

An Overview of Humpback Chub Monitoring in the Little Colorado River

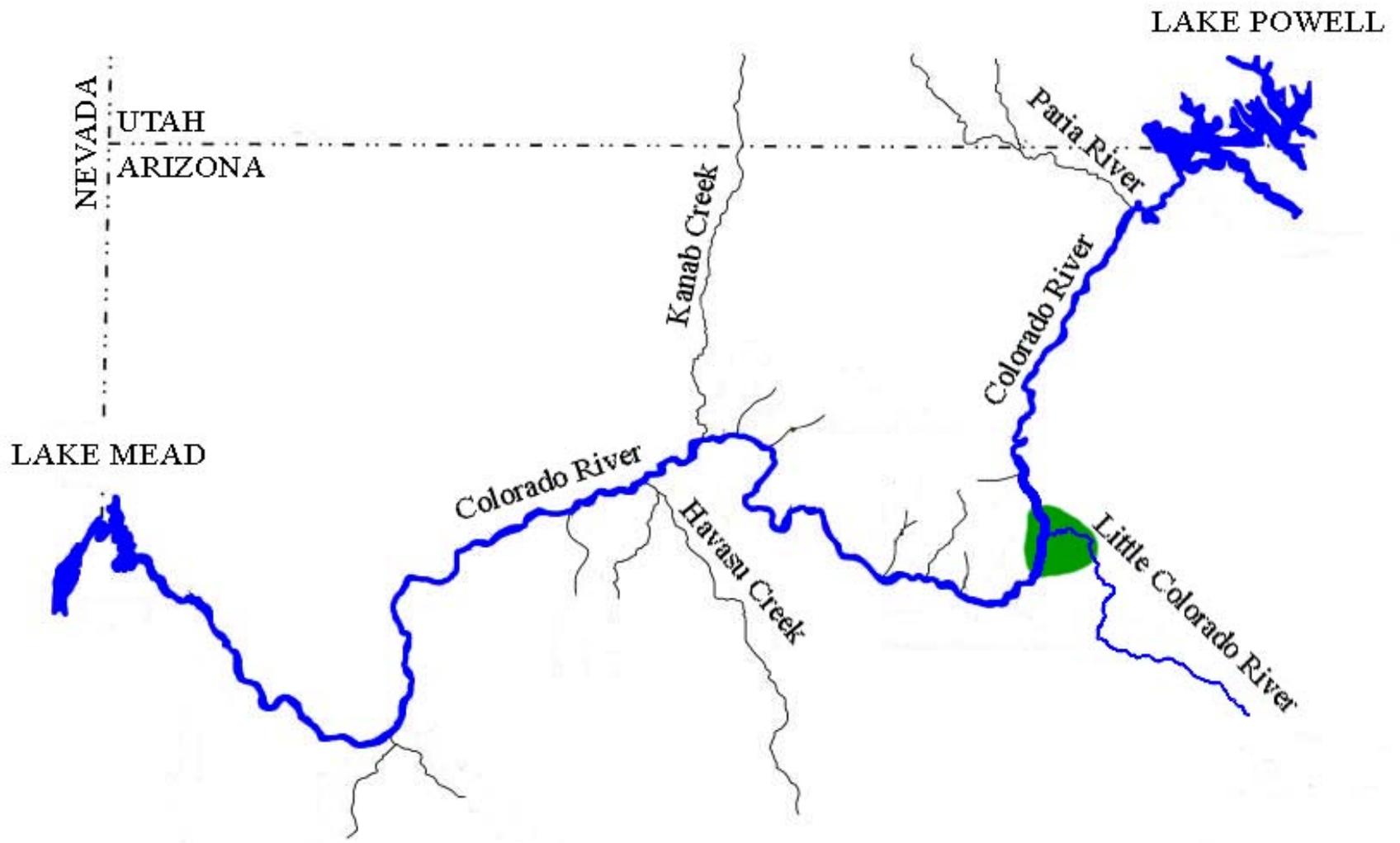
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and Bill Persons GCMRC)**

Objectives

- USFWS - Obtain spring and fall closed mark-recapture population estimates of humpback chub in the Little Colorado River (0 to 13.6 km).
- AGFD - Obtain spring CPUEs of native fish in lower 1200 m of Little Colorado River.
- GCMRC - Investigate fish migration patterns with MUX antennae.

Methods in Little Colorado River

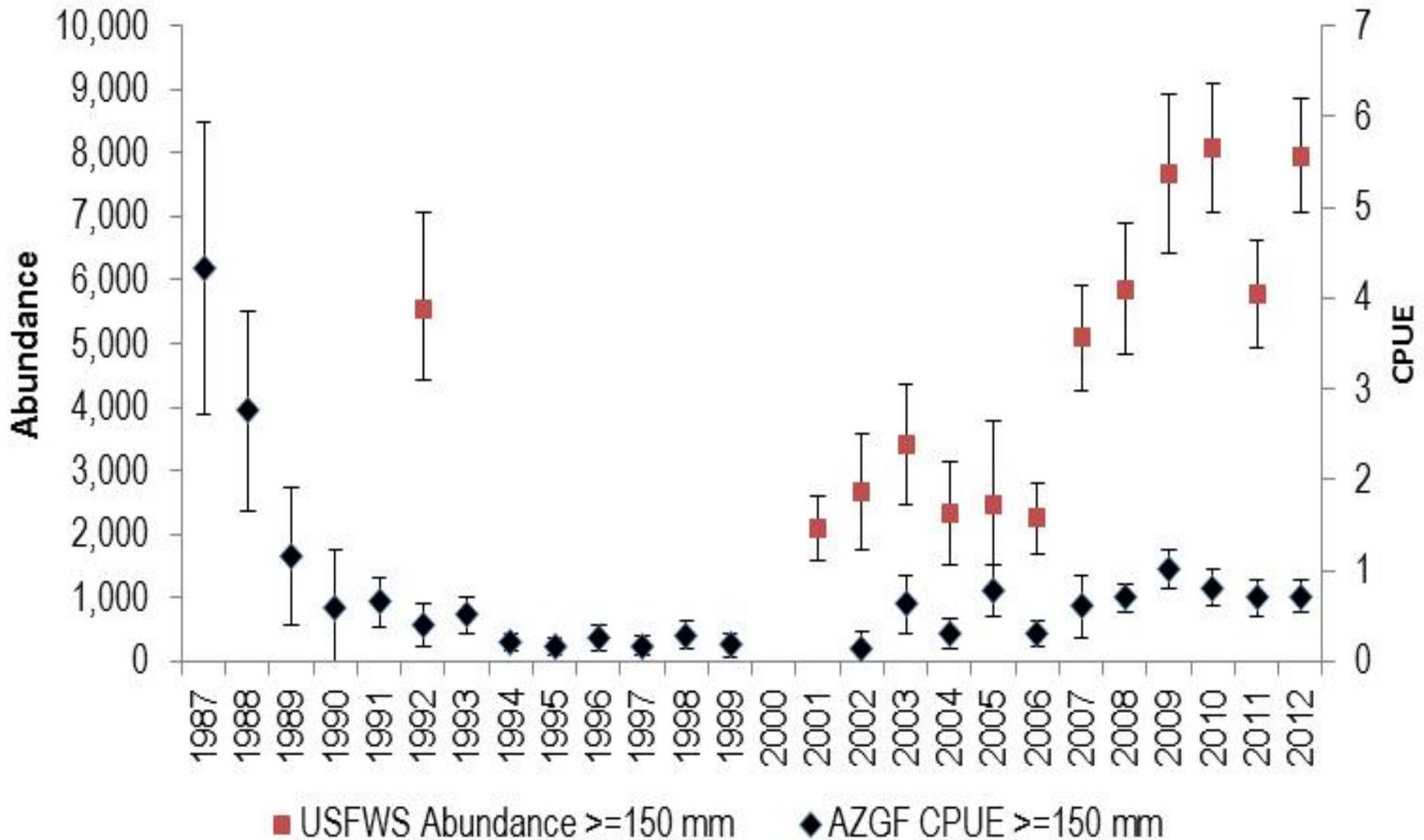
- USFWS
 - Closed Mark Recapture
 - Mark trips: 10 days
 - Recapture trips: 10 days
 - ~2 weeks between trips
- AGFD
 - CPUE during 30 days in spring



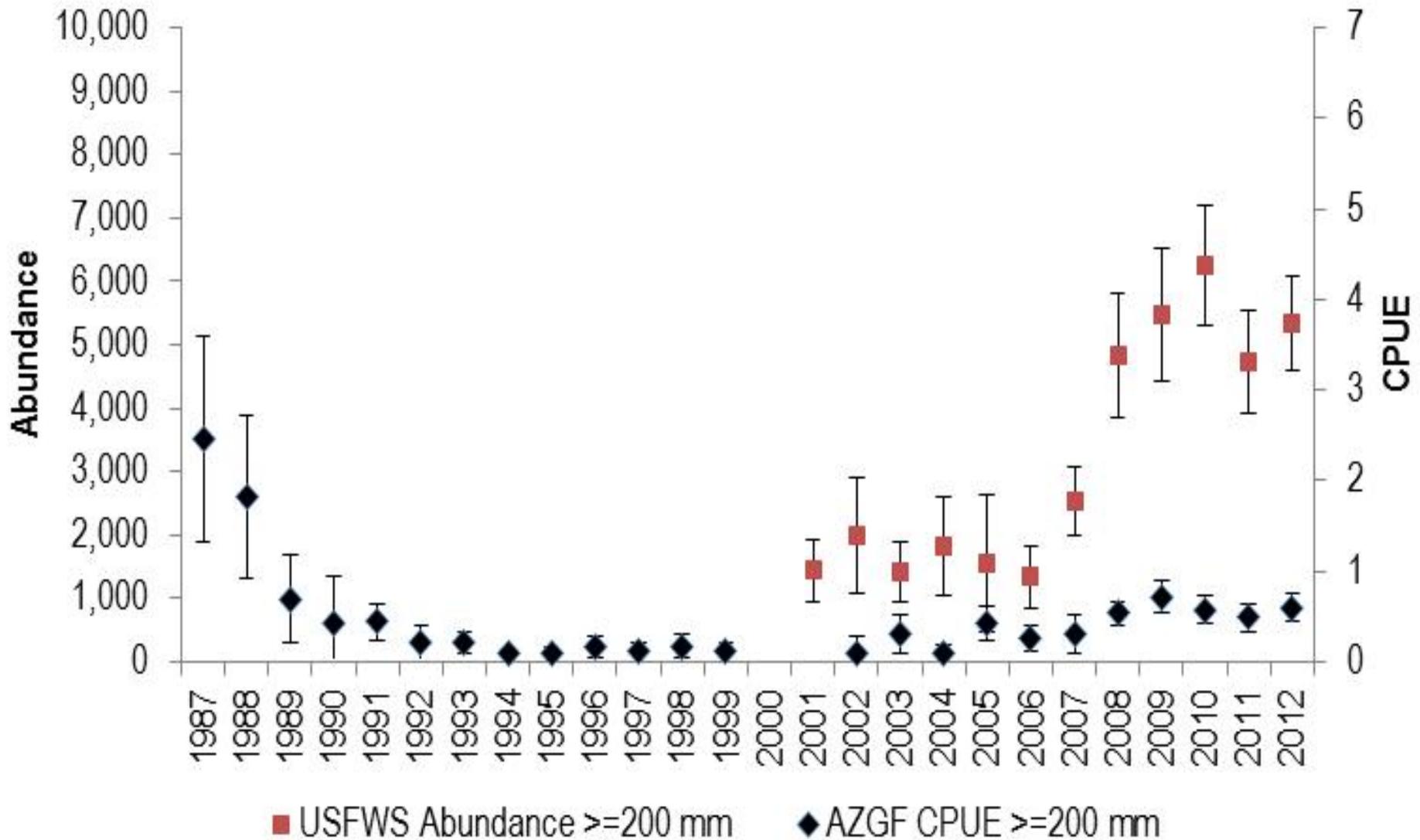
Spring Little Colorado River Results



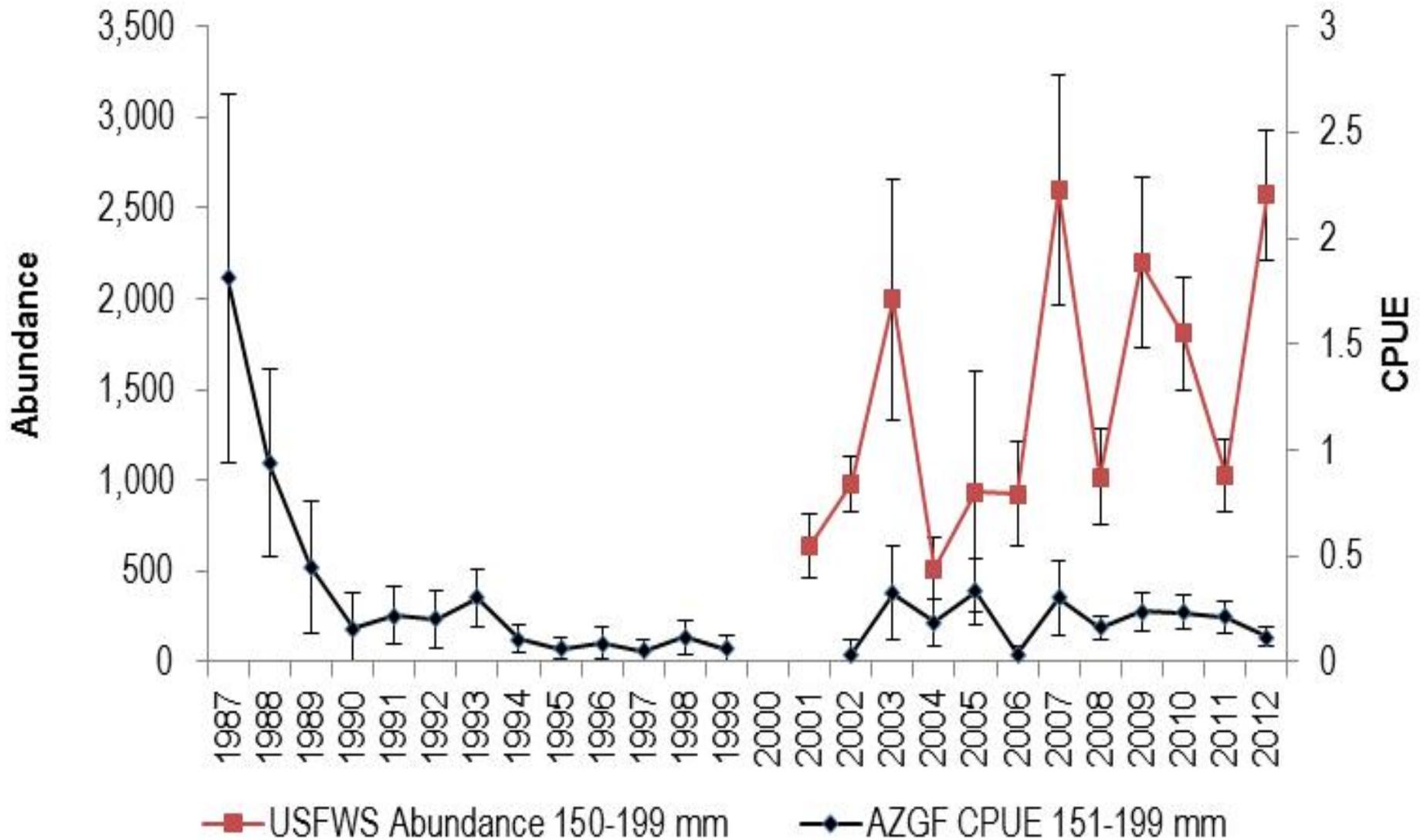
Spring Abundance & CPUE of Humpback Chub ≥ 150 mm



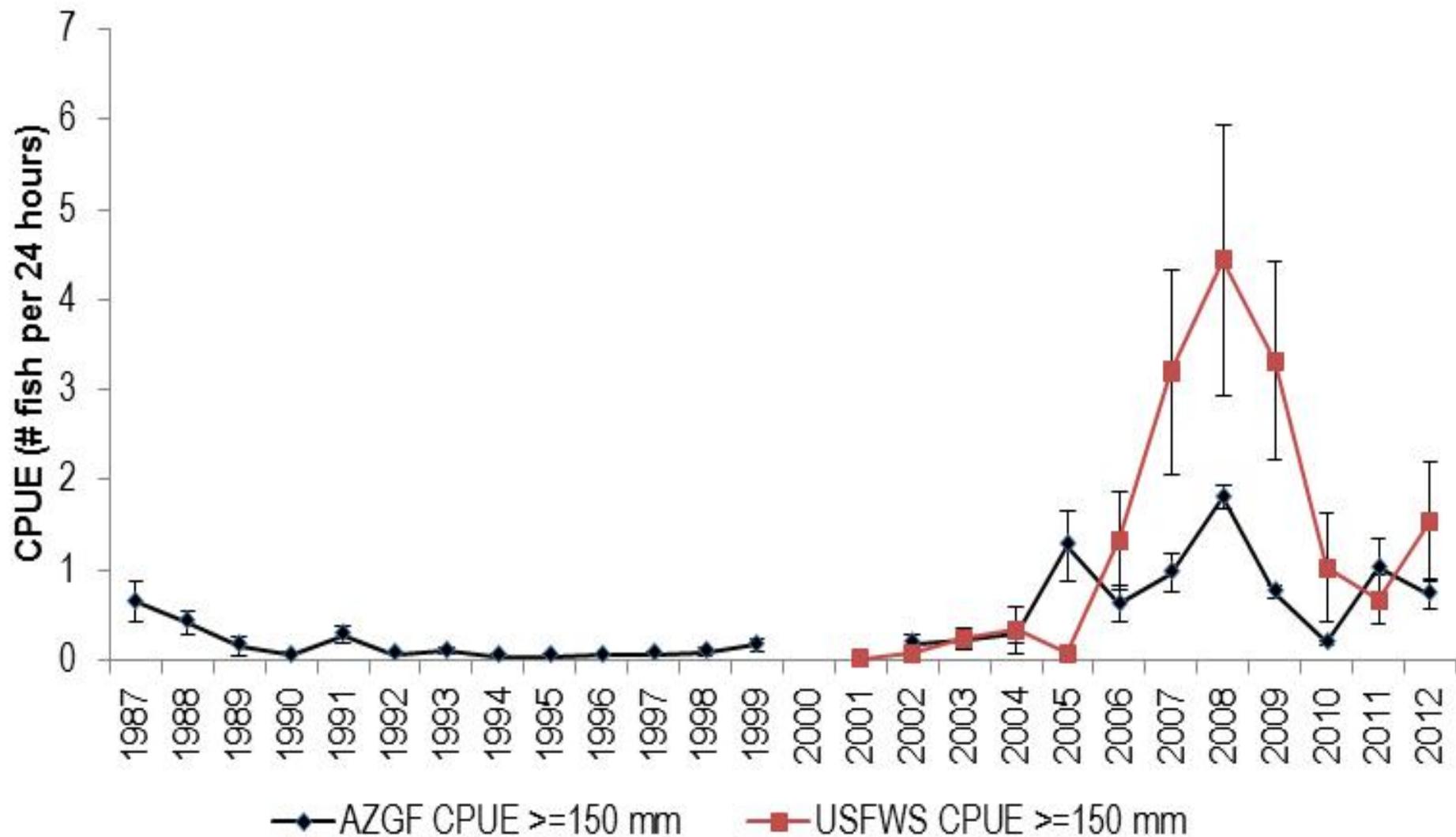
Spring Abundance & CPUE of Humpback Chub ≥ 200 mm



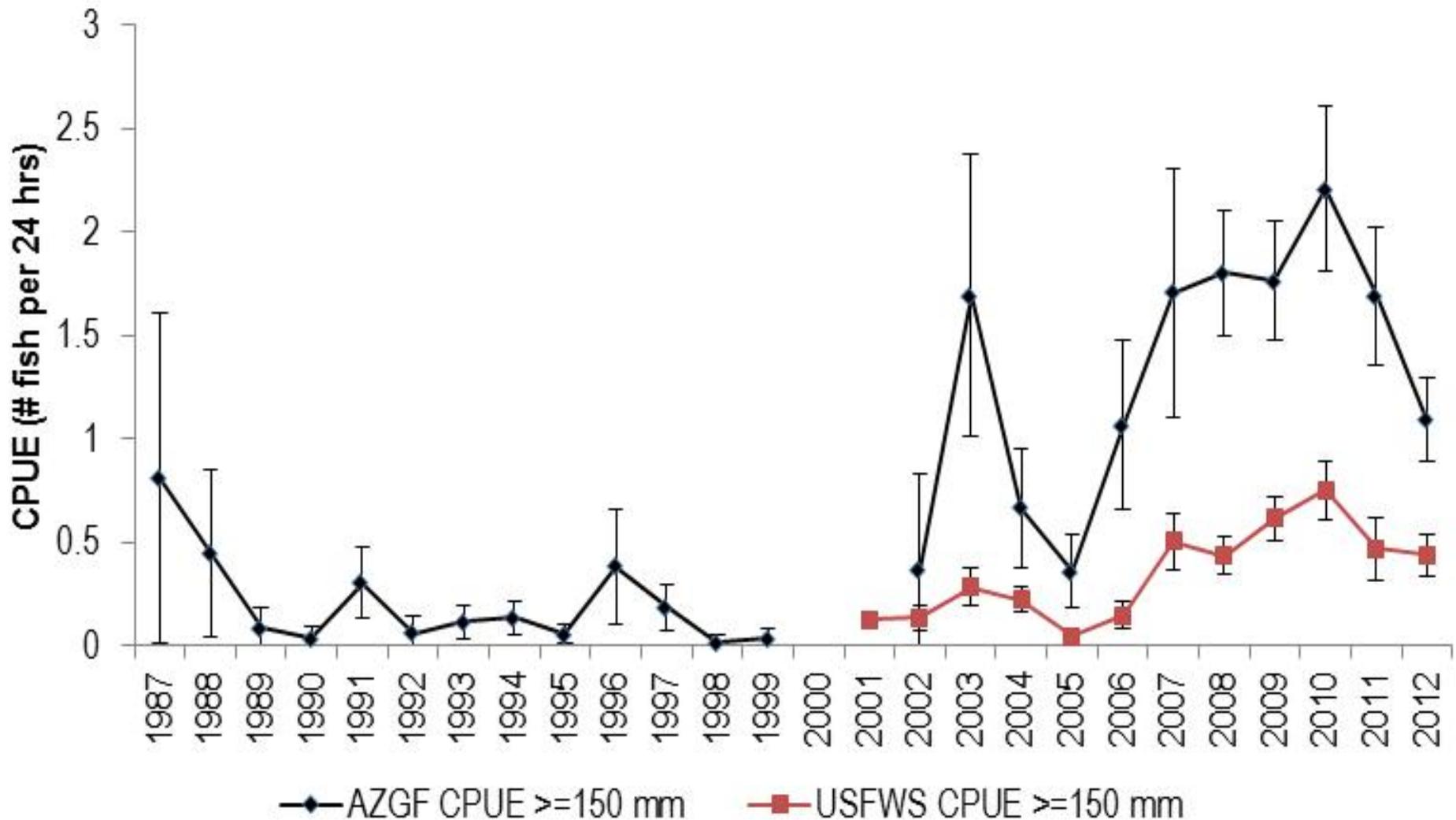
Spring Abundance & CPUE Humpback Chub 150-199 mm



Catch per unit effort of spring bluehead suckers (≥ 150 mm)



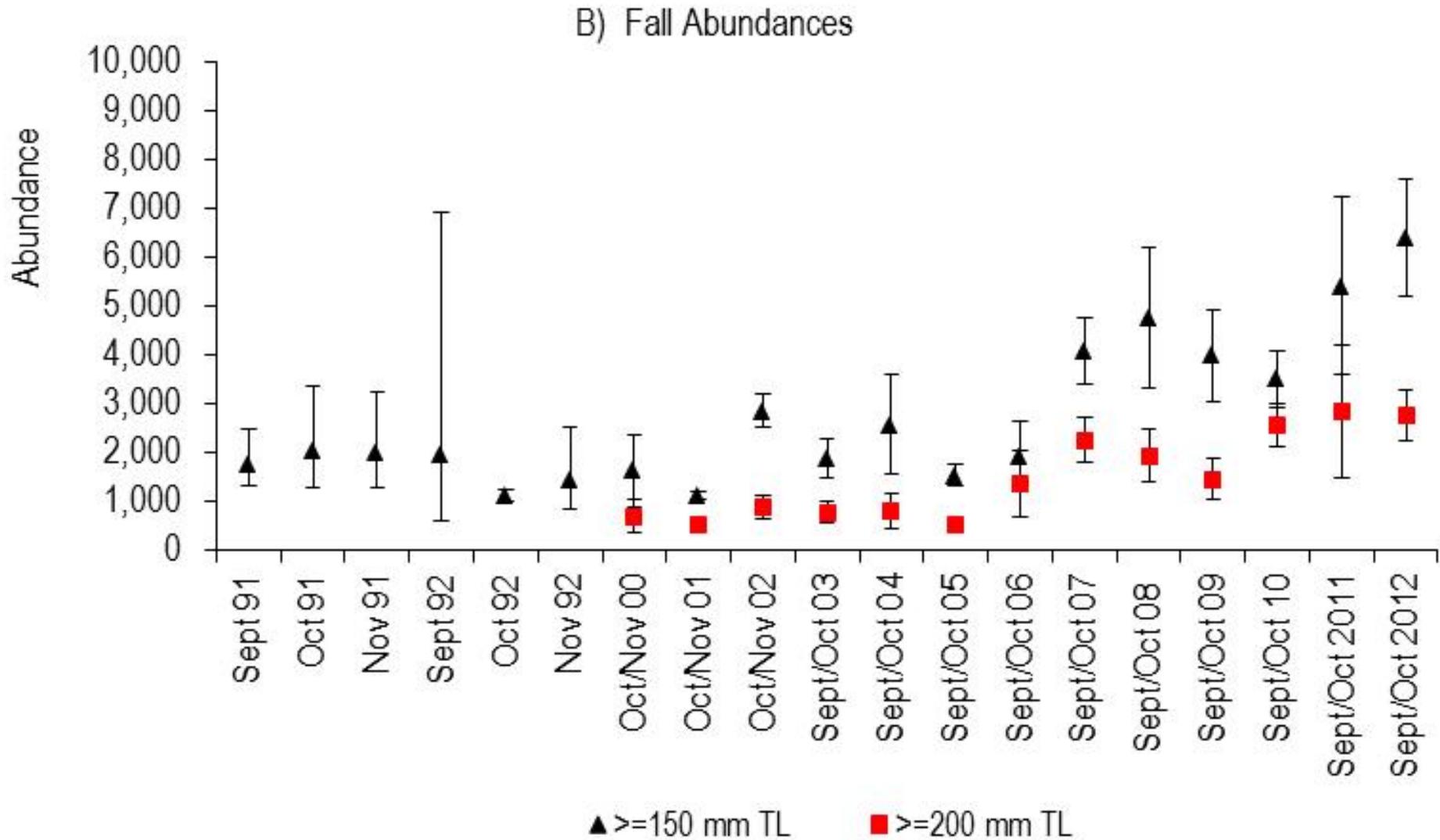
Catch per unit effort of spring flannelmouth suckers (≥ 150 mm)



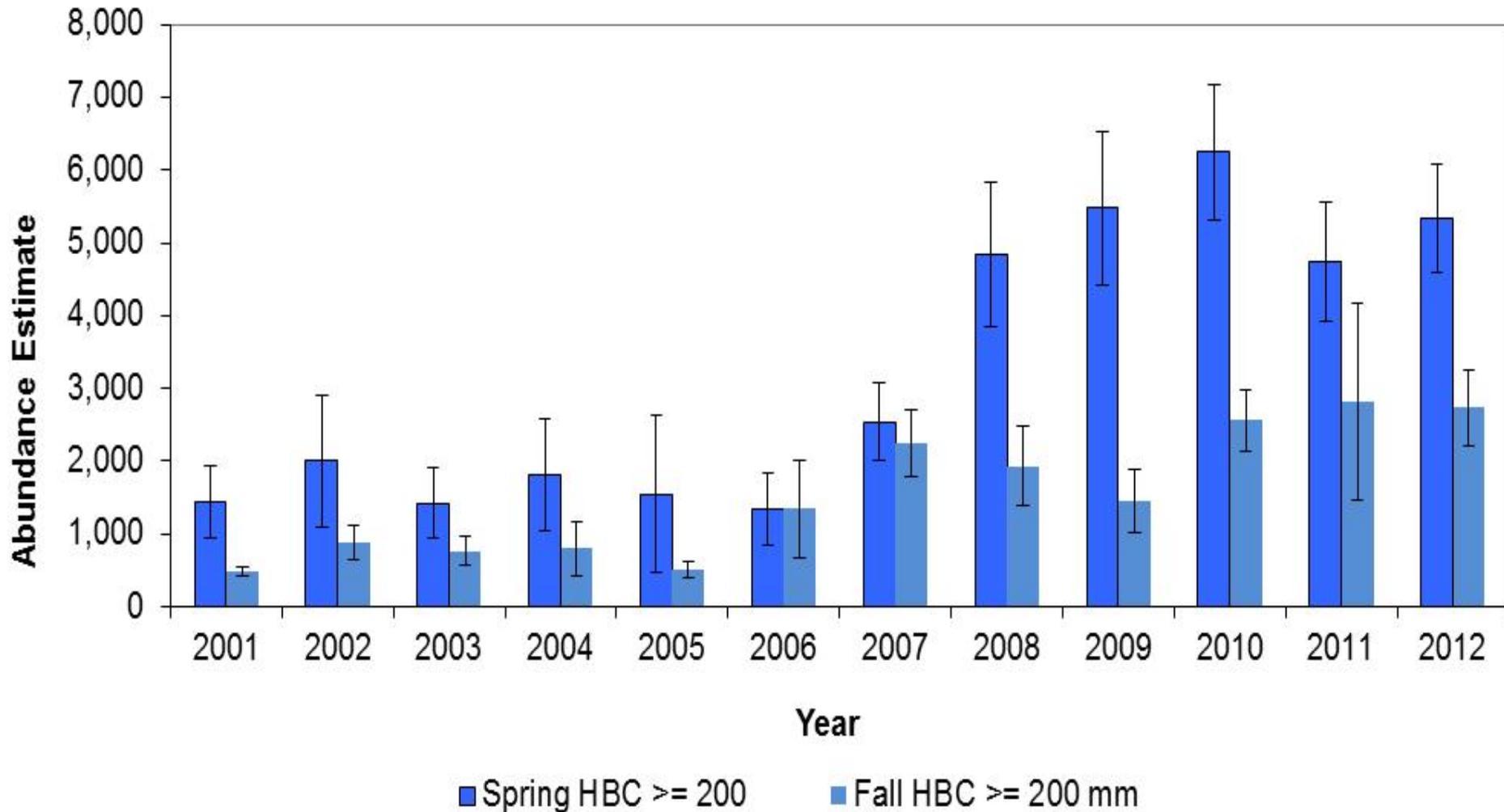
Fall Mark-Recapture Efforts



Fall Abundance of Humpback Chub ≥ 150 mm and ≥ 200 mm



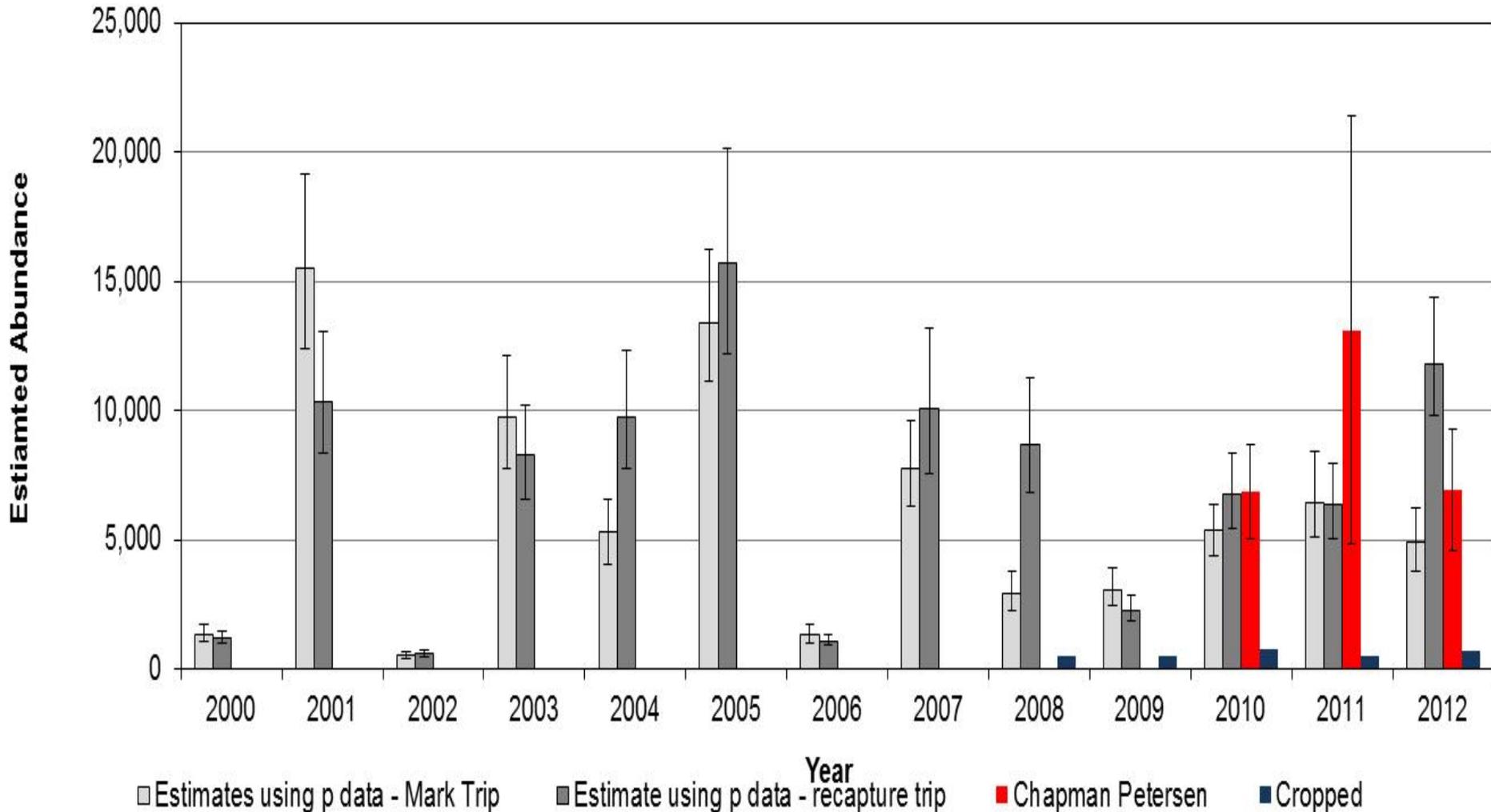
Comparison of spring and fall adult humpback chub abundance ≥ 200 mm



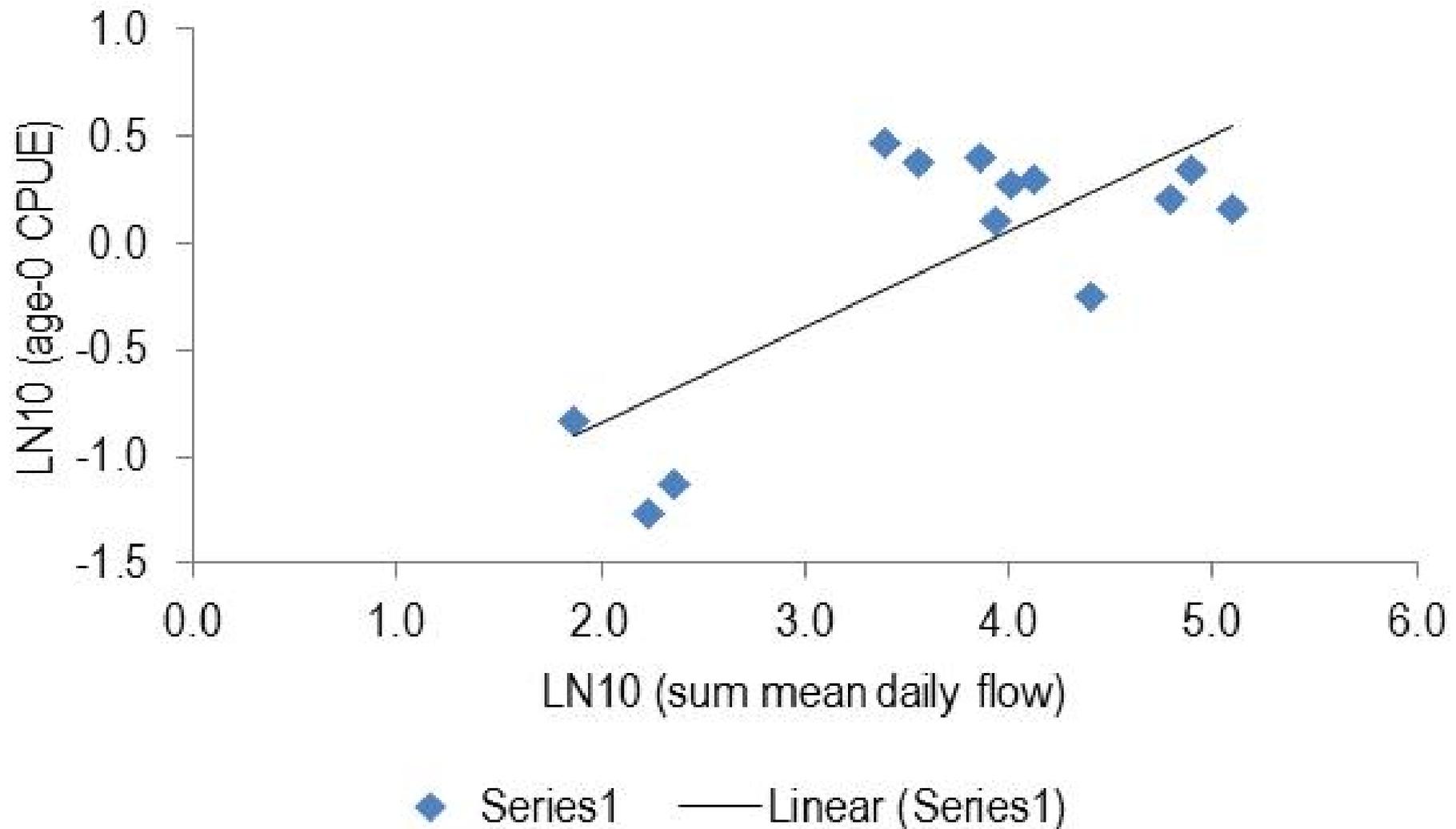
Fall Age-0 VIE Mark-Recapture



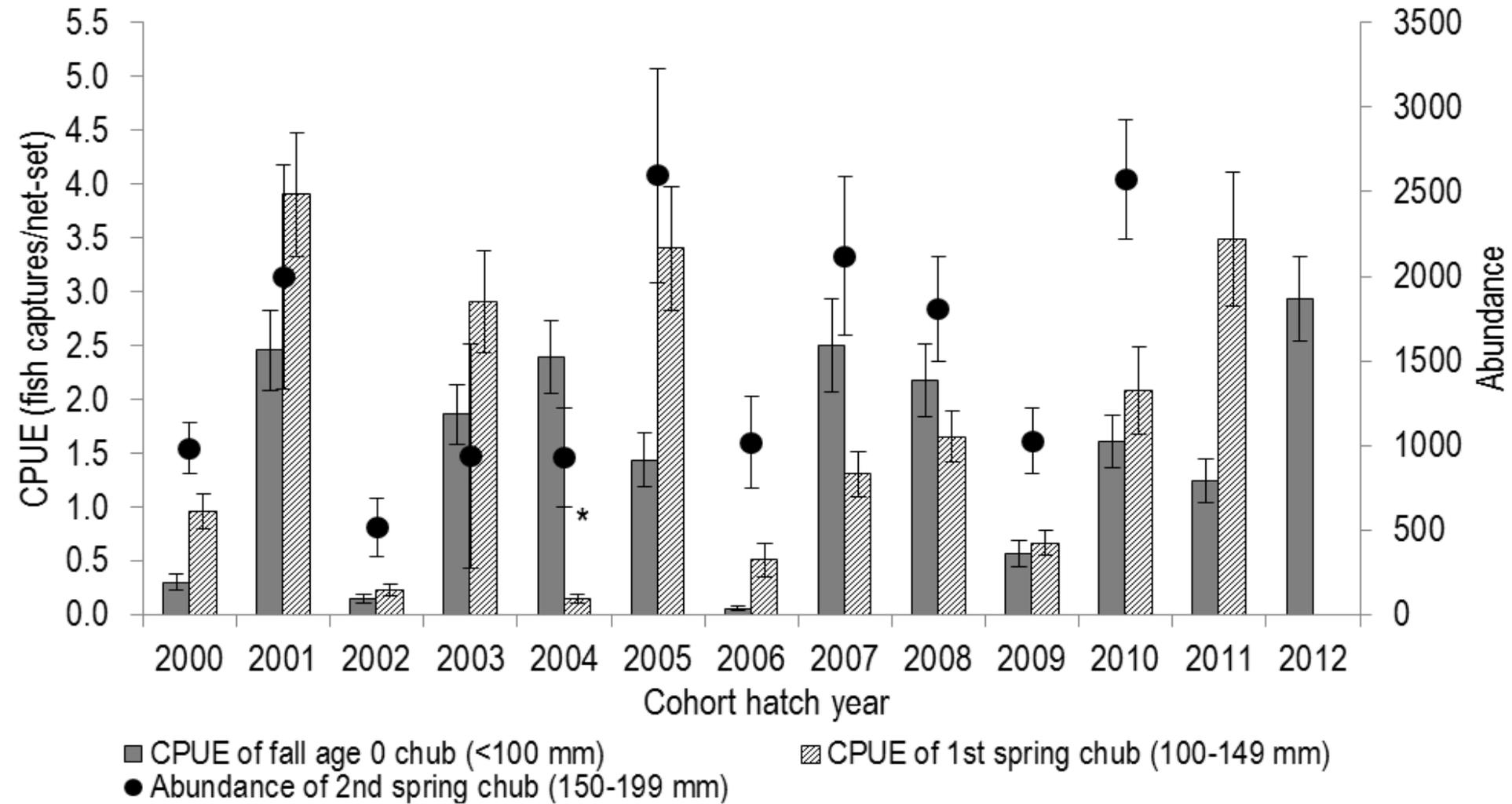
Age-0 humpback chub abundances – Chapman-Petersen, preliminary estimations using capture probability, and age-0 cropping



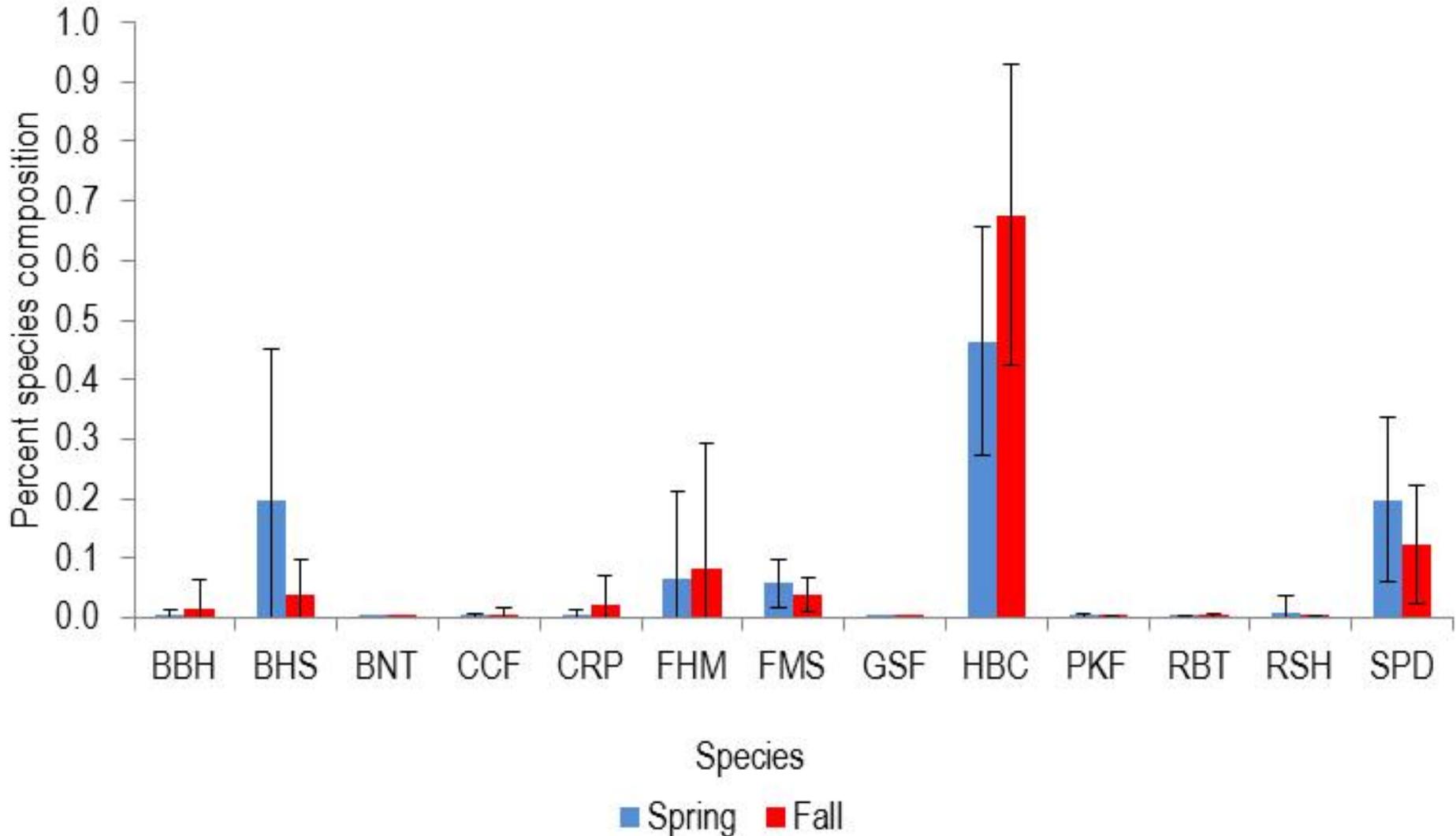
Correlation between spring runoff (sum of mean daily flow 1 Jan – 31 May) in LCR and fall age-0 CPUE
 $n = 13, r = 0.755, P = 0.003$



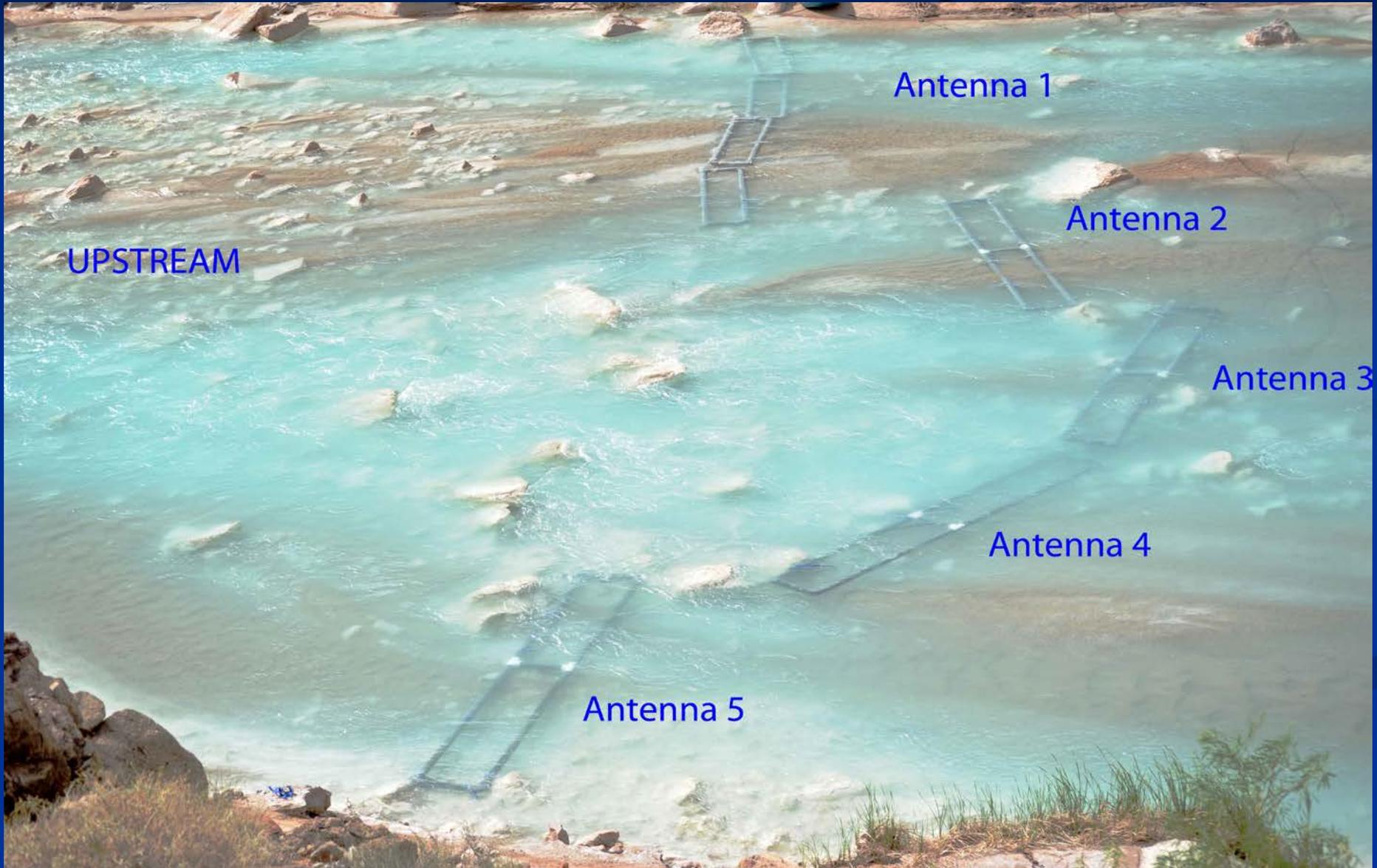
Age-0 production significantly influences CPUEs of age 1 and subadult humpback chub



Spring and Fall Species Composition 2000-2012

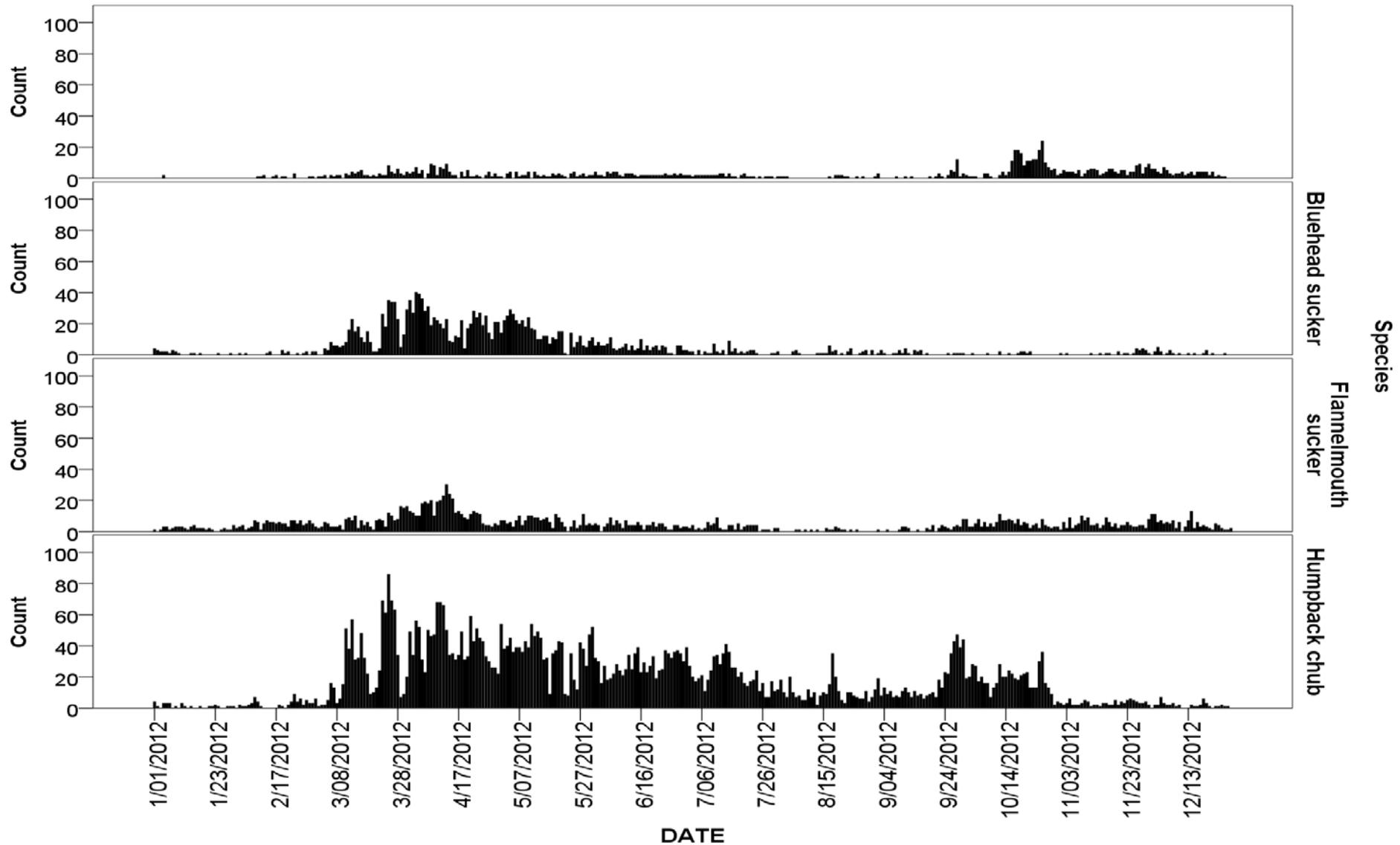


Upstream Antenna Array 2011-12

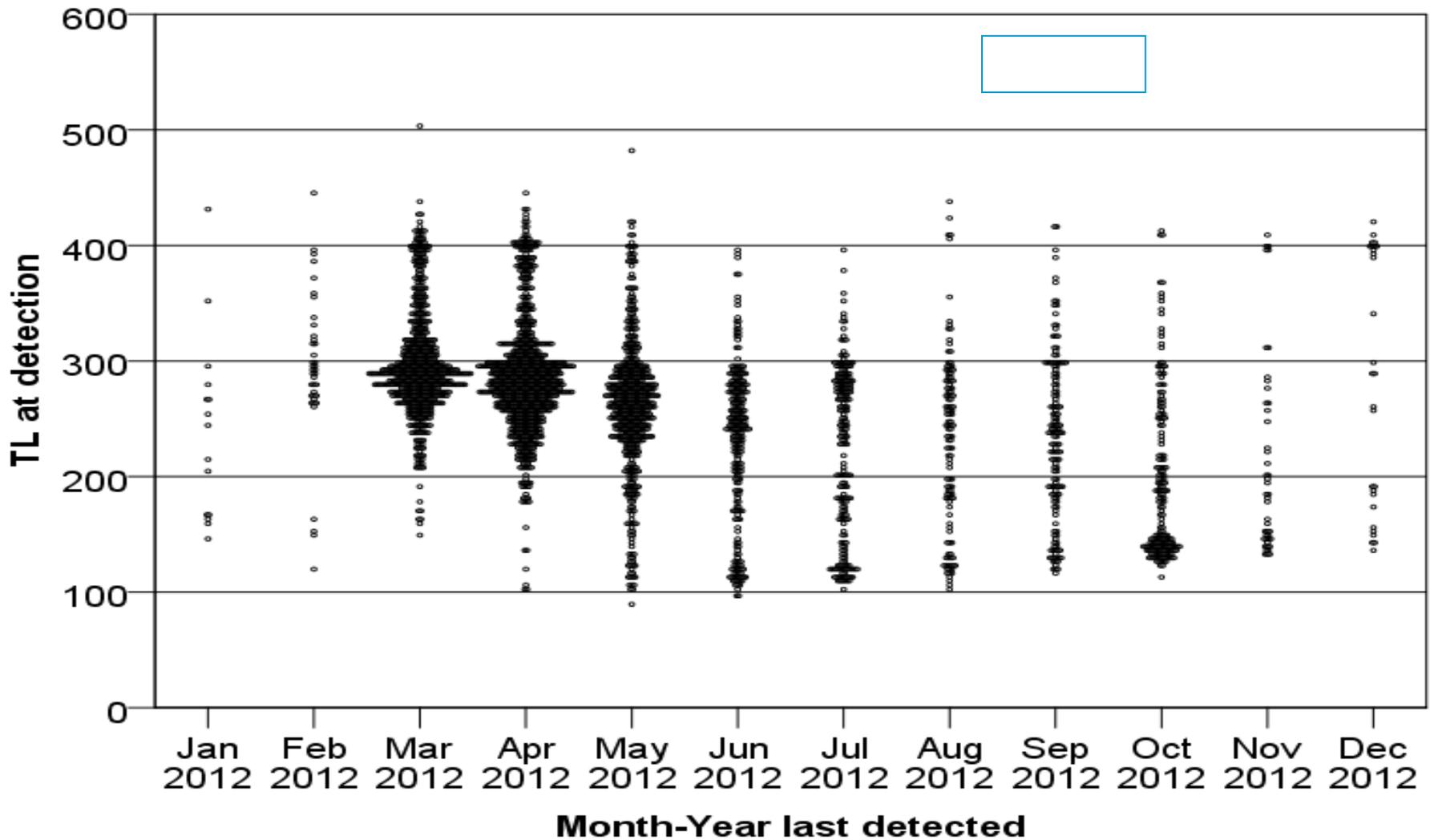


Number of unique fish detected, and percent of total detections
LCR PIT tag antenna array, January 1 – November 30, 2012.

Species	Number	Percent
Missing¹	388	6.7%
Black bullhead	1	0.0%
Bluehead sucker	1,372	23.8%
Channel catfish	6	0.1%
Common carp	1	0.0%
Flannelmouth sucker	846	14.7%
Humpback chub	3,146	54.5%
Unresolved/unidentified	8	0.1%
Total	5,768	100.0%



Number of unique fish detected per day 2012



Estimated size of humpback chub detected by PIT antenna array, 2012

Thank You

