



## Expanded Non-native Aquatic Species Management Plan in Glen Canyon National Recreation Area and Grand Canyon National Park below Glen Canyon Dam—An Environmental Assessment



### You're Invited!

The National Park Service (NPS) requests your input on an Environmental Assessment (EA) for an Expanded Non-native Aquatic Species Management Plan in Grand Canyon National Park and Glen Canyon National Recreation Area below Glen Canyon Dam. Your participation is vital to the planning process. There are many ways to be involved, including attending one of the public scoping open houses or on-line webinars. You can submit electronic or written comments (see last page for more information). Public scoping will be held for a 30-day period from November 15, 2017 to December 14, 2017.

### Public Meetings and Webinars

Scoping provides opportunities for the public to engage on matters related to the proposed action, environmental issues that should be addressed, potential alternatives, and sources of data that should be considered. Because the EA will analyze many ecological, recreational and economic issues, your participation is encouraged and needed. NPS will hold one online webinar and two in-person meetings. During the online webinar, our staff will be available to answer questions, but we will not record or accept verbal or chatted comments. The in-person meetings will follow an open house format and will include a presentation by our staff. There will be an opportunity to speak with our staff after the presentation. We will not record or accept verbal comments however we will have laptops for entering electronic comments or notecards for hand-written comments.

#### November 28, 2017

6:00-8:00 pm MST

Public Webinar

Phone: 888-946-2716

Passcode: 5935870

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Join as guest (enter name)

Select "screen share only" at bottom

DO NOT choose "computer" or "phone"

#### December 6, 2017

6:00-8:30 pm MST

Public Open House

Glen Canyon Headquarters

691 Scenic View Drive

Page, AZ 86040

#### December 7, 2017

6:00-8:30 pm MST

Public Open House

Flagstaff Aquaplex

1702 N Fourth Street

Flagstaff, AZ 86004

## Project Background

In 2013, the NPS completed the *Comprehensive Fish Management Plan* (CFMP). The intent of that effort was to provide guidance for managing fish within the Colorado River and its tributaries from Glen Canyon Dam to Lake Mead. Since the completion of the CFMP and the 2016 *Long Term Experimental and Management Plan* (LTEMP) for Glen Canyon Dam operations, increases in potentially harmful non-native fish have been documented. This plan is intended to address this concern. The NPS is coordinating with the Bureau of Reclamation (Reclamation), the Arizona Game and Fish Department, the US Fish and Wildlife Service and many other federal and non-federal cooperating agencies and traditionally associated tribes on this project.

## Purpose of and Need for the Project

The purpose of this action is to provide additional tools beyond what is available under the CFMP and the LTEMP, in order to allow the NPS to prevent, control, minimize or eradicate potentially harmful non-native aquatic species, or the risk associated with their presence or expansion, in the action area. The need for this action is due to the increase of green sunfish, brown trout and potential expansion or invasion of other harmful non-native aquatic species that threaten downstream native aquatic species including listed species or the Lees Ferry recreational rainbow trout fishery. These non-native species have become an increasing threat due to changing conditions since the completion of the 2013 NPS CFMP and the 2016 LTEMP. Existing measures may be inadequate to address potentially harmful non-native aquatic species.

## Potentially Harmful Non-Native Aquatic Species

For the purposes of this plan, potentially harmful non-natives are defined as those fish, aquatic plants, or aquatic invertebrate species that are not native to the action area and that may pose a threat to native species (including aquatic federally or state listed species), or may pose a threat to the Lees Ferry recreational rainbow trout fishery. Management of rainbow trout for the purposes of this plan will be consistent with the CFMP and the LTEMP. Under the CFMP, within the boundaries of Grand Canyon National Park, non-native brown trout and rainbow trout are managed to minimize their threat to native and endangered fish. Under the LTEMP, trout management flows may be used to reduce rainbow or brown trout migration and downstream effects on endangered fish. Moreover, NPS and the Arizona Game and Fish Department manage for a quality recreational rainbow trout fishery within Glen Canyon National Recreation Area in the Glen Canyon Reach (NPS 2013, AFGD 2015). New actions put in place under this plan will continue to be consistent with the CFMP and the LTEMP goal to maintain *“a healthy high-quality recreational rainbow trout fishery in Glen Canyon National Recreation Area and reduce or eliminate downstream trout migration consistent with NPS fish management and Endangered Species Act compliance.”*



Endangered Razorback Sucker (NPS)



Endangered Humpback Chub (Courtesy of AGFD)



Fisherman at the Recreational Rainbow Trout Fishery in Lees Ferry (Courtesy of George Andrejko, AGFD)



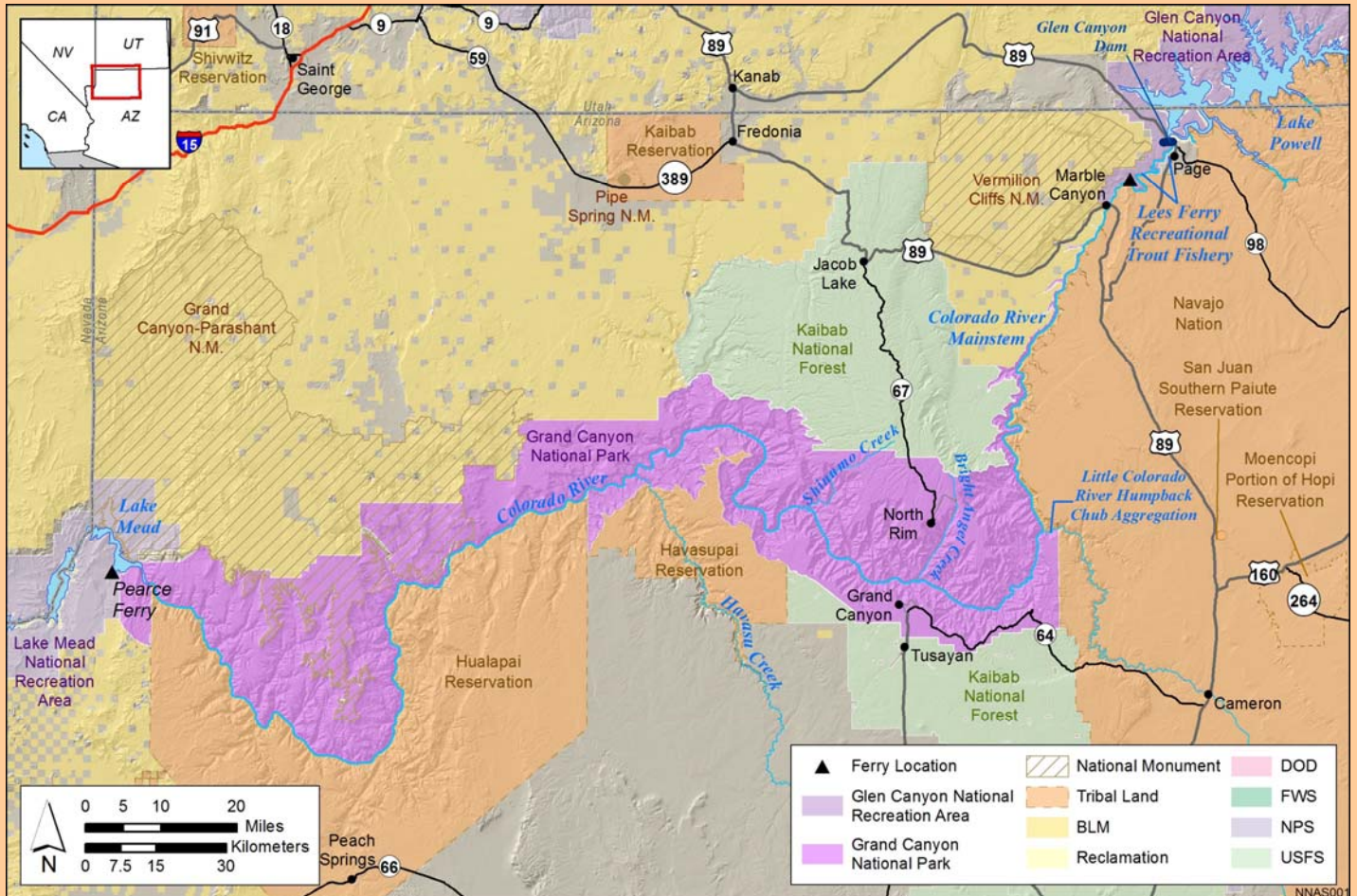
Brown Trout (USGS)



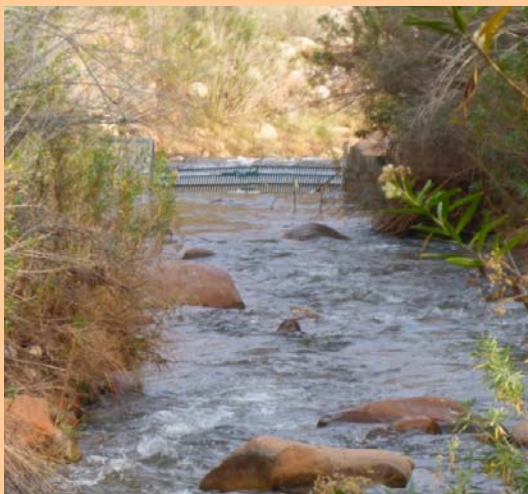
Green sunfish (USGS)

## Action Area

The action area for this plan will be identical to the one identified in the CFMP, from the Glen Canyon Dam to Lake Mead, including the Colorado River and its tributaries (primarily Bright Angel, Shinumo and Havasu creeks) in Grand Canyon National Park, and the Glen Canyon Reach of the Colorado and Paria Rivers in Glen Canyon National Recreation Area.



Photos of larger tributaries:



Bright Angel Creek (NPS)



Entrance to Havasu Canyon (NPS)



Shinumo Creek (NPS)

## Cooperating Agencies

The following entities are formal cooperating agencies for this EA process:

- Bureau of Reclamation
- Western Area Power Administration
- US Fish and Wildlife Service
- Arizona Game and Fish Department
- Colorado River Board of California
- Colorado River Commission of Nevada
- Southern Nevada Water Authority
- Utah Associated Municipal Power Systems
- Upper Colorado River Commission
- Pueblo of Zuni

Other tribes have expressed interest in being cooperators and we are working on agreements with them.

## Issues

An “issue” describes the relationship between actions and environmental (natural, cultural, and socioeconomic) resources. Issues are usually problems that either the current situation has caused, or that any of the proposed options might cause. However, they may also be questions, concerns, problems, or other relationships, including beneficial ones. For the Expanded Non-native Aquatic Species Management Plan, the NPS has identified potential issues related to the following:

- Geology, soils, vegetation
- Wildlife and species of special concern
- Fish, amphibians, aquatic invertebrates
- Water resources, floodplains, and wetlands
- Cultural and ethnographic resources
- Tribal perspectives on resources
- Socioeconomics and environmental justice
- Human health and safety
- Visitor use and experience
- Wilderness
- Soundscapes

## No Action Alternative (Alternative A)

A No-Action Alternative will be considered for this project. Under No Action, the tools identified in the CFMP and the LTEMP would remain available for managing potentially harmful non-native fish species in the Colorado River and its tributaries. Changes to the CFMP or LTEMP would be outside the scope of this EA—this EA only evaluates tools that would be added in addition to those that exist under CFMP or LTEMP.

### Comprehensive Fish Management Plan

- Outreach
- Detection monitoring
- Removal of incidental captures
- Source identification
- Targeting angling (non-commercial administrative permit)
- Emergency rapid response to detected expansion or new non-native species
- Comprehensive trout control (in Bright Angel Creek and GCNP source areas as identified)
- Adaptive management, outcomes, and triggers
- Beneficial use of non-native fish removed
- See full text of the CFMP [here](#)

### Long-Term Experimental and Management Plan

- Mechanical removal of trout in Little Colorado River reach when triggered
- Trout management flows (May through August) applicable to both rainbow and brown trout
- Other experimental flows and actions allowed under the LTEMP record of decision
- See full text of the LTEMP [here](#)

## Elements Common to All of the Action Alternatives

All of the action alternatives would include all elements of no-action without modification. They may also include decision trees for sequencing the use of an options or a list of conditions were appropriate, and monitoring for unacceptable adverse effects that would initiate an “off-ramp” or mitigation actions.

## **The Proposed Action - Most Expanded Control Methods (Alternative B)**

This is the proposed action, which is the initial NPS proposal to address the purpose and need for taking action that was developed in coordination with cooperating agencies. It represents one alternative that will be considered during the EA process. In addition to the proposed action, the NPS will consider various approaches to meet the purpose and need. The NPS intends to evaluate a no-action alternative as described above and the additional action alternatives on the following page. The NPS will also consider other reasonable alternatives that are suggested during the scoping period. The NPS will not select an alternative for implementation until after the EA is completed. For proposed actions that may involve other agencies' jurisdiction, the NPS will collaborate through cooperating agency agreements.

Mechanical Controls—These would apply in situations not already addressed under existing compliance plans (rapid responses, long-term trout removal in Bright Angel Creek or at the mouth of the Little Colorado River are already addressed under CFMP and LTEMP). These would NOT include mechanical removal of rainbow trout in the Glen Canyon reach where we are managing for a recreational rainbow trout fishery. These include long-term intensive and repeated electrofishing and trapping of all age-classes of harmful non-natives, and site-specific use in Glen Canyon reach to target brown trout and green sunfish. This would include monitoring and potential adaptive responses if incidental take of rainbow trout exceeded expected levels. These include use of mechanical disruption in non-native species spawning areas or use of mechanical concussive devices in small backwater areas and dredging or mechanical harvesting of non-native plants. There will be no mechanical treatments in Ribbon Falls Creek or Deer Creek.

Physical Controls - These include habitat modification or exclusion of specific side channel areas smaller than 5 acres that are identified as source areas for harmful non-natives. Modifications may include long-term fish barriers, weirs, exclusion screens, and long-term nets that inhibit passage into small backwater areas and limited tributary areas; use of pumps and above-ground piping to alter backwater temperatures and reduce non-native spawning ;and use of black plastic or other covering to treat non-natives in small backwaters (by raising temperatures, lowering oxygen, or limiting sunlight). At the River Mile (RM) –12 slough where green sunfish have been found in recent years, a wide range of location-specific modifications would be considered including: a barrier between the upper and lower slough, a barrier between the lower slough and river, pumps and above ground piping to lower the water temperature in the upper slough, periodic dewatering of the upper slough, channelization or underground piping to lower water temperature in upper slough, filling in the upper slough, or dredging to connect the upper and lower sloughs.

Biological Controls - These include introducing YY male non-native fish to reduce breeding success by creating a skewed sex ratio. At the RM –12 slough, site-specific measures may include moving large numbers of non-native common carp collected from other parts of the Glen Canyon reach to the upper slough to overwhelm the capacity (in terms of ammonia and dissolved oxygen) of this small slough, which would result in a die-off of the non-native fish in the upper slough. It may also include introduction of humpback chub or Colorado pikeminnow to the upper slough to prey on and compete with non-natives.

Chemical Controls - Treatments of non-native fish could include: 1) rapid responses for non-natives in backwaters, 2) fishery renovation prior to native introduction in tributaries with a natural barrier, such as Bright Angel above “Split Rock” or Shinumo creek, and 3) a last resort in backwaters if other methods are unsuccessful. For fish, rotenone or other registered pesticides, or approved experimental treatments would be used. For non-native plants, approved herbicides or non-toxic dyes may be applied. For mollusks, approved molluscicides would be applied. Pheromones or other attractants may be used in lure non-natives into traps. Chemical treatments would not occur in Ribbon Falls Creek or Deer Creek.

Fishing or Take Changes—These include a bounty system, tournaments to target non-natives or other incentives for anglers to catch and remove specific nonnatives. They also include coordination between federal and state agencies to explore education and/or regulation changes for catch-and-keep regulations for specific harmful non-native species (such as brown trout).

## Moderately Expanded Control Methods (Alternative C)

Mechanical Controls—Similar to Alternative B, but differs in these ways:

- Includes long-term mechanical controls, but restricts long-term mechanical removal of brown trout in Lees Ferry to a greater degree by focusing only on spawning areas to limit incidental take of rainbow trout.
- Does not include mechanical concussive devices in small backwater areas.

Physical Controls - Similar to Alternative B; only differs for site-specific options:

- At the RM -12 slough, a more moderate range of modifications would be considered under this alternative including use of a barrier between the upper and lower slough, barrier between lower slough and river, pumps or above ground piping to reduce the upper slough water temperature, periodic dewatering of the upper slough, or dredging to connect the upper and lower sloughs.
- RM -12 options would not include channelization or underground piping to lower water temperature in upper slough, or filling the upper slough.

Biological Controls - Similar to Alternative B, but differs in these ways:

- Would not include the use of common carp to overwhelm non-natives in the RM -12 slough.
- Would introduce only humpback chub (but not Colorado pikeminnow) to the upper slough to prey on and compete with non-natives.

Chemical Controls - Same as Alternative B.

Fishing or Take Changes—Same as Alternative B.

## Most Restrictive/Least Expanded Control Methods (Alternative D)

Mechanical Controls—Similar to Alternative A (no action), but includes only one element from the other action alternatives:

- Dredging or mechanical harvesting of non-native aquatic plants such as didymo.

Physical Controls - Same as Alternative C.

Biological Controls - Same as Alternative A (no action), no biological control options.

Chemical Controls - Same as Alternative A (no action), no chemical control options.

Fishing or Take Changes—Same as Alternative B and C.

All action alternatives include all actions from the CFMP and LTEMP and do not modify the actions from the CFMP and LTEMP.



Black plastic treatment of upper slough at RM -12(NPS)



Mechanical non-native fish removal in Shinumo Creek (NPS)

Photos of the Upper and Lower Sloughs at RM -12 in Lees Ferry where green sunfish have been found in recent years (NPS)



## Where We Are in the NEPA Process

One of the first steps in the NEPA process is to conduct public scoping to gather input from the public, federally recognized tribes, interest groups, and agencies regarding the proposed project, alternative actions, and resource concerns. As described below, there will be several opportunities for public input.

All comments, questions, and suggestions related to the proposed action are welcome and will be considered during preparation of the EA. During the public scoping period the following types of comments are particularly helpful:

- Information about the project area that the NPS should consider during the analysis,
- Information about how you use the project area and how the project might affect that use,
- Other projects or activities that might affect or be affected by the project,
- Resource and other impacts that should be considered, and
- Other ideas, studies, data, or alternative ways of meeting the project objectives.

<b>November 15, 2017</b>	<b>30-day Public Scoping Period Begins</b>
<b>November 28— December 7, 2017</b>	<b>Public Scoping Meetings Webinar Nov 28, Page Dec 6, Flagstaff Dec 7, 2017</b>
<b>December 14, 2017</b>	<b>Public Scoping Period Concludes</b>
<b>Fall/Winter 2017/2018</b>	<b>NPS Reviews Public Comments, Analyzes Impacts and Prepares the EA</b>
<b>Spring/Summer 2018</b>	<b>EA Available for 30-day Public Review and Comment Public Meetings</b>
<b>Summer 2018</b>	<b>NPS Reviews and Analyzes Comments, Prepares Errata, Completes Consultations with Tribes and USFWS</b>
<b>Fall 2018</b>	<b>NPS Issues Decision Document, as appropriate</b>

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## How to Comment

### There are three methods for submitting comments:

1) Submit comments electronically at: [https://parkplanning.nps.gov/Expanded\\_Nonnative](https://parkplanning.nps.gov/Expanded_Nonnative) (preferred method)

2) Submit written comments at an in-person public meeting (computers or notecards available)

3) Submit written comments by sending a letter to:

ATTN: Kirk LaGory, Expanded Non-native Aquatic Species Management Plan

Argonne National Laboratory, 9700 South Cass Avenue—EVS/240, Argonne, Illinois 60439.

Comments will not be accepted verbally or by fax, email, or in any way other than those specified above. Bulk comments in any format (hard copy or electronic) submitted on behalf of others will not be accepted. To be most useful to the planning process, we request you submit comments no later than December 14, 2017.

*Please include your full name and address and/or email address with the comments so we may add you to our mailing list for future notices about this process. You should be aware that your entire comment—including personal identifying information such as your address, phone number, and e-mail address—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.*

## Keep Informed

For updates and information about the process, press releases, newsletters, planning documents, and the EA when completed, please visit our website at:

[https://parkplanning.nps.gov/Expanded\\_Nonnative](https://parkplanning.nps.gov/Expanded_Nonnative)