An Overview of Humpback Chub Monitoring in the Little Colorado River

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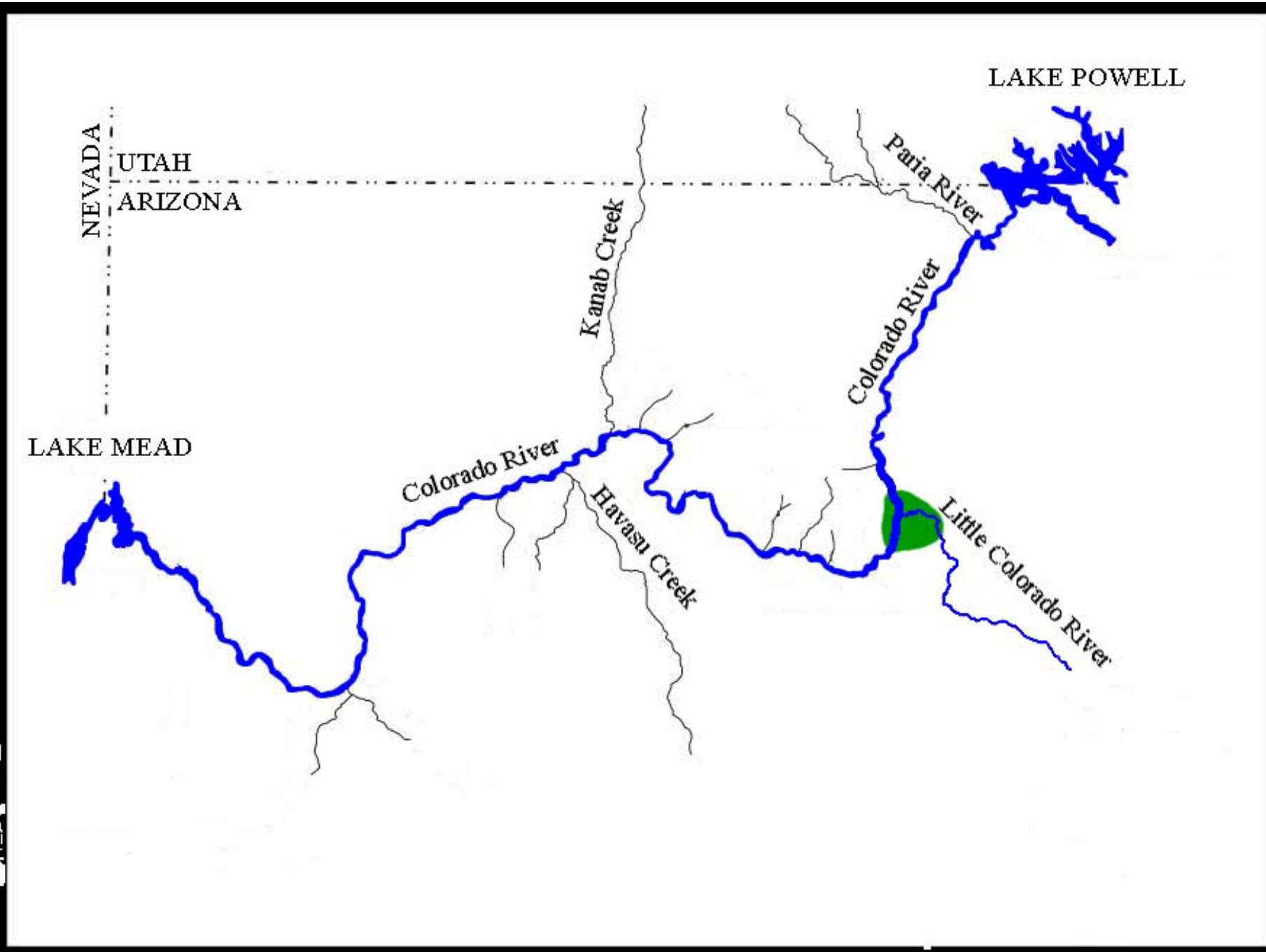
Objectives

- 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

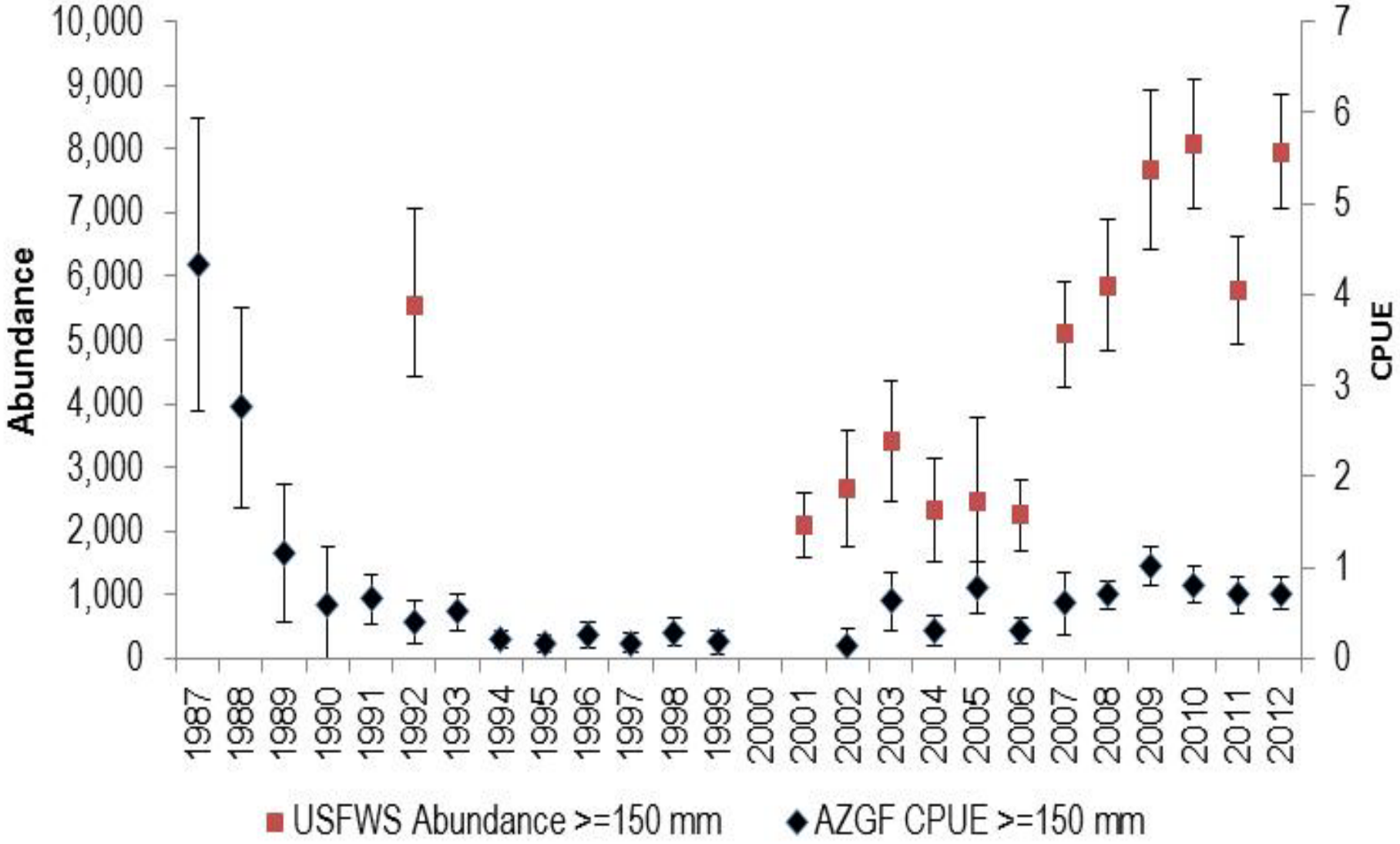
- USFWS
- Closed Mark Recapture
- Mark trips: 10 days
- Recapture trips: 10 days
- ~2 weeks between trips

- AGFD
- CPUE during 30 days in spring

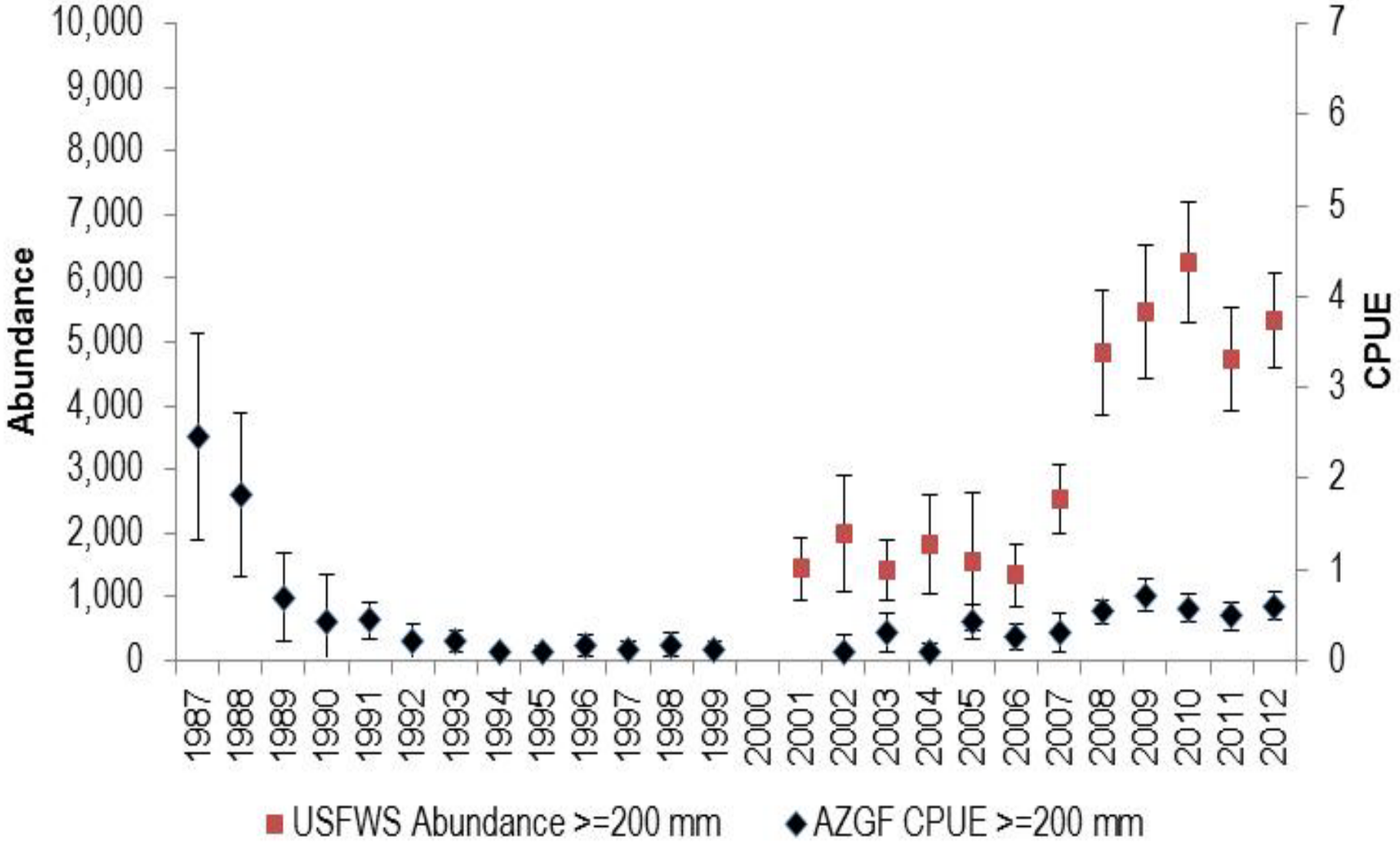

LAKE POWELL
NEVADA
UTAH
ARIZONA
Paria River
Kanab Creek
Colorado River
LAKE MEAD
Colorado River
Havasu Creek
Little Colorado River

Spring Little Colorado River Results

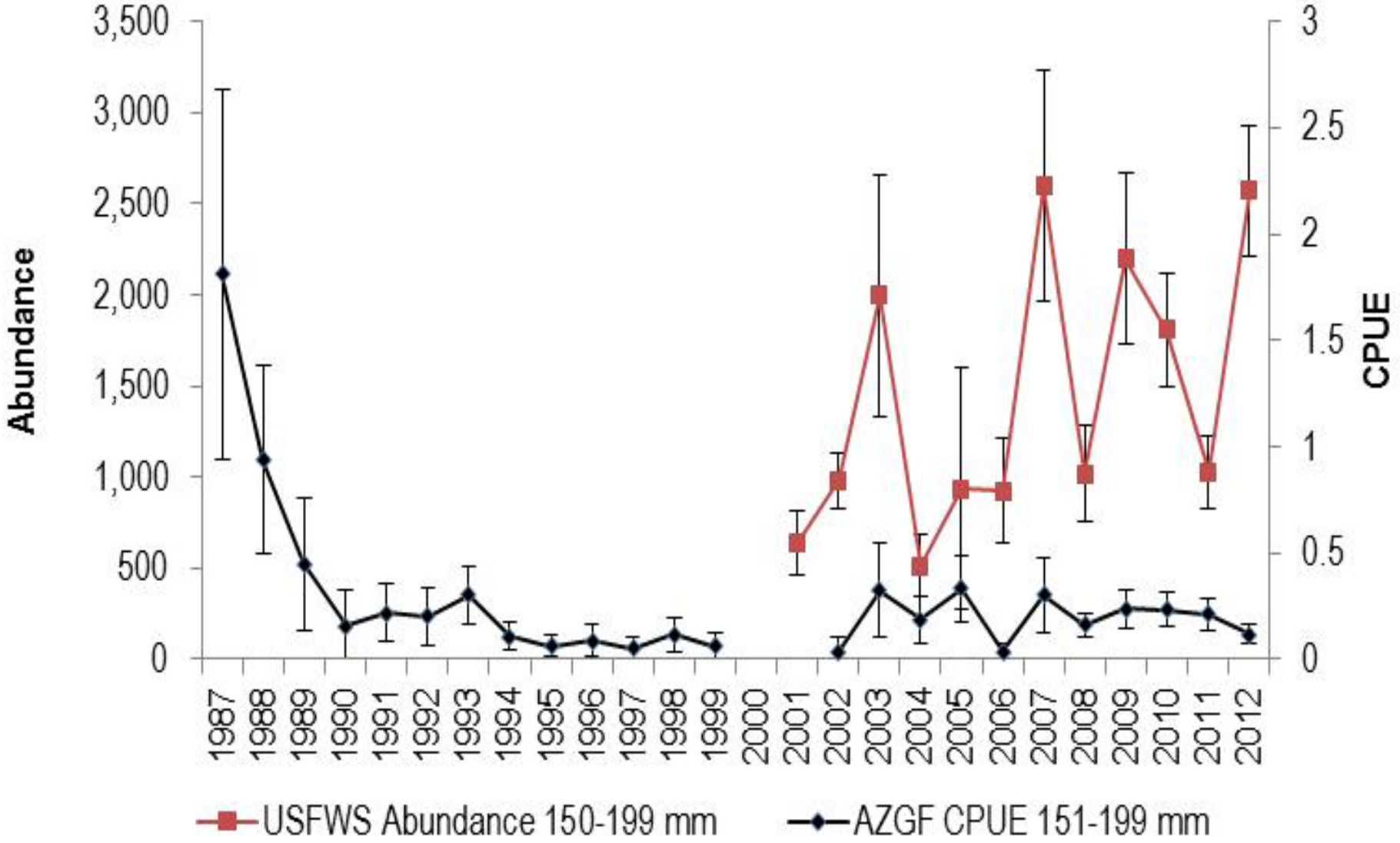
Spring Abundance & CPUE of Humpback Chub ≥ 150 mm



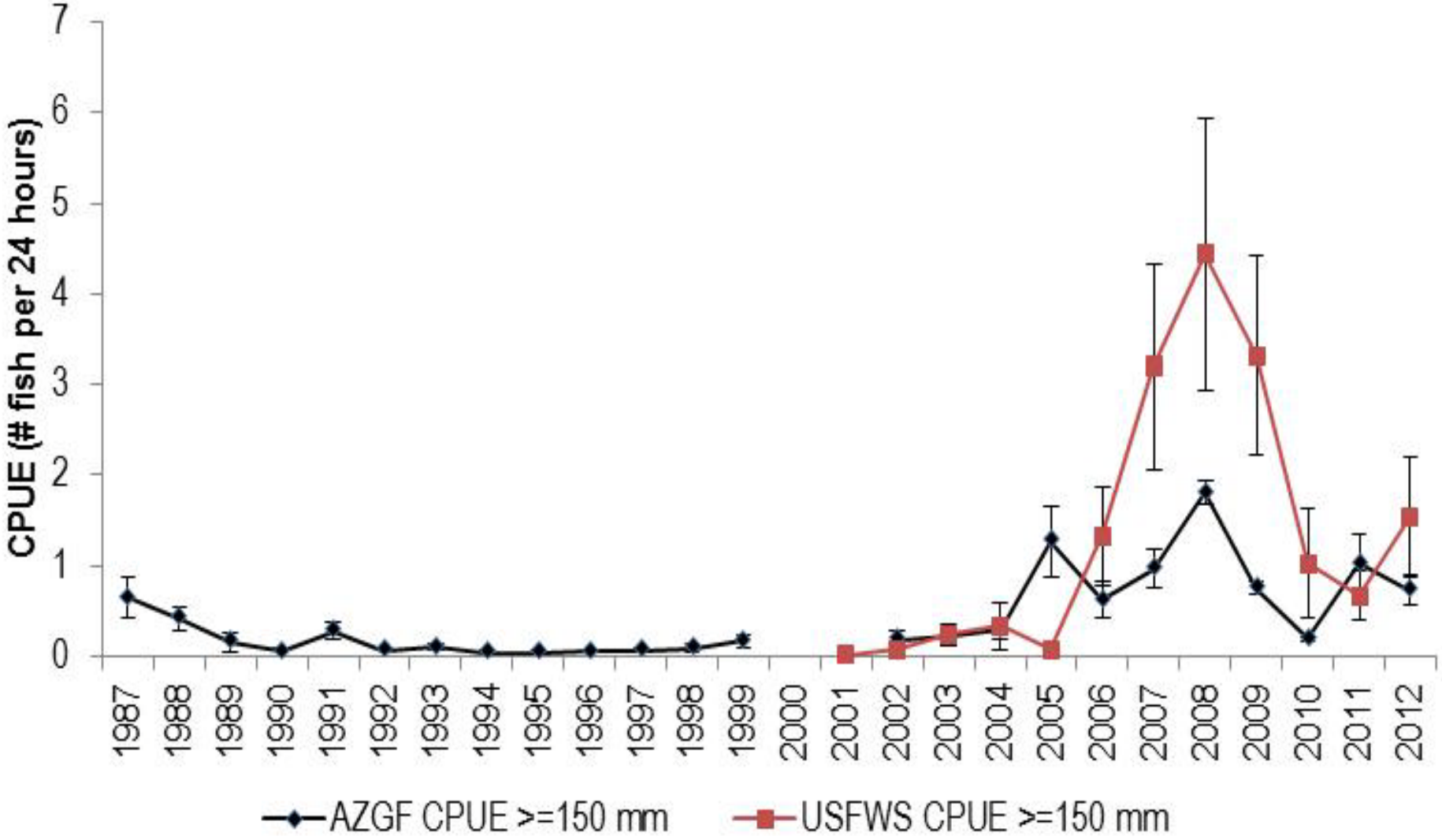
Spring Abundance & CPUE of Humpback Chub ≥ 200 mm



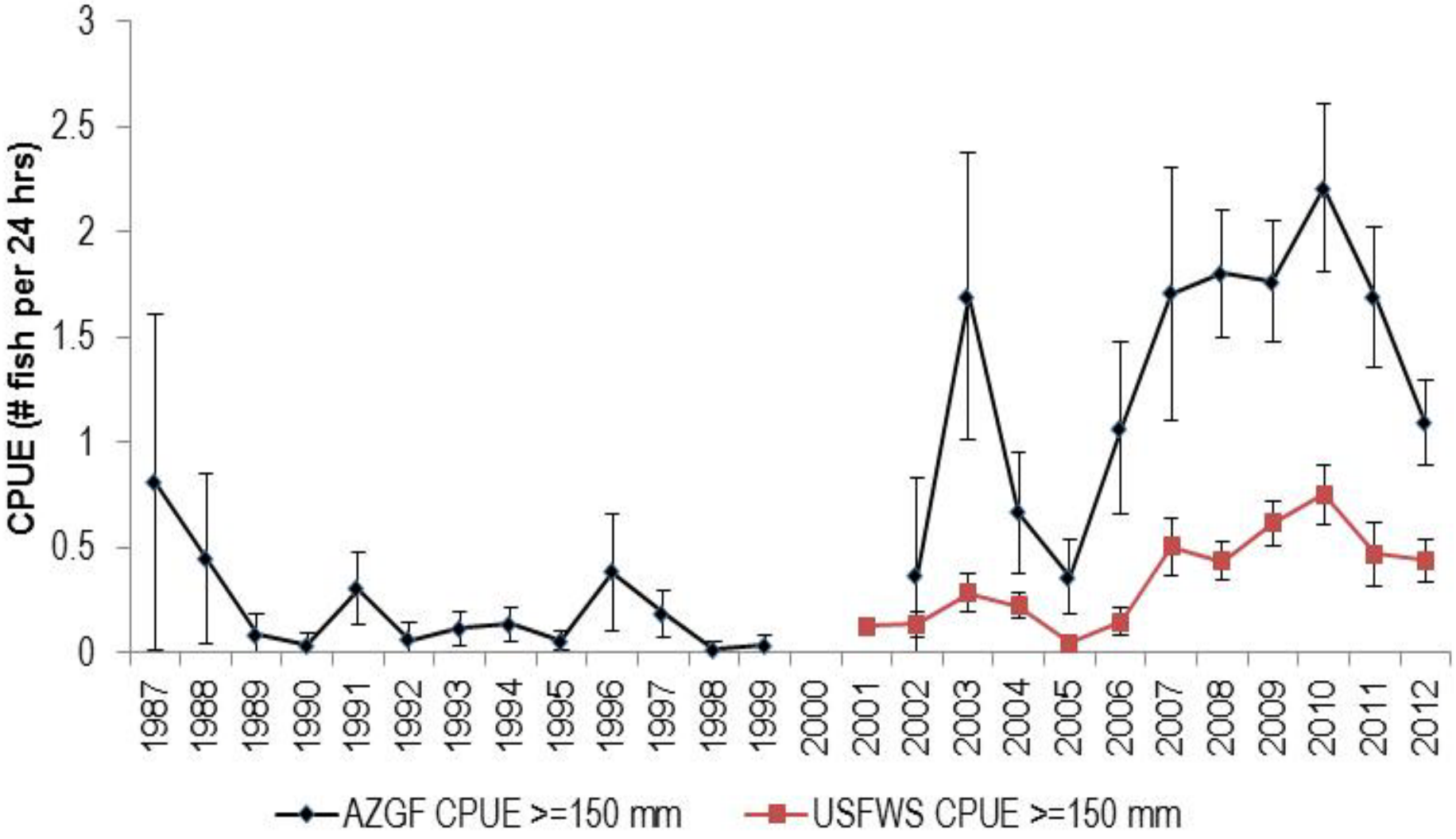
Spring Abundance & CPUE Humpback Chub 150-199 mm



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

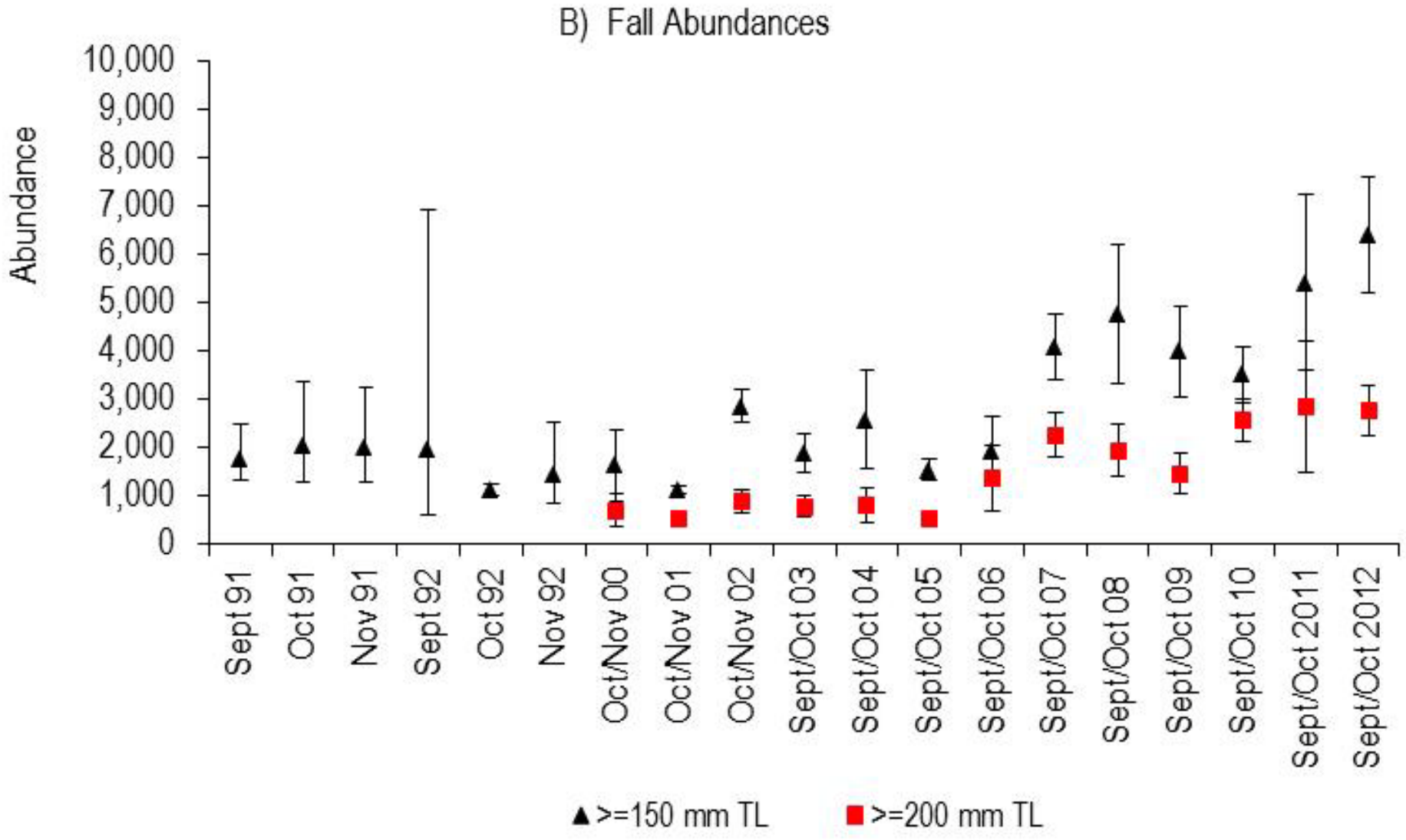


Catch per unit effort of spring flannelmouth suckers (≥ 150 mm)

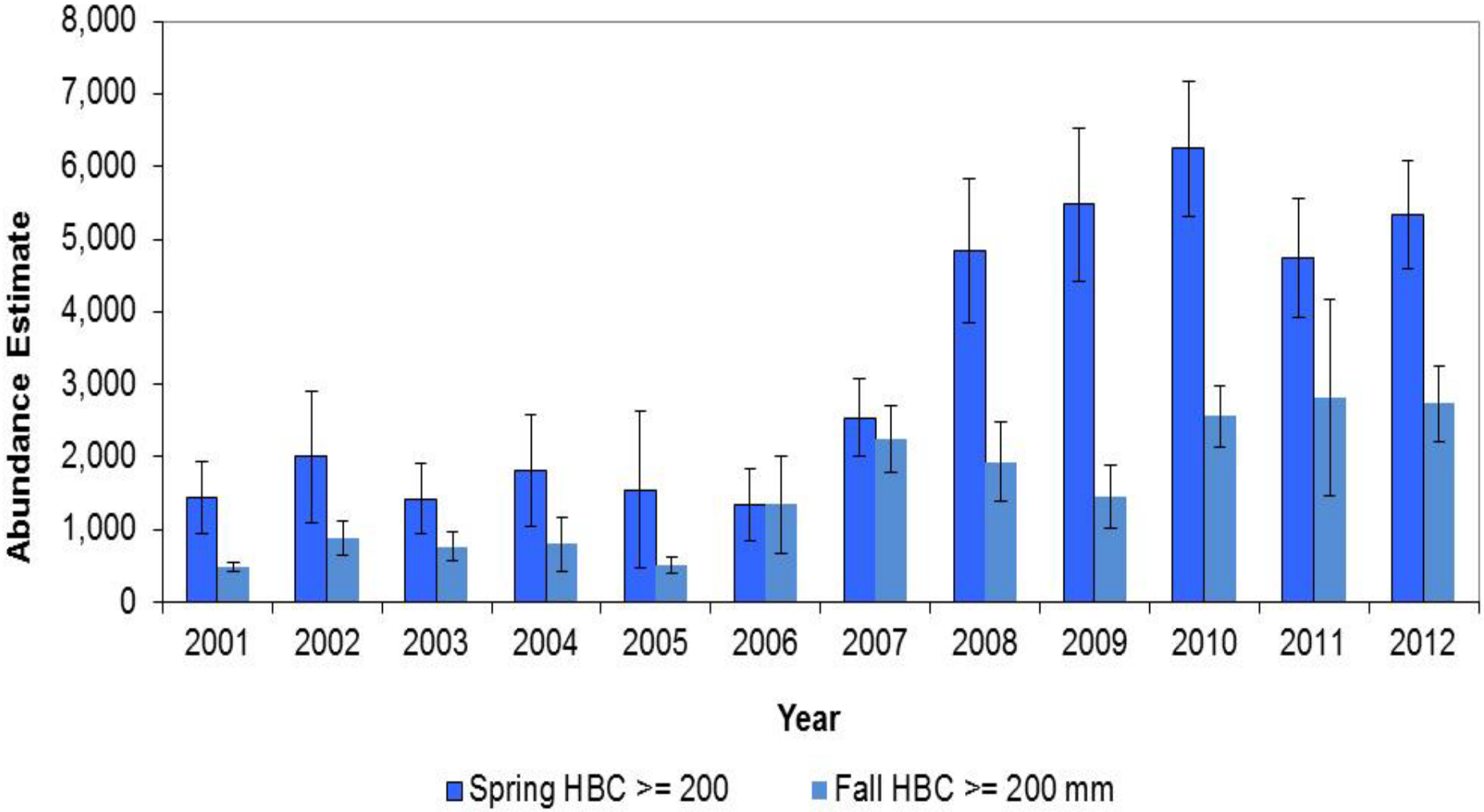


Fall Mark-Recapture Efforts

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

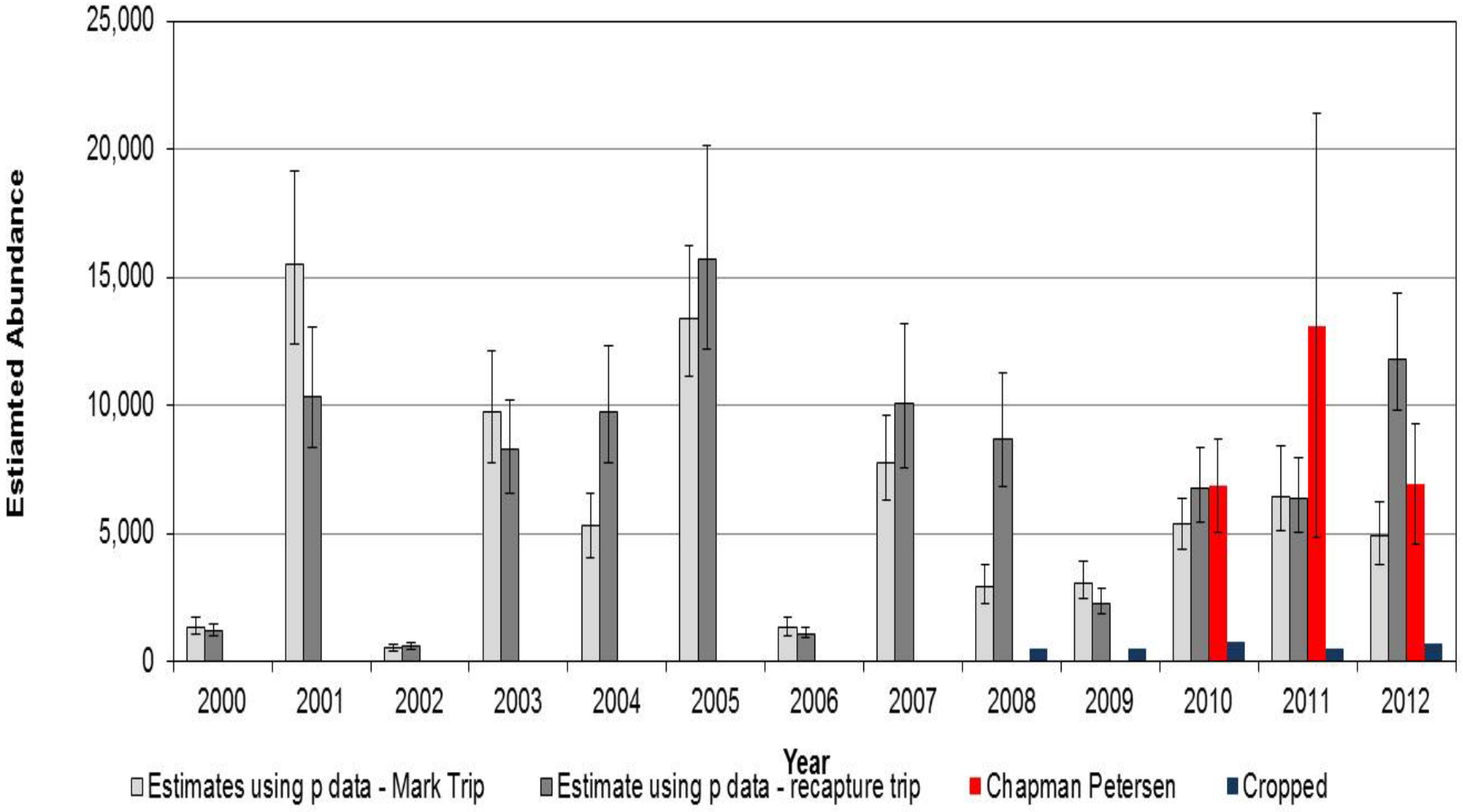


Comparison of spring and fall adult humpback chub abundance ≥200 mm

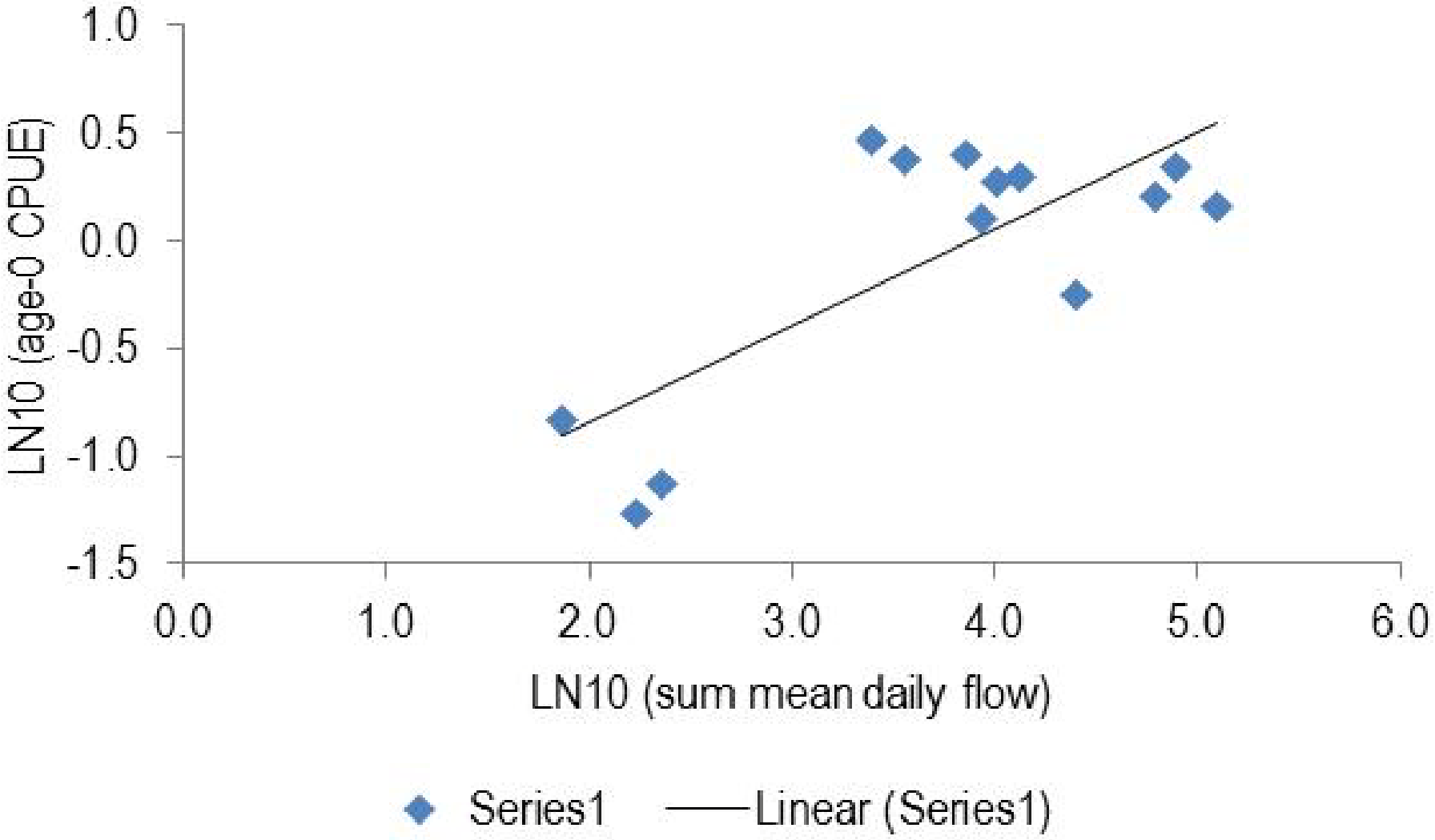


Fall Age-0 VIE Mark-Recapture

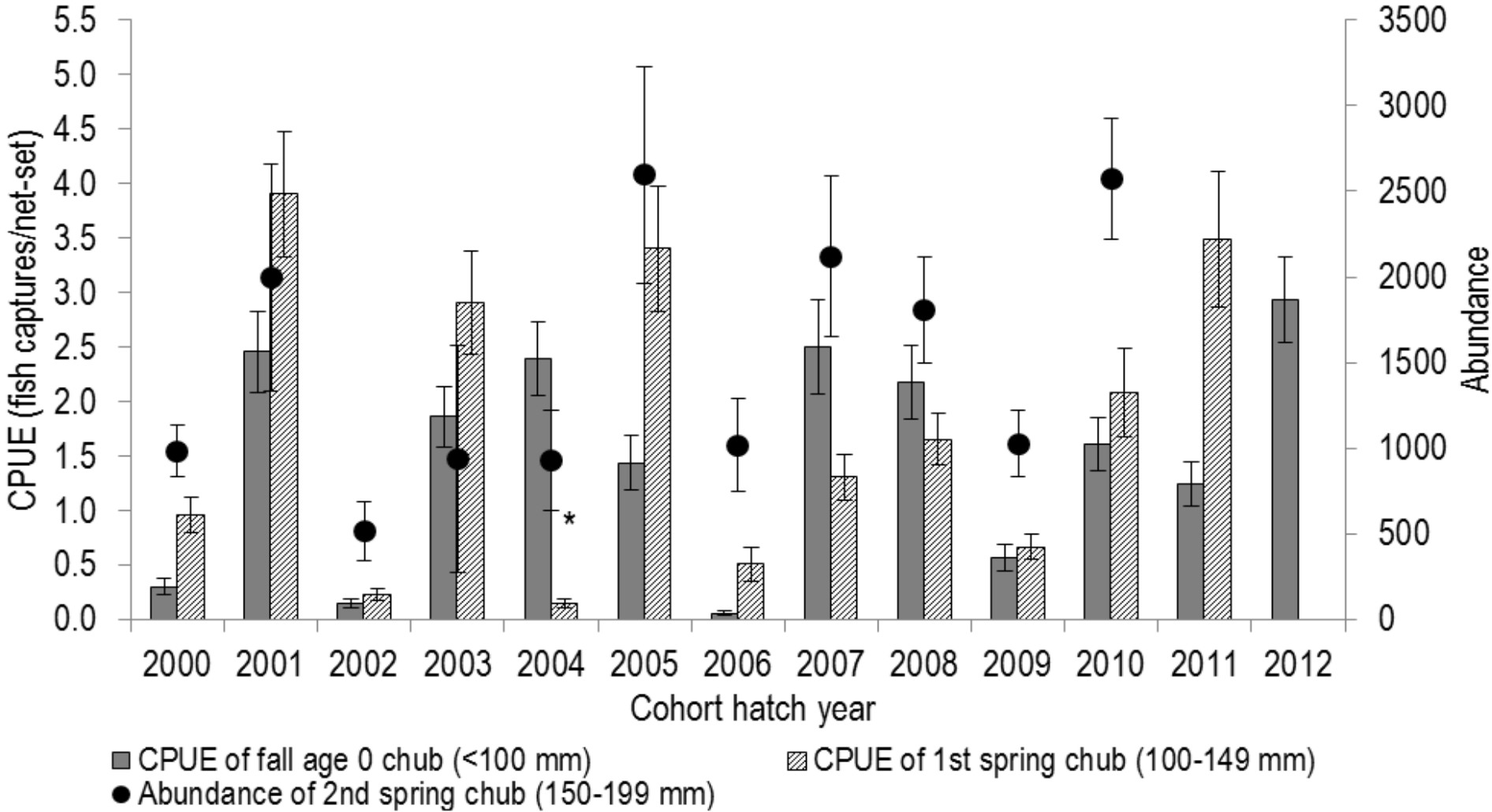
Age-0 humpback chub abundances – Chapman-Petersen, preliminary estimations using capture probability, and age-0 cropping



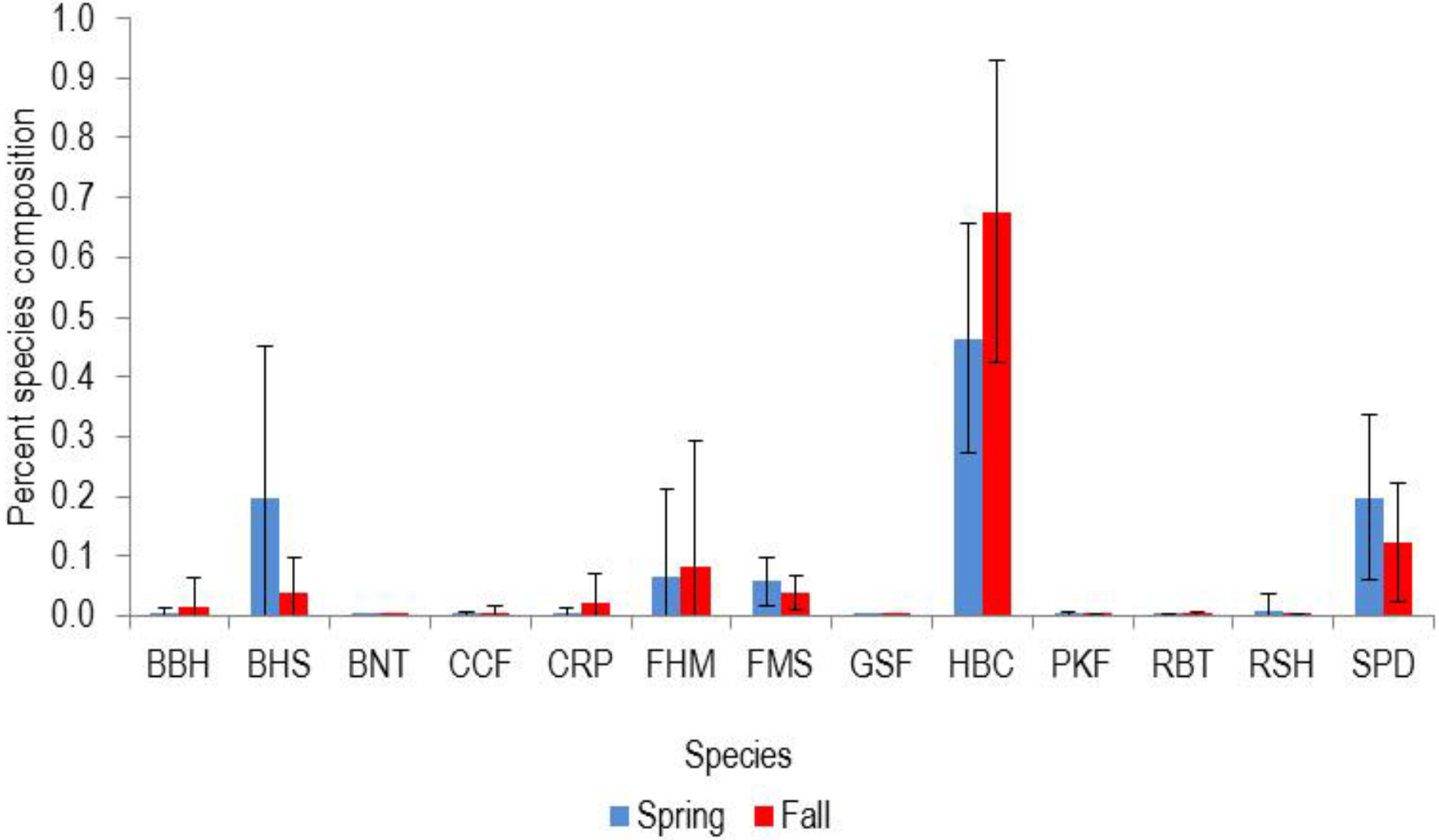
Correlation between spring runoff (sum of mean daily flow 1 Jan – 31 May) in LCR and fall age-0 CPUE
n = 13, r = 0.755, *P* = 0.003



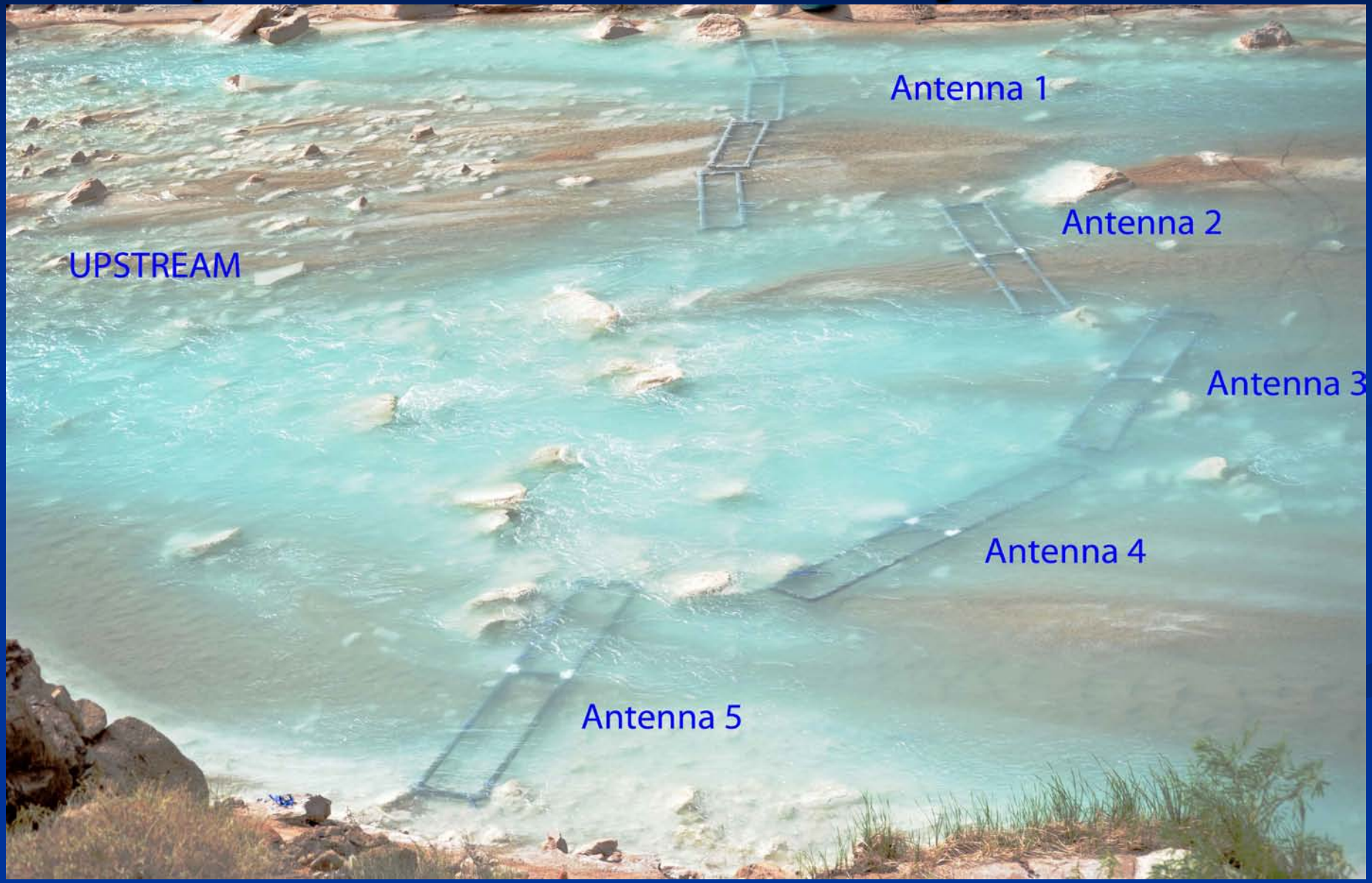
Age-0 production significantly influences CPUEs of age 1 and subadult humpback chub



Spring and Fall Species Composition 2000-2012

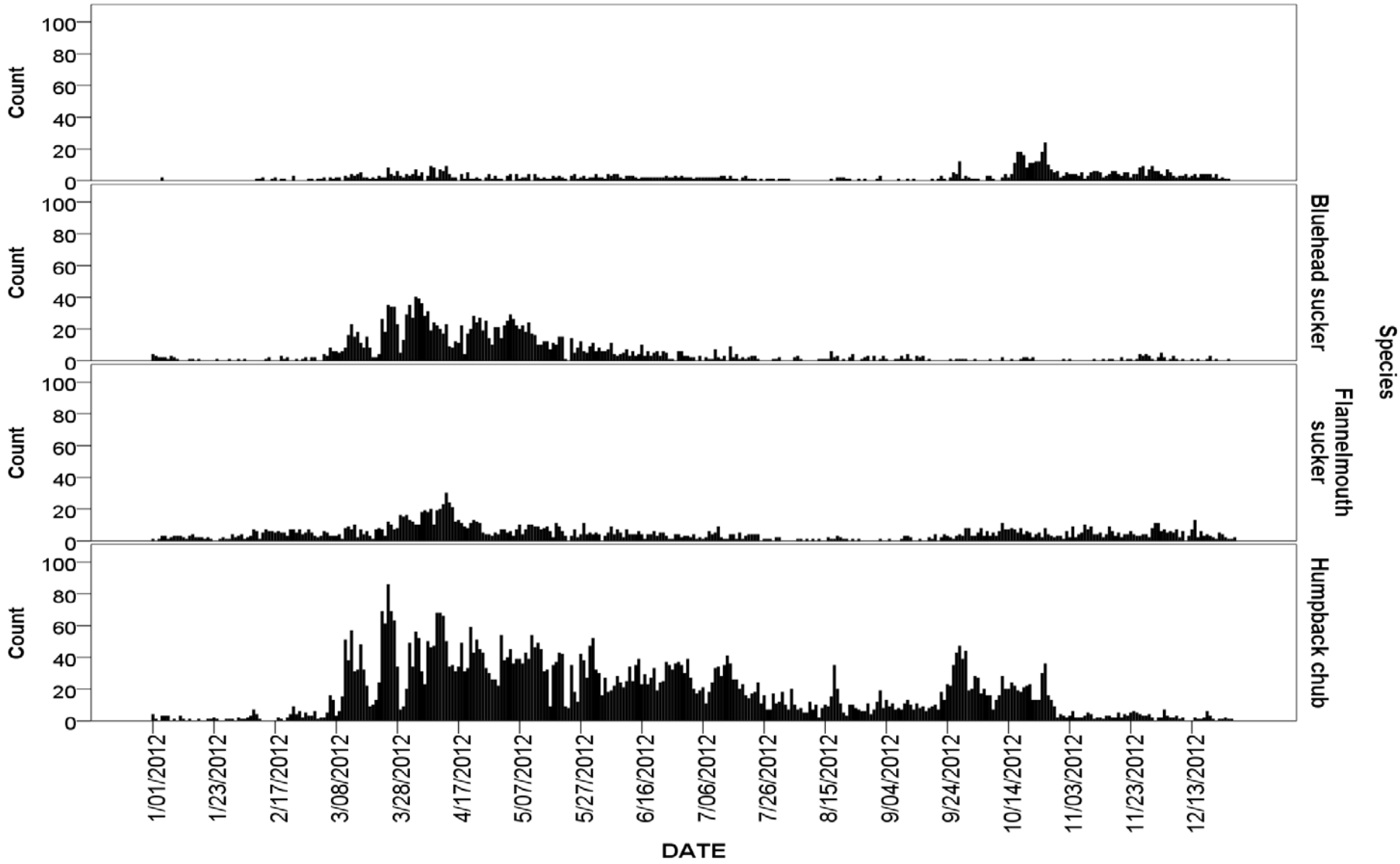


Upstream Antenna Array 2011-12

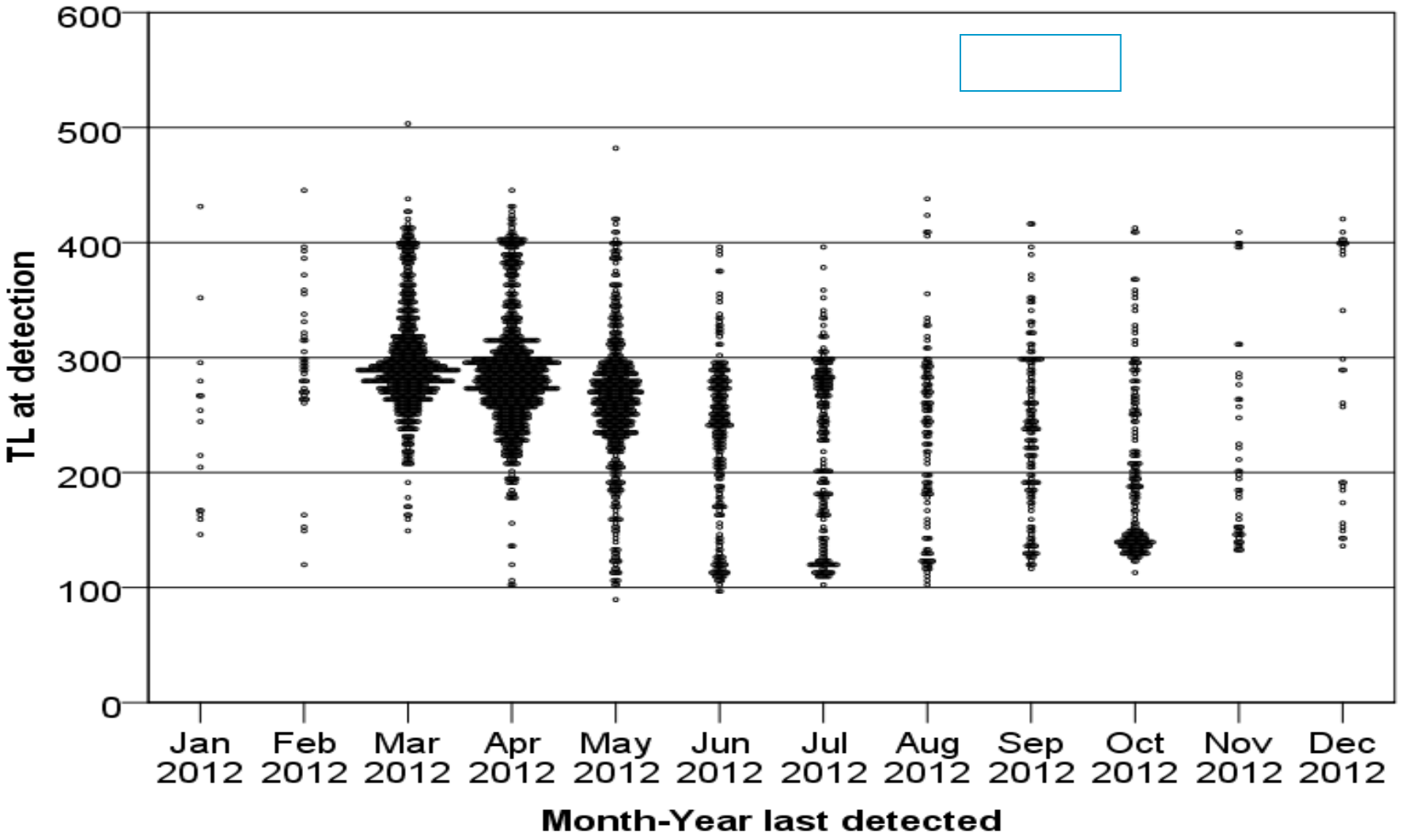


Number of unique fish detected, and percent of total detections LCR PIT tag antenna array, January 1 – November 30, 2012.

Species	Number	Percent
Missing[1]	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