

LONG-TERM MONITORING OF THE LEES FERRY FISHERY: UPDATE



AMWG – January 27, 2016

Lisa Winters, Bill Stewart, Dave Rogowski, Robin Osterhoudt, Pilar Wolters, Kristy Manuell

Goal

- To maintain a quality rainbow trout fishery in Glen Canyon

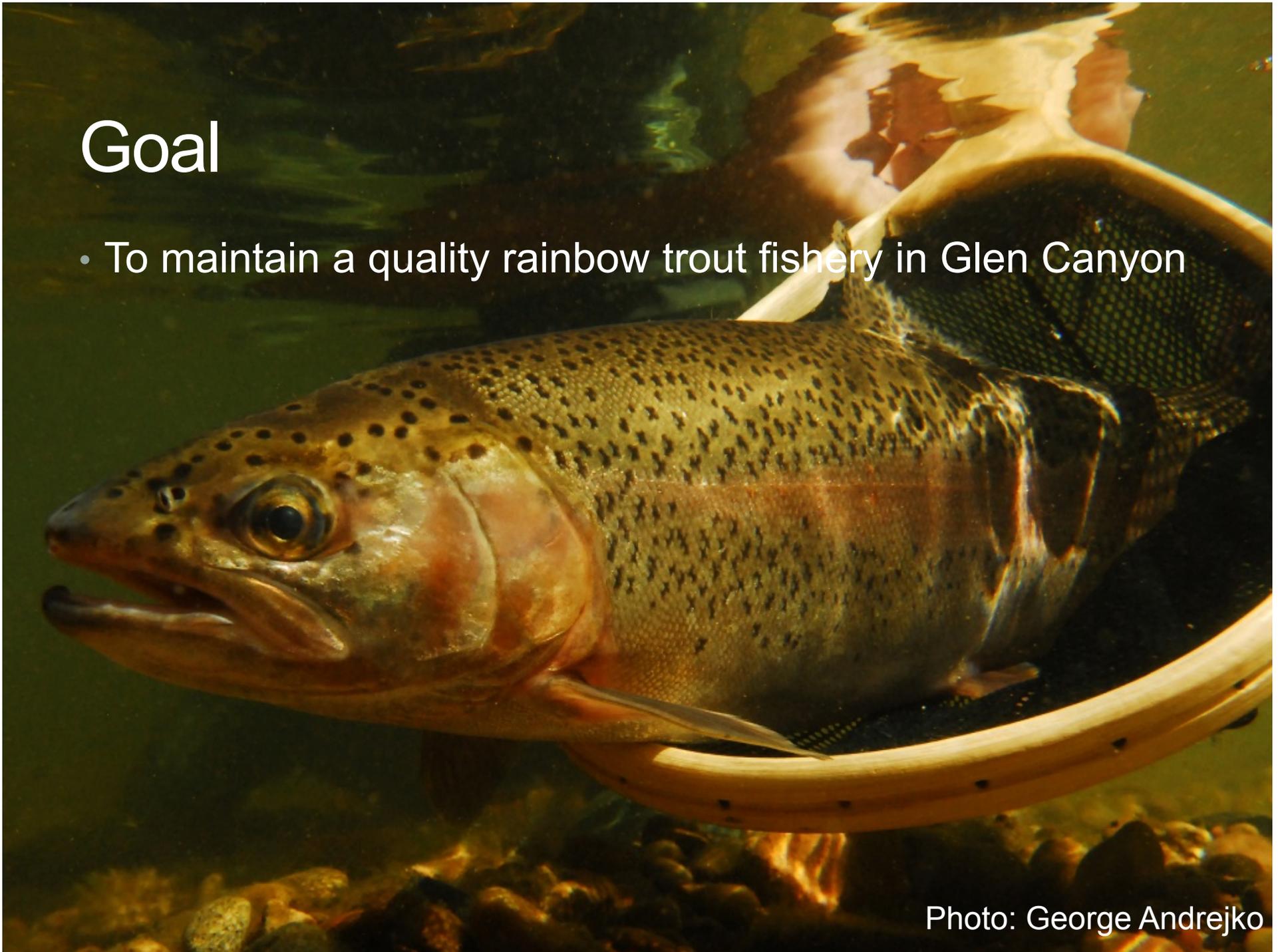
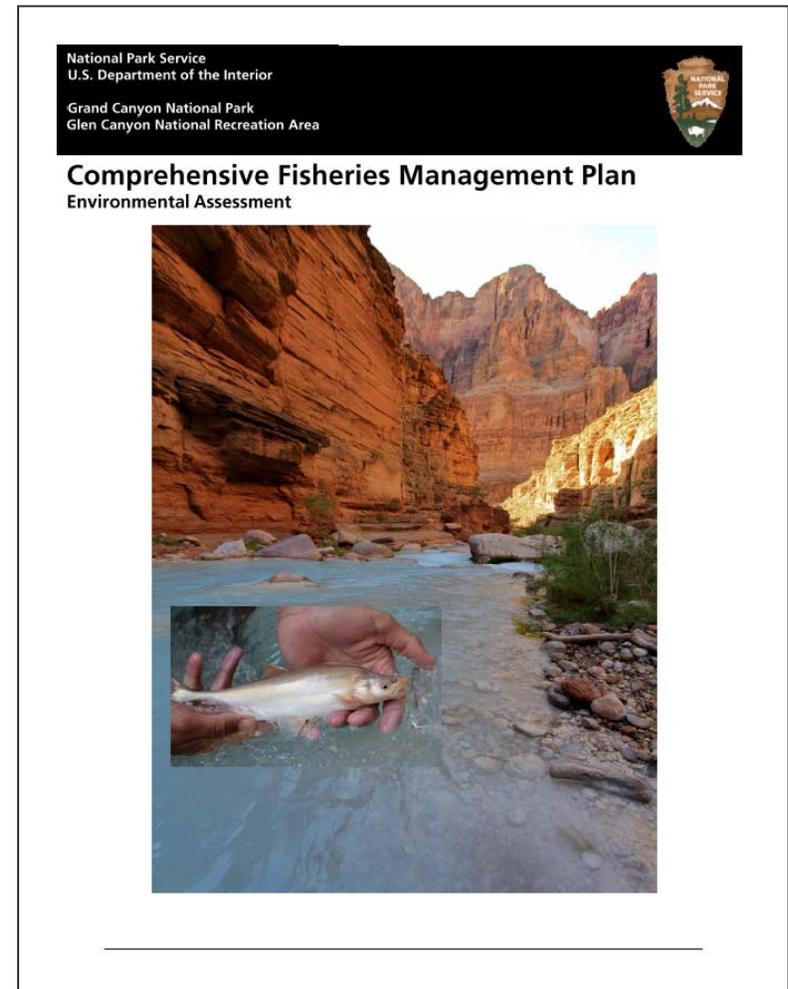


Photo: George Andrejko

NPS Comprehensive Fisheries Management Plan

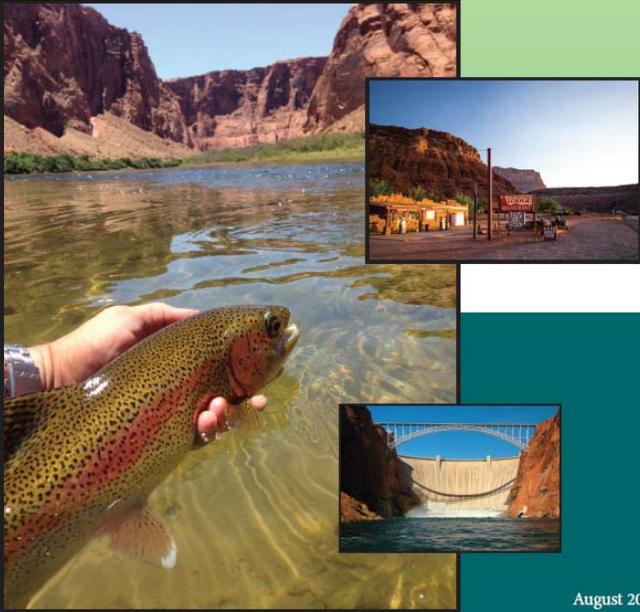
- **Relative Abundance**
rainbow trout CPUE > 1 fish/minute (fall e-fishing)
- **Recruitment**
rainbow trout < 152 mm TL make up greater than 20% of catch (fall e-fishing)
- **Angler Catch**
catch rates ≥ 0.5 fish/ hour, with average size > 14"



Angler Recommendations

**LEES FERRY
RECREATIONAL TROUT
FISHERY MANAGEMENT
RECOMMENDATIONS:**

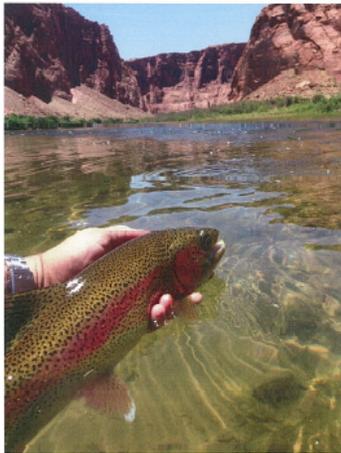
The Voice of Lees Ferry Recreational Anglers, Guides, and Businesses



August 2015

- Size structure indicative of a stable rainbow trout population (YOY 20-50%)
- Angler catch rates >1 fish/hour for rainbows $\geq 14''$
- Angler catch rates >0.1 fish/hour for rainbows $\geq 20''$
- Robust trout body condition ($Kn \geq 1.0$ in summer)
- A diverse aquatic food base with 10% abundance of EPT species

AGFD Fisheries Management Plan



Fisheries Management Plan
Colorado River-Lees Ferry
2015-2025
Scott Rogers
Fisheries Program Manager
Region II Fish Program

Approved by Chris Cantrell  Date: 9/30/15
Chief of Fisheries

Parameters	Objective Guideline	Strategies if Objectives are not met
OBJECTIVE 1 - Maintain a healthy population of rainbow trout at Lees Ferry to support recreational fishing.		
Recruitment	Rainbow trout \leq 6 inches compose 20% - 50% of the population (determined by fall electrofishing)	<ul style="list-style-type: none"> • Stocking • Trout management flows • HFES
Abundance	Rainbow trout electrofishing CPUE exceeds 1 fish/minute (all sizes of trout)	<ul style="list-style-type: none"> • Stocking • HFES • Change in regulations

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OBJECTIVE 2 – Provide a quality trout fishing experience with catch frequency commensurate with the Blue Ribbon status of the fishery.		
Angler Catch Rate	Angler catch rate \geq 1 rainbow trout/hour	<ul style="list-style-type: none"> • Stocking • HFEs • Change in regulations

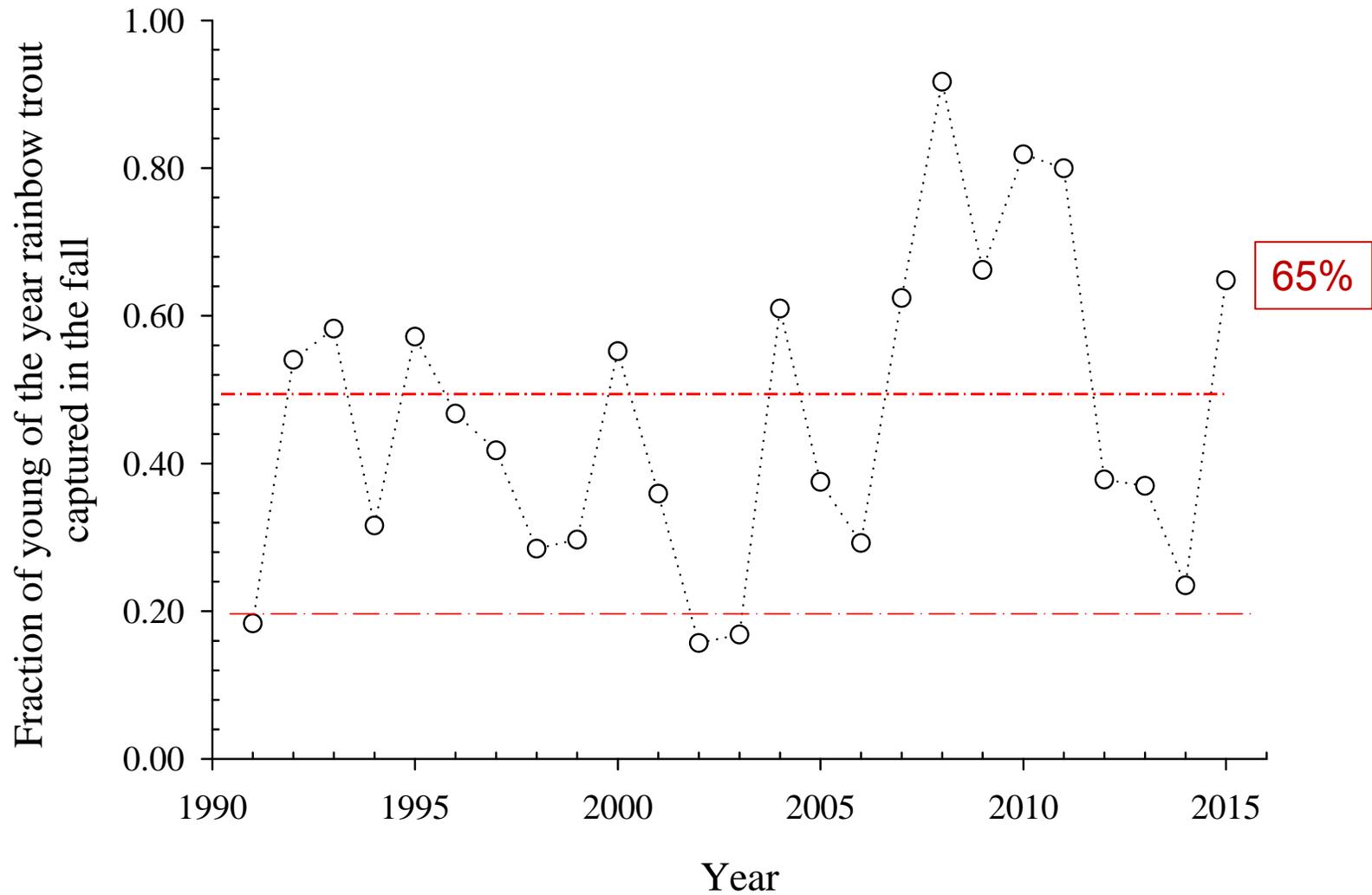
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OBJECTIVE 3 – Grow quality sized trout that are available to the angler, consistent with the Blue Ribbon status of the fishery.		
Angler Catch Quality	<p>10 rainbow trout \geq 14 inches caught by the angler in a 10-hour day; one \geq 20 inches caught by angler in 10 hour day</p> <p>Maintain trout condition factor \geq 1 during the summer months</p>	<ul style="list-style-type: none"> • Food base enhancement • Trout management flows • Change in regulations

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OBJECTIVE 4 – Avoid catastrophic failure of the trout population, and establish protocols for emergency recovery from population loss.		
Water Quality	Dissolved oxygen \geq 5 mg/l as measured at outflow from GCD.	<ul style="list-style-type: none"> • Flow manipulation • Temperature control device • Use of river outlet tubes
Catastrophic Failure of Population	If failure of multiple age classes is documented by electrofishing and <0.25 trout/hour documented in creel surveys, mitigation will be necessary.	<ul style="list-style-type: none"> • Stocking • Translocation of fish

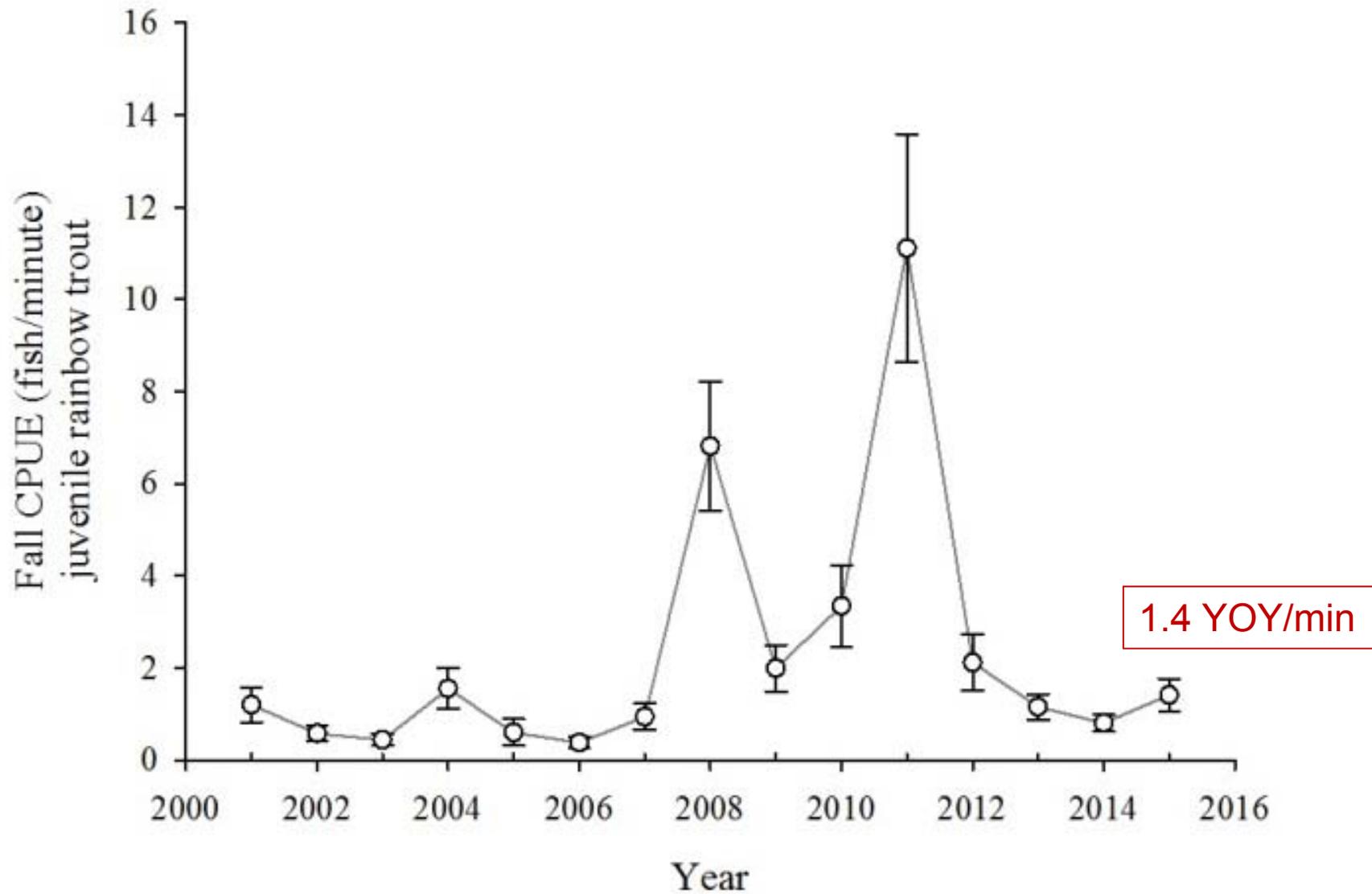
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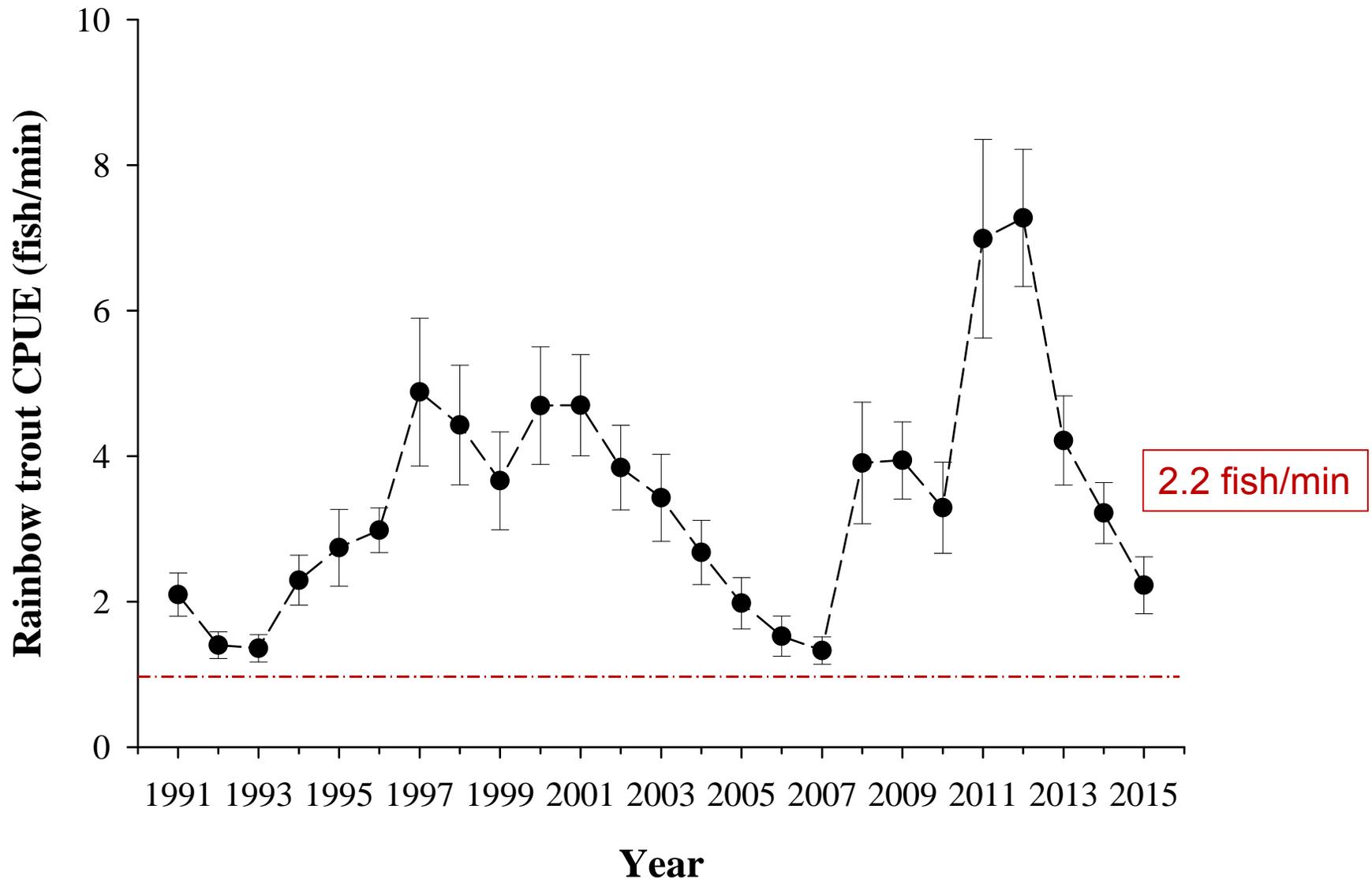
Young of the Year (fall only)



Young of the Year (fall only)



Rainbow Trout CPUE (boat)



A scenic view of a river flowing through a canyon. The river is in the foreground, with some rocks visible in the water. The canyon walls are made of red rock and are visible on both sides. The sky is blue with white clouds. The text is overlaid on the top left of the image.

Objective 2— provide a quality trout fishing experience with catch frequency commensurate with the Blue Ribbon status of the fishery.

Objective 3— grow quality sized trout that are available to the angler, consistent with the Blue Ribbon status of the fishery.

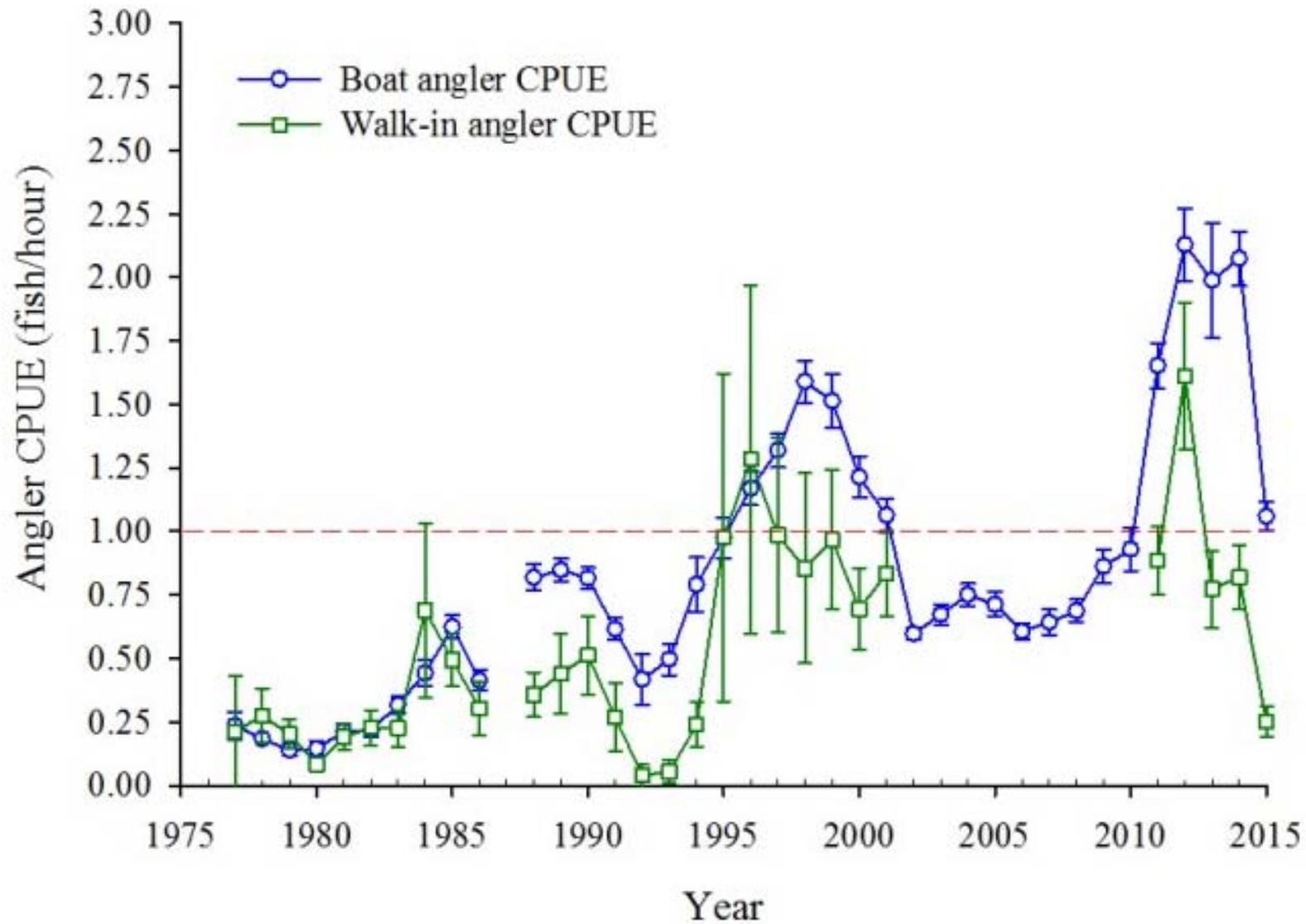
Creel

- 1,989 anglers interviewed
 - 1,557 upriver
 - 432 walk-in
- 12,658 rainbow trout caught

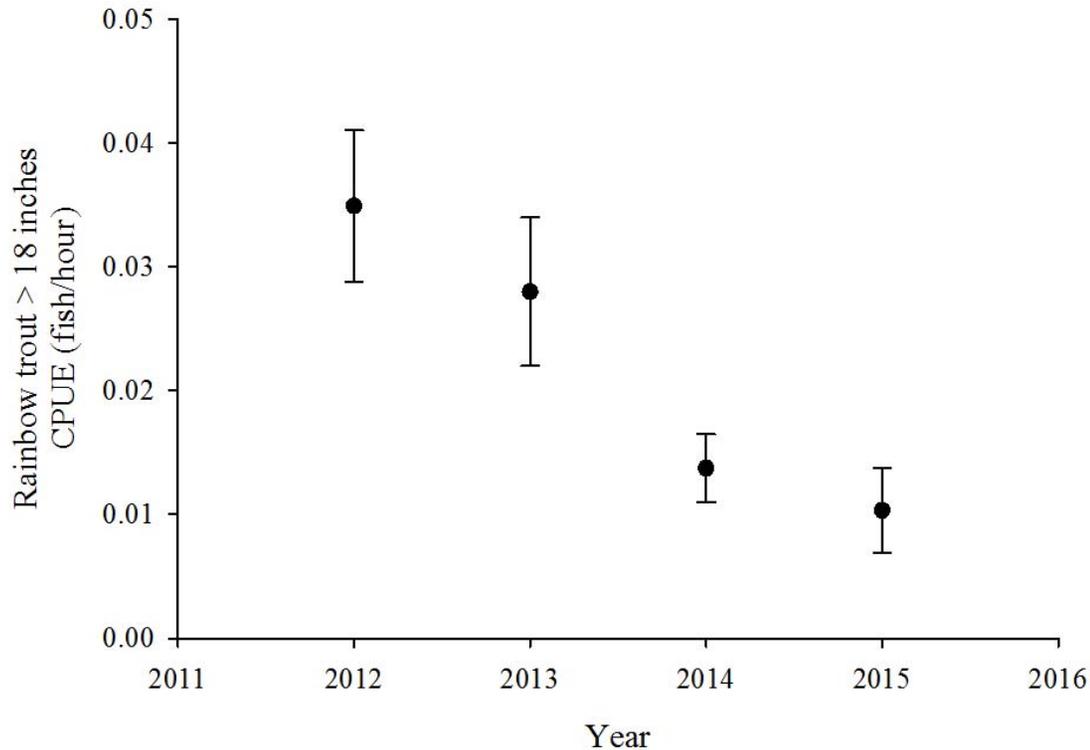


Angler	CPUE (fish/hr)
Boaters	1.06
Walk-in	0.25

Angler Catch Rates

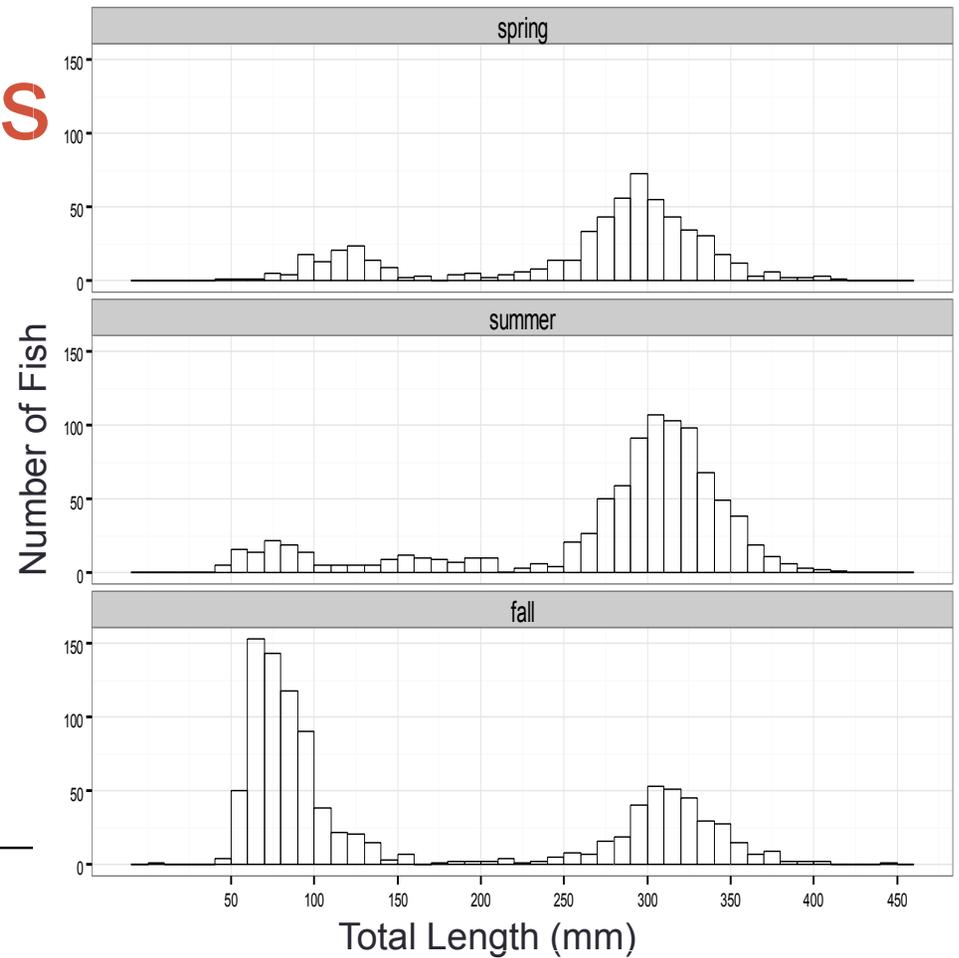
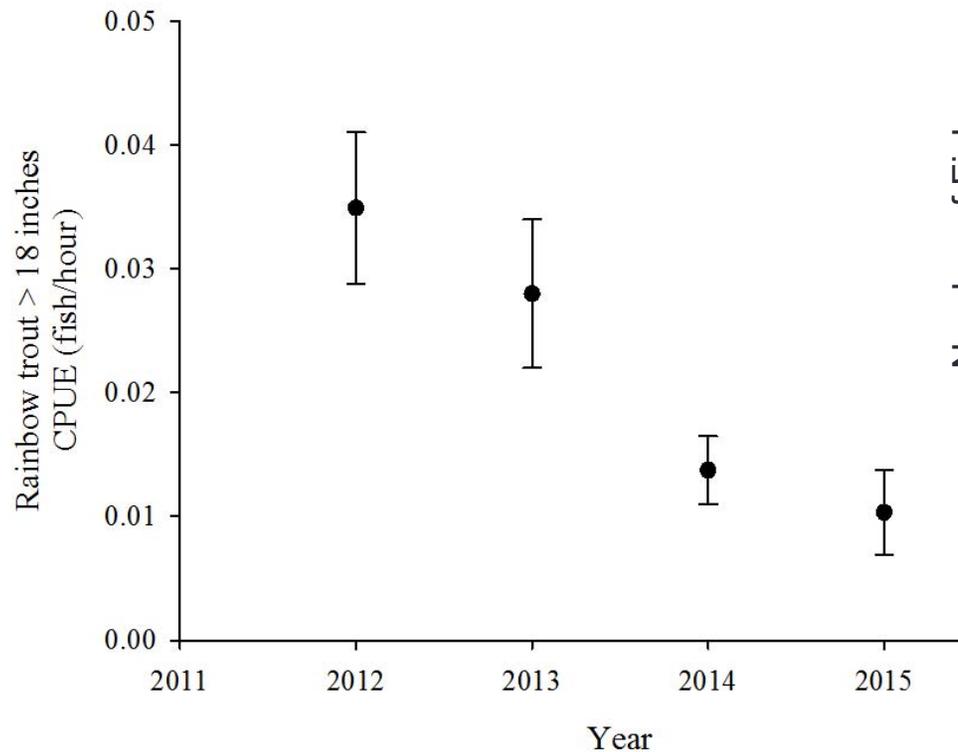


Angler Catch Rates



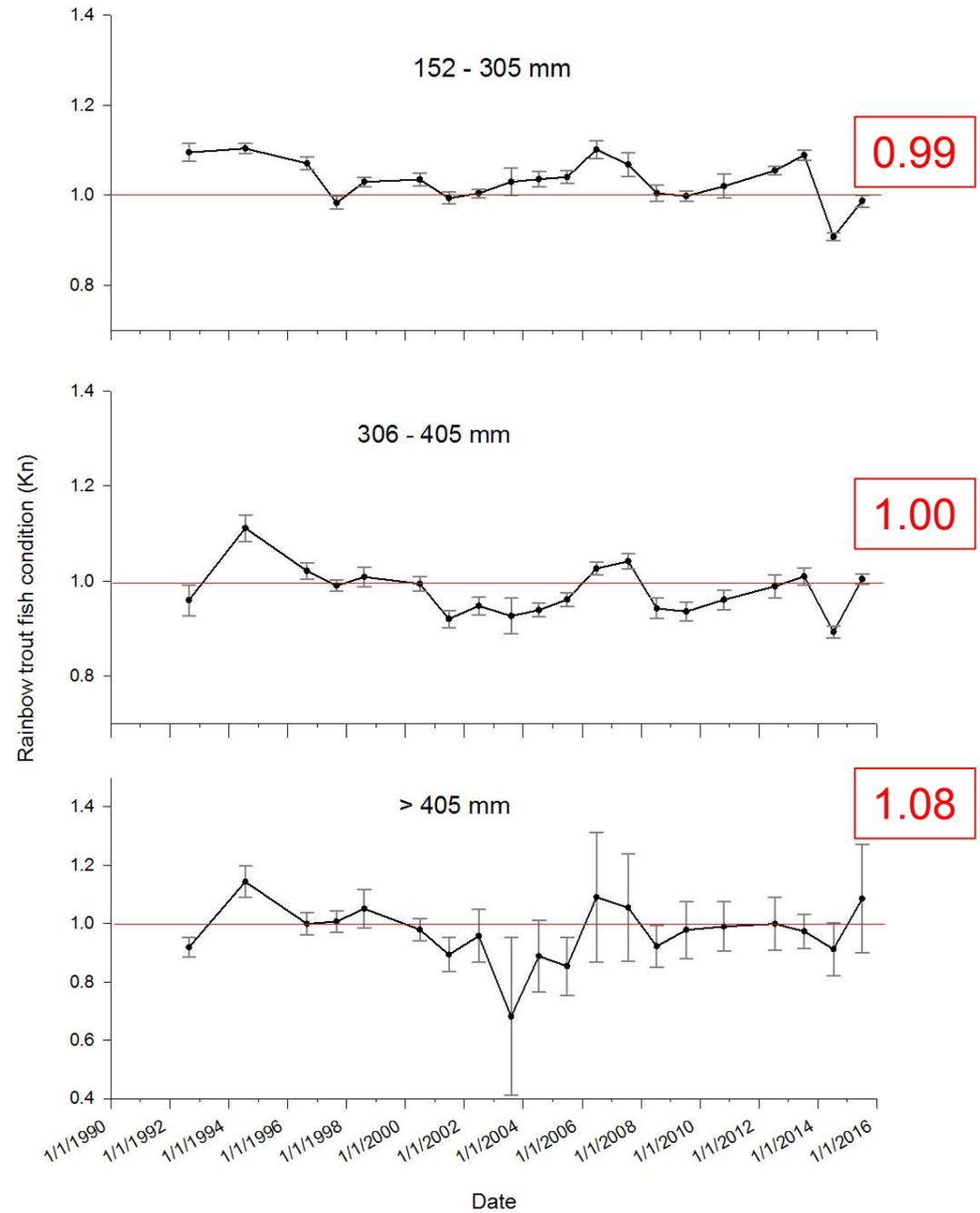
- No accurate representation of size of fish anglers catch
- Change creel question to “how many fish over 14 inches, how many of those were over 20 inches?”

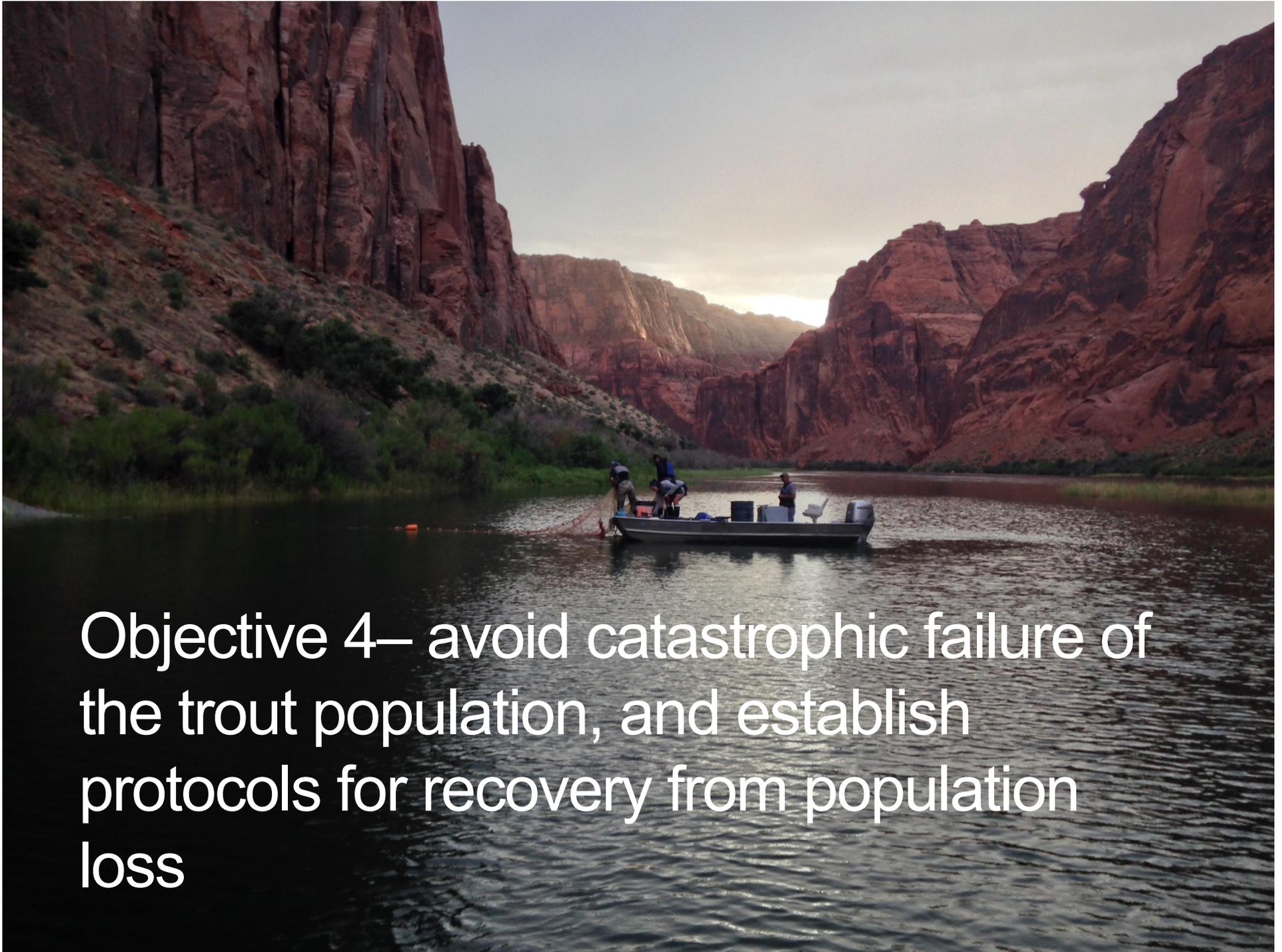
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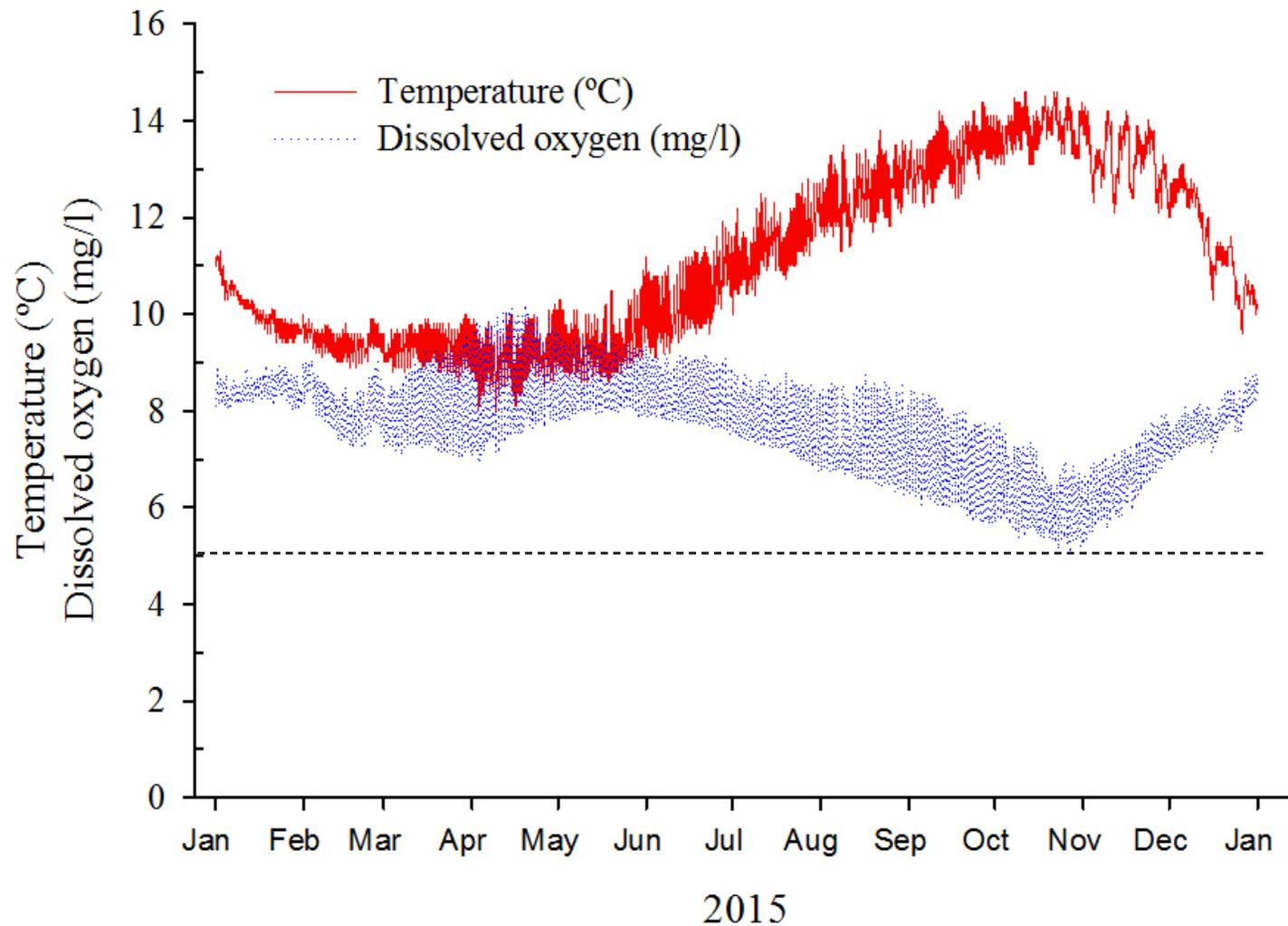
Condition



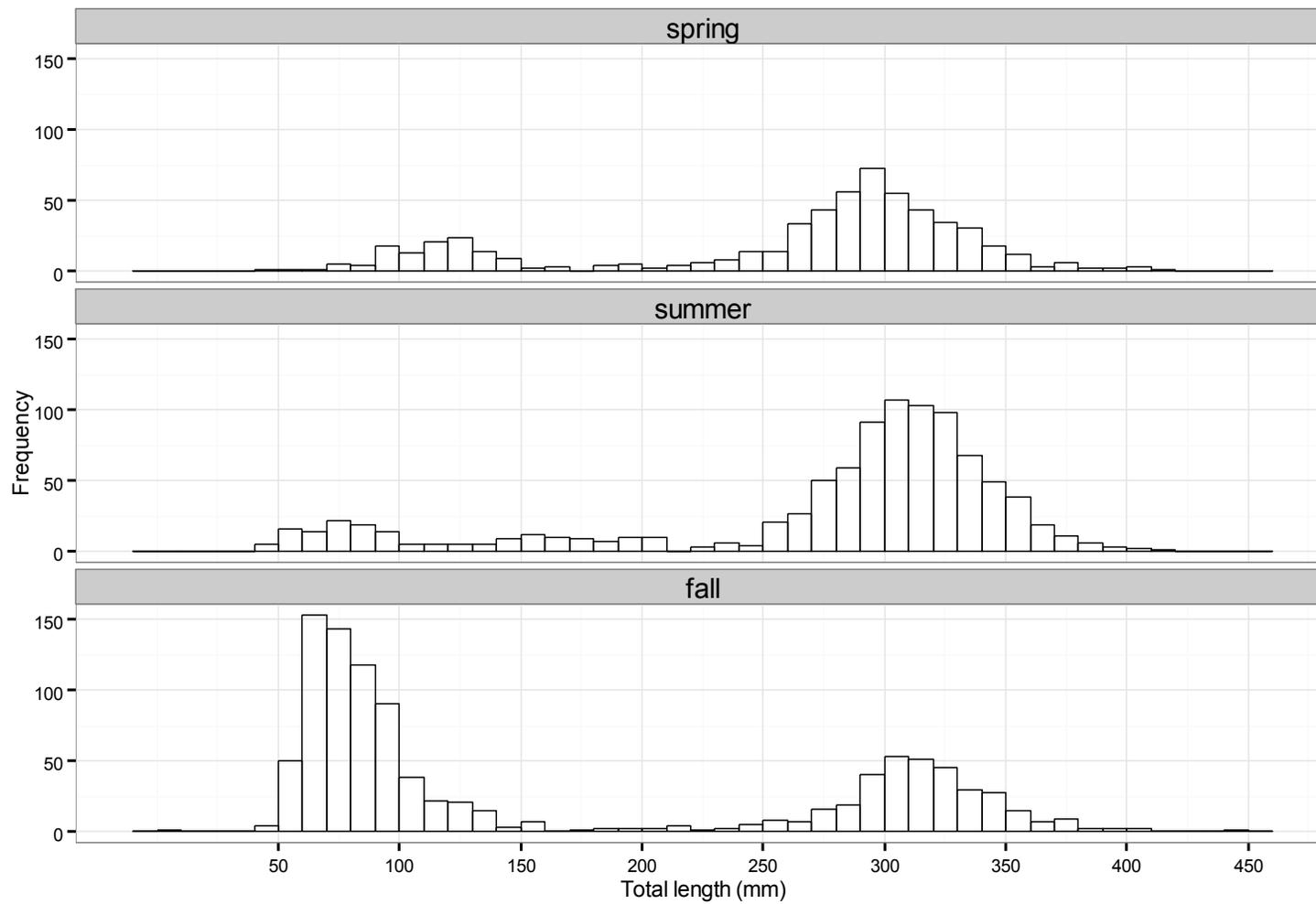


Objective 4— avoid catastrophic failure of the trout population, and establish protocols for recovery from population loss

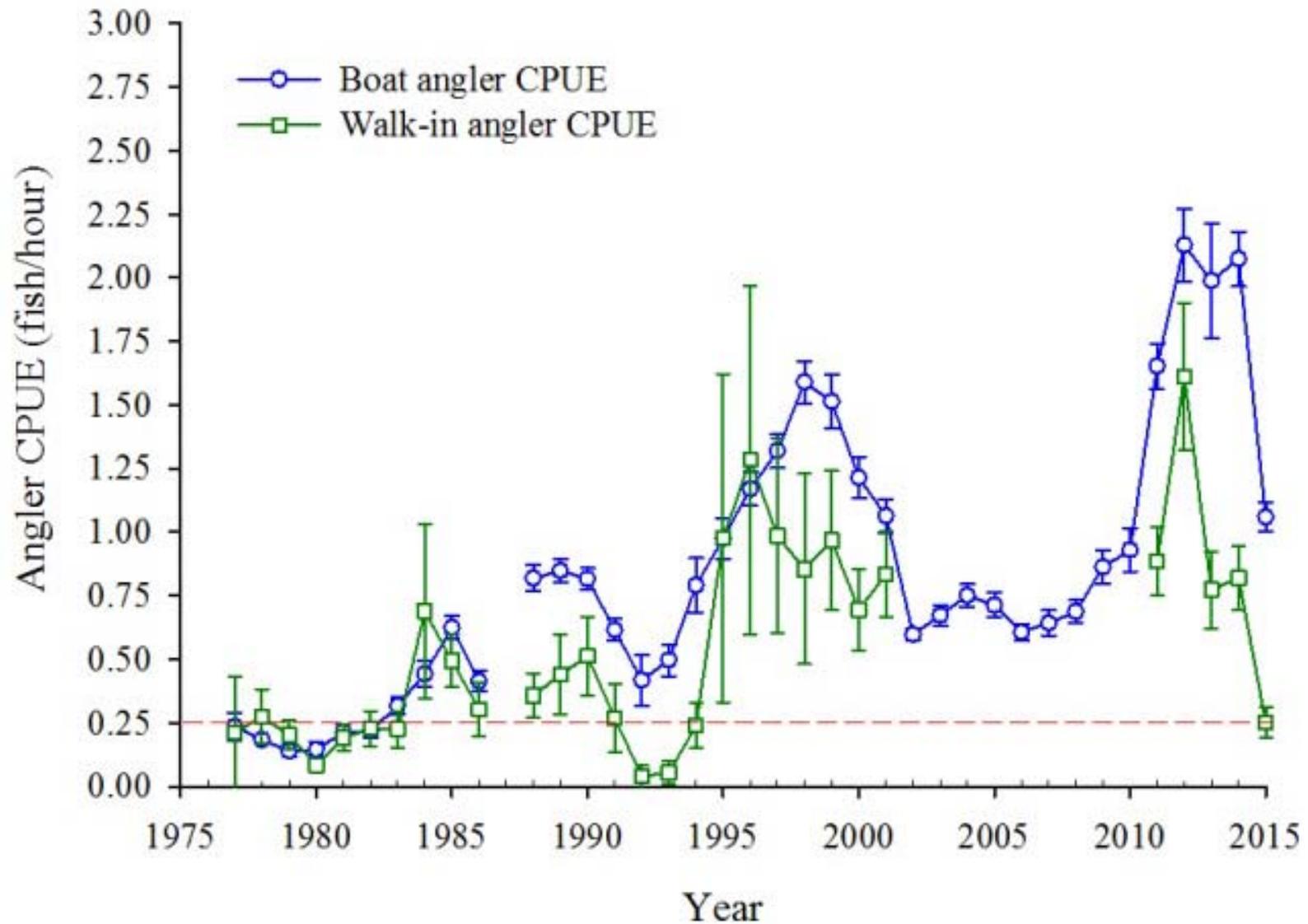
Dissolved Oxygen



Year Classes



Angler Catch Rates



Parameters	Objective Guideline	2015 Status
OBJECTIVE 1 - Maintain a healthy population of rainbow trout at Lees Ferry to support recreational fishing.		
Recruitment	Rainbow trout \leq 6 inches compose 20% - 50% of the population (determined by fall electrofishing)	64%
Abundance	Rainbow trout electrofishing CPUE exceeds 1 fish/minute (all sizes of trout)	2.22 fish/min
OBJECTIVE 2 – Provide a quality trout fishing experience with catch frequency commensurate with the Blue Ribbon status of the fishery.		
Angler Catch Rate	Angler catch rate \geq 1 rainbow trout/hour	Boat = 1.06 fish/hr Walk-in = 0.25 fish/hr
OBJECTIVE 3 – Grow quality sized trout that are available to the angler, consistent with the Blue Ribbon status of the fishery.		
Angler Catch Quality	10 rainbow trout \geq 14 inches caught by the angler in a 10-hour day; one \geq 20 inches caught by angler in 10 hour day Maintain trout condition factor \geq 1 during the summer months	0.01 fish/hr (>18") Kn = 0.99 - 1.08
OBJECTIVE 4 – Avoid catastrophic failure of the trout population, and establish protocols for emergency recovery from population loss.		
Water Quality	Dissolved oxygen \geq 5 mg/l as measured at outflow from GCD.	5.06 - 10.22 at Ferry
Catastrophic Failure of Population	If failure of multiple age classes is documented by electrofishing and <0.25 trout/hour documented in creel surveys, mitigation will be necessary.	See above; multiple age classes exist

Species Composition

Species	Spring March	Summer July	Fall October	Total	Percent of Catch
Rainbow Trout	587	895	1018	2500	97.1%
Brown Trout	8	18	27	53	2.1%
Common Carp	1	1	0	2	0.1%
Flannelmouth Sucker	1	0	17	18	0.7%
Walleye	0	3	0	3	0.1%



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Nonnative Sampling

- One night in during July monitoring
- Carp at -12 mile slough
 - Depletion sampling
 - 110, 48, 50 by pass
 - 54% recaptures
 - Estimated 290 [244,393] carp total in slough
- 8 walleye, 3 flannelmouth and 43 green sunfish caught



Nonnative Sampling



- Typical July Nonnative monitoring sites:

Night 1: Nonnative Sampling

RM	Side	Comments	RM	Side	Comments
-15.78 R	R	Below Spillway	-12.05_L	L	Slough
-15.78 L	L	Below Spillway	-12.19_L	L	Slough
-14.3 L	L	14 mile Spring	-12.35_L	L	Slough
-14.0 L	L	Rocky Shoreline Habitat	-12.15_LS	L	Slough
-13.7 R	R	Spring Inflow			
-13.5 L	L	Spring Inflow			
-11.0 R	R	Below Ferry Swale Bar			
-10.9 L	L	Rocky Shoreline Habitat			
-6.9 L	L	Backwater Feature			
-3.3 L	L	Warm Spring Inflow			
-1.5 L	L	Backwater Feature			



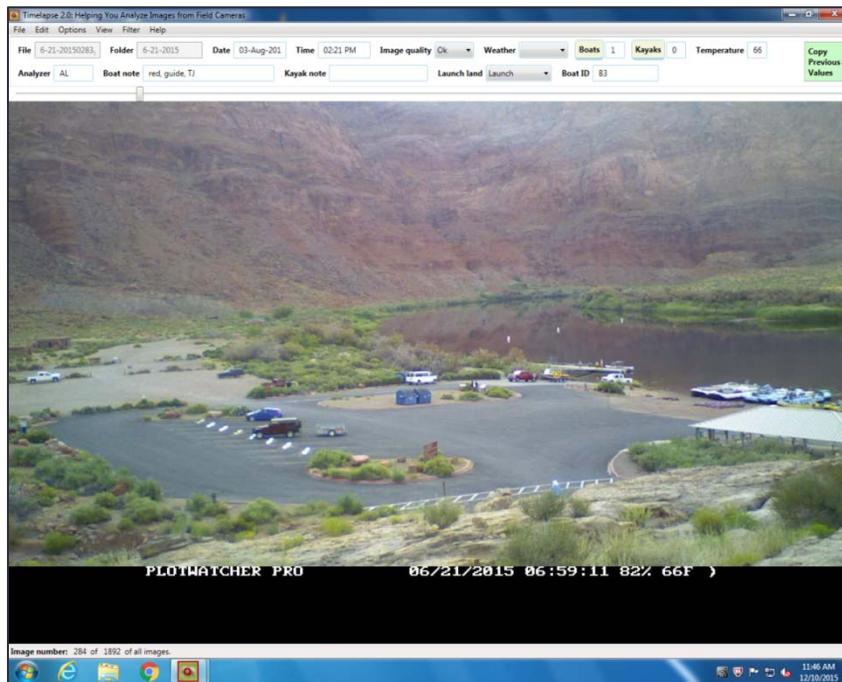
- Other spots we are missing?
- Timing of surveys?
- As conditions may become better for nonnative invasions..

Camera Creel

- Better idea of the usage of the fishery
- June 2015 – June 2016
- Picture every 30 seconds during daylight hours
- Correspond with our 6 days per month of in person creel
- Novel technique



Camera Creel



- ImageJ software
- Timelapse Program
 - Mark boats when they launch on the river and travel upstream, mark when return
 - Not counting downstream rafts, not counting CRD rafts
- Creel is only 6 days per month from 12-6pm
 - This counts those we miss
 - This counts non-anglers
- Initial results show we account for 30% more anglers in the camera creel

Summary

- AGFD has a Fisheries Management Plan – Colorado River Lees Ferry
 - Electrofishing CPUE of rainbow trout is not as bad as we thought it would be after the “crash”
 - Angler CPUE okay...
- More brown trout than normal
- Green sunfish - Is our nonnative sampling good enough?
- Use of camera creel to better inform angler usage



Acknowledgments

- USGS – Grand Canyon Monitoring and Research Center
- Fantastic volunteers
- St. Jude's Enterprises, LLC. Boatmen
- Creel guru, Steve Harding

