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
Background – Humpback Chub Translocations

- USFWS 1994 Biological Opinion – Establish a 2nd “Spawning Aggregation” of humpback chub

- Valdez et al. 2000 – Developed plan for establishing second population of humpback chub in Grand Canyon


- 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 2nd 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)
Tributary Translocations

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

Amy Martin/NPS Photos
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

**Humpback Chub - Population Estimates**

- June, 2011: 243
- May, 2012: 298
- May, 2013: 300
Population Estimates - Shinumo

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

![Humpback Chub - Population Estimates](image)
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

Translocated Humpback Chub vs. Little Colorado R.

Age-1+ Growth

Robinson and Childs 2001: LCR Growth
Growth – Havasu Creek

Havasu Creek vs. Little Colorado R.
Age-1+ Humpback Chub Growth

- Little Colorado
- Havasu 2011
- Havasu 2012
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?
Reports/Publications

- Spurgeon et al. (In Prep). Translocations of large river fishes: implications for conservation of endangered humpback chub.