



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



EA Public Release for Comment

The National Park Service (NPS) is seeking public comments on an Environmental Assessment (EA) for an Expanded Non-native Aquatic Species Management Plan in Glen Canyon National Recreation Area (GCNRA) and Grand Canyon National Park (GCNP) below Glen Canyon Dam. Your participation is vital and there are many ways to be involved. You can attend one of the public open houses or the on-line webinar as well as submitting electronic or written comments (see last page for details). Comments are due October 11, 2018.

Public Meetings and Webinars

Open houses provide an opportunity for the public to ask questions about the proposed action or the analysis. The in-person meetings will follow an open house format and will include a presentation by our staff. The public will have an opportunity to speak with NPS staff after the presentation. The NPS will not record or accept verbal comments at the open houses; however, we will have laptops for people to enter their comments electronically or notecards to submit hand-written comments.

Public Webinar September 20 2018	Open House Page AZ September 25, 2018	Open House Flagstaff AZ September 26, 2018	Open house Phoenix AZ September 27, 2018
5:00-6:30 pm MST (AZ) 6:00-7:30 pm MDT (CO, UT) Phone: 888-790-2024 Passcode: 9535626 https://bluejeans.com/7293338944 Join as guest (enter name) Select "screen share only" at bottom DO NOT choose "computer" or "phone"	6:00-8:00 pm MST (AZ) Glen Canyon Headquarters 691 Scenic View Drive Page, AZ 86040	6:00-8:00 pm MST (AZ) Flagstaff Aquaplex 1702 N Fourth Street Flagstaff, AZ 86004	6:00-8:00 pm MST (AZ) Arizona Game & Fish Dept. Eagle Room 5000 W Carefree Hwy Phoenix, AZ 85086

Project Background

The NPS is concerned recent increases in green sunfish and brown trout in the Glen Canyon Reach pose a risk to endangered fish in downstream areas. Both species have high predation rates on native fish and, if left unmanaged, could lead to large numbers of these species migrating downstream from the Glen Canyon Reach where they could negatively impact the endangered humpback chub population. As a result, the NPS is considering the need for additional tools and new approaches to control non-native aquatic species. The increase of these species may also suggest that changes in the aquatic ecosystem are occurring. These changes may lead to increases in other potentially harmful non-native species, which could threaten native and endangered fish. NPS is coordinating with the Bureau of Reclamation, the Arizona Game and Fish Dept., the U.S. Fish and Wildlife Service, and many other federal and non-federal agencies and traditionally associated Tribes on this project.



Non-Native: Brown Trout (USGS)



Non-Native: Green sunfish (USGS)



Native: Endangered Humpback Chub
(Courtesy of AGFD)

Purpose of and Need for the Project

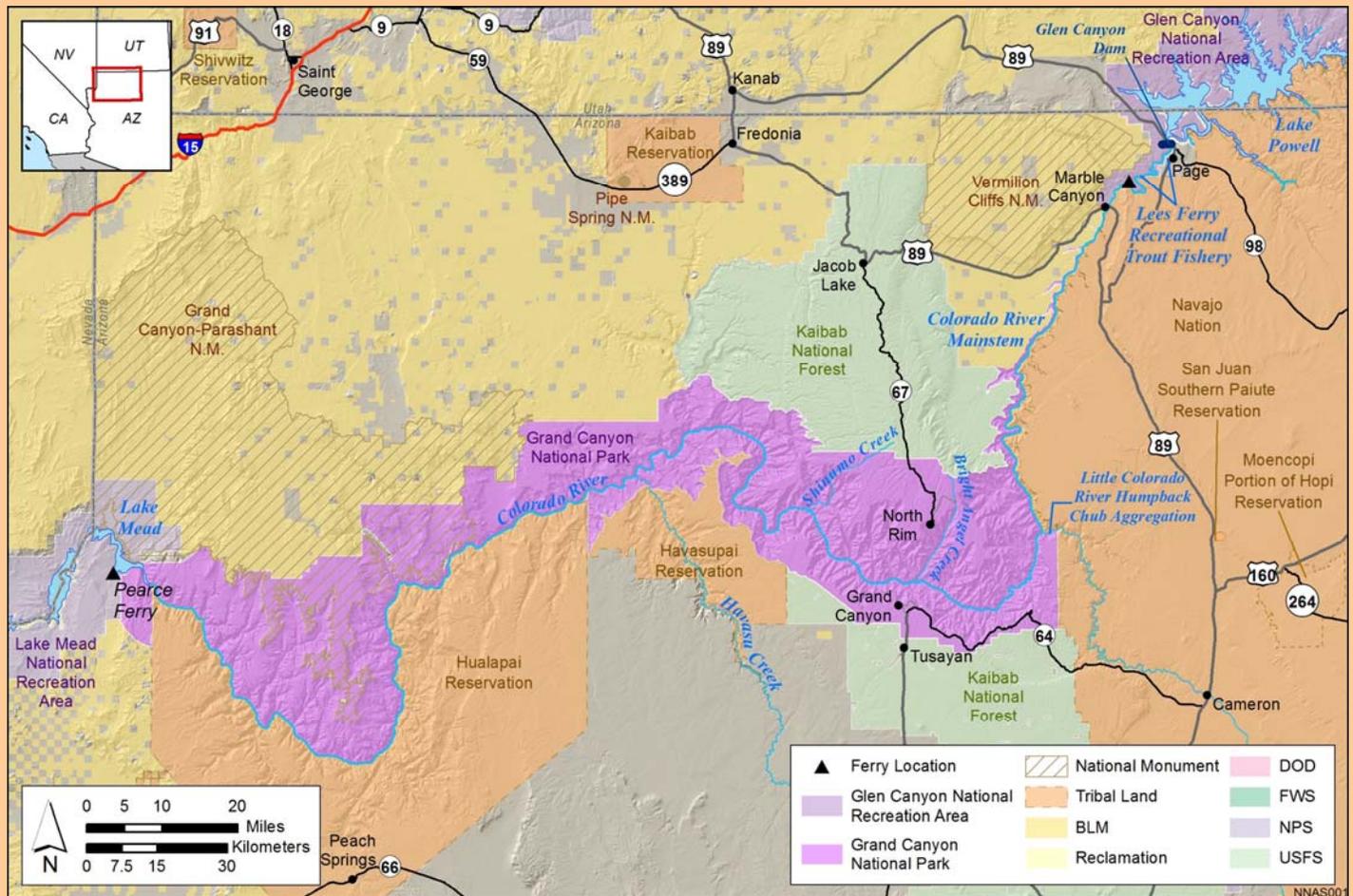
The purpose of taking action is to provide additional tools beyond what is available under the 2013 NPS Comprehensive Fish Management Plan (CFMP) and the 2016 Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP) to allow the NPS to prevent, control, minimize, or eradicate potentially harmful non-native aquatic species, and the risk associated with their presence or expansion, in the project area. Action may be needed due to an increase in green sunfish and brown trout and potential expansion or invasion of other non-native aquatic species that threaten downstream native aquatic species, including listed species, or the Lees Ferry recreational rainbow trout fishery. Non-native species have become an increasing threat due to changing conditions since completion of the CFMP and LTEMP. Existing measures identified in the CFMP and the LTEMP may be inadequate to address harmful non-native aquatic species.

Potentially Harmful Non-Native Aquatic Species

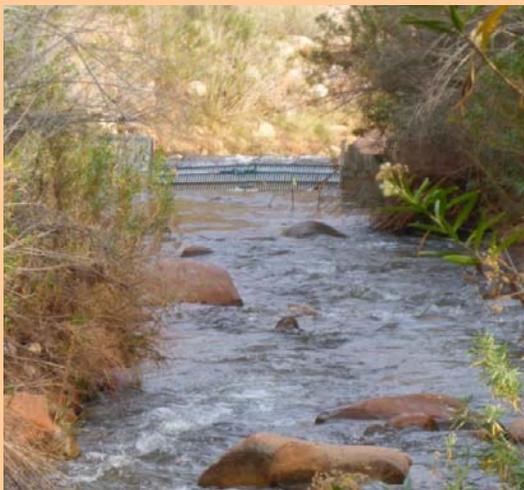
For the purposes of this Proposed Action, potentially harmful non-natives are defined as those fish, aquatic plants, or aquatic invertebrate species that are not native to the project area and that may pose a threat to native species (including federally or state listed aquatic species), or may pose a threat to the Lees Ferry recreational rainbow trout fishery. A list of potentially harmful non-natives is included in Appendix F of the EA, and other non-native aquatic species may be added over time if they are detected in GCNRA or GCNP. Management of rainbow trout under this Proposed Action would be consistent with the CFMP and the LTEMP and their 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.”* Under the CFMP FONSI, non-native brown trout and rainbow trout within the boundaries of GCNP 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. The NPS and the Arizona Game and Fish Department manage for a quality recreational rainbow trout fishery within the 15-mile Glen Canyon Reach of GCNRA between Glen Canyon Dam and the Paria River.

Project Area

The project area for the Proposed Action is identical to the one identified in the CFMP and includes all waters from Glen Canyon Dam to Lake Mead National Recreation Area (LMNRA), including the Colorado River and its tributaries in GCNP, and the Glen Canyon Reach (Glen Canyon Dam to the Paria River confluence) in GCNRA.



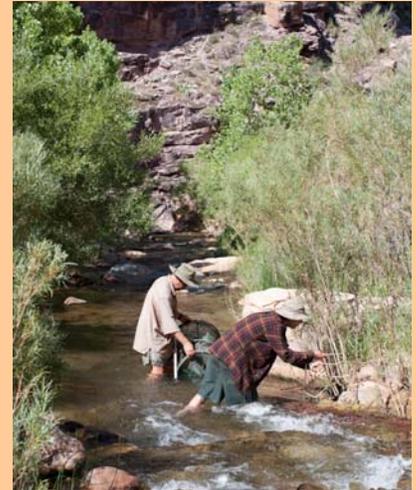
Photos of larger tributaries:



Bright Angel Creek (NPS)



Entrance to Havasu Canyon (NPS)



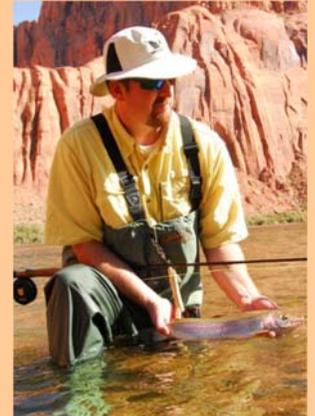
Shinumo Creek (NPS)

No-Action Alternative

The No-Action Alternative is limited to the use of fishery management tools in the CFMP and LTEMP. LTEMP actions related to non-native aquatic species control include (1) mechanical removal of brown and rainbow trout with beneficial use in the mainstream Colorado River near the confluence with the Little Colorado River; and (2) trout management flows. CFMP actions include: (1) rapid response to new non-native aquatic species using mechanical removal; (2) comprehensive brown trout control, including placement of a weir at the Bright Angel Creek confluence, incidental removal during monitoring, backpack electrofishing, and other mechanical removal with beneficial use; (3) targeted angling; and (4) removal of incidental captures. NPS also has in place several measures which address prevention and containment of non-native aquatic species including requirements for concessionaire and staff boat washing, angler boot/wader wash stations at the Lees Ferry launch ramp, and signage and outreach to discourage movement of non-natives.

Proposed Action and Preferred Alternative

The NPS generated the Proposed Action through internal scoping and coordination with cooperating agencies. The NPS further refined the Proposed Action following public scoping based on comments and additional input from cooperating agencies, representatives from Tribes, and the Glen Canyon Dam Adaptive Management Work Group and Technical Work Group. Refinements also consider assessments from the USGS publication that followed the Brown Trout Workshop and a Bureau of Reclamation analysis of options at the RM -12 sloughs.

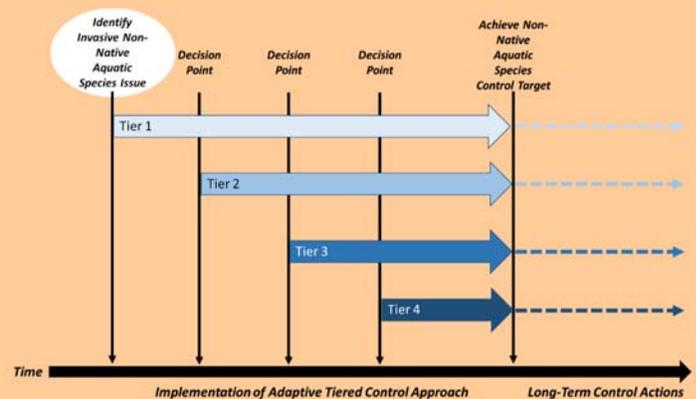


Fisherman at the Recreational Rainbow Trout Fishery in Lees Ferry (Courtesy of George Andrejko, AGFD)

During public scoping, many anglers and some tribal representatives expressed concerns regarding mechanical removal (e.g. electrofishing) to manage brown trout in the Glen Canyon Reach. Electrofishing itself is a very selective tool used routinely by fishery biologists to manage and monitor native and game fish and manage non-native species. However, we understand the concerns and have addressed them in the Proposed Action. NPS would use a tiered approach that starts less management intensive actions and moves to more management intensive approach only when certain trigger conditions are met. The first tier action for brown trout in the Glen Canyon Reach is to create incentives for anglers to work with NPS, expand opportunities for fishing, and expand tribal fishing opportunities. The proposed action does not include mechanical removal of rainbow trout in the Glen Canyon Reach. Mechanical removal of brown trout would only occur if certain trigger conditions are met based on threats to the endangered humpback chub.

The NPS would also not conduct electrofishing or chemical treatments under the proposed action in known areas of special spiritual significance to Tribes based on past consultations (e.g. Ribbon Falls Creek and Deer Creek). No chemical treatments, sonic concussive treatments, or mechanical harvesting of aquatic plants and algae would occur within 100 m (330 ft) of known locations where Kanab ambersnail exist. Before any action would occur in the vicinity of the two known ambersnail populations, NPS will conduct surveys and potentially move ambersnails to higher locations within the habitat area to avoid impacts. NPS will also apply a number of conservation measures to avoid impacts to federally listed birds and include setbacks from the Spencer Steamboat for certain activities.

A complete list of control actions in the Proposed Action are presented in Table 2-1 in the EA, Appendix C, and described in the narrative in Section 2.2.2



Control Actions Specifically for Brown Trout in Glen Canyon Reach

(Note: this is a subset of all control actions —see Section 2.2.2 in the EA for the complete list)

Tier	Actions, Triggers, Off-Ramps, and Mitigations
1	<p>Incentivized harvest methods which may include a combination of Tribal member and volunteer guided fishing, tournaments, prize fish, restoration rewards for target fish harvested and removed, or similar tools to specifically remove and reduce numbers of brown trout from the Glen Canyon Reach (timing and other methods may be used to restrict activities)</p> <p>Trigger: Presence</p> <p>Off-Ramp: Control action is ineffective in controlling brown trout, adequate funding is not available, or longterm unacceptable adverse effects on native fish, rainbow trout, or other important resources are expected or observed</p>
2	<p>Mechanical disruption of early life stage habitats at specific spawning sites, including high-pressure water flushing and mechanical gravel displacement</p> <p>Trigger: Number of brown trout adults (>350 mm long) in Glen Canyon Reach >5,000. If brown trout adults decrease to below 2,500, then mechanical disruption would cease until the population increases to the initiation trigger of 5,000 adults.</p> <p>Off-Ramp: Control action is ineffective in controlling brown trout, adequate funding is not available, or long-term unacceptable adverse effects on native fish, rainbow trout (including an unexpected severe reduction in rainbow trout spawning), or other important resources are expected or observed</p>
3	<p>Mechanical removal: Species selective electrofishing and trapping, with beneficial use, for long-term control (designed to maximize take of brown trout and minimize incidental take of rainbow trout)</p> <p>Trigger: LTEMP triggers for mechanical removal of trout at the Little Colorado River confluence have been exceeded and mechanical removal is being implemented there or has been proposed for the following year, AND Brown trout are a contributing proportion of the fish predators in the Little Colorado River area (e.g., 6 adult brown trout ≥ 350 mm caught in the current or previous year in the Juvenile Chub Monitoring (JCM) reach [RM 63.5-65.2]), AND Brown trout production in the Glen Canyon Reach is an important contributor to the number of adults in the Little Colorado River Reach (i.e., the number of adult brown trout in the Glen Canyon Reach is > 5,000). OR LTEMP triggers for mechanical removal of trout in the Little Colorado River Reach have not been met, but monitoring data and modeling indicate the number of adult brown trout is > 20,000 in Glen Canyon Reach, which using conservative modeling parameters indicates that the population of adult brown trout would reach 47 in the JCM reach, the threshold above which mechanical removal at the Little Colorado River confluence would be ineffective in controlling further increases. If mechanical removal has ceased at the Little Colorado River confluence and if brown trout adults in the Glen Canyon Reach have decreased to below 10,000, then mechanical removal would cease until the initiation trigger of > 20,000 is reached again.</p> <p>Off-Ramp: Control is ineffective in controlling brown trout, adequate funding is not available, or if long-term unacceptable adverse effects on native fish, rainbow trout, or other important resources are expected or observed</p>
Experimental (not part of tiers)	<p>Introduction of brown trout YY males (experimental action that may be considered if brood stock exists)</p> <p>Trigger: Experimental evidence and modeling indicate the action may be effective and other actions are shown or projected to be ineffective. Would be considered if the number of brown trout adults (>350 mm long) is more than 500. Annual stocking would be limited initially to a maximum of 5,000 adult YY-male brown trout, or an equivalent number of juveniles (estimated to be 10,000 based on assumed juvenile survival rates). This number represents a conservative level of risk to humpback chub if survival, movement, and predation rates are at high-risk levels. This maximum number could be adjusted adaptively by $\pm 4,000$ adults (or equivalent juveniles) based on additional modeling or data. If wild brown trout adults in the Glen Canyon Reach decrease to below measurable levels for 3 years, then YY-male introduction would cease unless the population increases to above 500 adults.</p> <p>Off-Ramp: Control action is ineffective in controlling brown trout, if adequate funding is not available, or long-term unacceptable adverse effects on native fish, rainbow trout, or other important resources are expected or observed</p>

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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 (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, please **submit comments no later than October 11, 2018.**

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.

Additional Information

- USGS open file report “Brown trout in the Lees Ferry reach of the Colorado River—Evaluation of causal hypotheses and potential interventions”: <https://doi.org/10.3133/ofr20181069>
- Reclamation report on RM-12 slough options: http://gcdamp.com/images_gcdamp_com/3/33/GlenCanyonSloughTemperatureOptions_FINAL.pdf
- Public scoping summary report: https://parkplanning.nps.gov/Expanded_Nonnative
- Full text of public scoping comments: https://www.nps.gov/aboutus/foia/upload/GLCA_NNAS_ScopingComments_508.pdf

Stay 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