Native Fish Habitat Restoration in Selected Tributaries of the Grand Canyon

A Potential Recovery Effort for Native Fishes

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Purpose

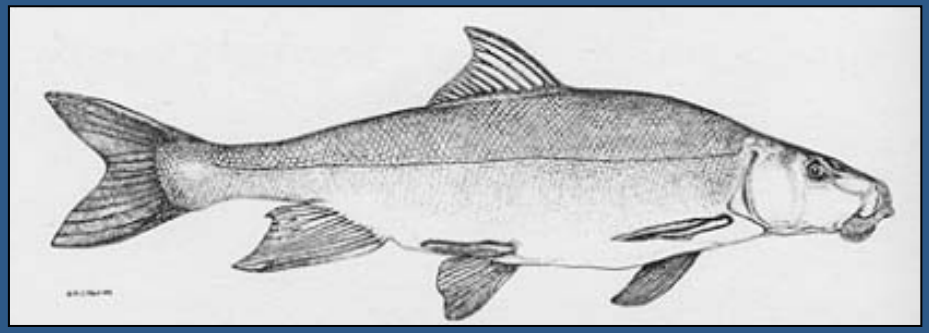
- **The National Park Service is charged with preserving and protecting the natural resources within Grand Canyon.**

  In tributaries of the Grand Canyon, the native fish community has been impacted by a host of non-native fish species

- **Removing non-native fish may provide an opportunity for recovery of the native fish community in tributaries of the Colorad**

Native Fish in Tributaries of the Colorado River

Speckled dace



Flannelmouth sucker

Bluehead sucker

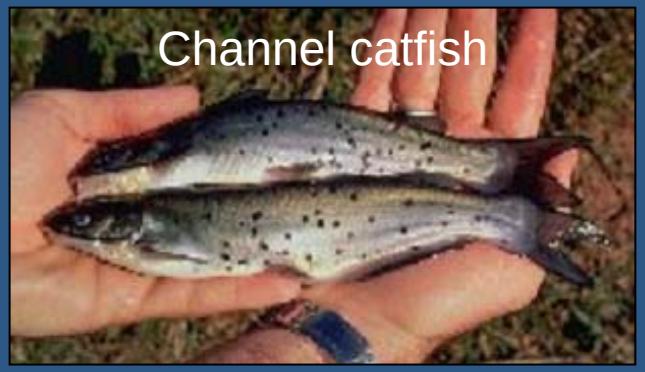
Humpback chub

Nonnative Fish Species Found in Tributaries of the Grand Canyon

Brown Trout

Rainbow Trout

Some Non-native Fish Species Found in Tributaries of the Grand Canyon



Non-native fish removal efforts involve three main components

- **Construction and Operation of a Temporary Weir in Bright Angel Creek**
- **Bright Angel Creek Trout Removal and Fish Community Monitoring**
- **Native Fish Habitat Restoration in Selected Grand Canyon Tributaries**

Operation of the Temporary Weir in Bright Angel Creek

- Constructed and installed a temporary weir above the lower foot bridge.
- Spring 2004 operation to monitor spawning native suckers.
- Checked weir and processed fish twice per day: morning and evening.
- Created and posted a fact sheet at Phantom Ranch, coordinated efforts with NPS staff, and maintained communication with the public.

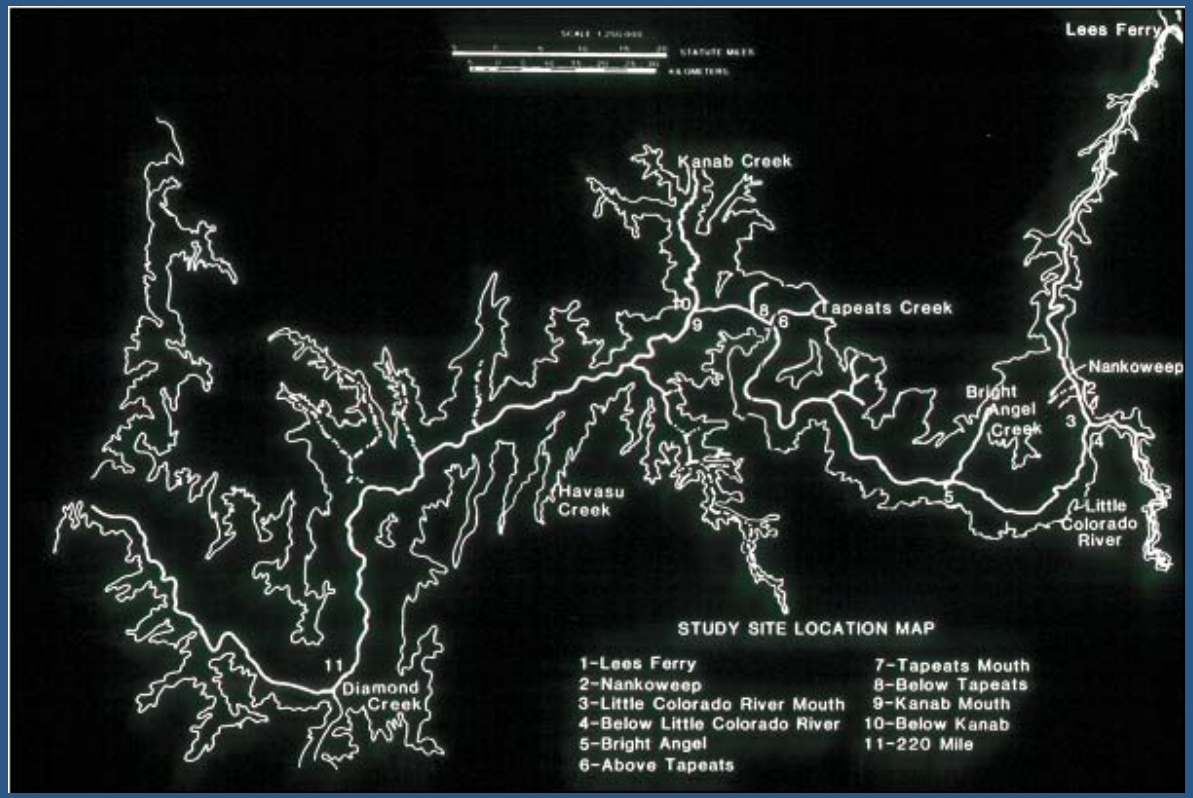
Trout Removal in Bright Angel Creek

- Conducted baseline population estimates of fish community in late Summer 2003.
- NEPA compliance is underway.
- Trout removal management action will begin in late Fall 2004, including mechanical removal with backpack electrofishing.

Native Fish Habitat Restoration in Selected Grand Canyon Tributaries

Selected tributaries include:

- Shinumo Creek
- Tapeats Creek
- Kanab Creek



Methods for Native Fish Habitat Restoration in Selected Tributaries

- In February and March 2004, we conducted reconnaissance trips to evaluate potential tributaries for restoration.
- Two trips scheduled for 2005.
- Determine the feasibility of non-native fish removal in these tributaries.

Methods for Native Fish Habitat Restoration in Selected Tributaries

For each tributary, we used two 4–5 person crews:

- One crew based from river camp (working the lower 3-4 miles); and
- One crew based from a remote camp supported by backpacking in personal and sampling gear.

Methods for Native Fish Habitat Restoration in Selected Tributaries

- Electrofish reaches for population estimates using removal method.
- Remove all trout species and other non-natives.
- Determine baseline fish populations in tributaries.

Non-native Fish Handling Protocol

- Measure (TL, FL)
- Examine for sex and sexual condition
- Examine stomach contents

Shinumo Creek

- Shinumo Creek was sampled from the confluence to 200m upstream of Flint Creek
- Speckled dace were most abundant fish species
- Bluehead sucker were not found above a waterfall located 7km upstream of the Colorado River confluence
- 57 trout were collected in a 5 km reach of Shinumo Creek below the Flint Creek confluence
- Dace and blueheads were less abundant where they co-occurred with trout

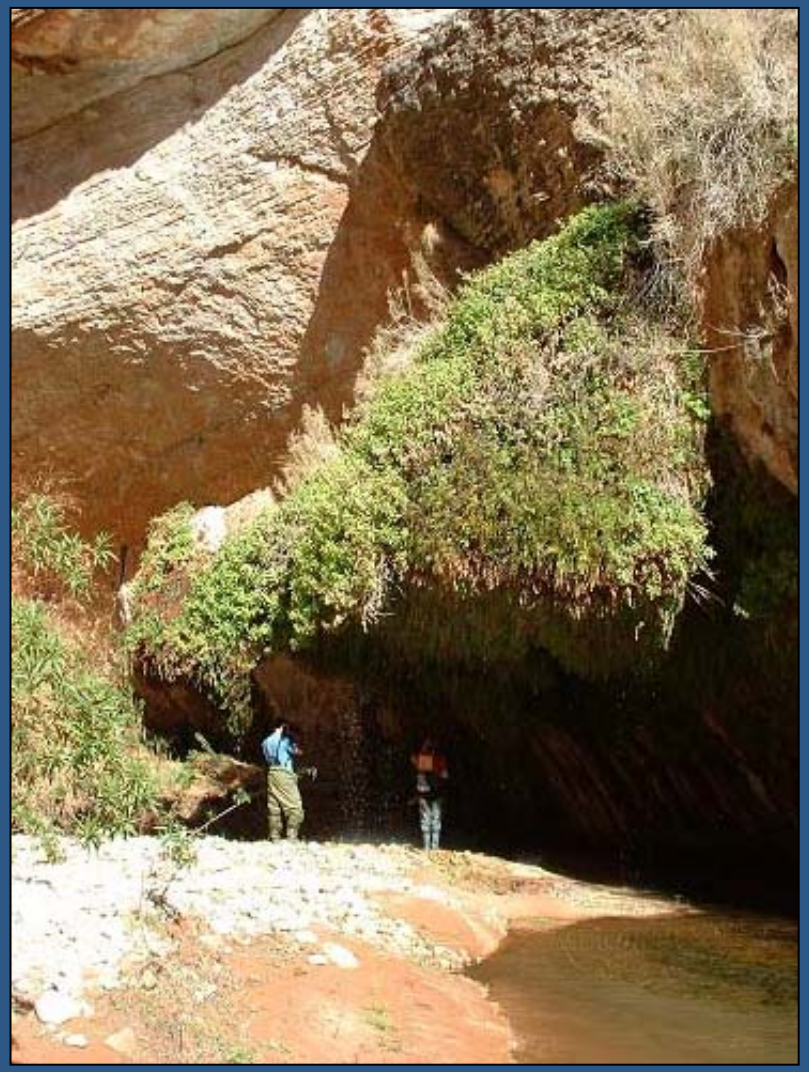
- RBT caught in Shinumo Creek with speckled dace in gut

Tapeats Creek

- Tapeats Creek was sampled from the confluence to 6 km upstream of Thunder River
- Trout were the only species found, many were in spawning condition
- Swift water limited effectiveness of backpack shocking
- Gill nets were used in deep pools but were not effective

Kanab Creek

- Kanab Creek was sampled from the confluence to Showerbath Springs
- Trout and small-bodied non-native fish occurred in the lower 7 km, though dace were most abundant
- Native suckers were showing signs of spawning activity
- Dace and blueheads were the only species that occurred between Whispering Falls and Showerbath Springs



Goals for Native Fish Habitat Restoration Efforts

- **Determine the feasibility of reducing non-native fishes in Grand Canyon tributaries.**

- **Develop a long-term action plan for controlling and managing non-native fishes in tributaries of the Grand Canyon.**

Conclusions

- **Shinumo and Kanab Creeks would be feasible candidates for native fish habitat restoration efforts**
  - **Dominated by native fish community**
  - **Conditions are conducive to removal of trout with backpack shockers**
  - **Angling may be used to remove trout from deep pools**
  - **Shinumo Creek is blocked from upstream dispersal of non-natives by a natural barrier 120 m upstream of confluence**
  - **Kanab sustains non-native fish populations only in the 7km reach upstream of the confluence**