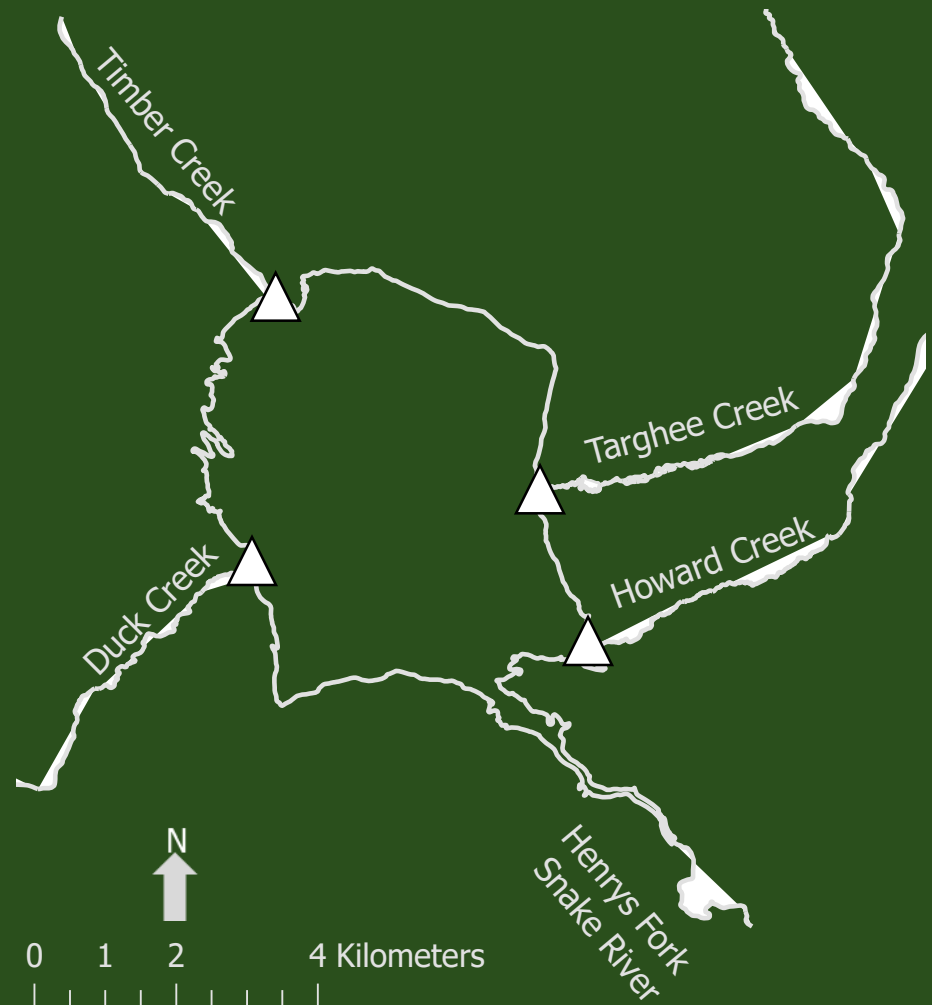
Objective 2: Methods

- Sampling
 - Electrofishing
- Tagging
 - Surgically implant radio tags
 - 94 Yellowstone Cutthroat Trout
 - 95 Utah Chub
- Radio tags
 - Temperature sensor
 - 123 to 419 days



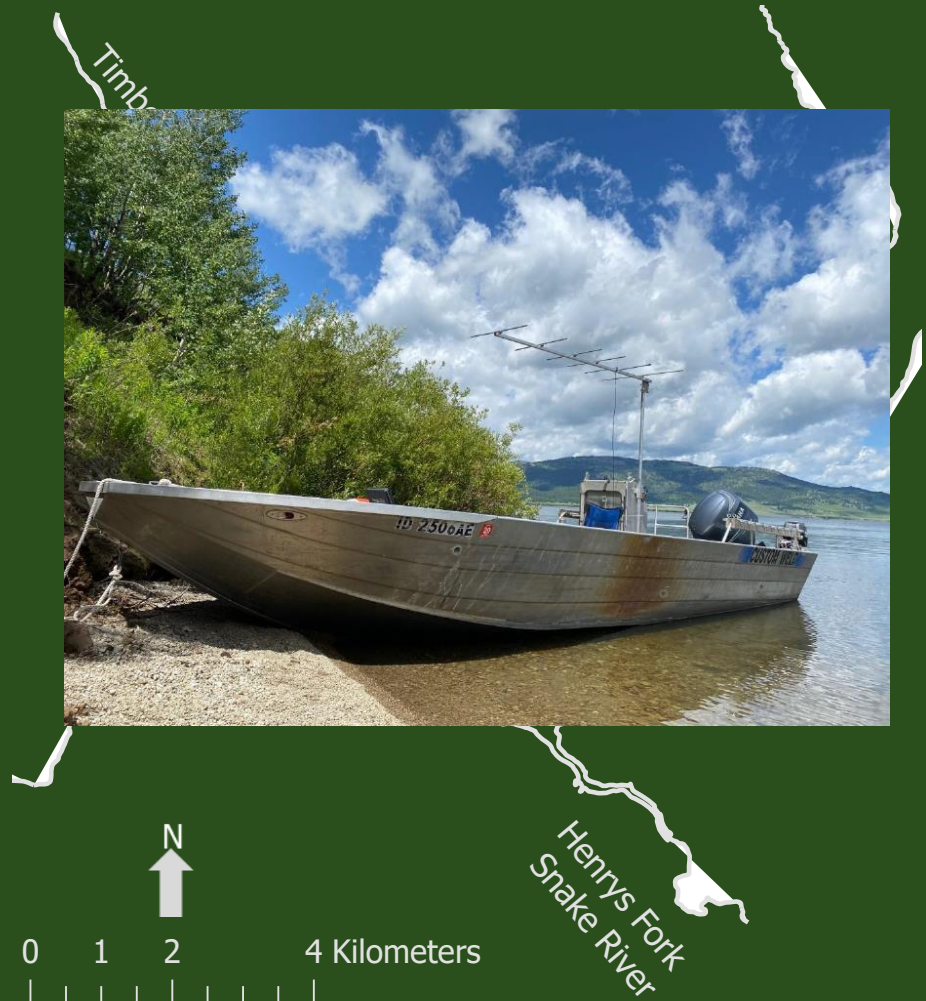
Objective 2: Methods

- Relocation
 - Fixed stations
- Habitat use
 - Depth
 - Temperature
 - Dissolved oxygen
 - Macrophyte cover



Objective 2: Methods

- 20 random sites
 - Twice per month
- Habitat availability
 - Depth
 - Temperature
 - Dissolved oxygen
 - Macrophyte cover



Objective 2: Results

Tagging

Species	Number Tagged	Average Length (mm)	Min - Max Length (mm)
Yellowstone Cutthroat Trout	94	416	275 – 595
Utah Chub	95	286.7	222 – 369

Objective 2: Results

Tribut

July 2019

Duck

Howard

Targhe

Timber

just

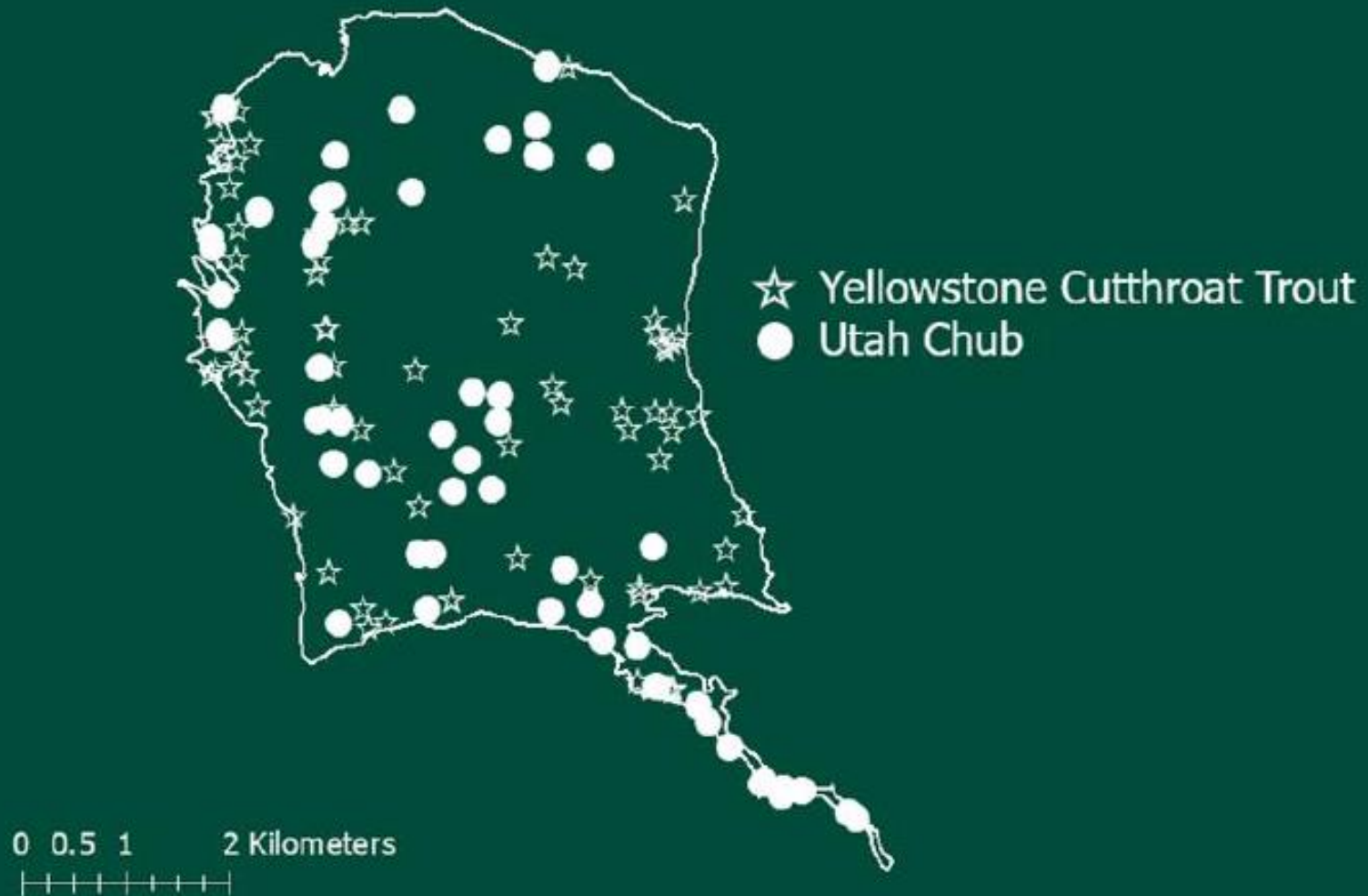
CT



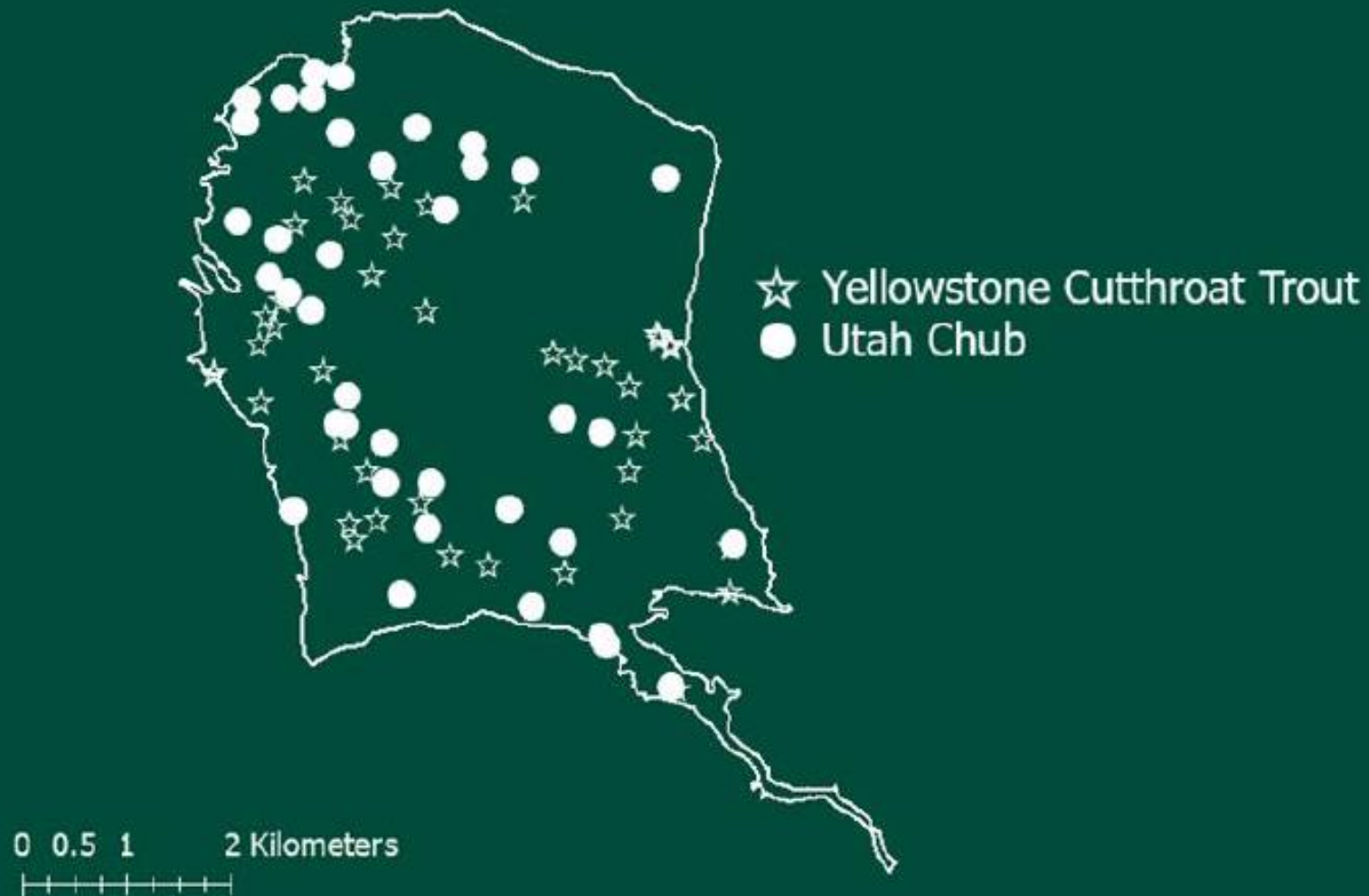
Distribution: June



Distribution: July



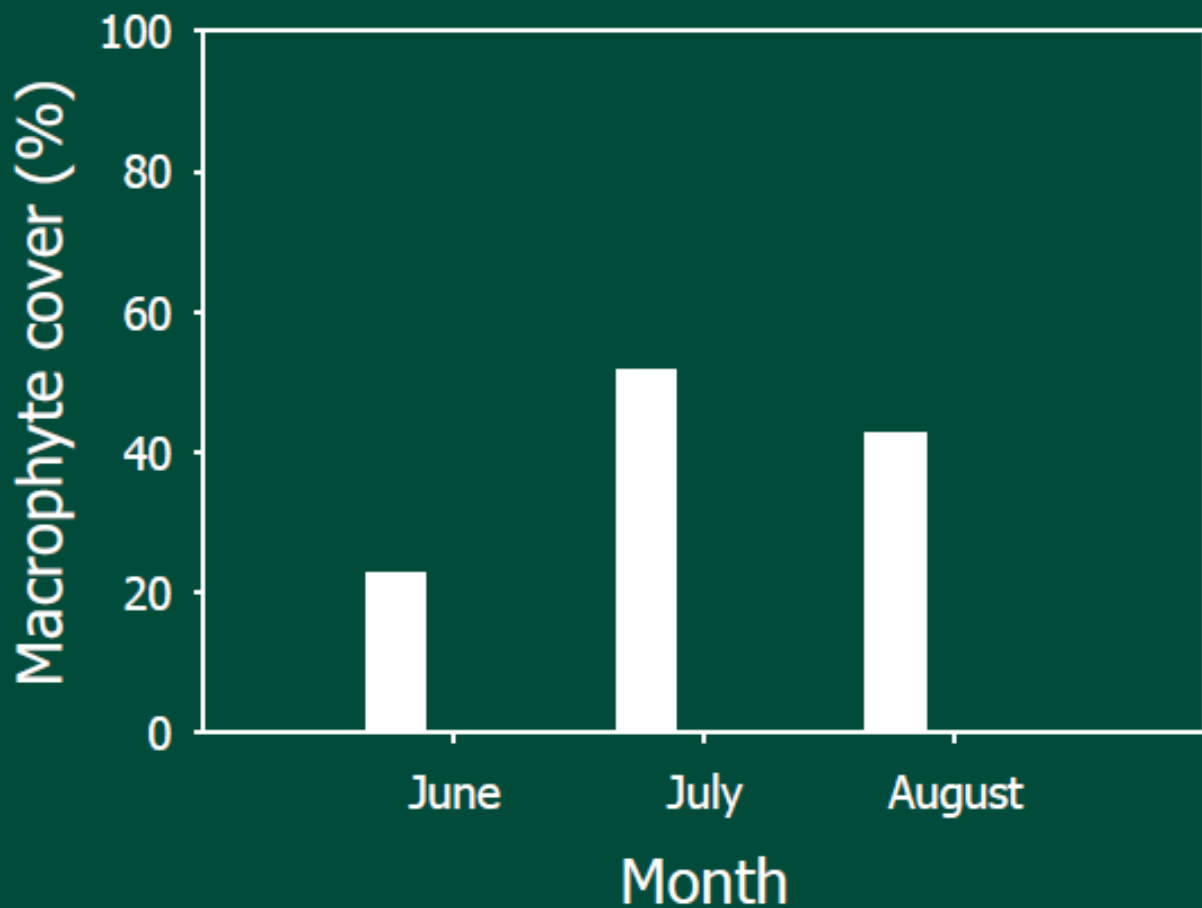
Distribution: August



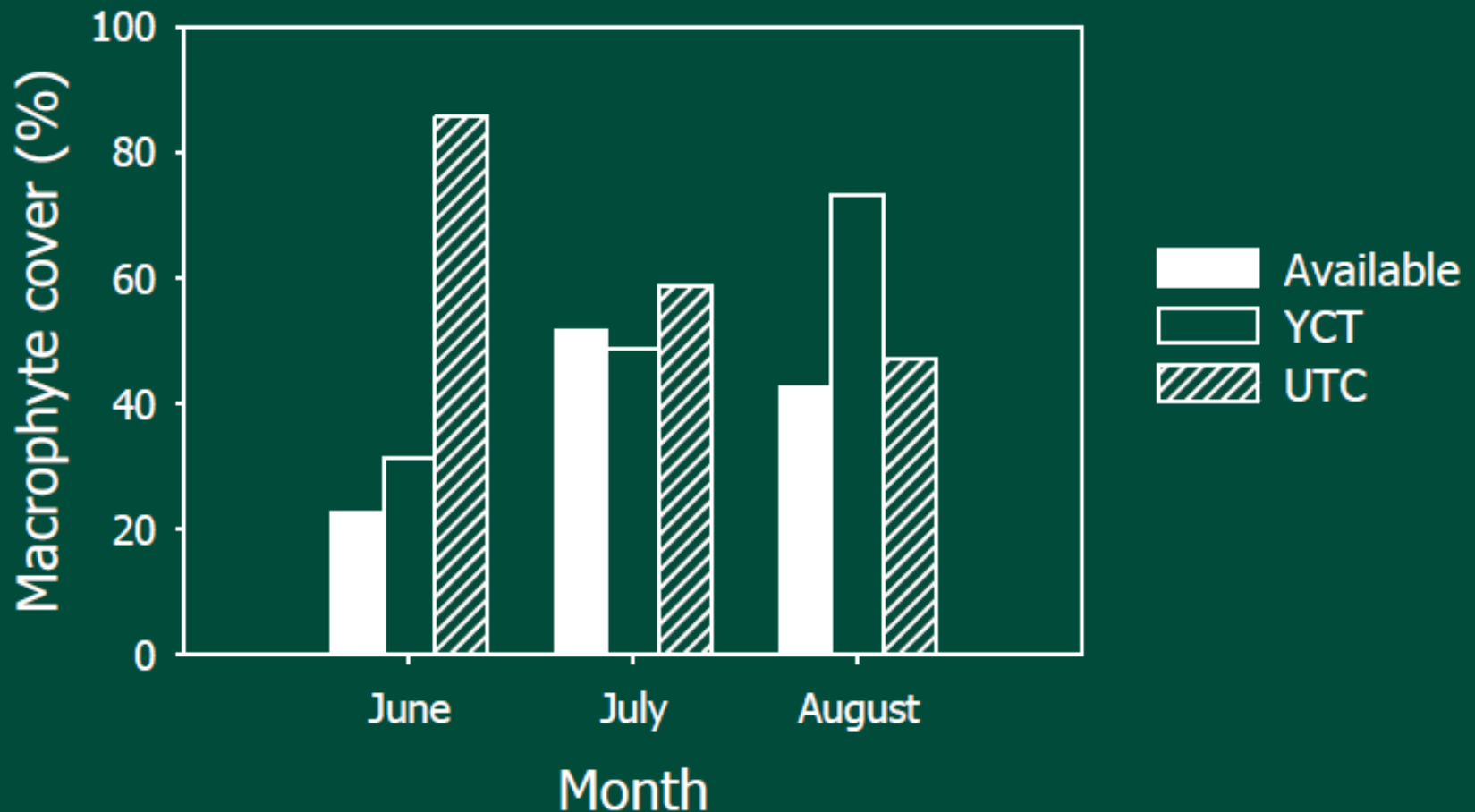
Distribution: September-October



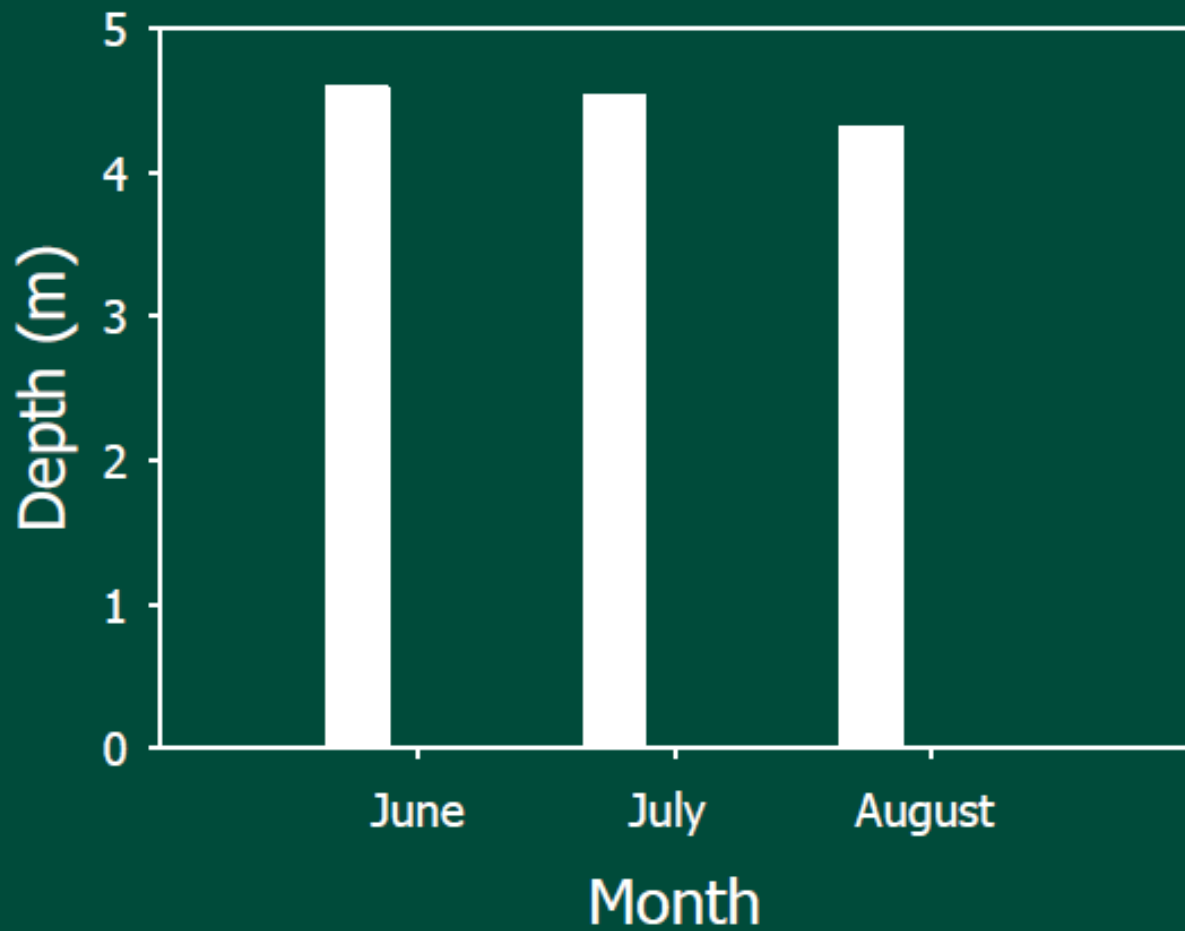
Macrophyte Cover



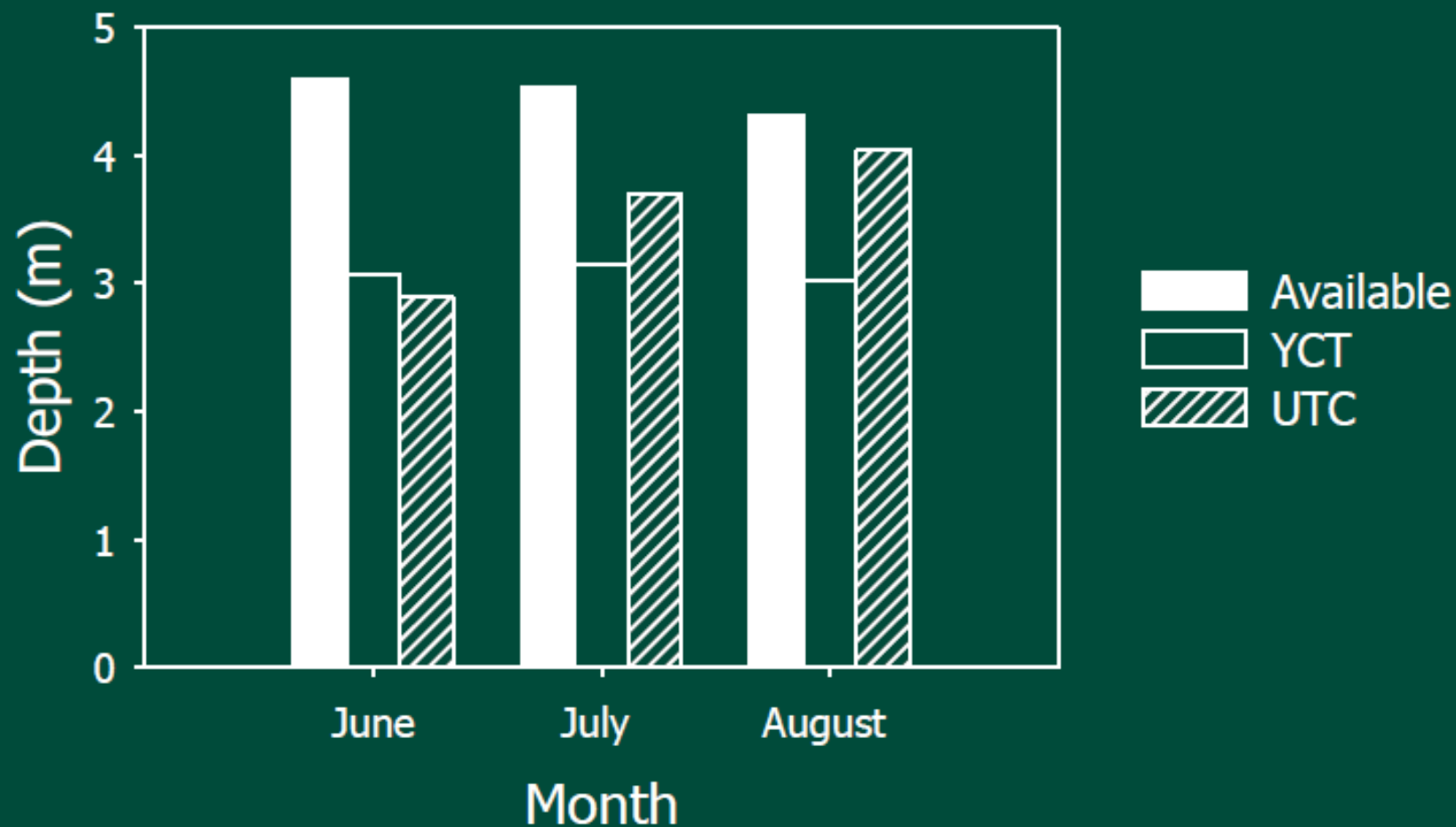
Macrophyte Cover



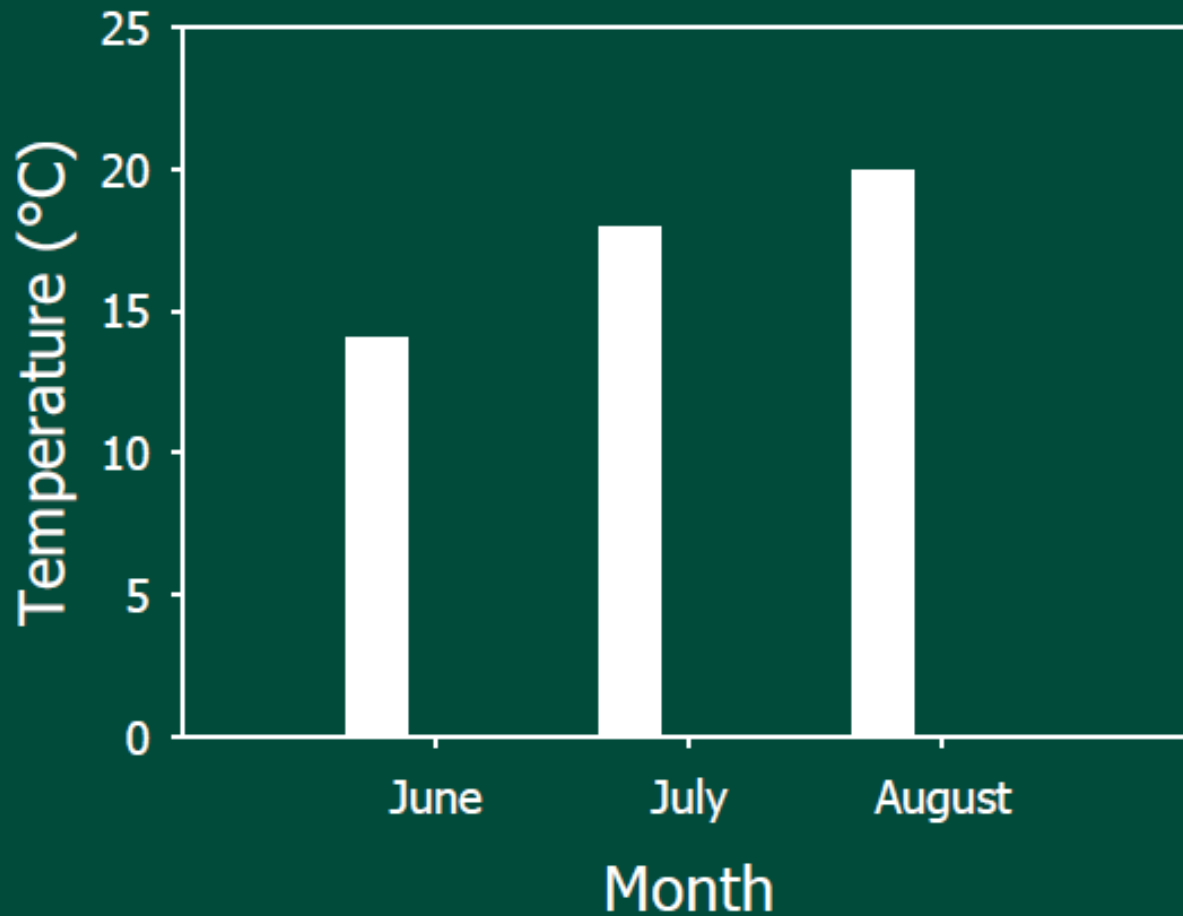
Depth



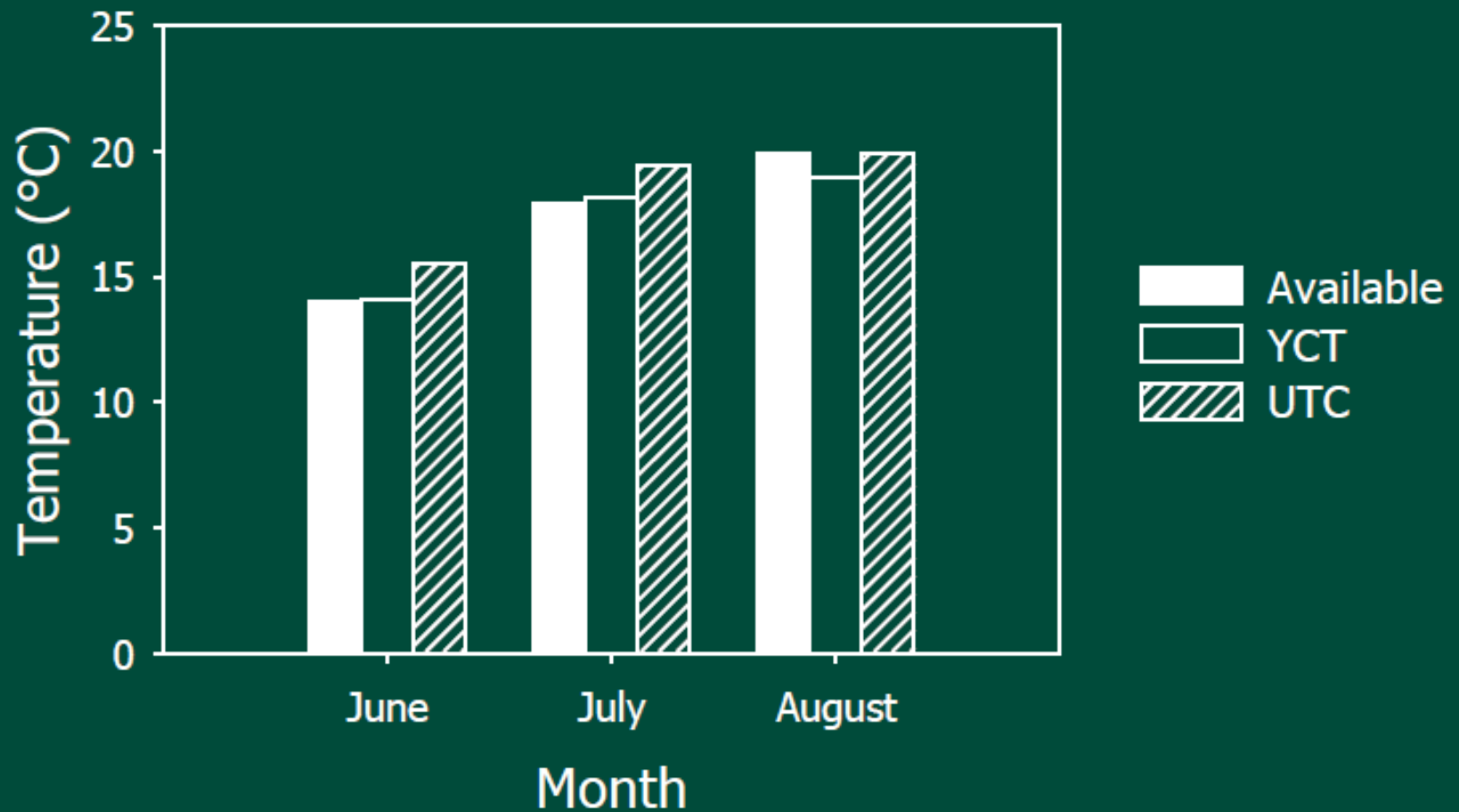
Depth



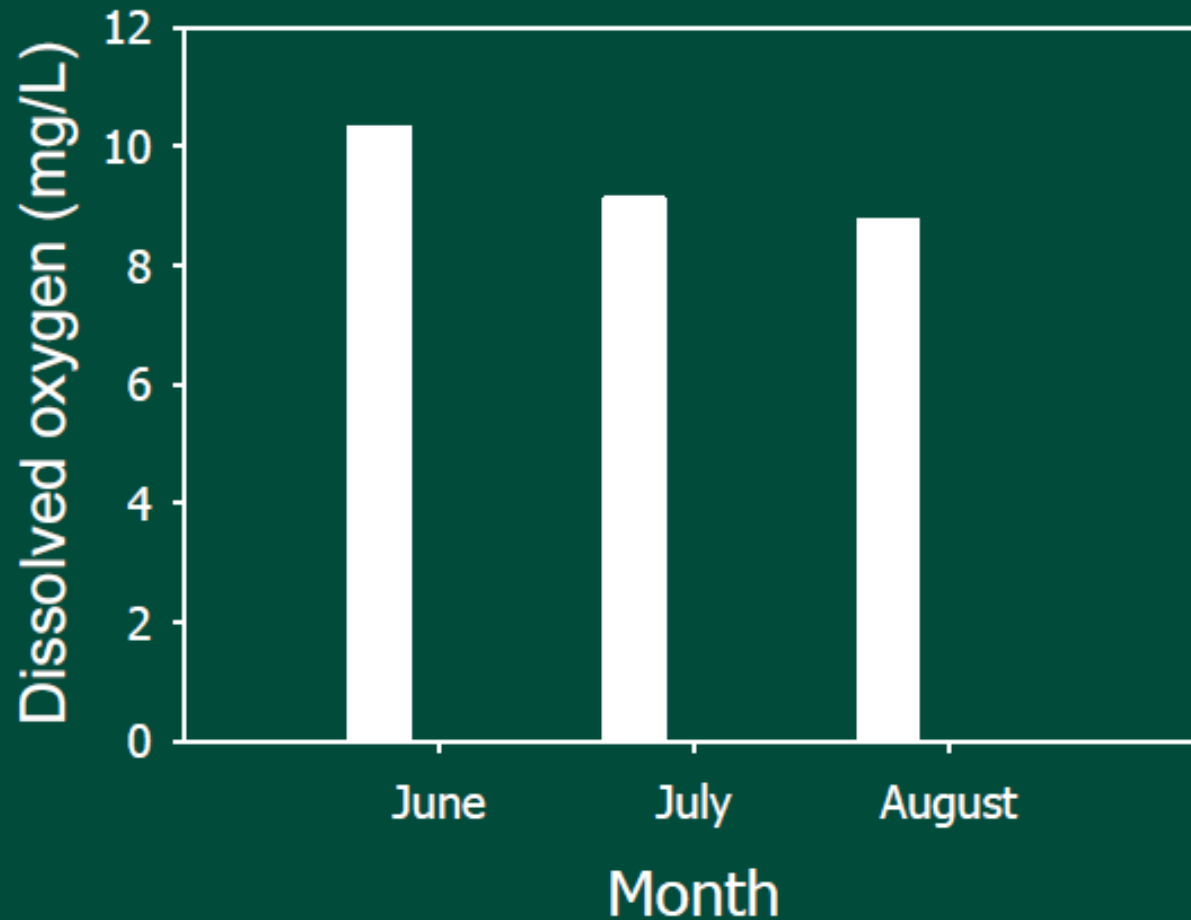
Temperature



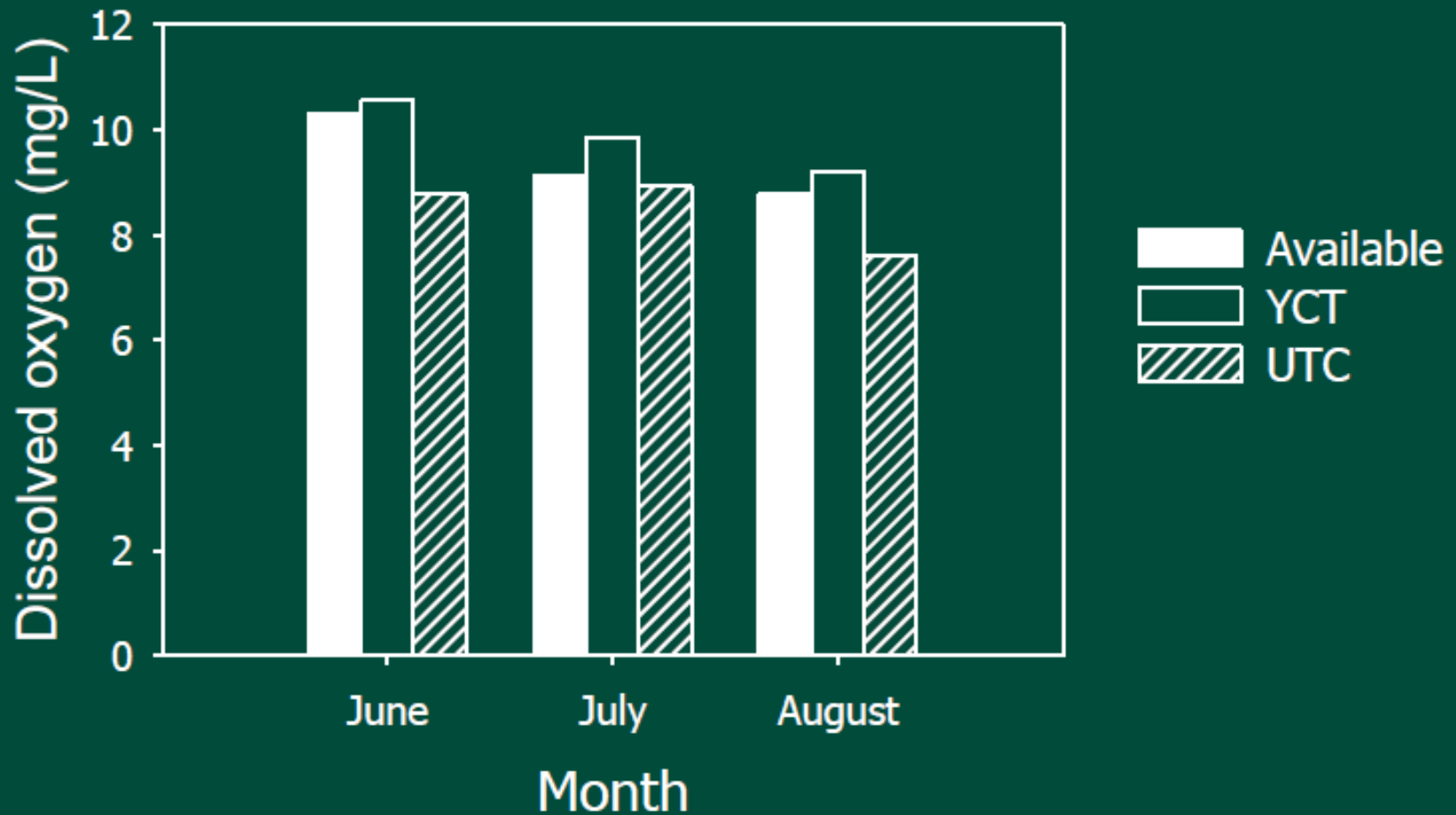
Temperature



Dissolved Oxygen



Dissolved Oxygen



Conclusions

- YCT and UTC locations are related to habitat characteristics
- Minimal spatial overlap between YCT and UTC
- YCT use tributaries during June – August



Next steps

- Resource selection modeling
- Population dynamics



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Alex Egbert



Henrys Lake 2020



Jenn Vincent, Brett High
Idaho Department of Fish and Game
Upper Snake Region

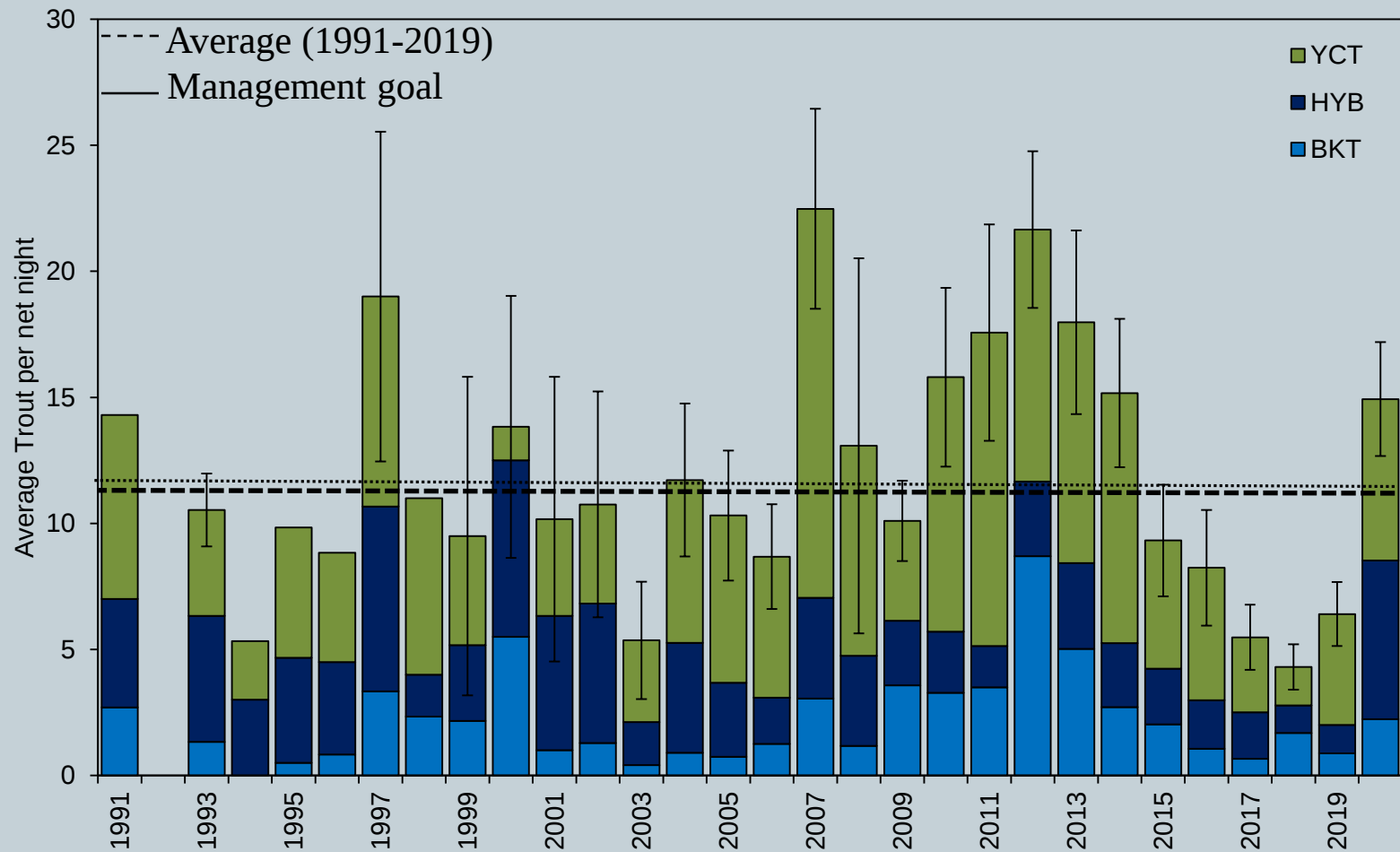
Fish Management Objectives



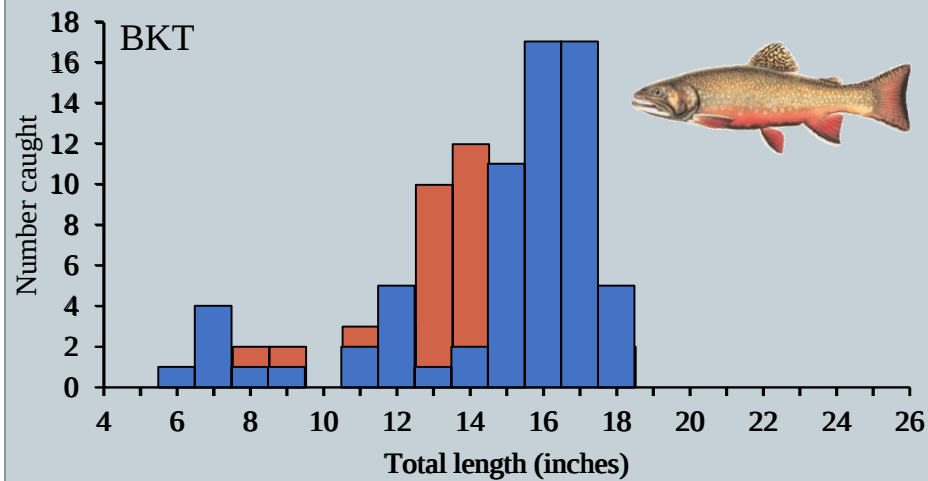
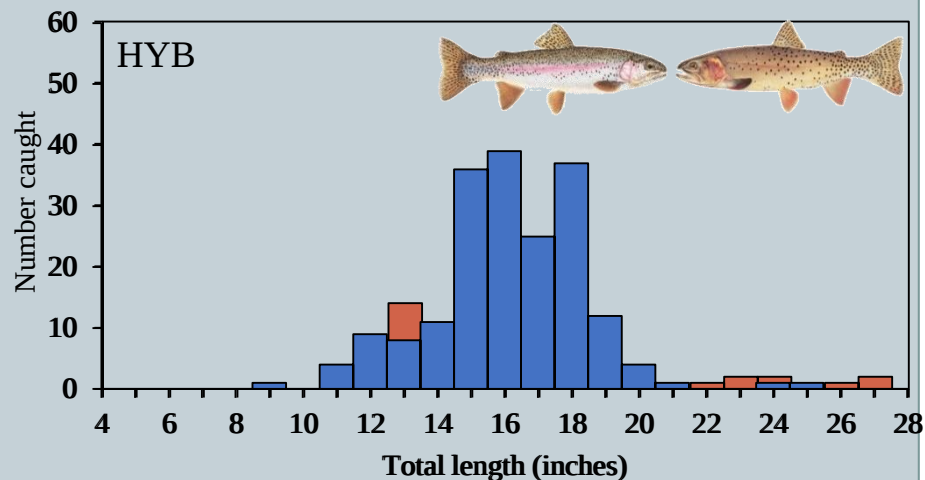
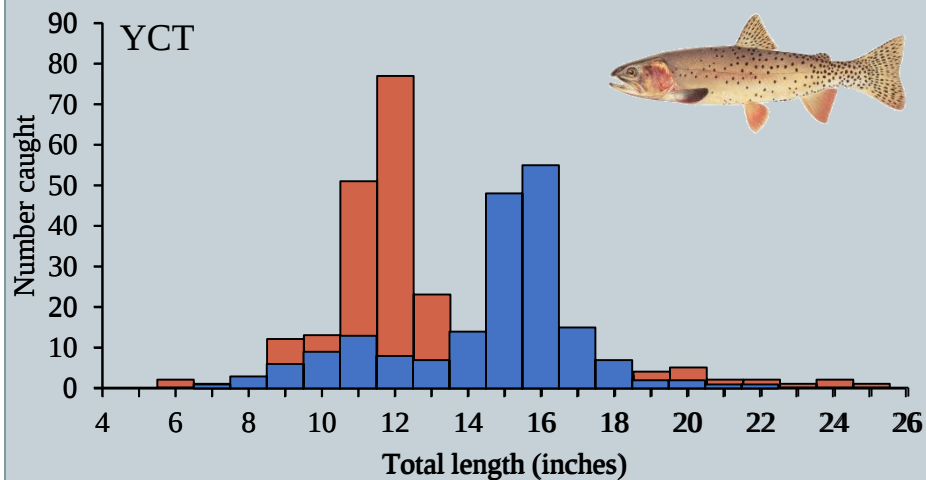
- Annual spring gillnetting effort – 50 nets
 - 11 trout per gillnet set
 - ✦ Index of trout abundance
 - ✦ Adjust stocking based on numbers
- Catch rate of 0.7 fish/hr
 - Creel surveys



How many trout are in the lake?

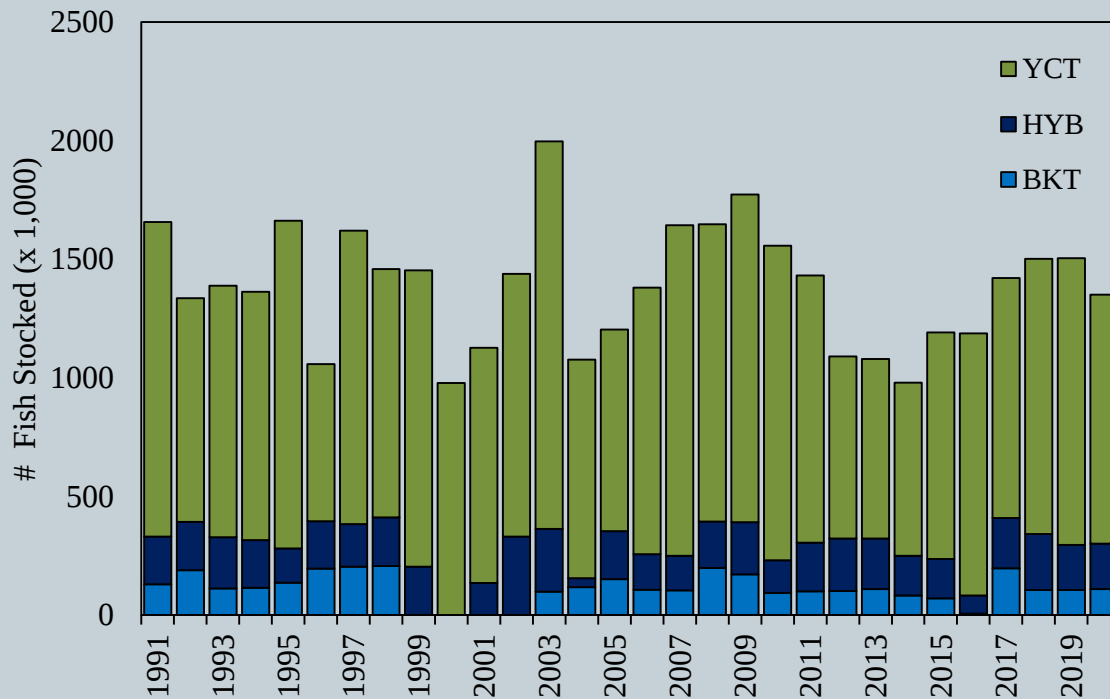


Size of Trout



2020

Stocking



2020

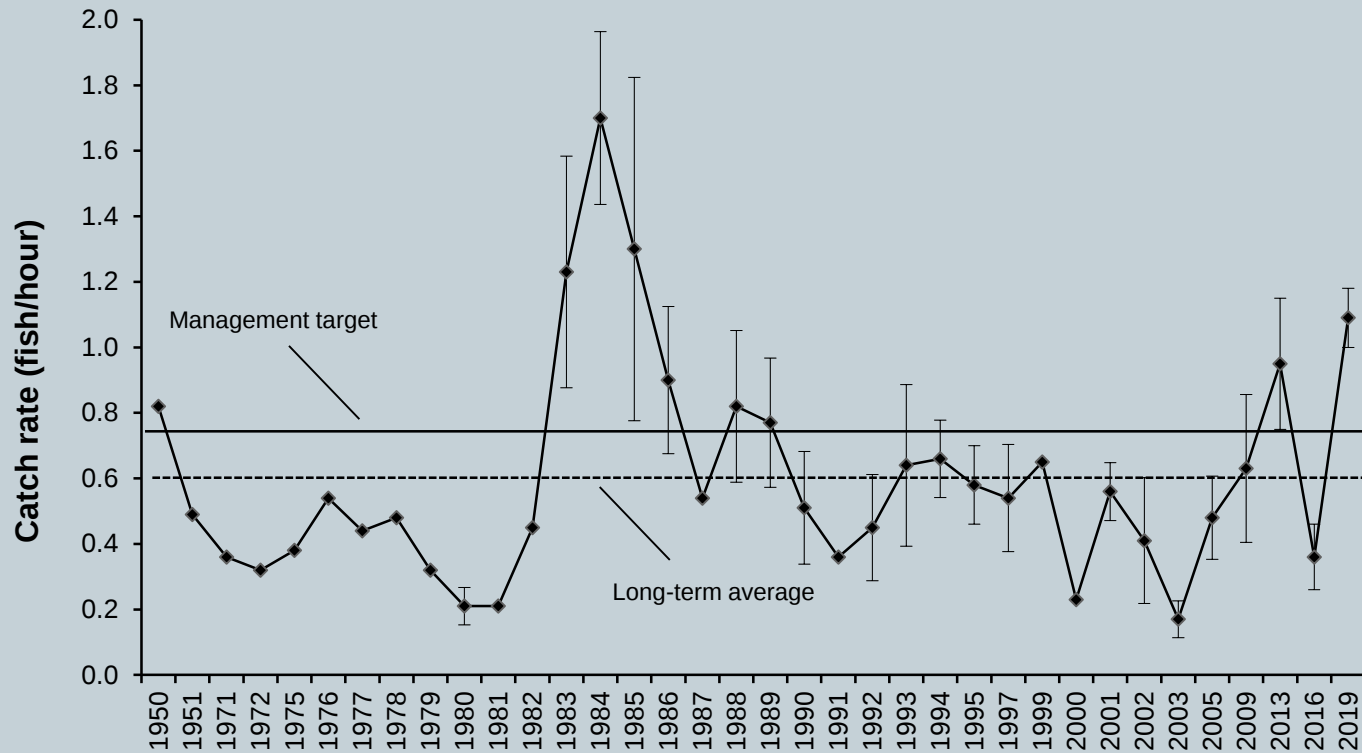
○ 1,049,850 3" YCT

○ 191,444 3" HYB

○ 110,180 5.5" BKT

Total: 1,351,474
Trout

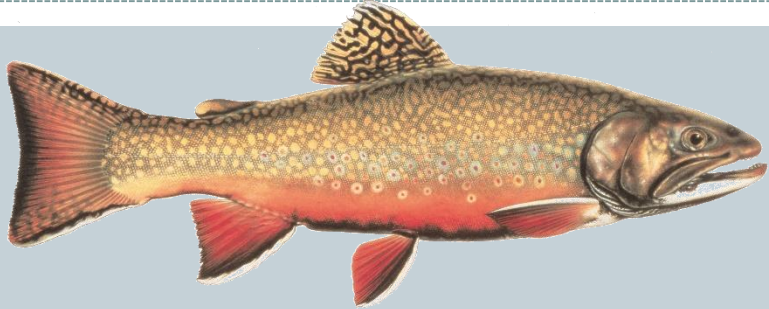
Creel – catch rates



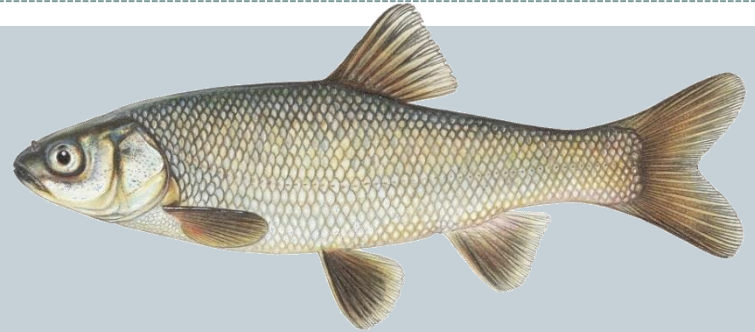
Questions?



Competition for food resources



VS



Gut content analysis & Stable isotope analysis



Competition for food resources

- Competition for food resources may be minimal
 - No biologically-significant diet overlap
 - ✦ Highly productive lake
 - ✦ Abundant food sources
 - Suggests limited impacts on trout growth and condition

