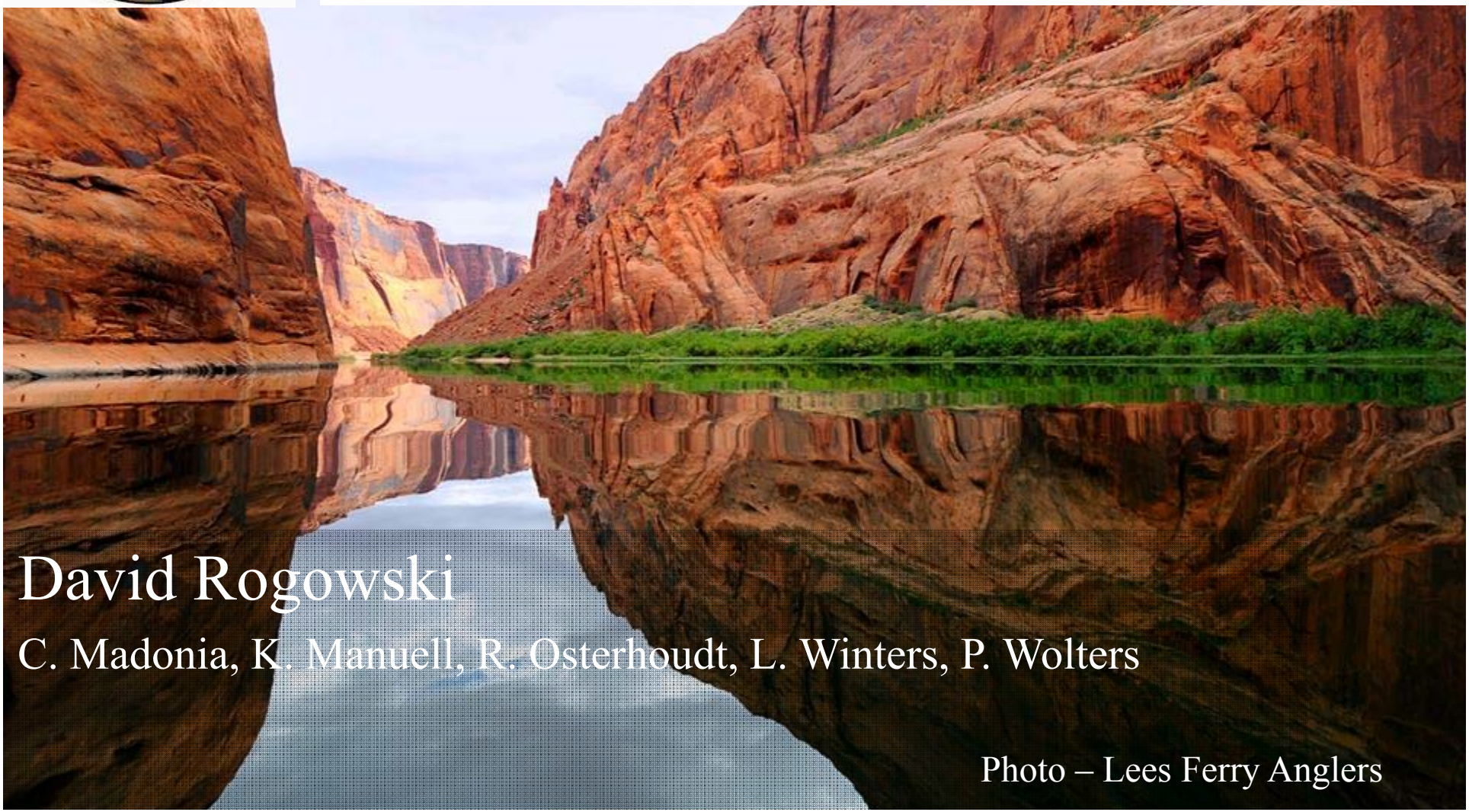
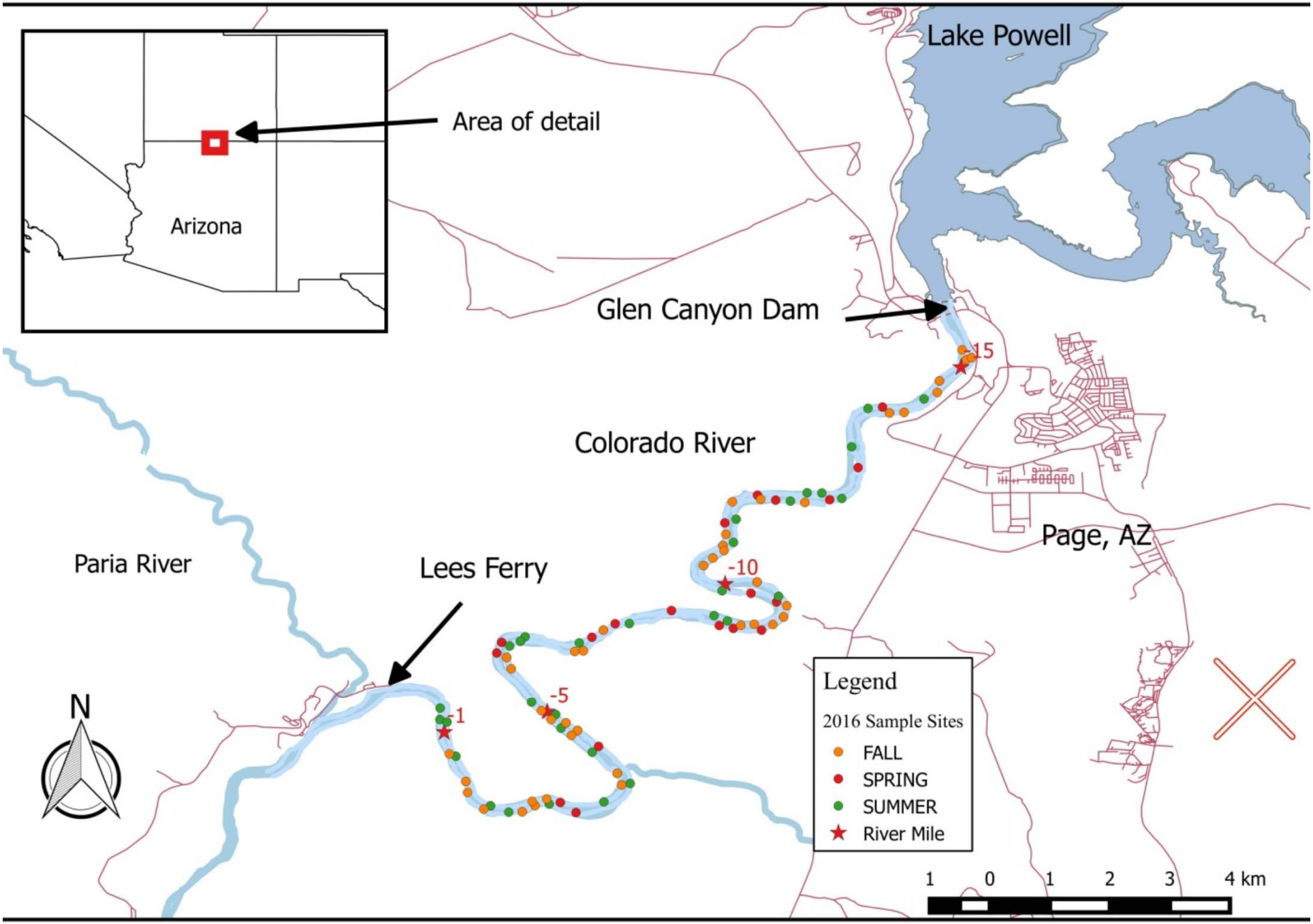
Arizona Game & Fish Department
Lees Ferry long term monitoring



David Rogowski

C. Madonia, K. Manuell, R. Osterhoudt, L. Winters, P. Wolters

Photo – Lees Ferry Anglers

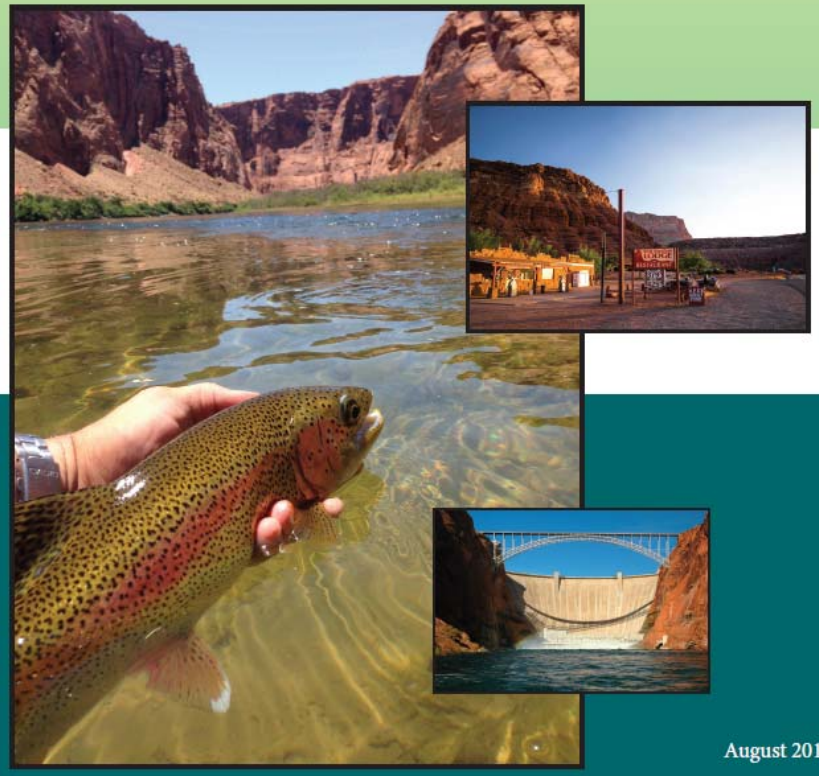

Lake Powell
Area of detail
Arizona
Glen Canyon Dam
15
Colorado River
Page, AZ
Paria River
Lees Ferry
-10
-5
-1
N
Legend
2016 Sample Sites
FALL
SPRING
SUMMER
River Mile
1 0 1 2 3 4 km

Guiding documents

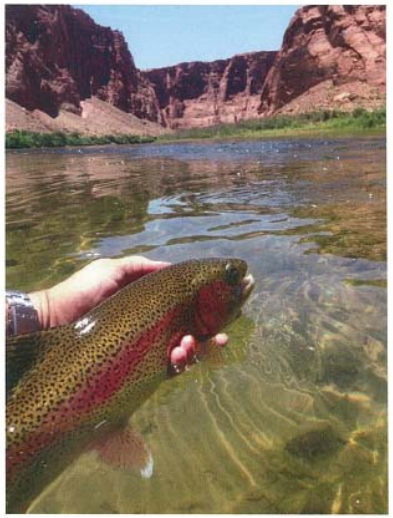
- Comprehensive Fisheries Management Plan for Glen Canyon and Grand Canyon (National Park Service, June 2013)
- Lees Ferry Recreation Trout Fishery Management Recommendations: The Voice of Lees Ferry Recreational Anglers, Guides and Businesses, August 2015
- Fisheries Management Plan, Colorado River-Lees Ferry. Arizona Game and Fish Department, September 2015
- National Park Service Research Permits

LEES FERRY RECREATIONAL TROUT FISHERY MANAGEMENT RECOMMENDATIONS:

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



August 2015



Fisheries Management Plan
Colorado River-Lees Ferry

2015-2025

Scott Rogers
Fisheries Program Manager
Region II Fish Program

Approved [X] by Chris Cantrell _____ Date: 9/30/15
Chief of Fisheries

1. maintain a healthy population of Rainbow Trout at Lees Ferry to support recreational fishing
   1. Rainbow Trout ≤ 6 inches compose 20-50% of the Lees Ferry population as determined by fall electrofishing
   2. Rainbow Trout electrofishing CPUE exceeds 1 fish/min
2. Provide a quality trout fishing experience with catch frequency commensurate with the Blue Ribbon status of the fishery
   1. Angler catch rate ≥ 1 Rainbow Trout per hour
3. Grow quality sized trout that are available to the angler, consistent with the Blue Ribbon status of the fishery
   1. 10 Rainbow Trout ≥ 14 inches caught by the angler in a 10-hour day, at least one ≥ 20 inches
4. Maintain trout condition factor ≥ 1 during the summer months

- **Monitoring Goals**
  - Representative sample of:
    - Fish susceptible to nearshore night electrofishing
    - Anglers

Photo: George Andrejko

Objectives (per year)

- Three electrofishing sampling trips
  - Spring, summer, fall
  - One night sampling for rare non-natives in summer
- Angler surveys
  - six days per month (72 per year)

Guide Nat Jensen recently fished with George and Aneeta Strickland from New Mexico and was rewarded with this 18" wild Lees Ferry bow (Lees Ferry Anglers 3 December 2016).

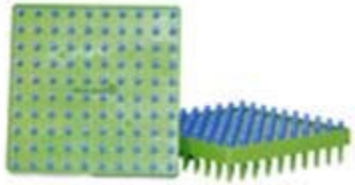
Electrofishing

- Reach ~ 15 mi
- Divided into 250 m “sample reaches” (n=224)
- Three nights of sampling
  - nearshore
  - Two boats (Achilles – inflatable)
  - 36-40 samples per trip (randomly selected)

Processing

- Identification
- Total length
- Weight (for non-natives only)
- Check sex/reproductive status
- Scan for tags

  – PIT tag native fish

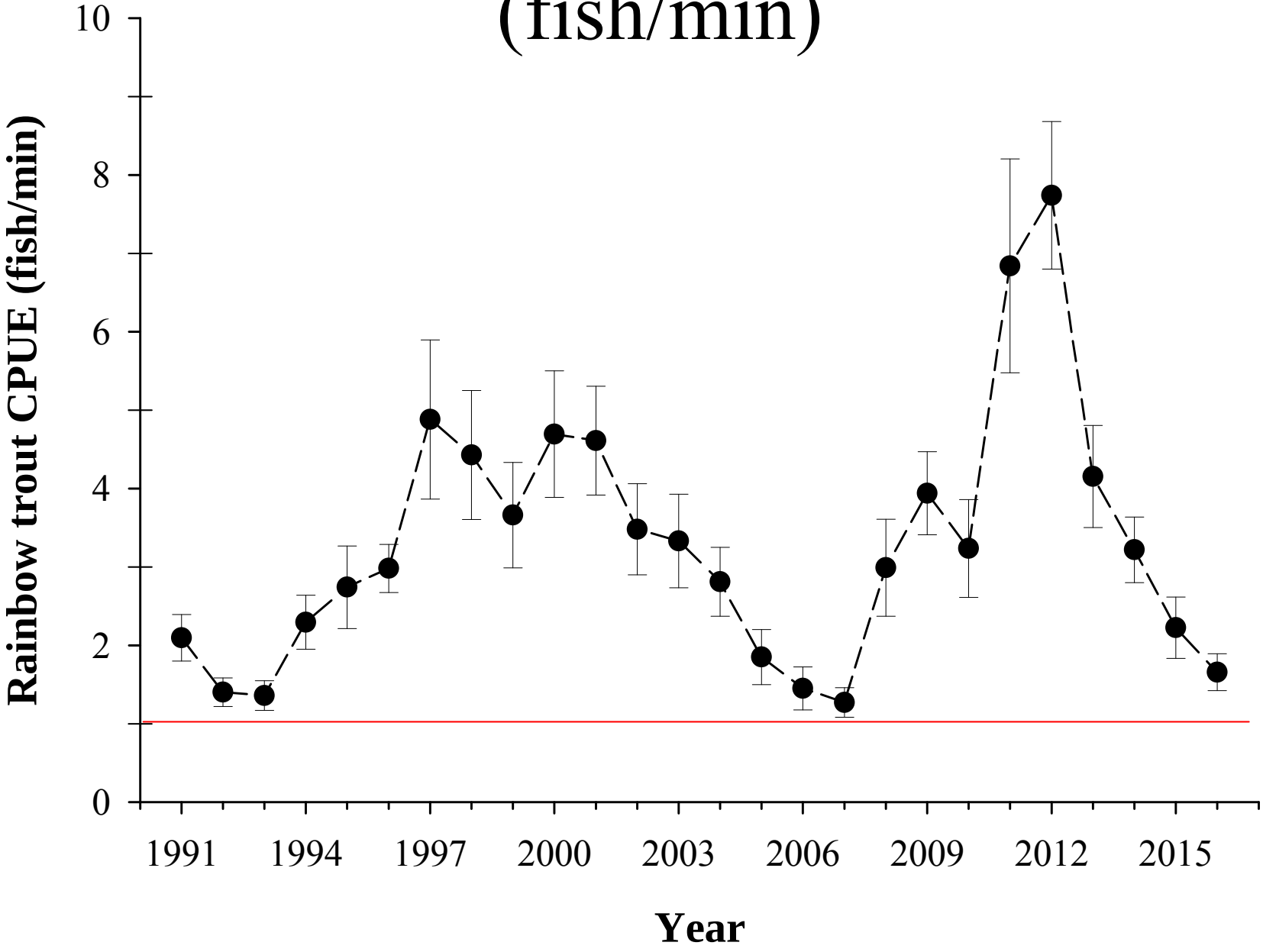


Electrofishing metrics

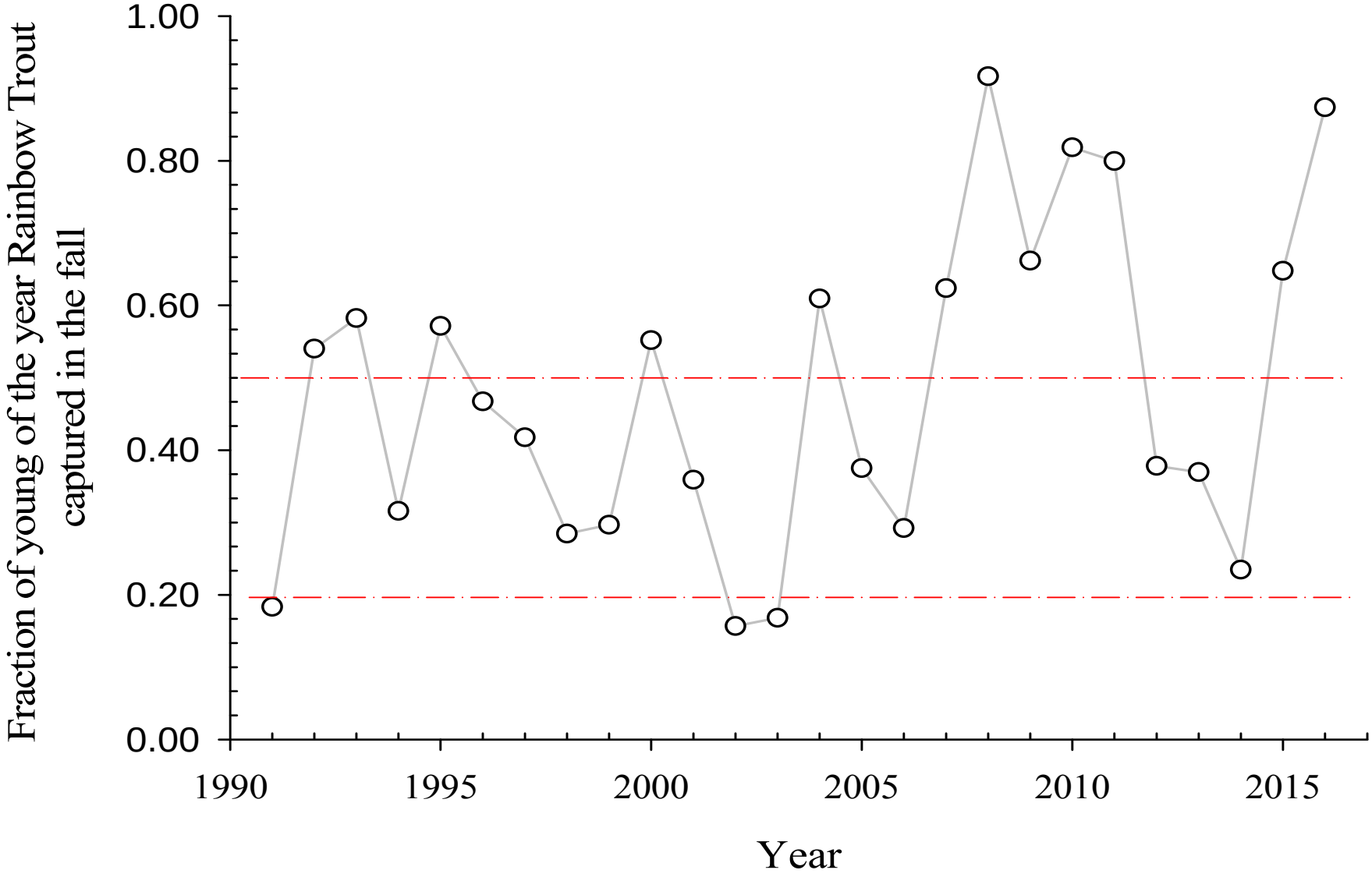
- Species composition
  - Rainbow trout
    - CPUE
    - Relative fish condition (Kn)
    - Fall: percent juveniles and fall juvenile CPUE

http://fishbio.com/wp-content/uploads/2010/07/rainbow-trout.jpg

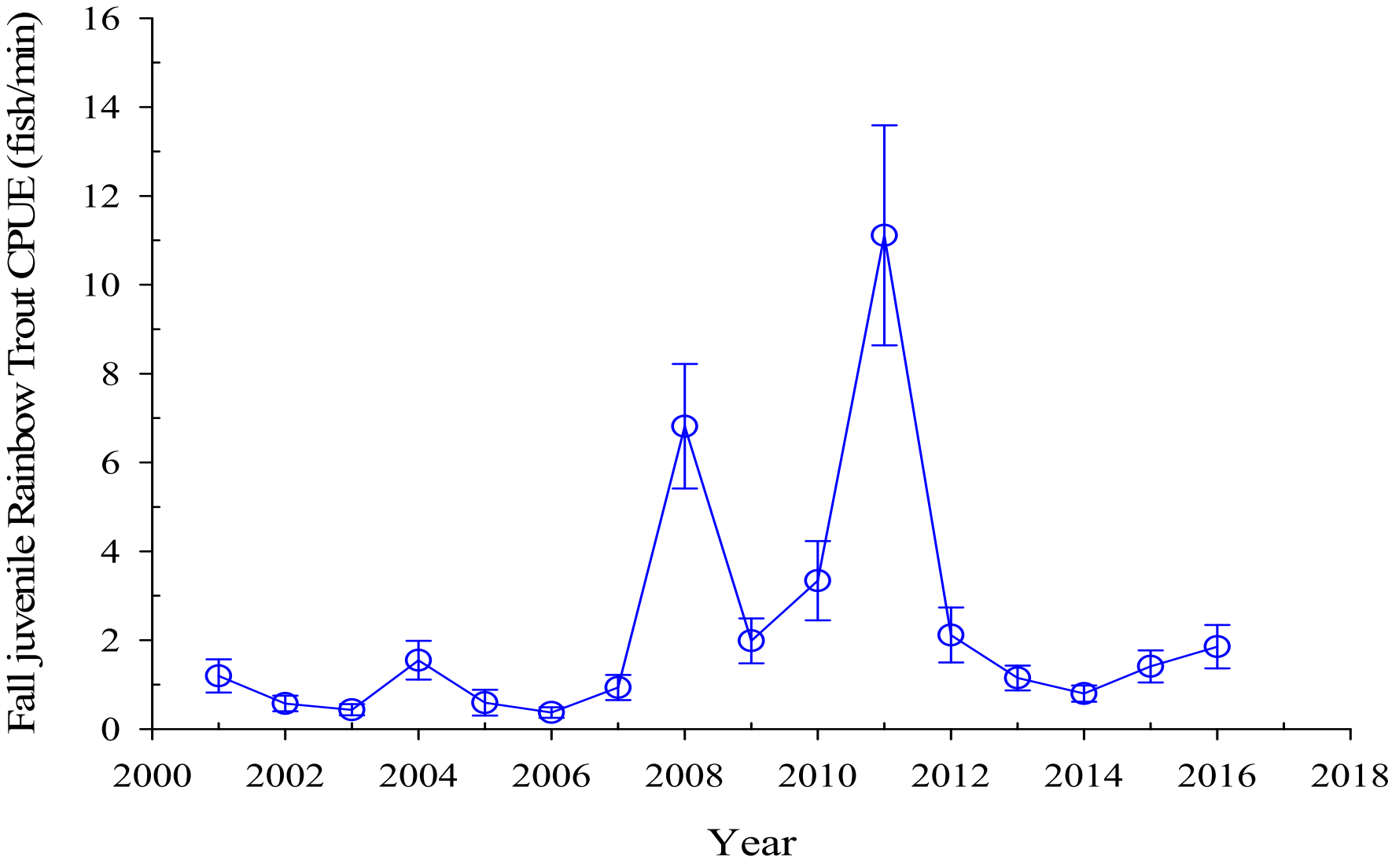
Rainbow Trout catch per unit effort (fish/min)



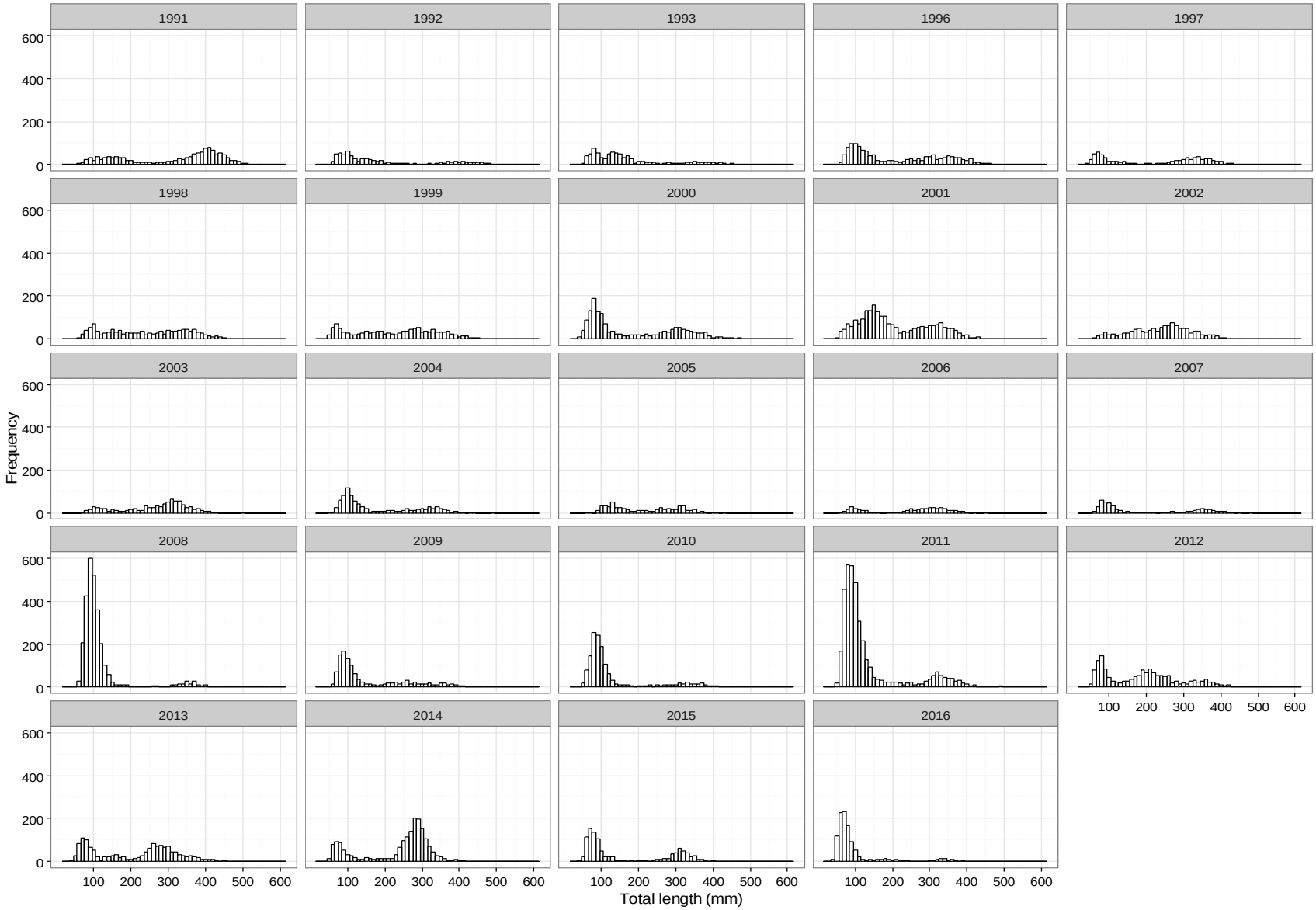
Juvenile (<152 mm total length) Rainbow Trout in the fall (% of RBT catch)



Fall juvenile (<152 mm) Rainbow Trout CPUE (fish/minute)

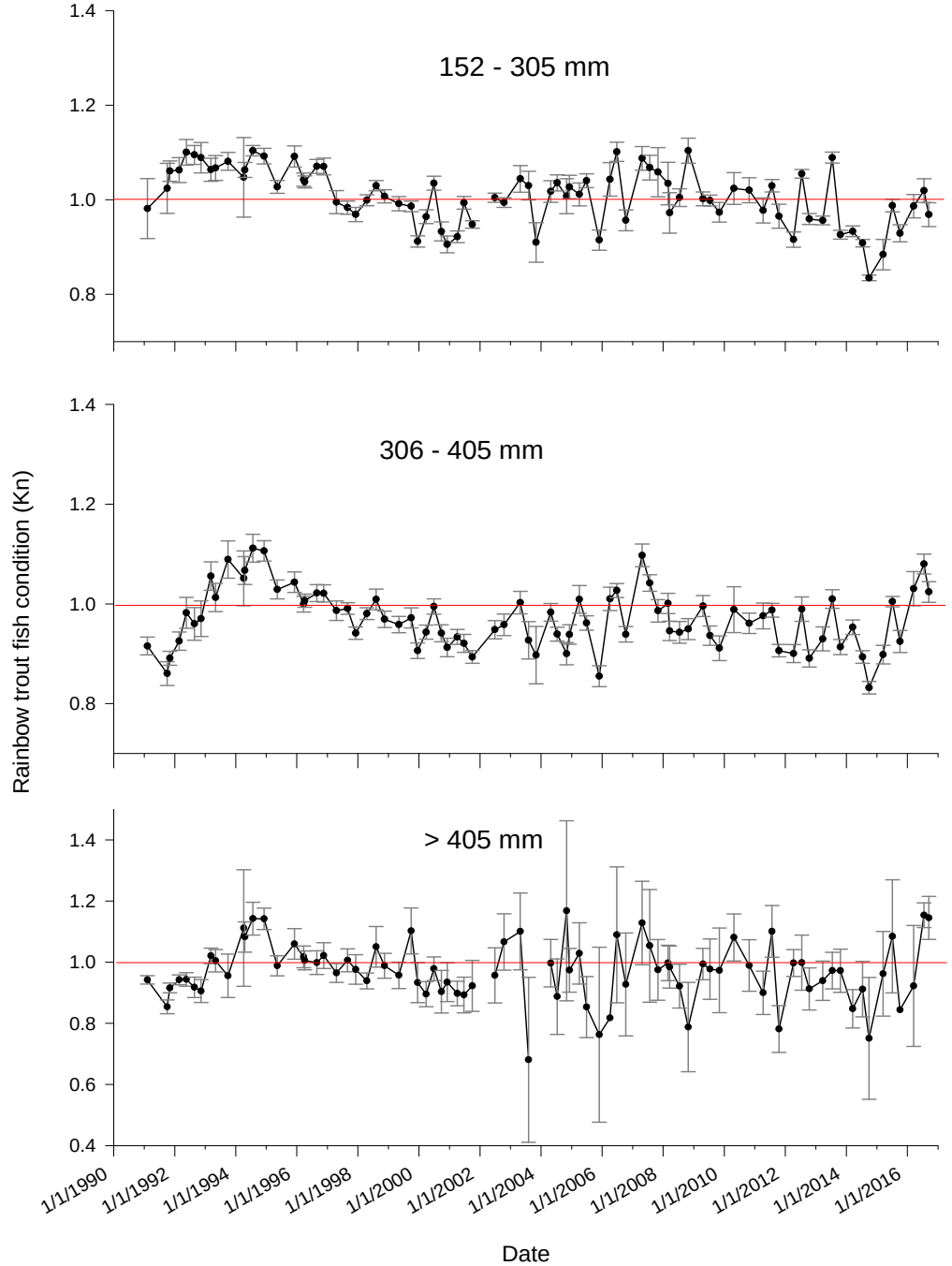


Rainbow Trout length frequency histograms by year

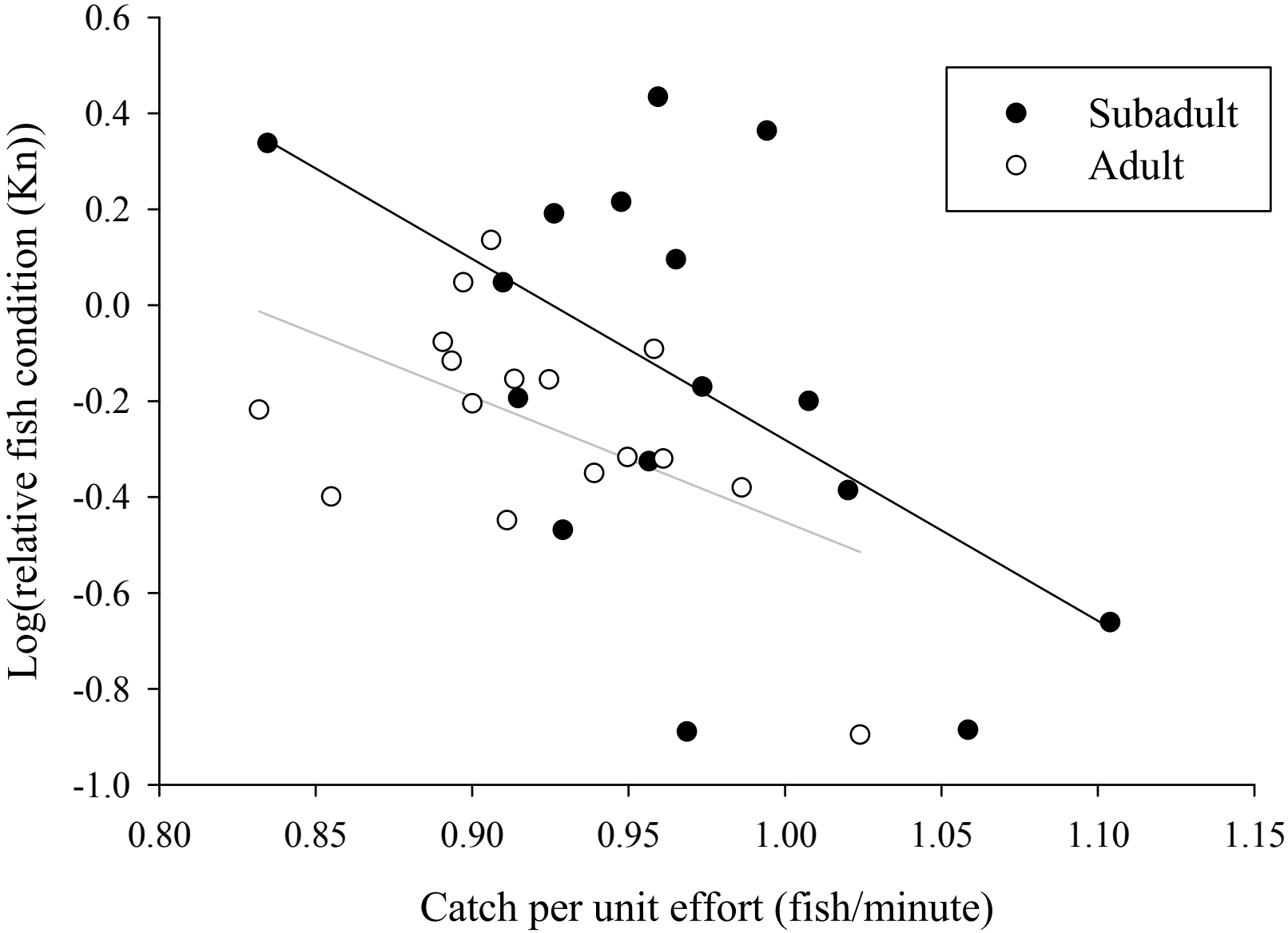


Rainbow Trout relative condition (Kn) by size class

Photo by Skip Dixon, Lees Ferry Anglers 18 Sept 2016

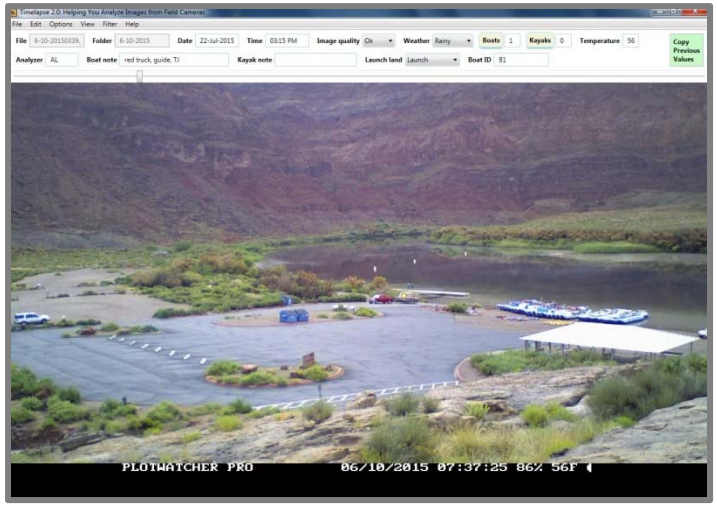


Rainbow Trout condition (Kn) and relative abundance (CPUE fish/minute)

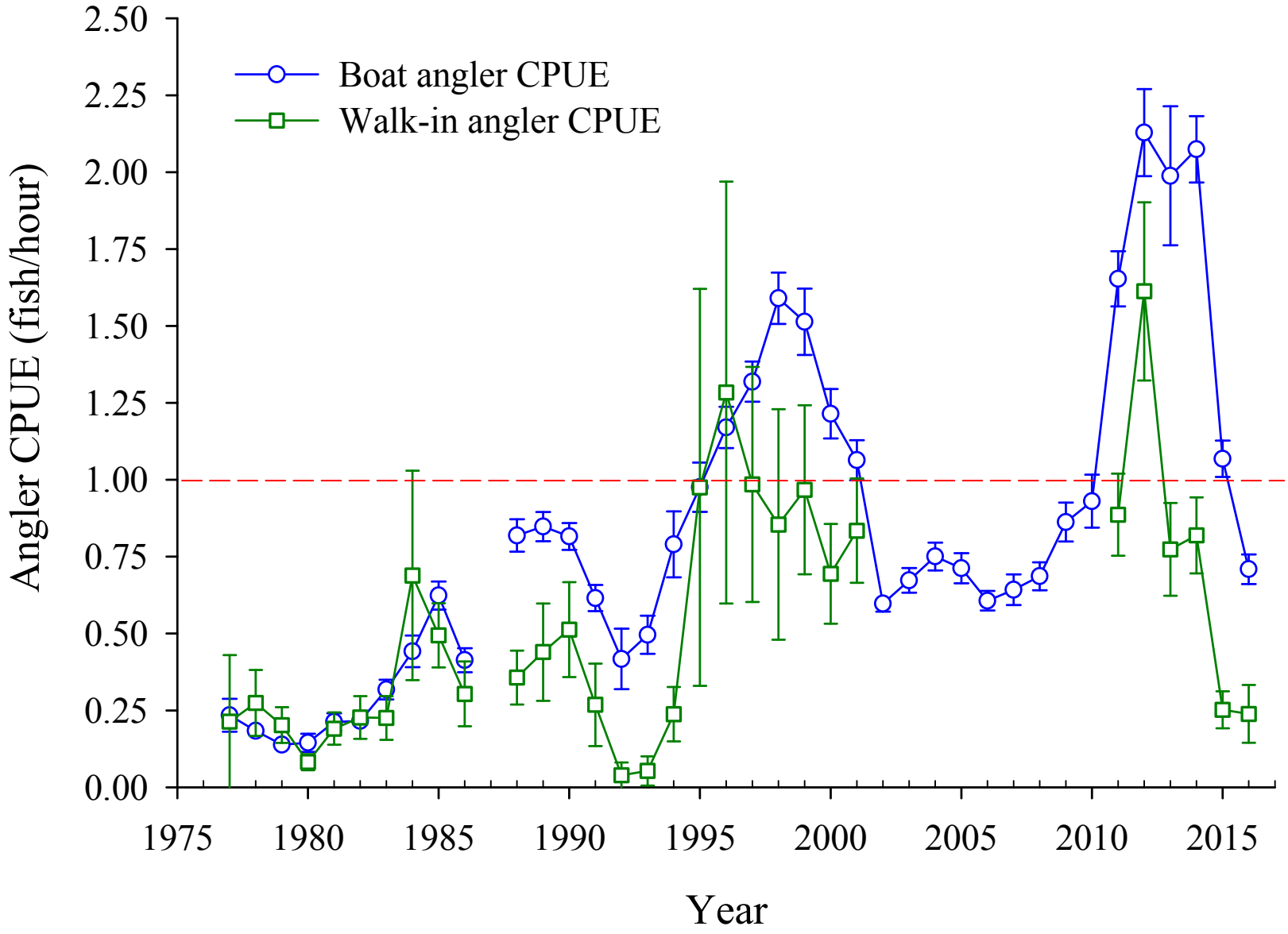


Angler surveys

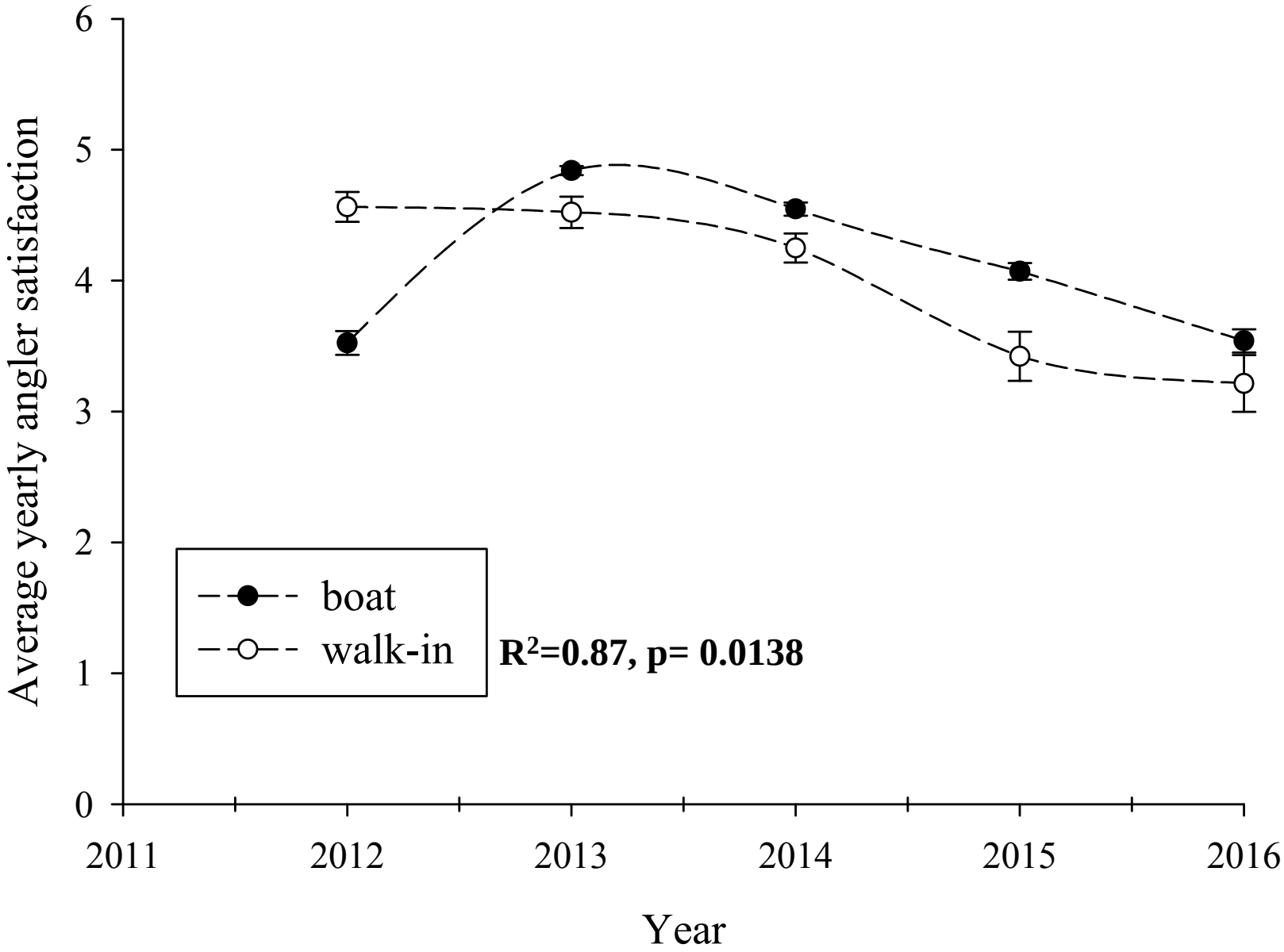
- CPUE (boat and walk-in)
- Angler use (anglers/year)
  - Game camera – providing supplemental data on use (2015-2016)
- Angler satisfaction
- Harvest

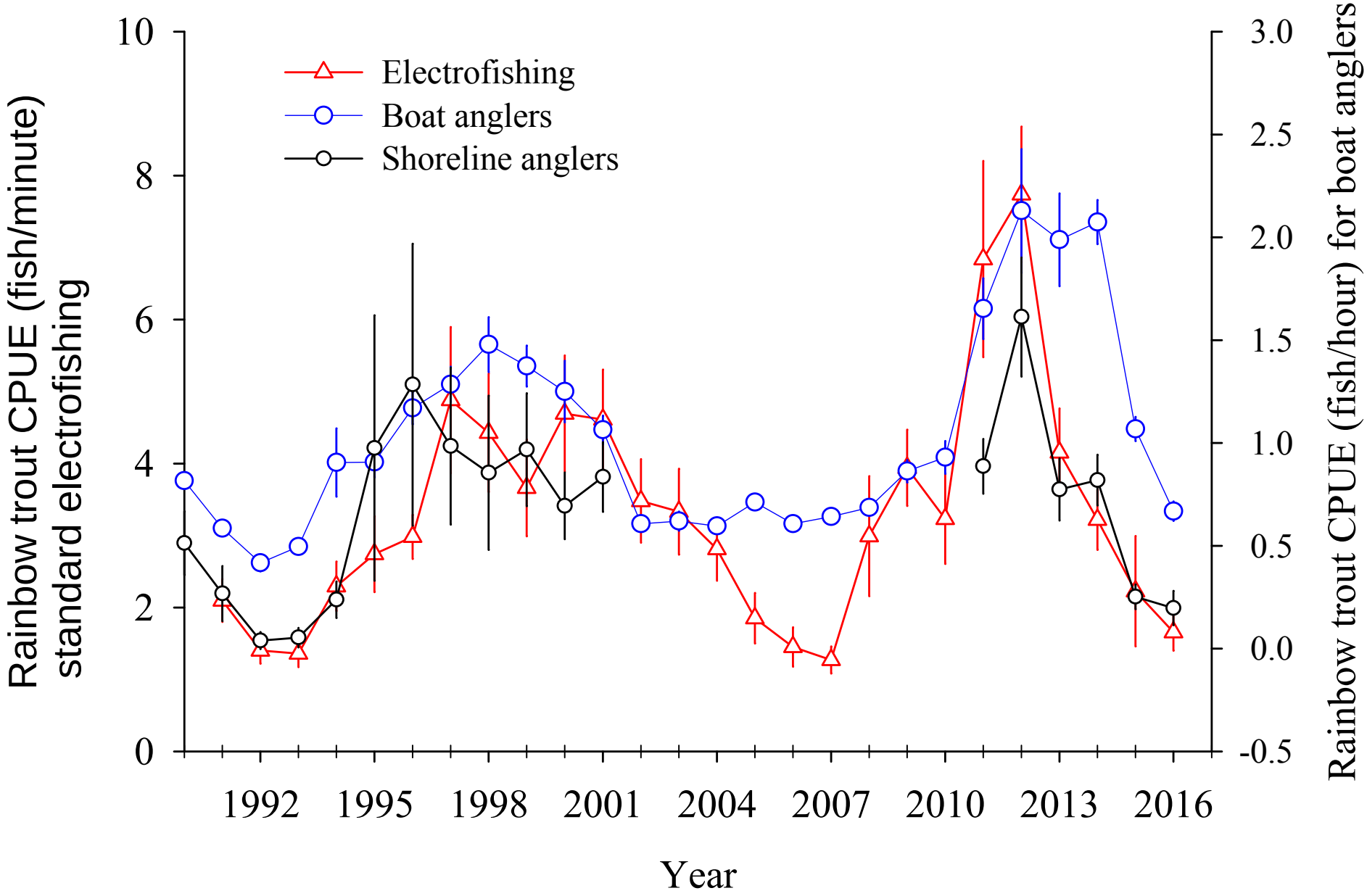


Angler CPUE (fish/hour)

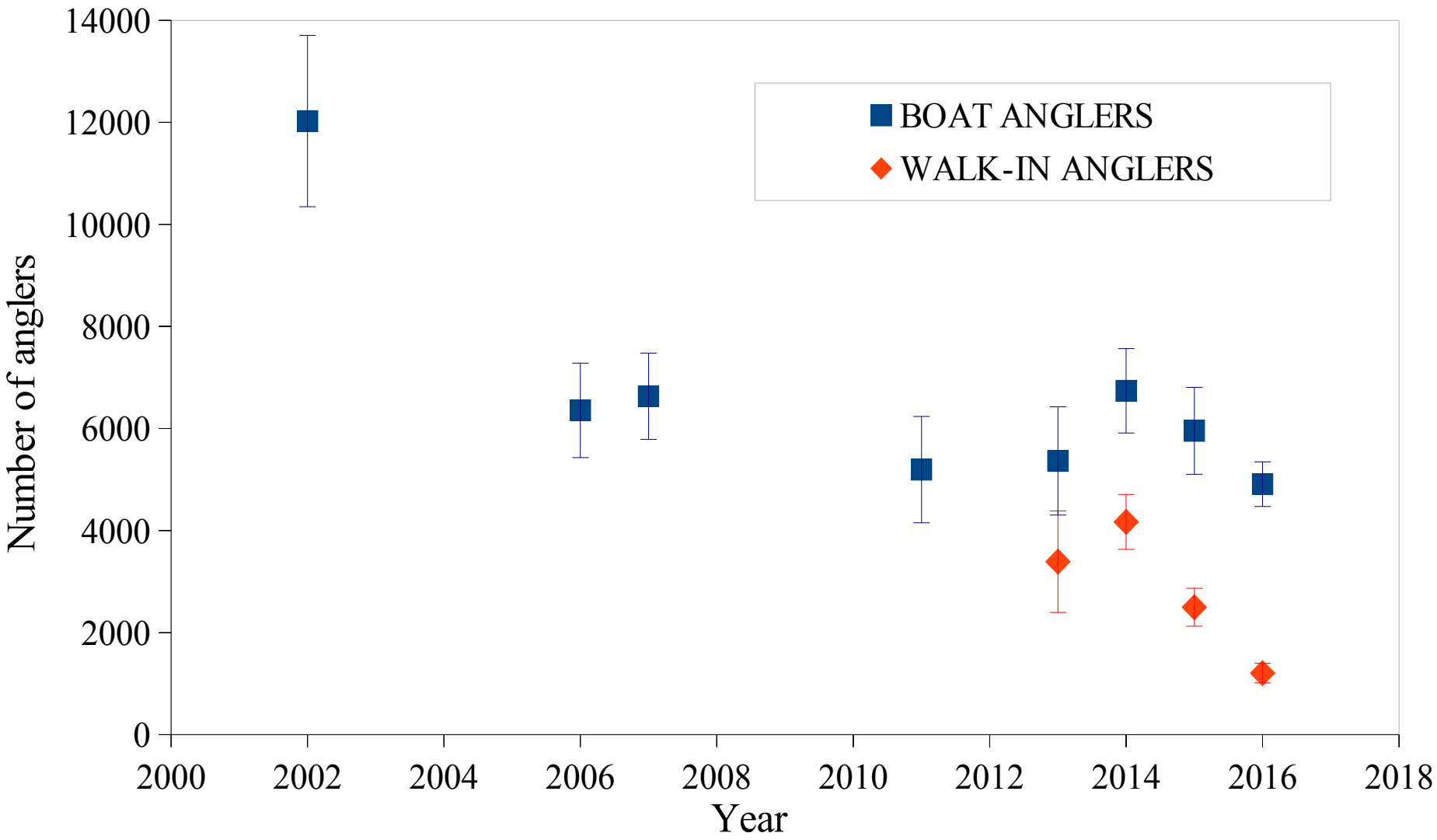


Angler Satisfaction rating (1-5)




Electrofishing
Boat anglers
Shoreline anglers
Rainbow trout CPUE (fish/minute)
standard electrofishing
Rainbow trout CPUE (fish/hour) for boat anglers
Year
0
2
4
6
8
10
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1992
1995
1998
2001
2004
2007
2010
2013
2016

Relative angler use by year

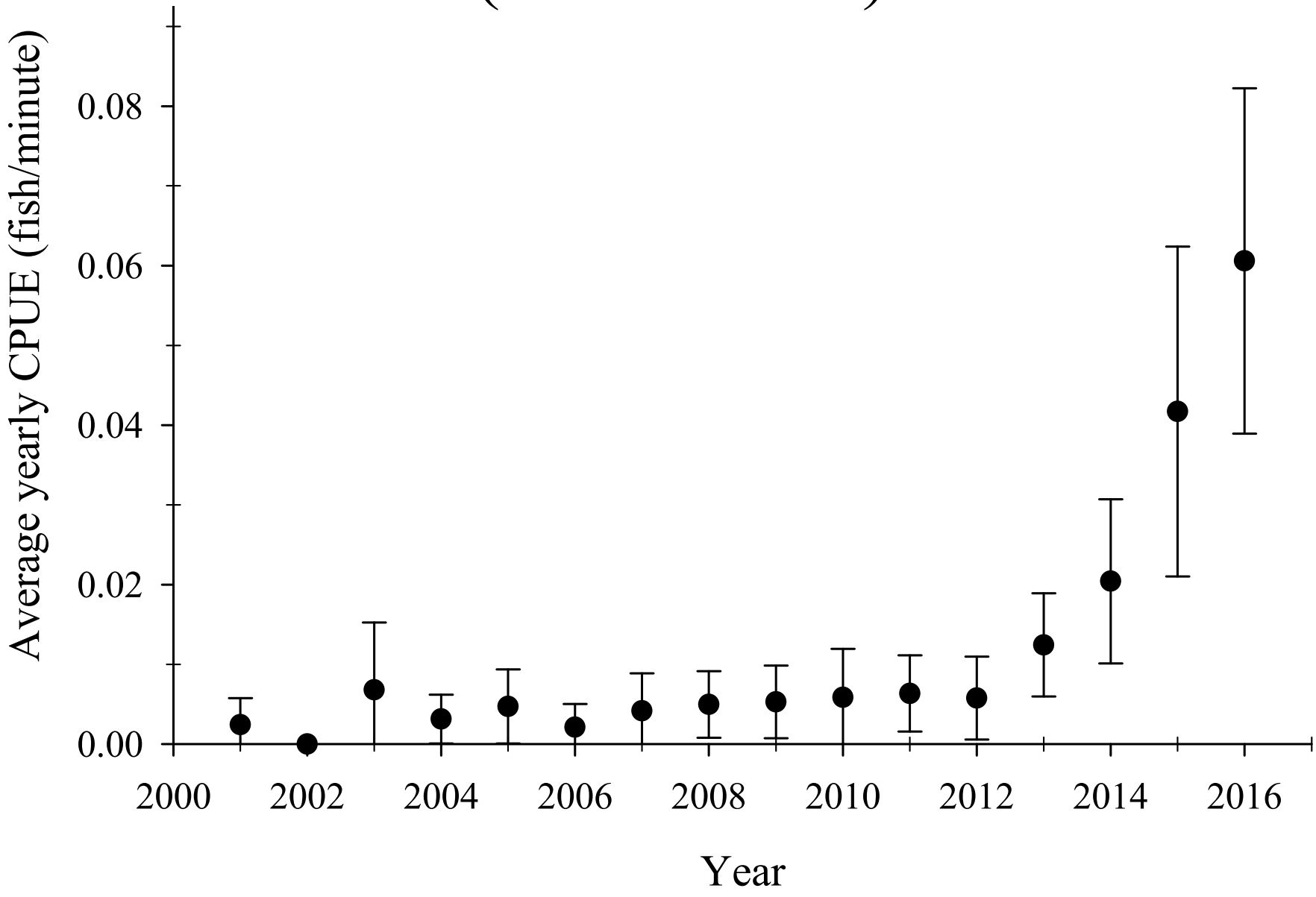


Brown Trout

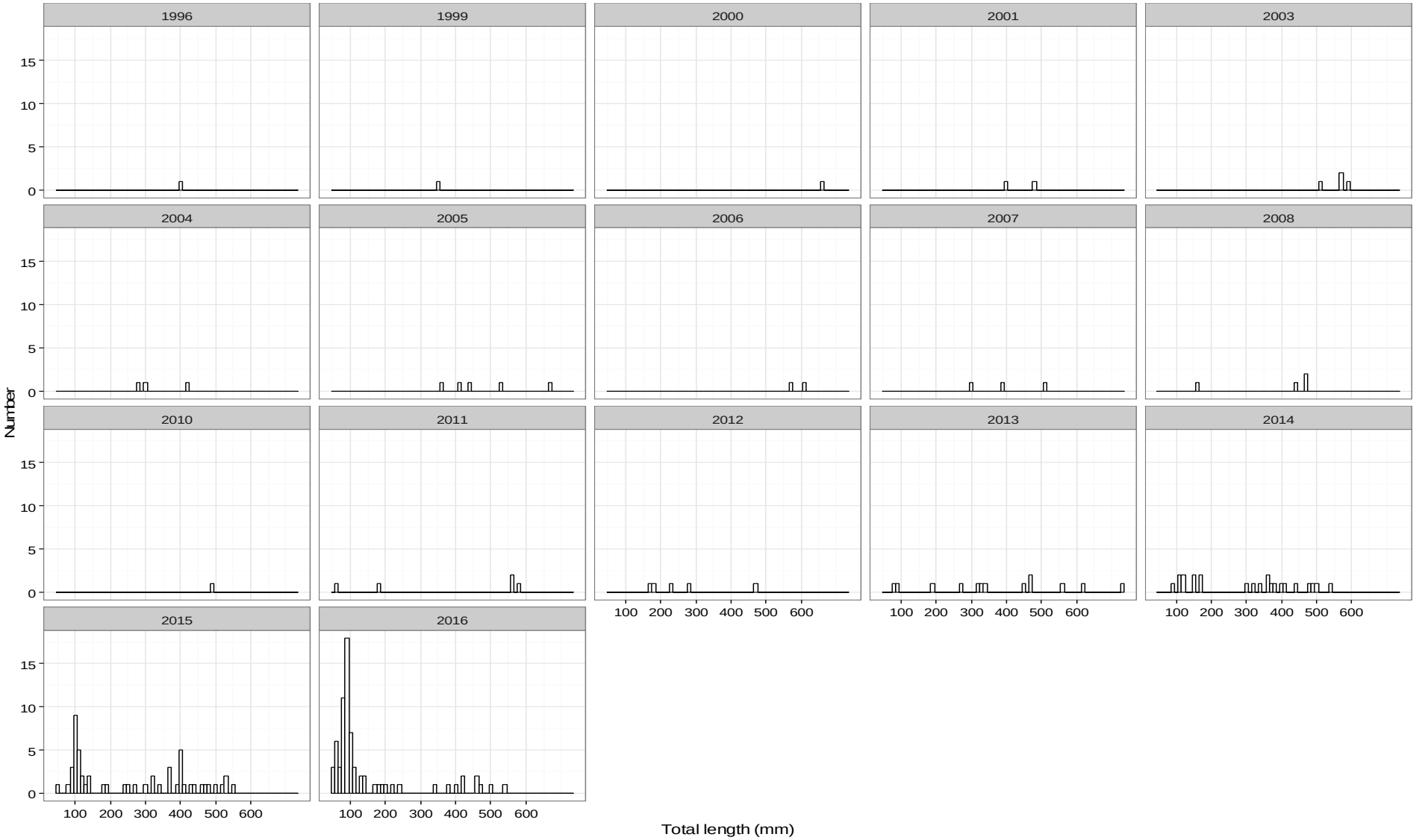
- Emerging concern

https://www.pinterest.com/pin/542683823824430236/ Lees Ferry Anglers

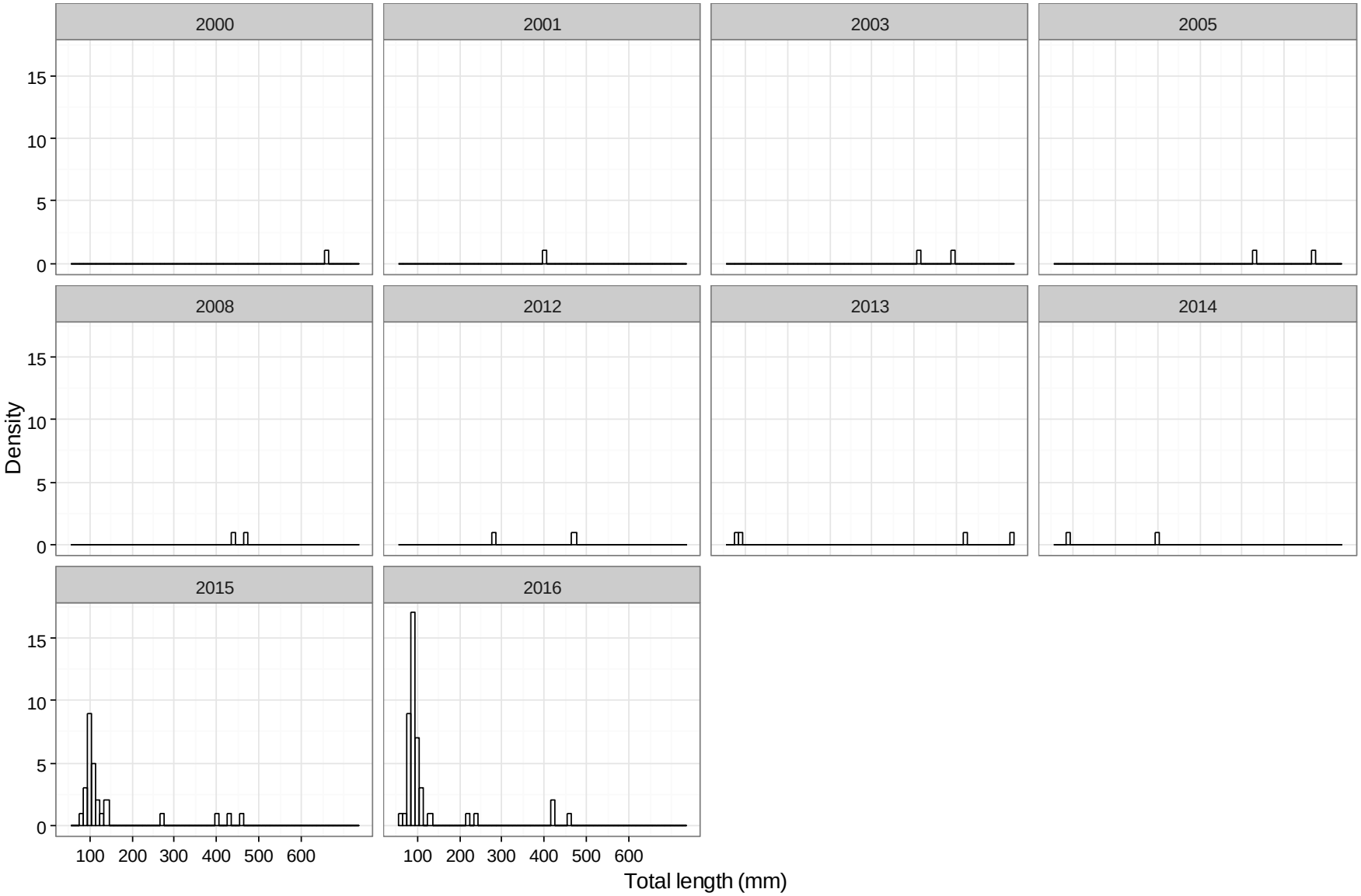
Brown Trout average electrofishing CPUE (fish/minute)



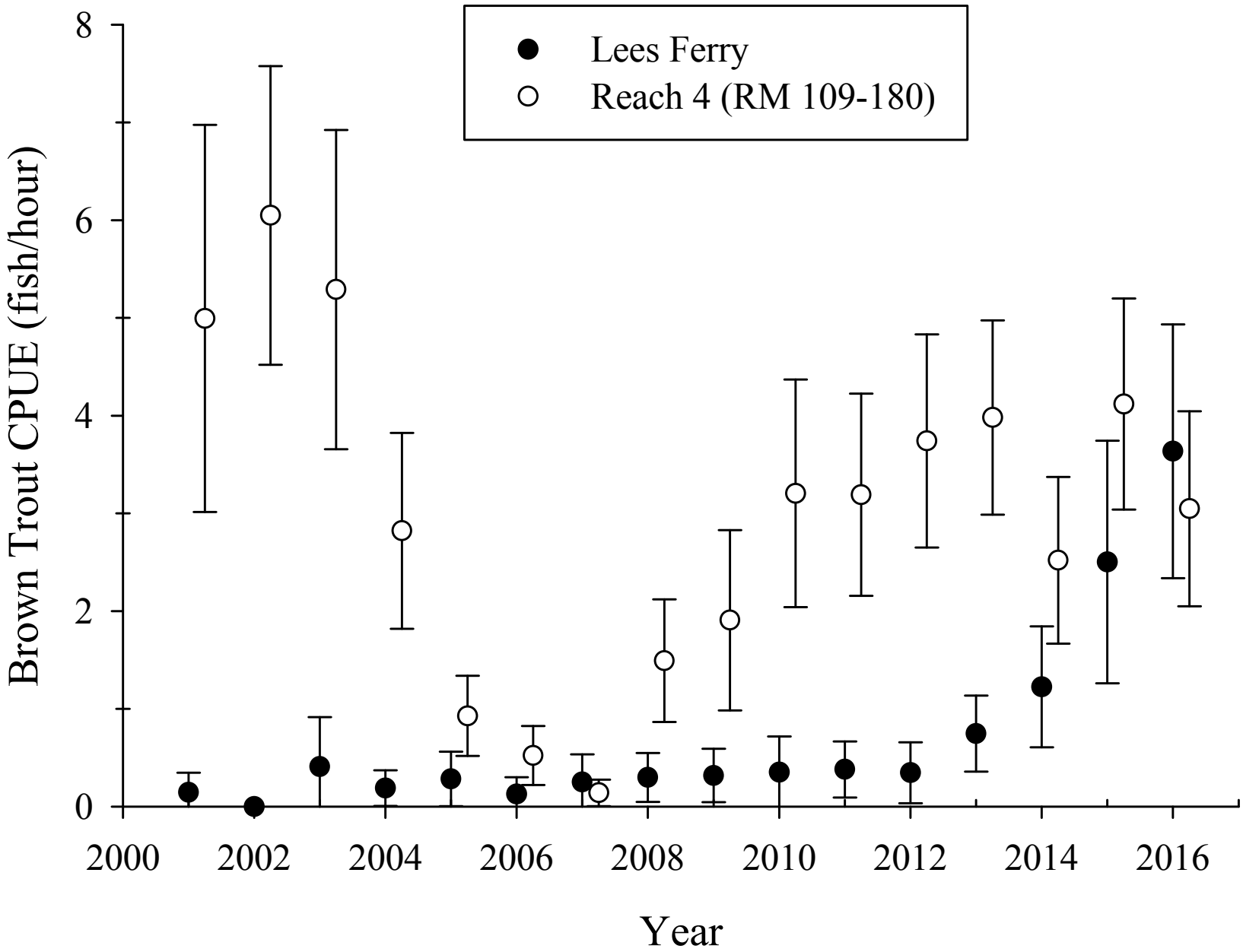
Brown Trout length frequency histograms



Brown Trout fall length frequency histograms



Brown Trout avg. electrofishing CPUE (fish/hour)



Fisheries Management Plan
Colorado River-Lees Ferry (AGFD 2015)

"*Other trout species are not desirable in this reach and will not be purposefully managed there. Brown Trout are know predators of native fish and will be removed during regular fisheries monitoring. Anglers will be encouraged to remove Brown Trout when they are caught.*"

New monitoring aspects

- Move forward on citizen science project utilizing fishing guides to measure fish they capture
- Use Osprey aluminum boat
- Potentially add a mark-recapture component

Photo: Lees Ferry Anglers

Acknowledgements

Humphrey Summit & Saint Judes Ltd.
- boatmen
All of the volunteers
Past & present agency personnel
Steve Harding
Lees Ferry Anglers for images used

Future

- Add mark-recapture component
  - Lees Ferry reach is the sample area (RM -15-0)
  - Tag only Rainbow Trout above 150 mm TL?
  - Tag only a percentage of Rainbow Trout captured (30%) or 1000?
  - Results
    - No population estimate
    - Survival? (biased)
    - Growth
    - Movement

Year	RBT >= 150 mm	% captured tagged
2011	1678	60
2012	2884	35
2013	3041	33
2014	3437	29
2015	1637	61
2016	480	100