

National Park Service  
U.S. Department of the Interior  
Grand Canyon National Park



# NPS Fisheries Program Updates: Humpback chub translocations to Grand Canyon Tributaries

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# Cooperators

- Funded by Reclamation, NPS, USGS



GRAND CANYON TRUST



# Background – Humpback Chub Translocations

- USFWS 1994 Biological Opinion – Establish a 2<sup>nd</sup> “Spawning Aggregation” of humpback chub
- Valdez et al. 2000 – Developed plan for establishing second population of humpback chub in Grand Canyon
- Conservation Measures: USFWS 2008, 2011
- NPS Comprehensive Fisheries Management Plan 2013

# Background – Humpback Chub Translocations



# Translocations - Current Efforts

- Translocations of Juvenile Humpback Chub from the Little Colorado River to Shinumo and Havasu Creeks
- Bright Angel Creek?
  - Continuing trout control

# Translocation Goals

- Experimental
- Establish 2<sup>nd</sup> Spawning Population in Grand Canyon
- Provide rearing habitat for Juvenile Humpback Chub
  - Augmentation of Colorado River Aggregations

# Grand Canyon – Translocation Sites

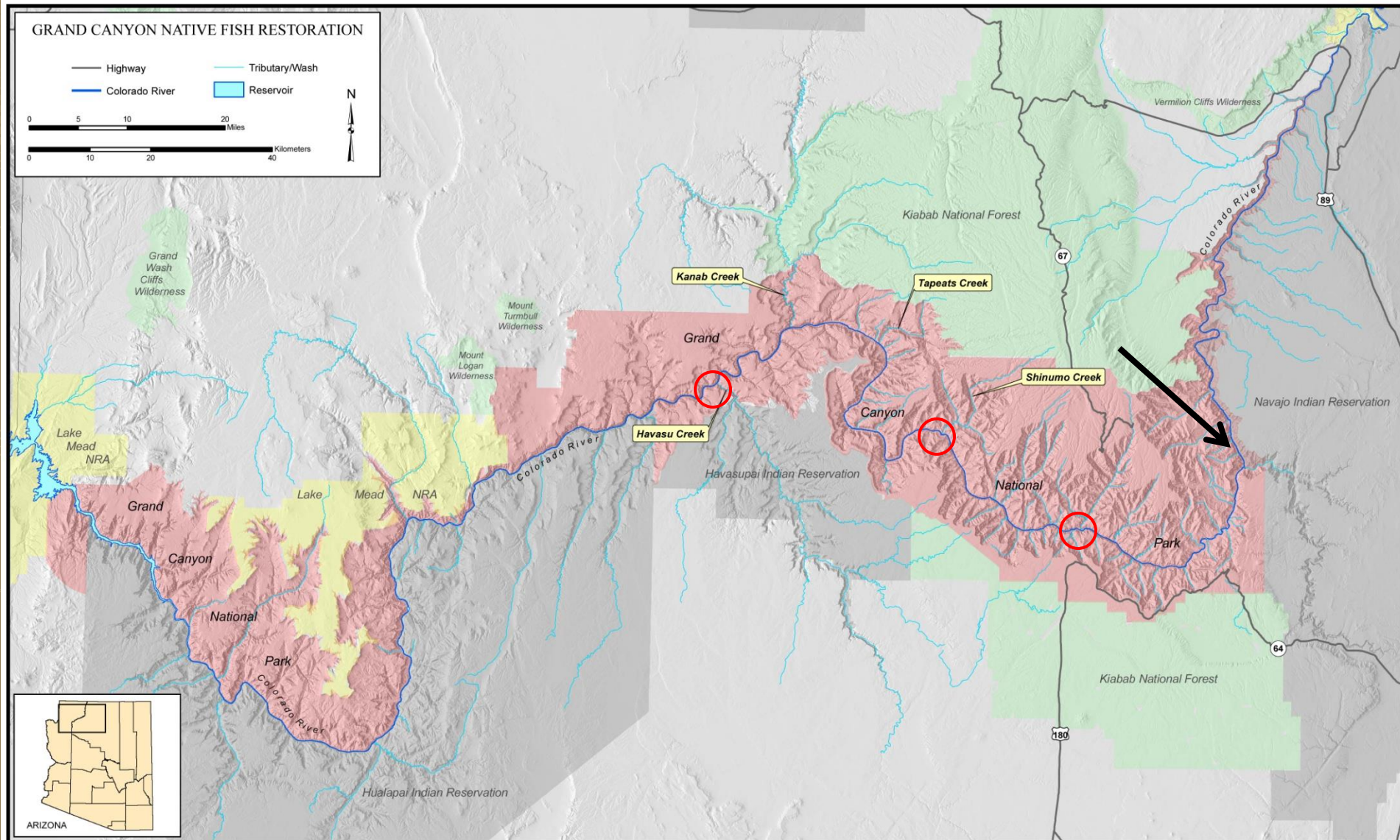


Figure 1. General location of the project area.

# Translocation – Evaluation

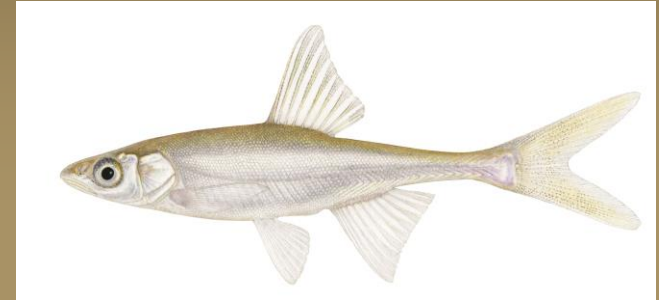
## ■ Questions:

Will Translocated Humpback Chub:

1. Survive/remain?
2. Grow?
3. Reproduce?
4. Augment the mainstem aggregations?

## ■ Field Monitoring Framework:

- Twice per year
- Netting
- Remote PIT tag Antenna - Emigration (Shinumo only)



Joe Tomellari



# Tributary Translocations

An underwater photograph of a rocky stream. The water is clear, and the bottom is covered with smooth, light-colored rocks of various sizes. Several fish, likely trout or similar species, are visible swimming in the water. The lighting is natural, creating a serene and clear environment.

## Shinumo Creek:

- 302 in June 2009
- 300 in June 2010
- 300 in June 2011
- 200 in June 2013 (“soft” release to improve retention)

## Havasu Creek:

- 242 in June 2011
- 298 in May 2012
- 300 in May 2013

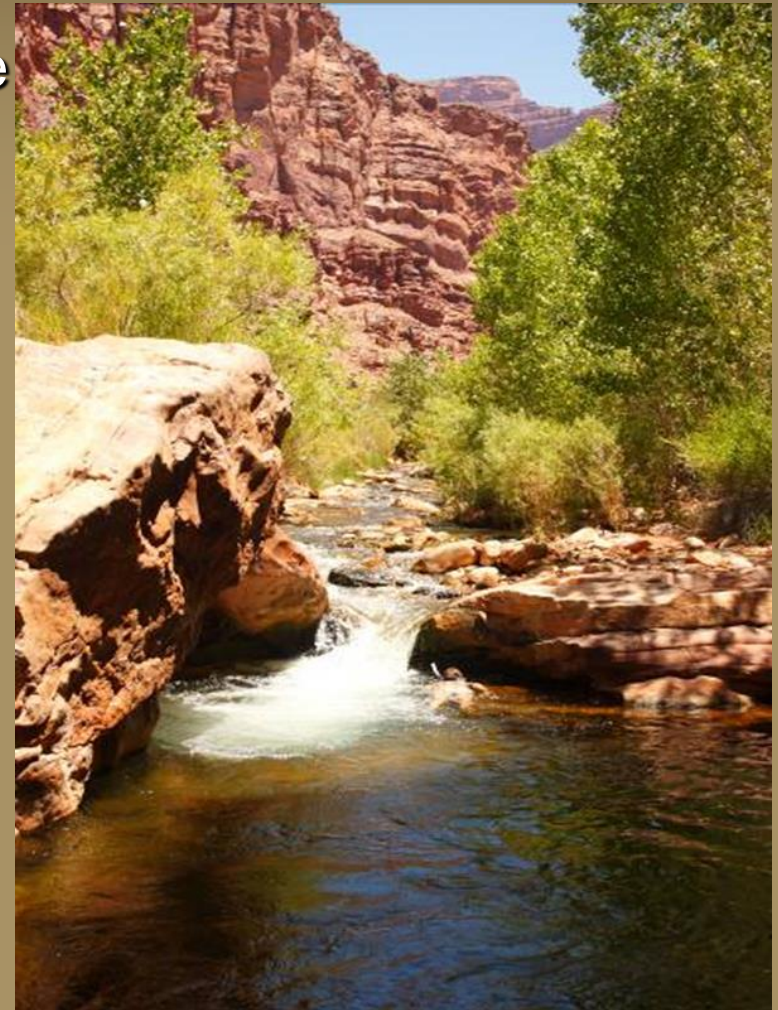
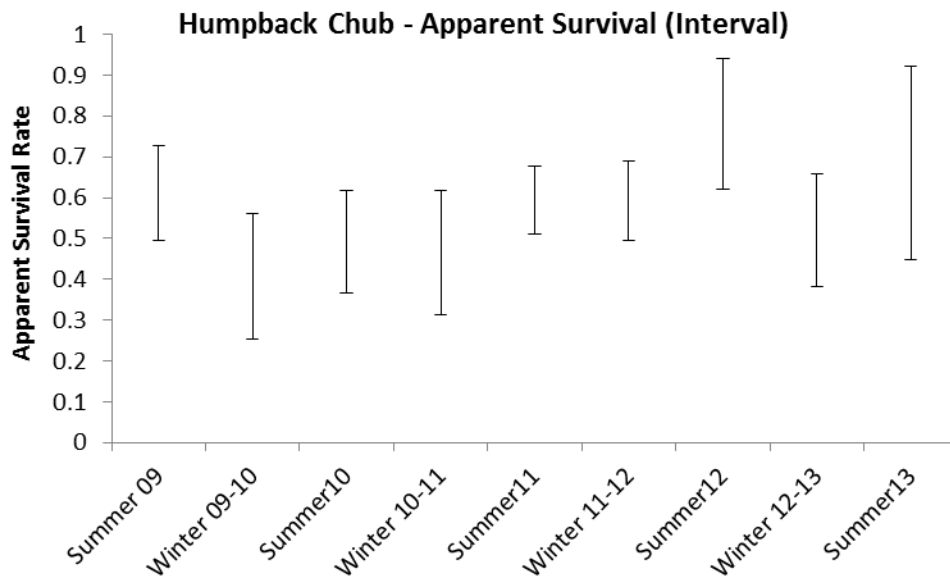
# Apparent Survival – Havasu Creek

- Latest Estimates:
  - Havasu – May 2013
    - 2011 cohort:
      - Monthly: 0.94 – 0.95
      - Annual: 0.45 – 0.57
    - 2012 cohort:
      - Monthly: 0.90 – 0.94
      - Annual: 0.29 – 0.46



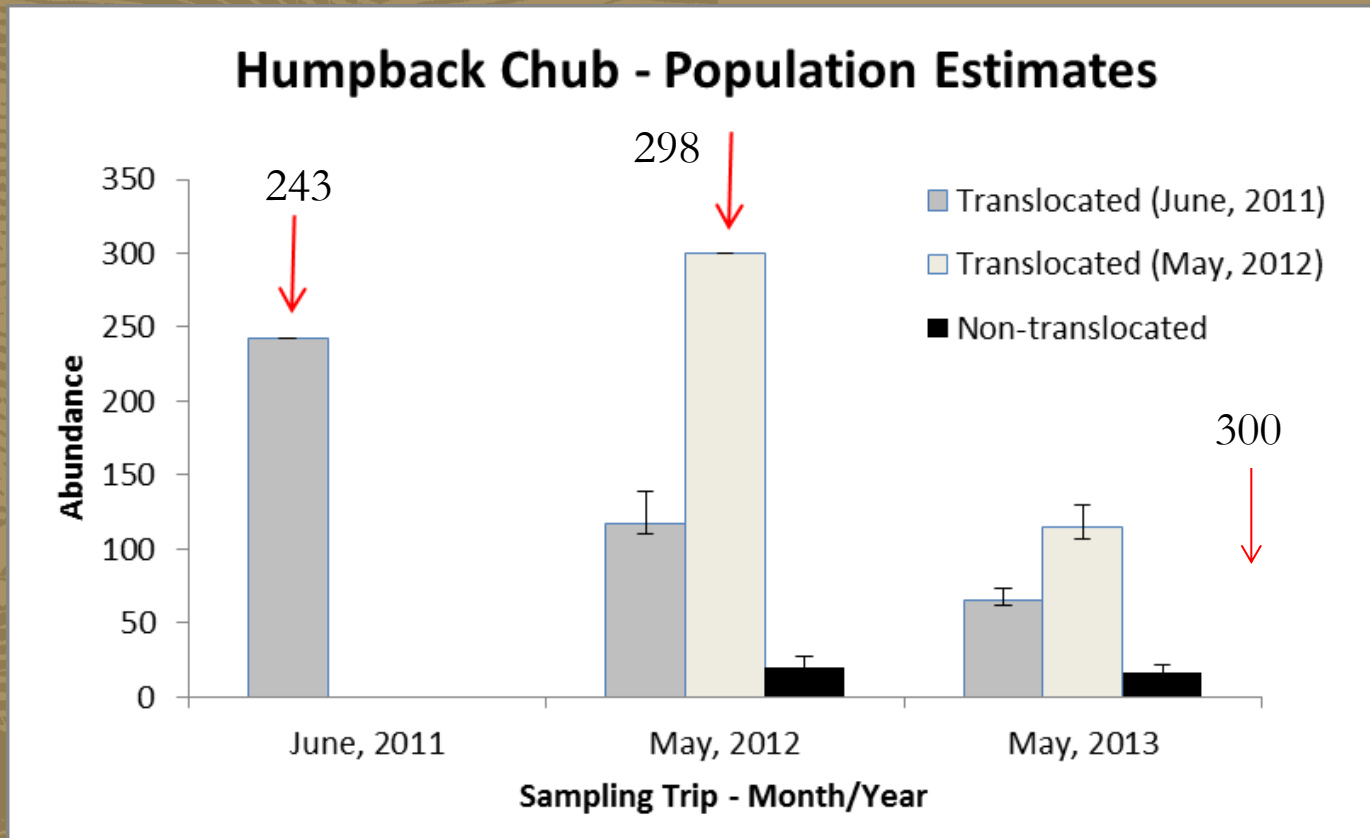
# Apparent Survival – Shinumo Creek

- Latest Estimates:
  - Shinumo – 1 year after release
    - 2009 cohort: 0.10 - 0.43
    - 2010 cohort: 0.11 - 0.36
    - 2011 cohort: 0.21 - 0.44
    - 2013 cohort: NA



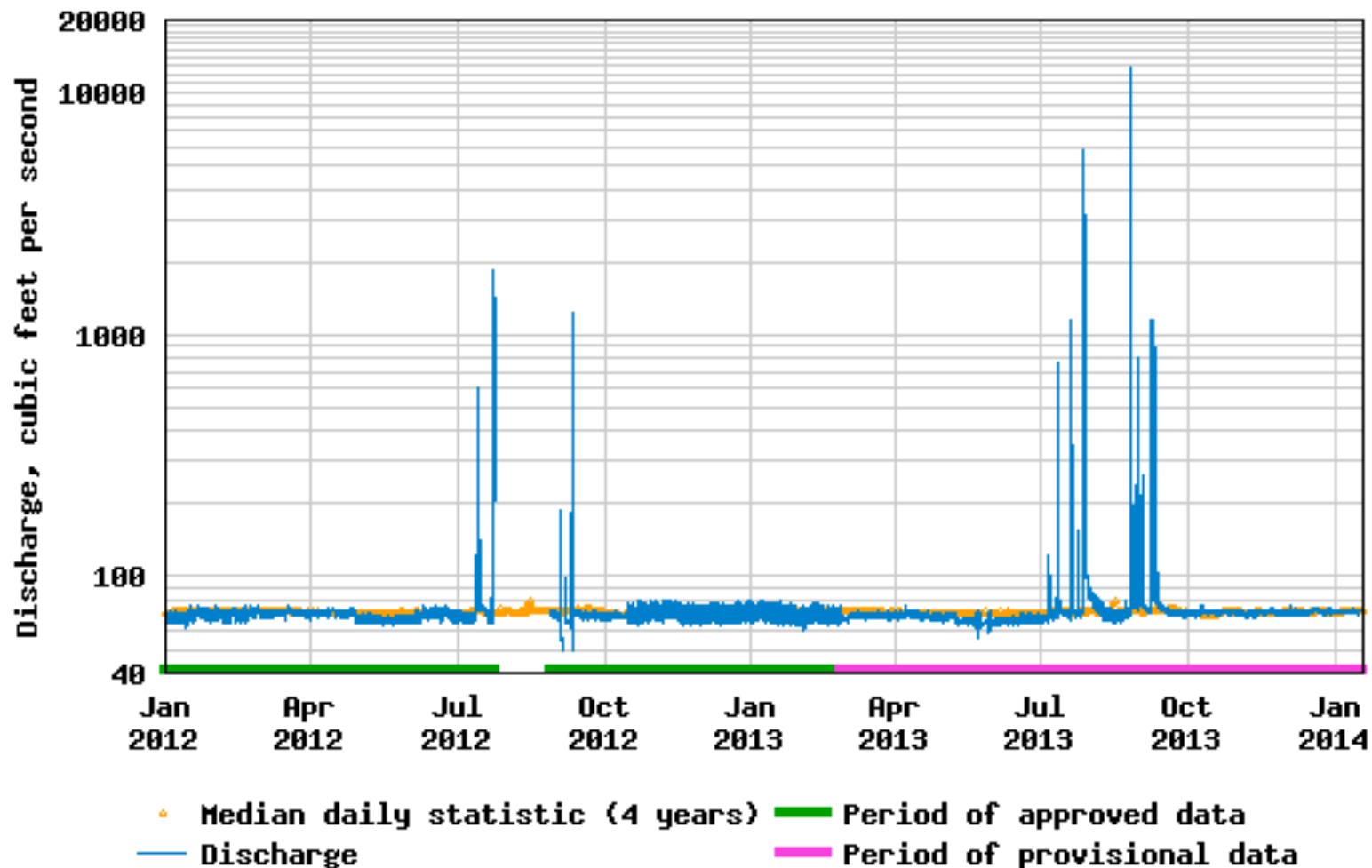
# Population Estimates – Havasu Creek

- Once/year: May
- Translocated and Non-translocated Humpback Chub



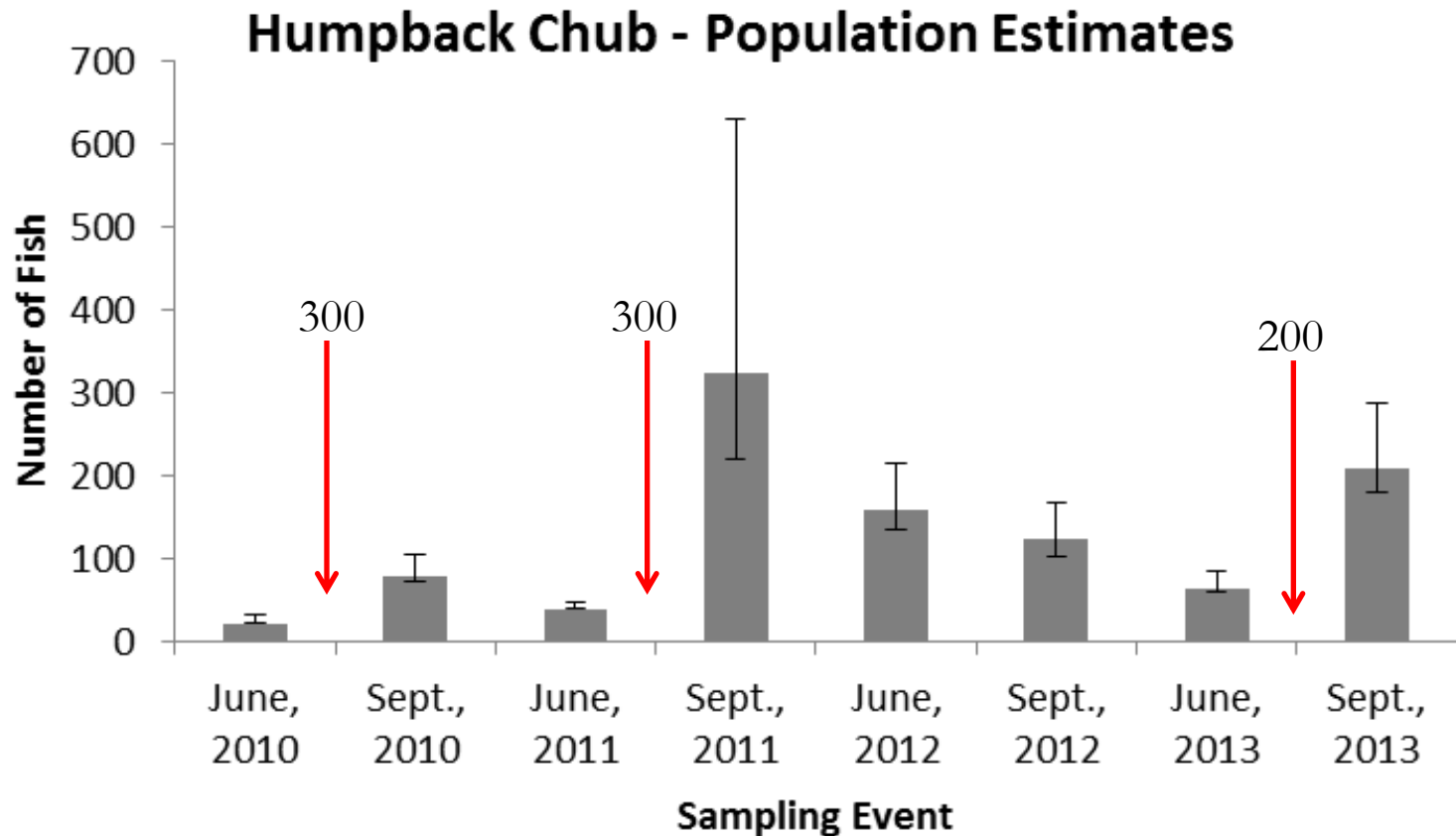


## USGS 09404115 HAVASU CREEK ABOVE THE MOUTH, NEAR SUPAI, AZ



# Population Estimates - Shinumo

- Twice/year: June and September (2010-2013)

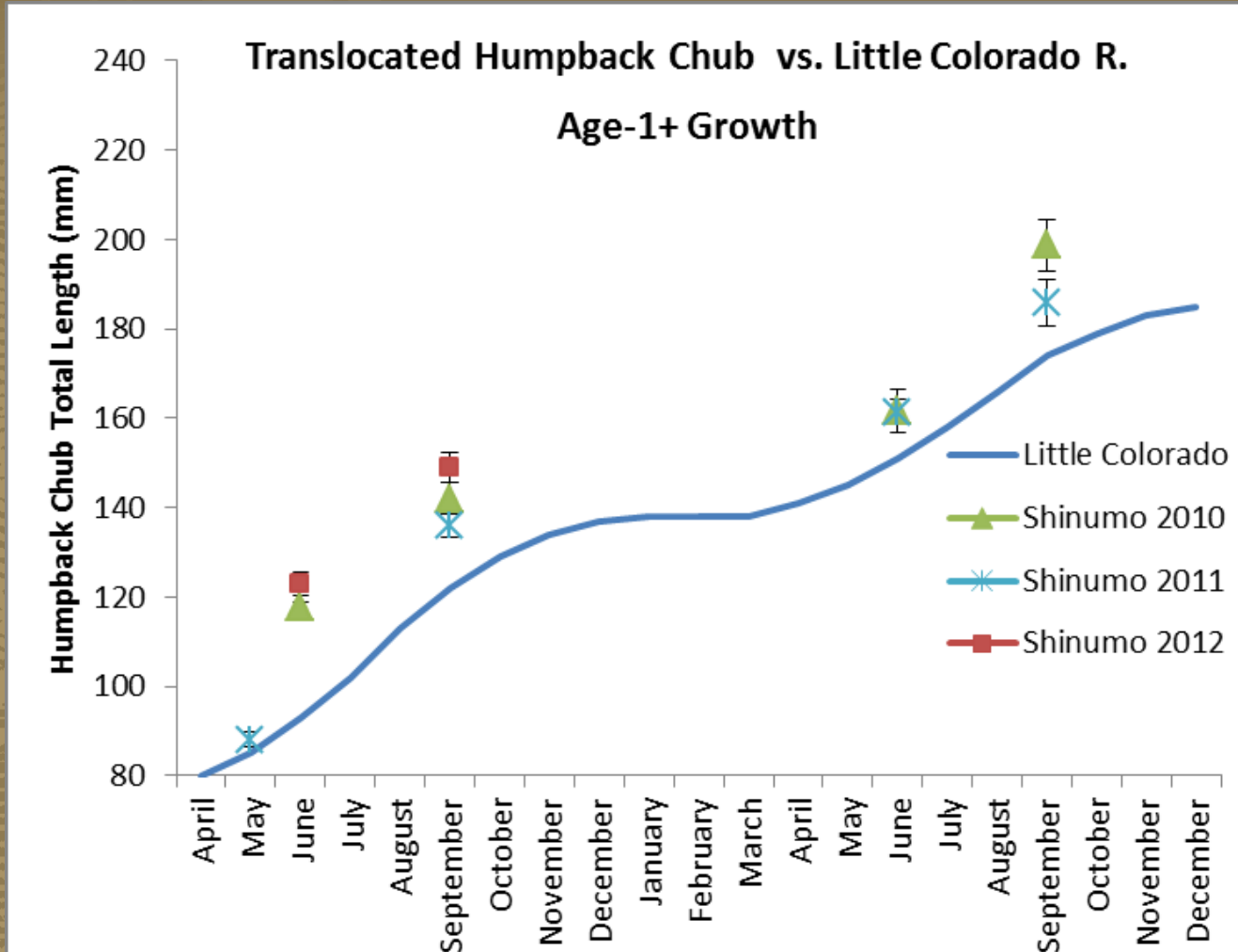


# Emigration - Shinumo

- 50.4% as of Jan., 2013
- Antenna efficiency: ??
- 2013 analysis in progress:
  - “Soft” release = higher retention
  - No 2013 fish in mainstem



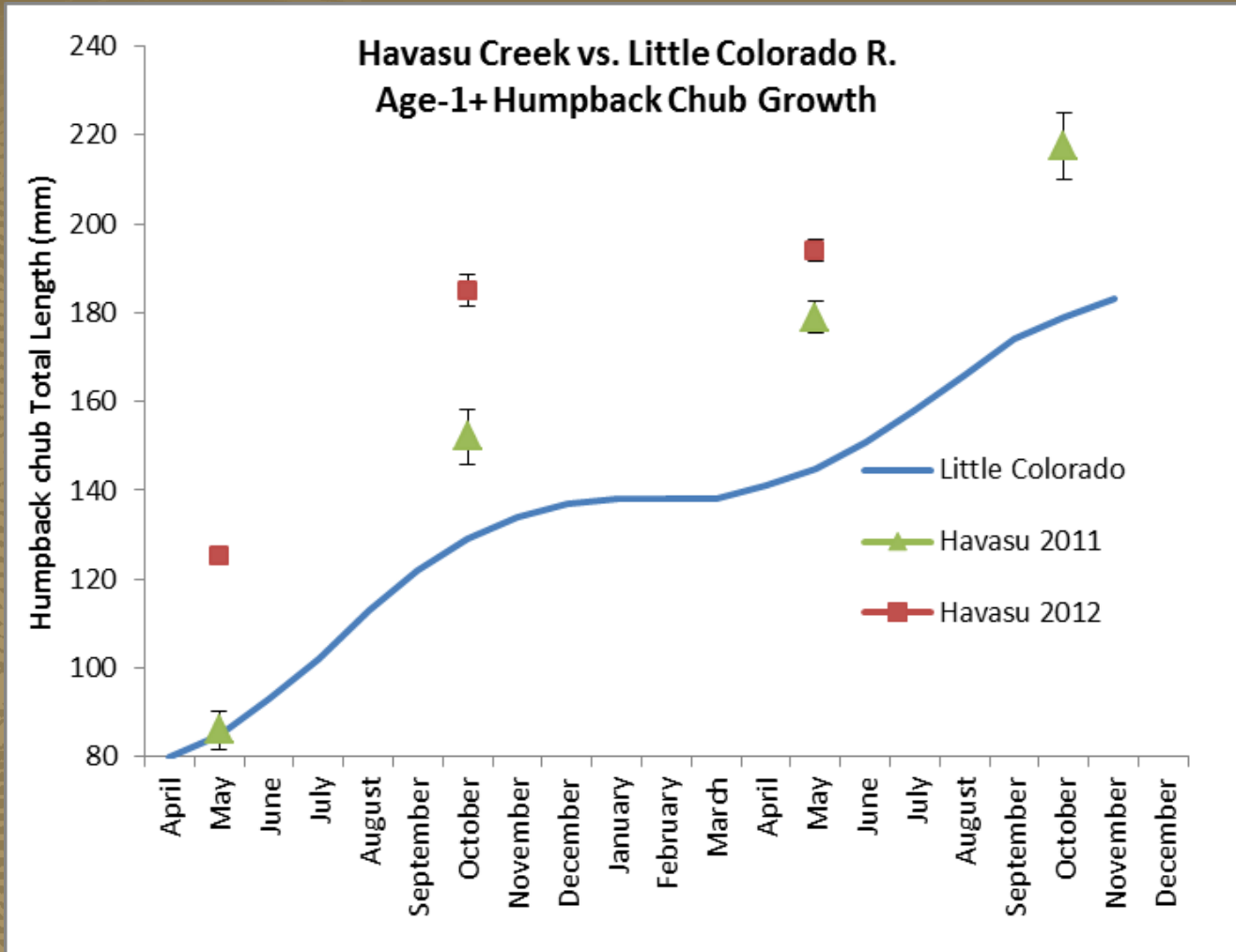
# Growth – Shinumo Creek



Robinson and Childs 2001 : LCR Growth



# Growth – Havasu Creek



# Reproduction?

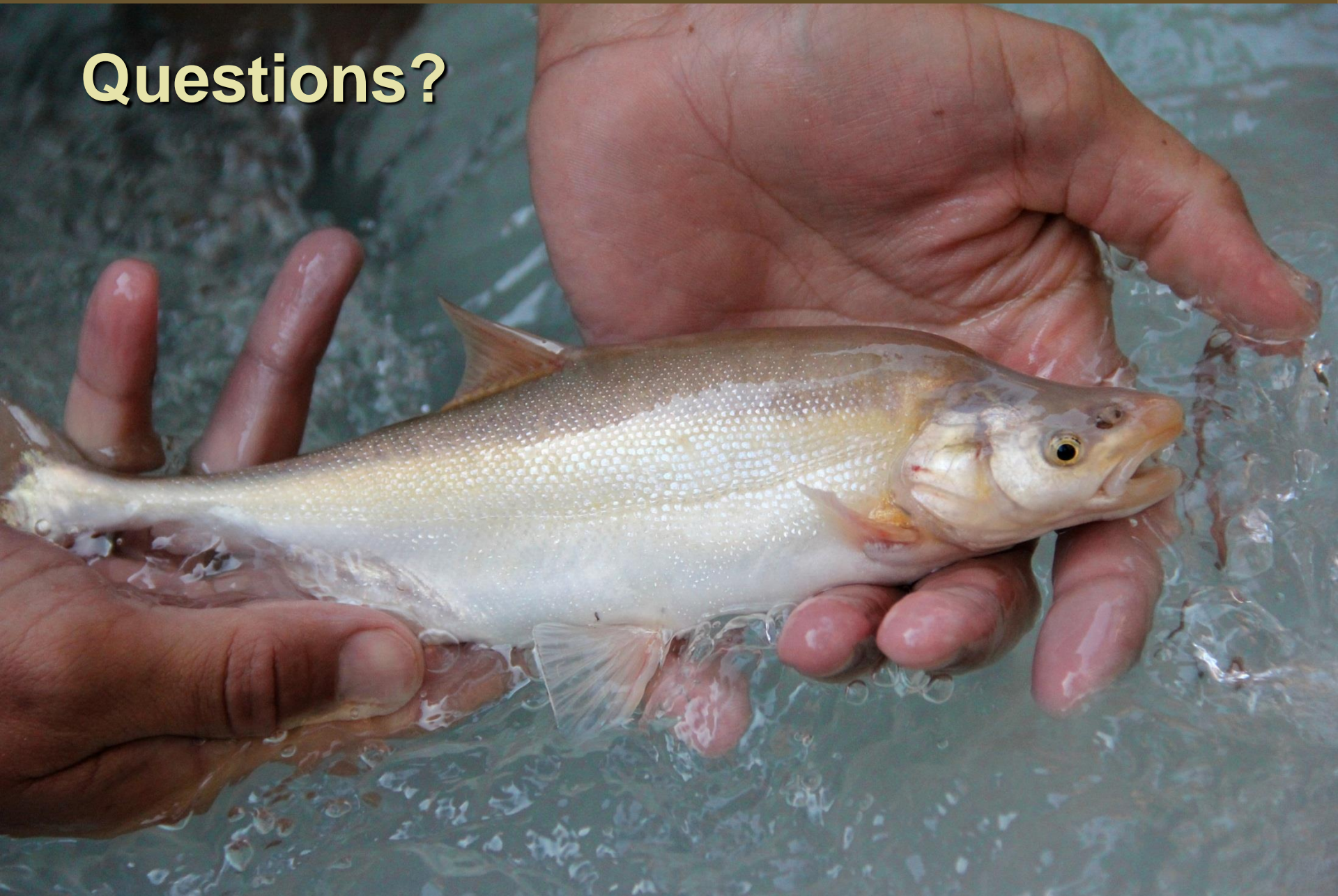
- Shinumo 2013:
  - No ripe fish
- Havasu 2013:
  - 2 ripe females
  - 2 untagged juveniles (ripe fish in 2012)
  - Ultrasound data (GCMRC)



# Will Translocations Augment Colorado River Humpback Chub Aggregations?

- Yes - See Bill Persons/Randy VanHaverbeke – GCMRC/USFWS

Questions?



Amy Martin Photo

# Reports/Publications

- Spurgeon (2012) Masters thesis. University of Missouri
- Spurgeon et al. (In Prep). Translocations of large river fishes: implications for conservation of endangered humpback chub.
- Trammell et al. 2012. Humpback chub translocation to Havasu Creek, Grand Canyon National Park: implementation and monitoring plan. NPS Natural Resource Report Series.
- Spurgeon et al. (In review). Settlement of humpback chub into novel food webs: considering species interactions in translocation studies. Journal of Aquatic Biology.