

Glen Canyon Dam Technical Work Group
Agenda Item Information
October 29, 2014

Agenda Item

2014 Shinumo Creek Flood

Presenter

Jan Balsom Grand Canyon National Park

Previous Action Taken

N/A

Relevant Science

N/A

Background Information

Recent flash flooding in the Shinimu Creek drainage has led to dramatic changes to creek morphology, vegetation and physiography. Coupled with the flash flood/debris flow effects are the effects from the Galahad Fire. This presentation will provide a review of past translocation activities, current conditions in Shinimu Creek and possible next steps for ecological restoration.

In September, NPS crews determined that only a few dace remain in the stream as a result of the flood. Crews went into the headwaters and surveyed the Merlin Abyss Creek area, a tributary to main Modred Abyss Creek and main Shinumu and found a remnant trout population in about 1/2 mile of Merlin Abyss Creek. On October 29, crews will return and attempt to eliminate the trout using electroshocking gear.

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



NPS Shinumo Creek Updates: Fires, Floods, and Humpback chub Translocations

Jan Balsom
Deputy Chief, Science and Resource Management



Shinumo Creek- Translocations

- Valdez et al. (2000): Considered Havasu and Shinumo creeks priorities for translocations
- Conservation measure: 2008, 2011 Biological Opinions:
 - Shinumo, Havasu, Bright Angel (following trout control)
- Goals/Objectives established in NPS Fish Management Plan:
 1. Primary: Develop second spawning population
 2. Provide rearing (grow-out) opportunities, augmentation of mainstem aggregations

Shinumo Creek - Project History

- Translocated 1,102 (total) humpback chub:
 - 2009: 302
 - 2010: 300
 - 2011: 300
 - 2013: 200
- June 2014 Chub Population:
 - $\approx 125 - 190$ (preliminary)
 - All years represented



Shinumo Results – 2009-2013

- Meeting Objectives for Rearing/”grow-out”
- Annual growth greater than Colorado River, less than LCR 2 out of 3 years (2013-14 results pending)

Comparison: Annual Growth (total length, millimeters)		
Colorado River	Little Colorado River	Shinumo Creek
27 mm	52-58 mm	2009: 33 mm 2010: 37 mm 2011: 65 mm

- Large portion of mainstem captures = translocated fish
- No reproduction

Galahad Point Fire – May-July 2014



Galahad Fire
Vicinity Map



0 1.25 2.5 5 Miles

 Park Boundary
 Galahad Fire Perimeter

June 19, 2014
6,143 Acres



Fire on the Ground; Smoke in the Air



CE YOUR AMERICA

Galahad Point Fire – May-July 2014

- Shinumo Creek flooding (containing ash) reported in July and August
- PIT tag antenna destroyed in July
- September monitoring results:
 - No humpback chub, bluehead sucker, rainbow trout captured
 - >99% decline in fish, overall (some speckled dace were found)
 - Few aquatic insects
 - Archaeological site damaged
 - Significant channel alteration, pools filled
 - 80-90% loss of riparian vegetation

The new normal?





EXPERIENCE YOUR AMERICA

Bass Winter Camp at Shinumo

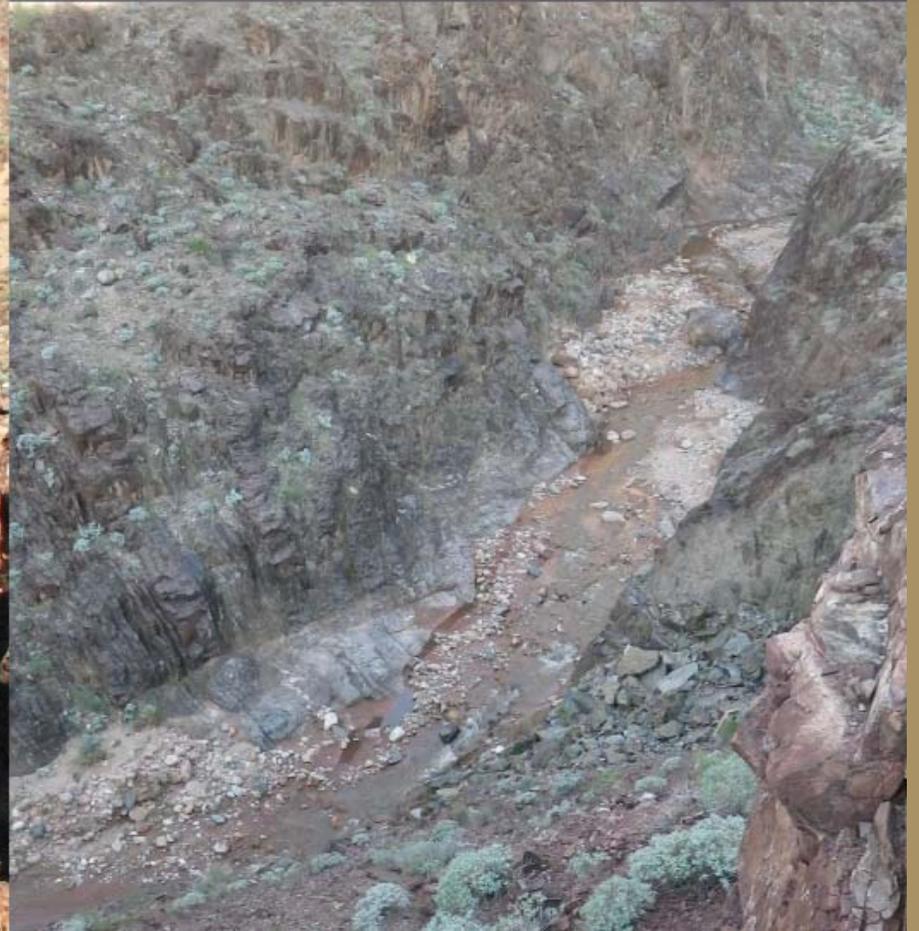
Occupation dates 1900-1920



EXPERIENCE YOUR AMERICA

BEFORE AND AFTER

Sept 2009 and Sept 2014
reach 1



BEFORE AND AFTER

June 2009 and Sept 2014
site of antenna array and job box



BEFORE AND AFTER

June 2009 and July 2014 PIT tag antenna array at bottom of Reach 1



Amy Martin Photography

BEFORE AND AFTER

June 2011 and Sept 2014
“The Chub Pool” ; reach 4



Continued.....

- Reconnaissance of Upper Shinumo Watershed:
 - Extensive flood and ash impacts
 - Merlin Abyss Creek:
 - High density of rainbow trout, ½ mile of undamaged habitat
 - No fish observed elsewhere (Modred Abyss Creek/Shinumo Creek)
 - Bluehead sucker and humpback chub = extirpated



Brian Healy NPS Photo

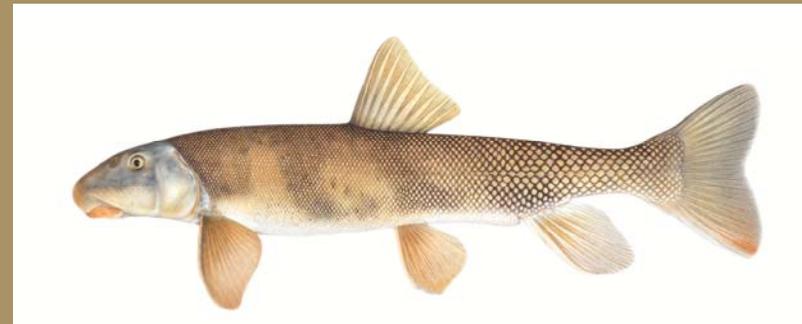


Illustration by Joe Tomellari

Next steps....

- Remove remaining trout in Merlin Abyss
 - Action needed before spawning/dispersal
- Monitor habitat recovery (if possible):
 - Aquatic macroinvertebrates
 - Riparian vegetation
 - Stream channel geomorphology
 - Fish(?)
- In 3-5 years(?):
 - Restore native fish community throughout watershed:
 - Humpback chub, speckled dace, bluehead sucker