Razorback Sucker *Xyrauchen texanus* Research and Monitoring in the Colorado River Inflow Area of Lake Mead and the Lower Grand Canyon, Arizona and Nevada, 2015

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Lower Colorado River
Multi-Species Conservation Program

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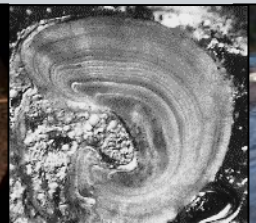
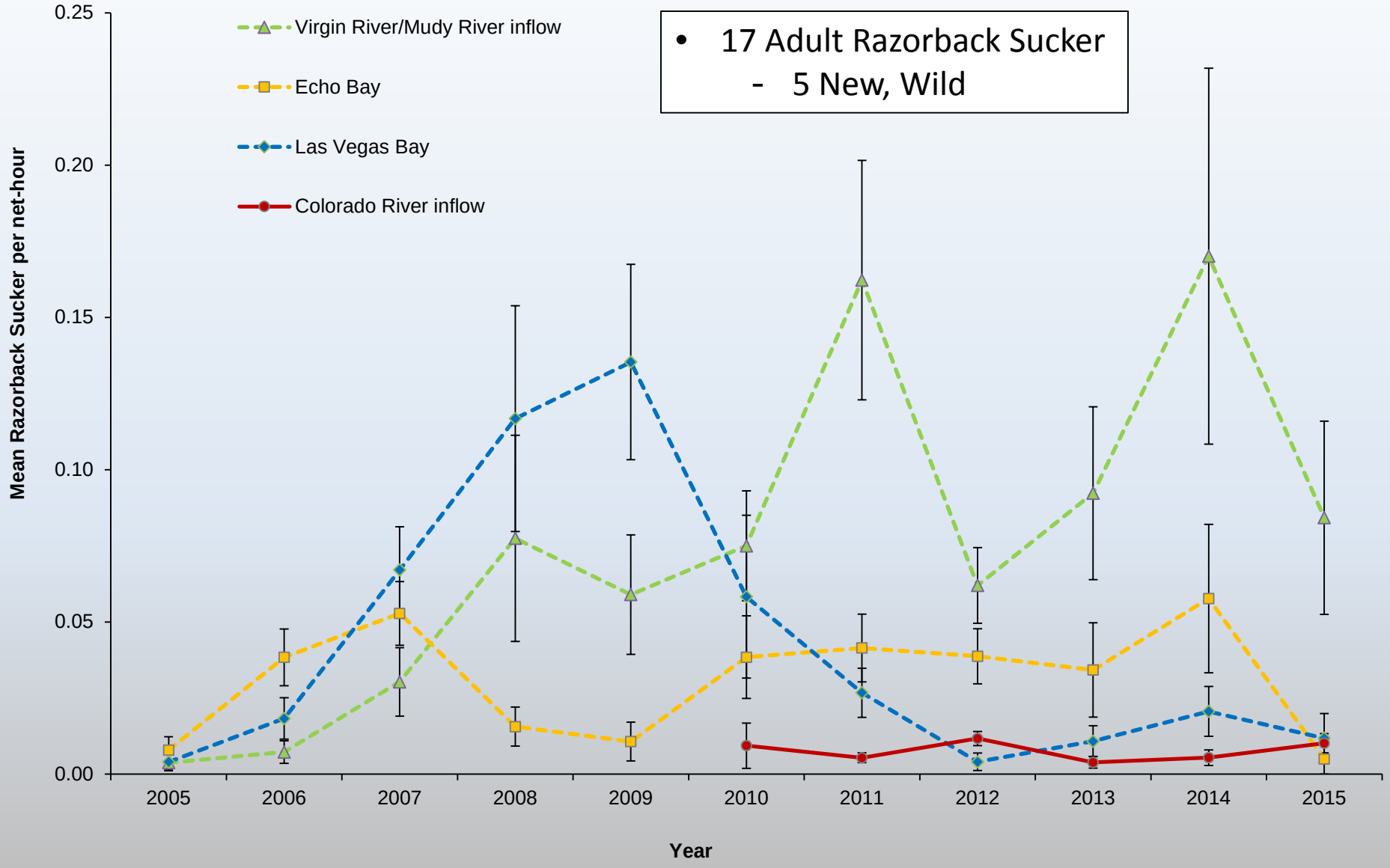
Objectives

- Continue monitoring the CRI
  - Same methods since 2010
- Determine RBS presence and habitat use in LGC
  - Larval and small-bodied fish community sampling within the LGC
    - Assess reproduction, spawning, and distribution
  - LGC sonic telemetry
- Explore linkages between Lake Mead and LGC



Netting Catch Rates (CRI)



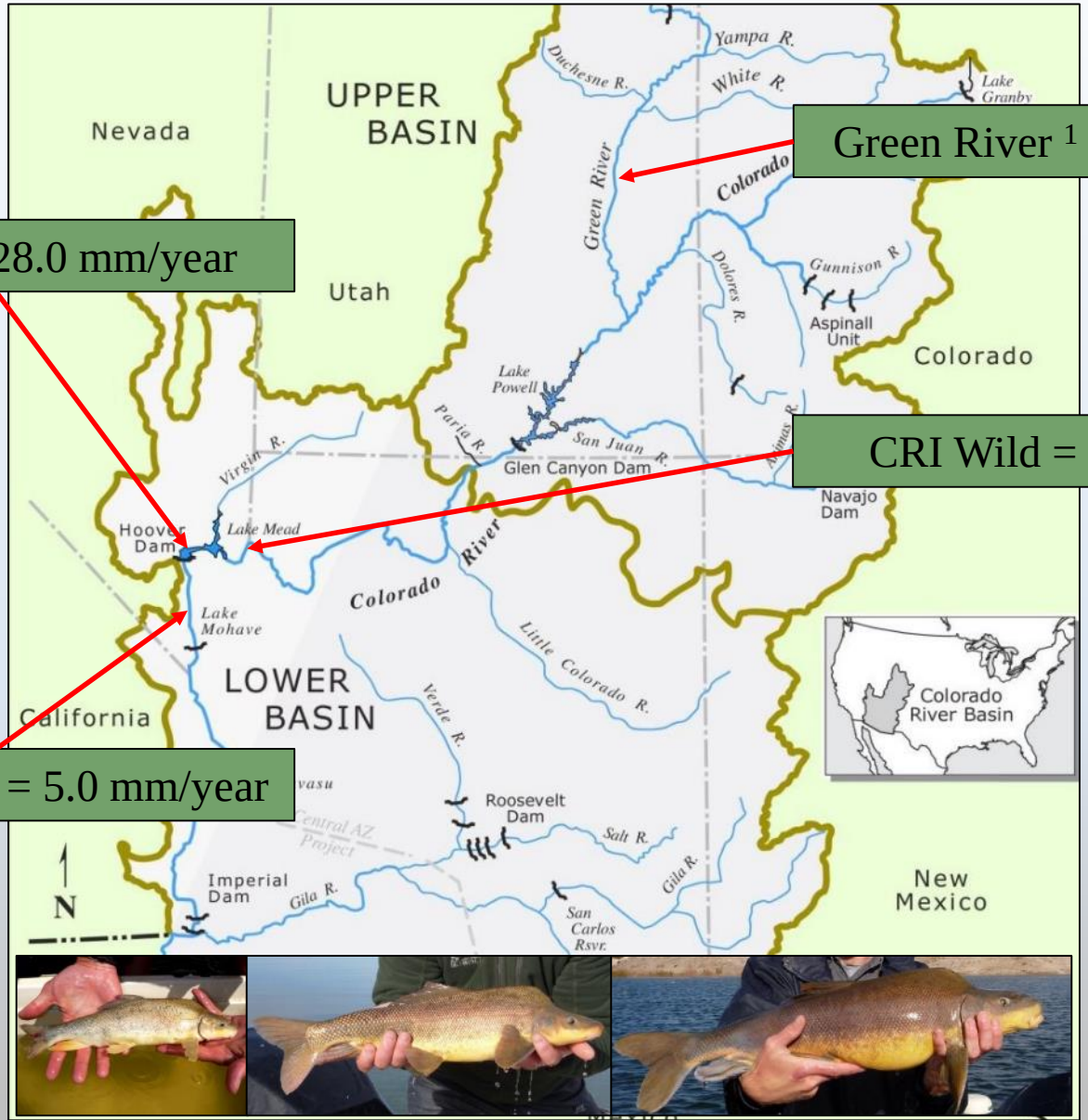
Growth

Green River [1] = 2.2 mm/year

LTM Wild = 28.0 mm/year

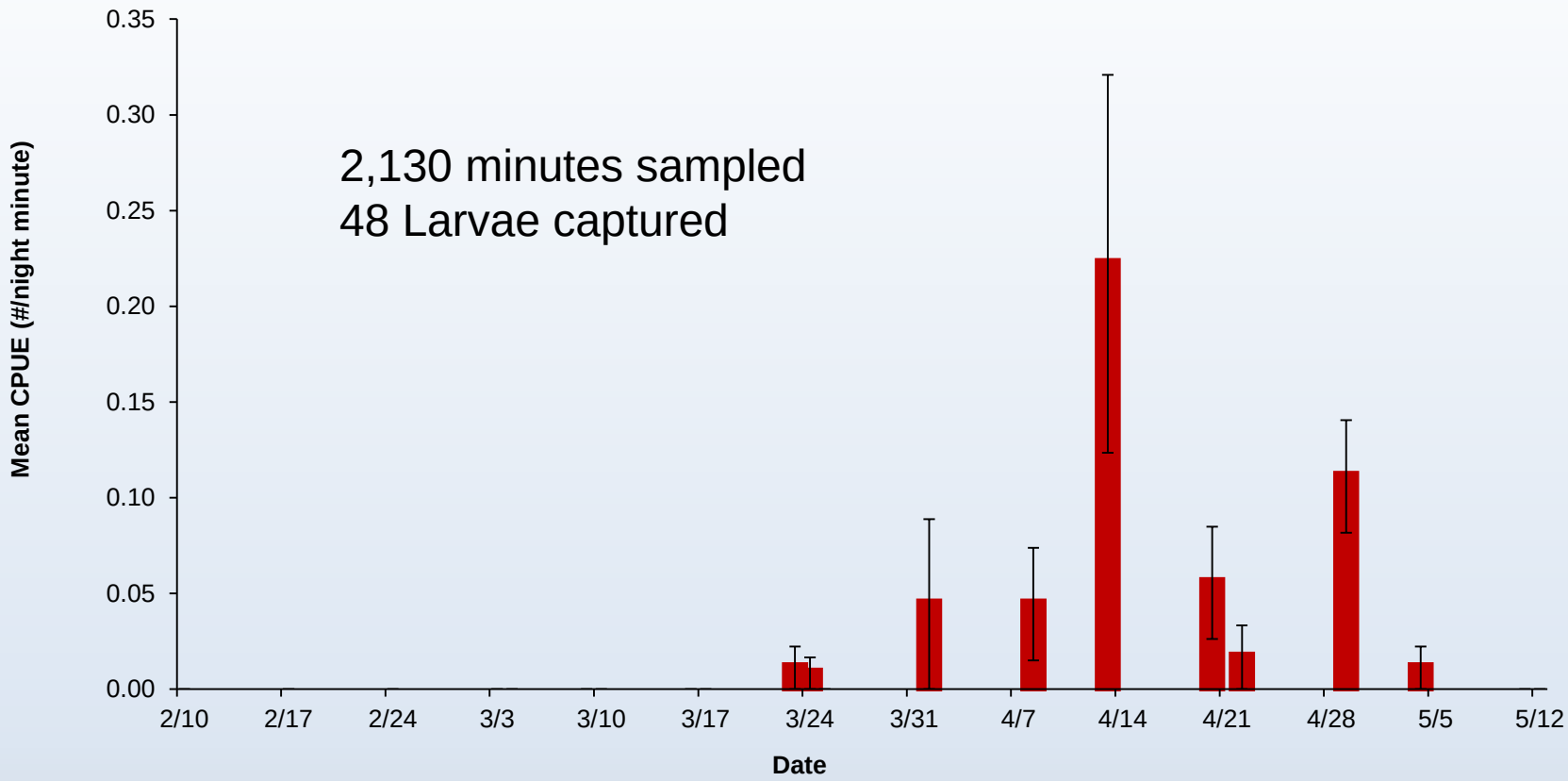
CRI Wild = 6.9 mm/year

Lake Mohave [2] = 5.0 mm/year

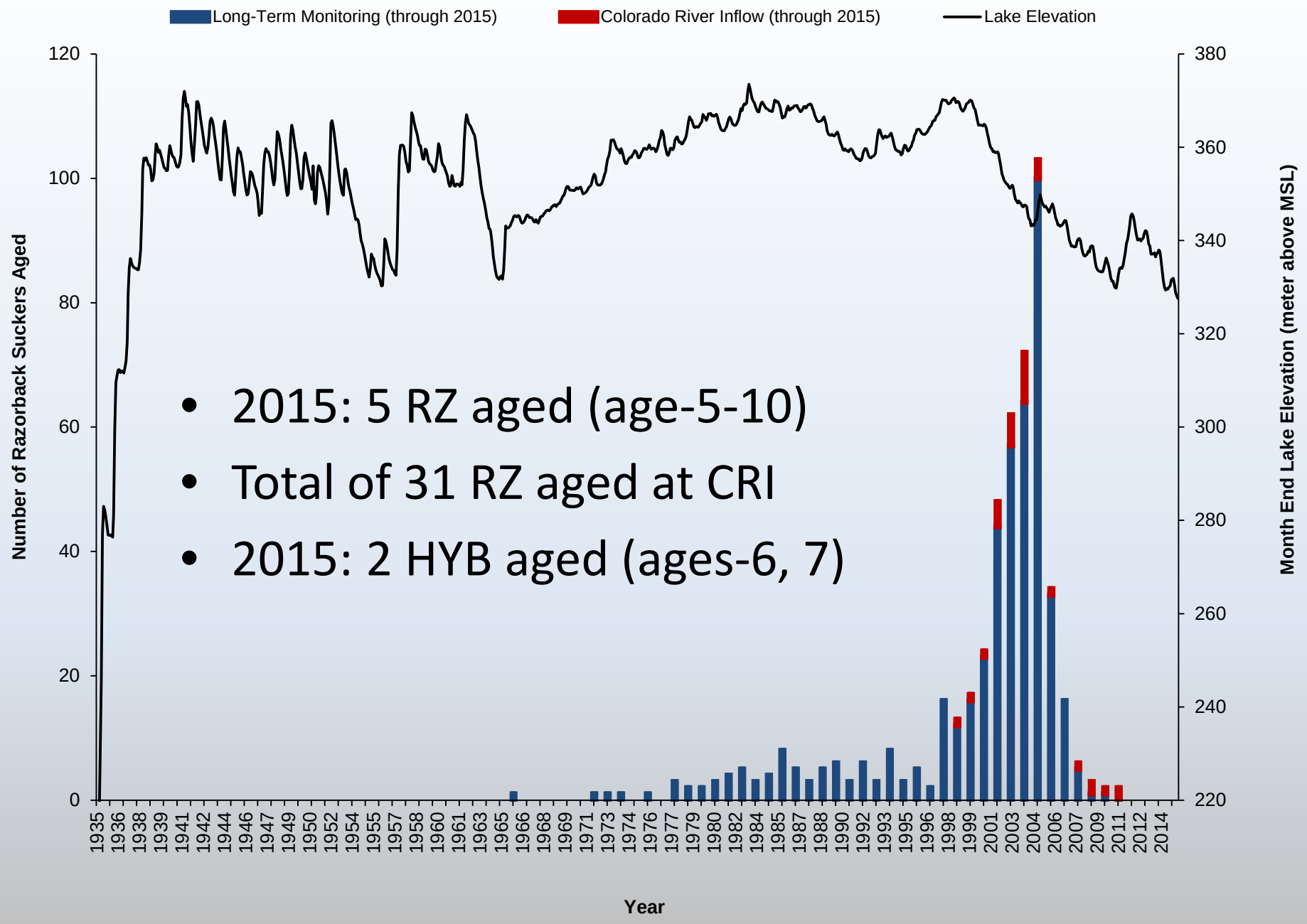


[1]Tyus 1987;
[2]Minckley 1983

Larval Sampling (CRI)



LOCATION	2007	2008	2009	2010	2011	2012	2013	2014	2015
Colorado River Inflow	--	--	--	0.002	0.007	0.0014	0.000	0.042	0.023
Las Vegas Bay	0.39	0.43	0.342	0.093	0.282	0.1791	0.391	0.427	0.217
Echo Bay	0.43	0.024	0.021	0.269	1.482	0.2197	0.019	0.090	0.193
Virgin River/ Muddy River Inflow	0.001	0.116	0.107	0.011	0.013	0.0036	0.205	0.265	0.218

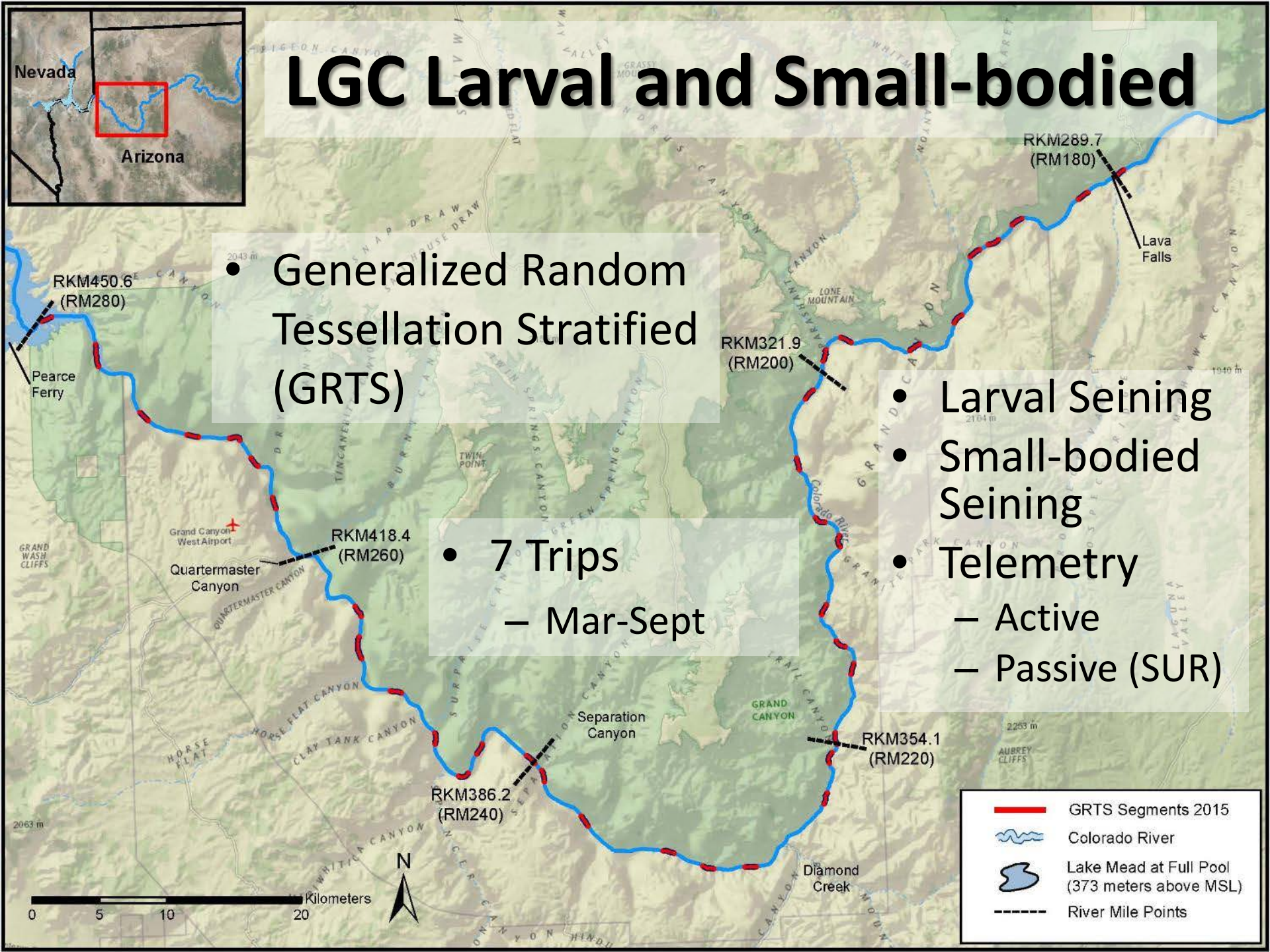


- 2015: 5 RZ aged (age-5-10)
- Total of 31 RZ aged at CRI
- 2015: 2 HYB aged (ages-6, 7)

Telemetry

- CRI
  - Two, wild Razorback Suckers implanted 2014
  - Three, wild Razorback Suckers implanted in 2015
- LGC
  - SURs installed approximately every 10 RM (97-280)
  - 10-Razorback Suckers released April 2013 (Separation)
  - 9-Razorback Sucker implanted and released March 2014 (Lava Falls)

LGC Larval and Small-bodied

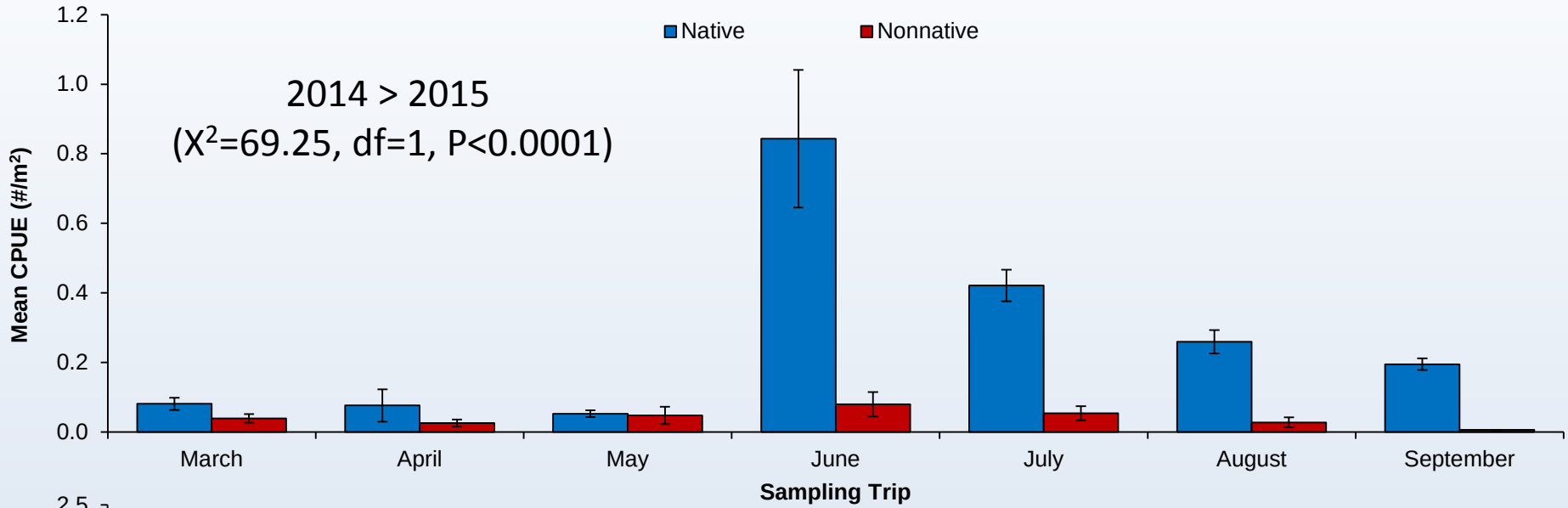


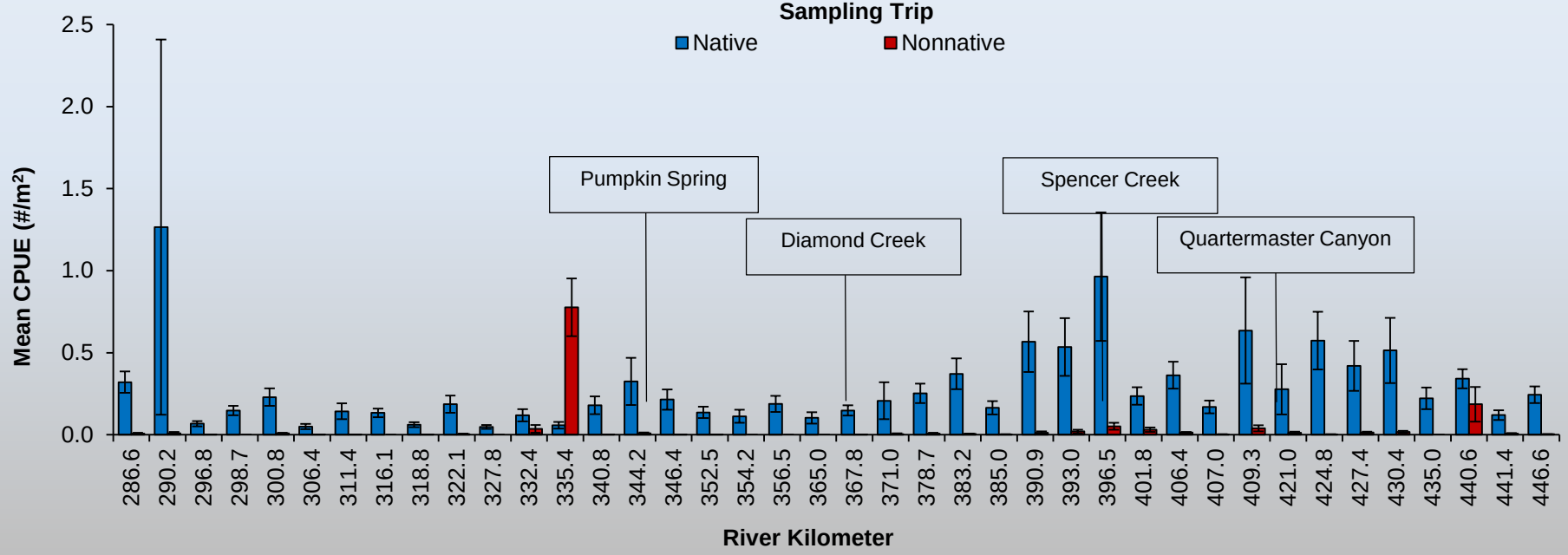
- Generalized Random Tessellation Stratified (GRTS)

- 7 Trips
  - Mar-Sept

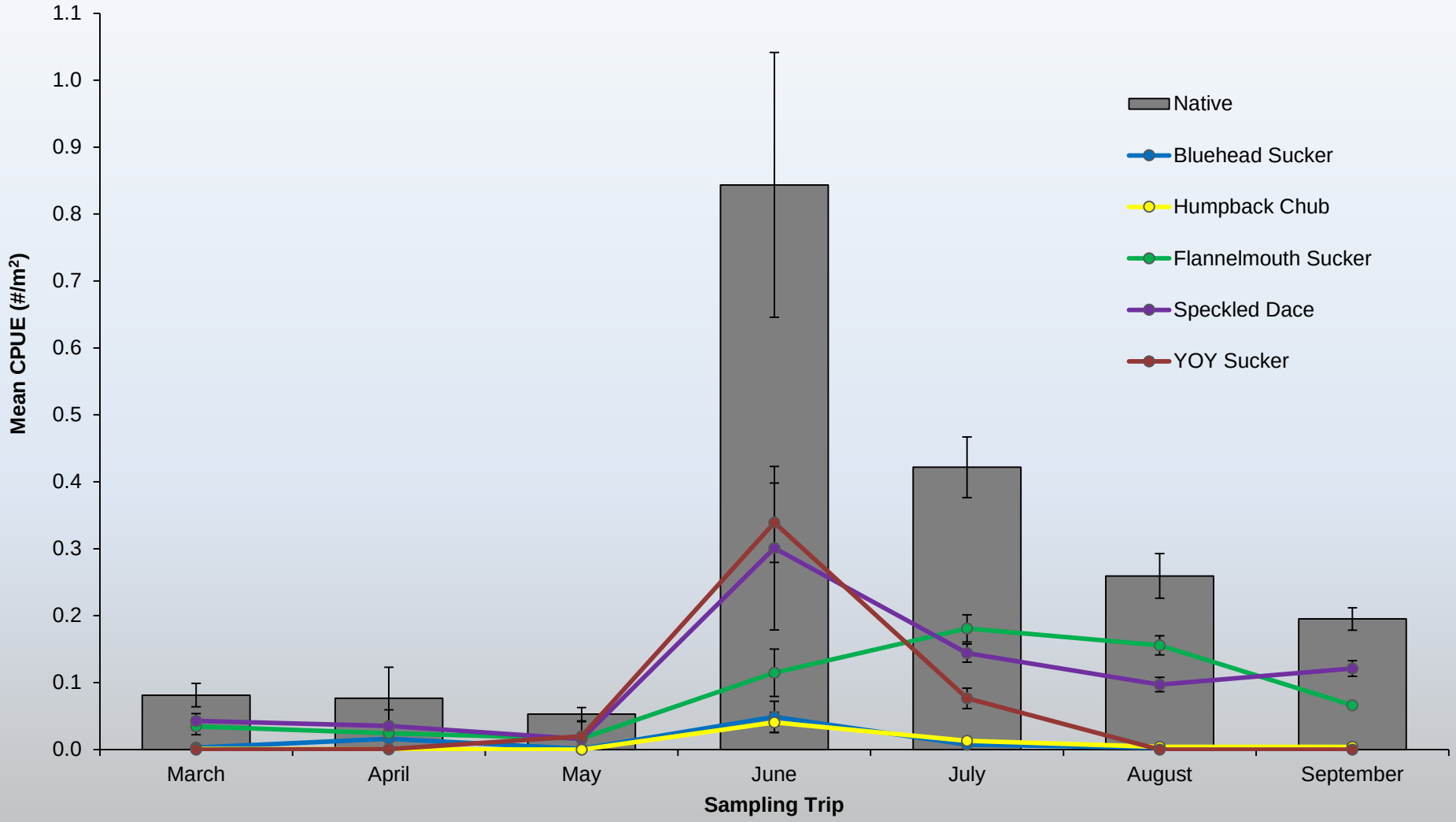
- Larval Seining
- Small-bodied Seining
- Telemetry
  - Active
  - Passive (SUR)

LGC Small-Bodied Sampling



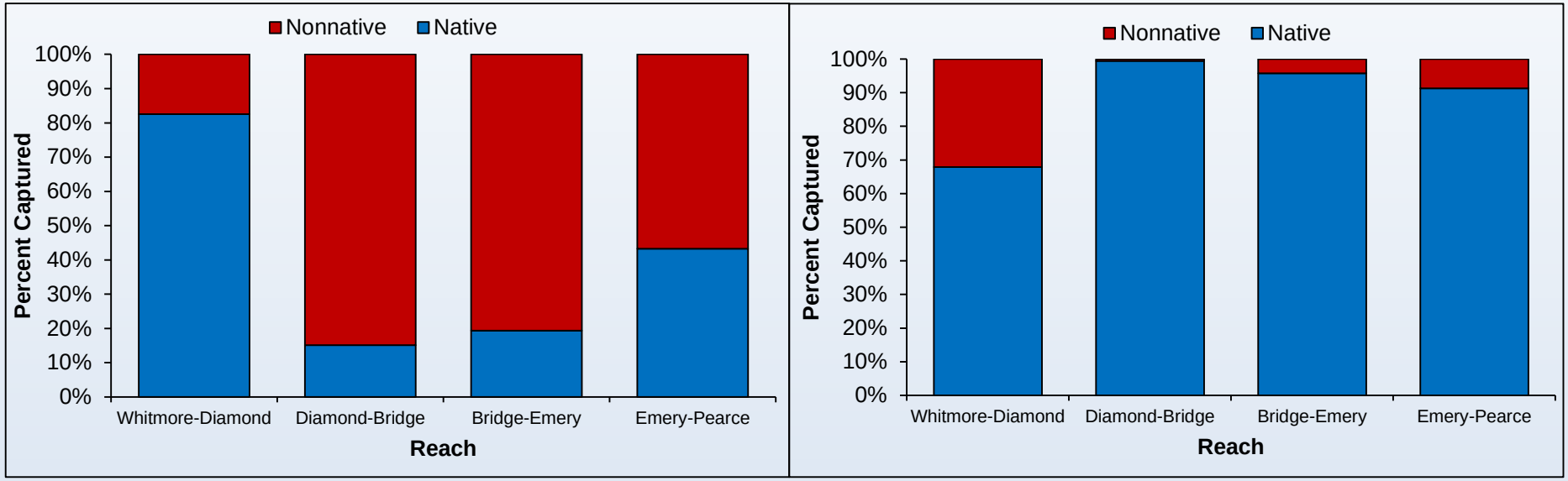


LGC Small-Bodied Sampling



Historical perspectives are important

1992-1995 vs. 2014-2015



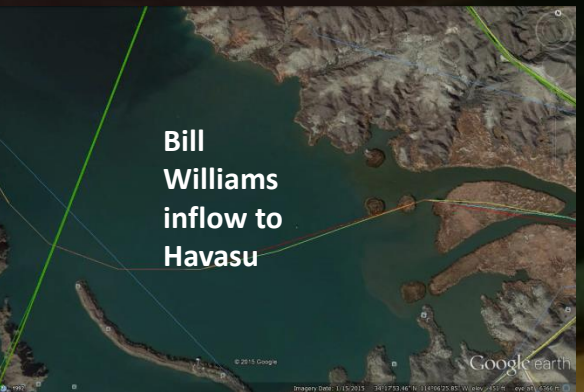
Valdez et al. (1995)

Albrecht et al (2014) and Kegerries et al. (2015)

- ~20 years of change
- Positive news for native fishes!
- Looking forward to future findings regarding Razorback Sucker, Humpback Chub, and native fishes of the Lower Grand Canyon!!

Conclusions and Considerations

- Study efforts are ongoing and will continue
- Razorback Sucker present and spawning at the CRI (6th year)
- Razorback Sucker movement and spawning are occurring not only within the reach from Mead up to Lava Falls, but also likely above Lava Falls
- The small-bodied fish community within the LGC has shifted dramatically since 1990s—a rare case favoring native fishes
- Razorback and other sucker habitat overlaps within the CRI and LGC, and movement occurs between the two habitat types
  - Hypothesize that both habitats cumulatively allow for Razorback Sucker recruitment
    - Particularly considering drift, historical off channel habitat use by this species, and habitat complexity of modern systems

Inflow habitats appear to be important for native fishes!

Questions?