Green Sunfish Removal in a Colorado River Backwater Below Glen Canyon Dam

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Colorado River Aquatic Biologist Meeting

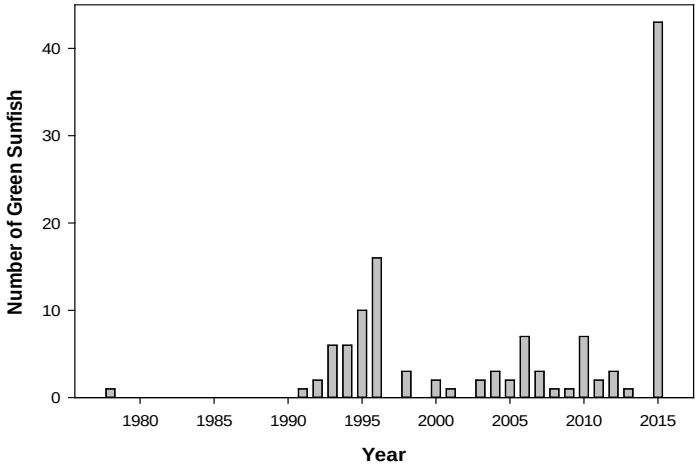
Nonnative Sampling

- AGFD search one night in July
  - Boat electrofishing
  - 12 sites
  - Dam spillways, backwaters, spring inflows, unique rocky shorelines

- 2015:
  - 208 Carp
  - 3 Flannelmouth
  - 43 Green Sunfish
  - 8 Walleye (at dam)

Green Sunfish Risk Assessment

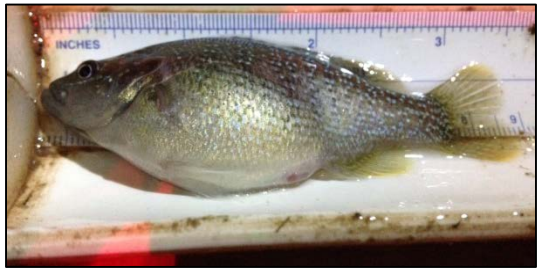
- Warm water nonnative fish dominate small ponds and streams of desert southwest
- Source
  - Glen Canyon Dam uses Francis-style turbines. Survival of small fish is 70% or more.
  - Intakes are located 230ft below water surface at full pool, but much closer now during drought conditions
- Life History
  - Native to Mississippi River Basin
  - Disperse during flood events
  - Prolific spawners
  - Highly predaceous

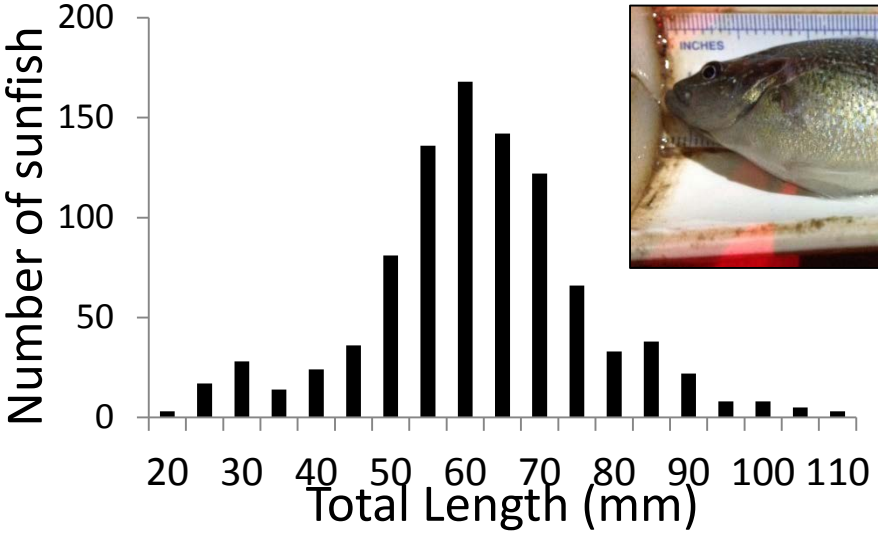


Mechanical Removal

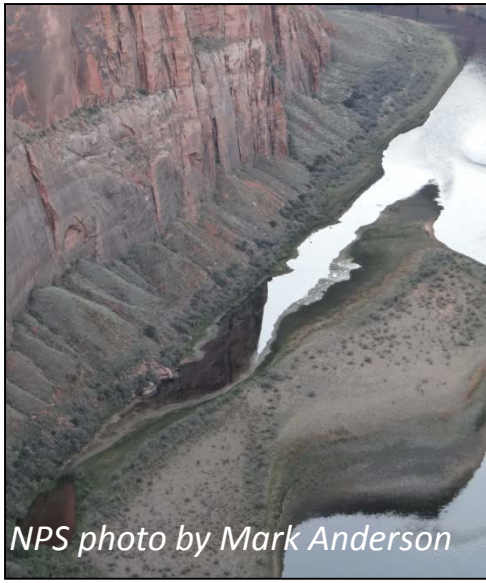
- July 6
  - 43 removed (AGFD)
- August 5
  - Emergency Green Sunfish Removal Effort Memorandum
- August 12 – 14
  - Boat and backpack efishing, minnow traps
  - 954 sunfish removed
  - Beneficial use to Zuni Aviary
- August 27 – 28
  - Boat and backpack efishing, seining
  - 2,574 sunfish removed
  - 706 in one seine haul!

Mechanical Removal





Mechanical Removal cont.


NPS photo by Mark Anderson

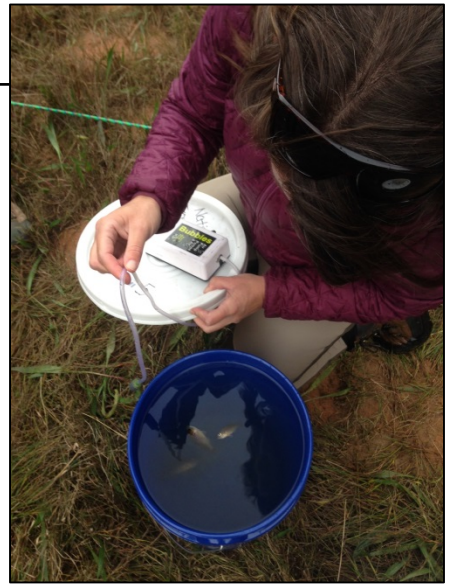
- September 30
  - Green Sunfish Risk Assessment Memorandum
- October 7
  - NPS installed permanent block net
- October 19
  - Approval of recommendation for no experimental high-flow release from Glen Canyon Dam
- October 27 – 29
  - Salvage efforts
    - 775 green sunfish removed
    - 40 carp, 70 rainbow trout, 1 flannelmouth
- November 2 – 6
  - Rotenone treatment

NPS photo by Brian Healy

Rotenone treatment

Main Slough	
Species	Count
Green Sunfish	180
Carp	117
Rainbow Trout	146
Flannelmouth Sucker	3
Bluegill	1
Channel Catfish	1

Upper Slough	
Species	Count
Green Sunfish	1785
Carp	108



Summary

- Best time to eradicate invasive spp is when first detected: numbers are low and distribution is limited
  - Props to everyone involved for working together to make these decisions and take action quickly
- Feel confident that renovation was successful
- However, likely not fixing the problem
  - Monitoring needs?
- Ongoing issue

Table 1. Surface water temperature; 28 Aug 2015

Location	Temperature (°C)
Mainstem (RM -11.4)	12.9
Midpoint Slough	16.3
Upper Slough (multiple locations)	22.8

Acknowledgments

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Can't forget: Brian Healy, Scott Vanderkooi, Chris Cantrell, Rosemary Sucec, Julie Carter, and many more!