National Park Service
U.S. Department of the Interior

Grand Canyon National Park
Arizona

FINDING OF NO SIGNIFICANT IMPACT

Bright Angel Creek Trout Reduction Project
Grand Canyon National Park

In compliance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), the National Park Service (NPS) prepared an Environmental Assessment/Assessment of Effect (EA/AEF) to examine various alternatives and environmental impacts associated with the NPS proposal to enhance native fish populations and restore natural ecosystem values within Bright Angel Creek by reducing the population of non-native brown (*Salmo trutta*) and, coincidentally, rainbow trout (*Oncorhynchus mykiss*). Bright Angel Creek, a tributary of the Colorado River, is located within Grand Canyon National Park, Coconino County, Arizona. The proposal is to remove non-native fish, primarily trout, from the creek during their spawning season (approximately October-January) each year for five years. In addition, the effectiveness of the program will be assessed by monitoring population changes in the Bright Angel Creek fish community in early spring/summer each year; all non-native fish captured as part of this monitoring effort would also be removed from the creek.

Purpose of and Need for the Action
The dual purposes of the proposed action are to benefit endangered humpback chub (*Gila cypha*) and other native fish species in the mainstem Colorado River, and to restore and enhance, to the extent possible, the native fish community that once flourished in Bright Angel Creek. The project is needed because non-native species, primarily trout, have become dominant in Bright Angel Creek, and trout are also known to prey on the endangered humpback chub in the mainstem Colorado River.

The proposed action is consistent with the 2006 NPS *Management Policies* that require national parks to maintain native plants and animals as parts of natural ecosystems, and to remove established populations of exotic (i.e., non-native) species. Specifically, *Management Policies* call for the eradication of exotic species if their control is prudent and feasible and if those species interfere with the perpetuation of native species. Total eradication of non-native trout from Bright Angel Creek will not be accomplished as a result of this project; however, populations of trout and other non-native fish will be substantially reduced and maintained at low levels, thus decreasing overall competition with, and predation potential on, native fish. After implementation of this project, recreational trout fishing opportunities would still be available in the creek, but at a reduced catch rate. Recreational trout fishing opportunities would also continue to be available in the Colorado River and other tributaries.

The proposed action also conforms to the NPS Organic Act of 1916, which mandates national parks conserve natural resources and manage those resources to avoid their impairment. Actions designed to protect and restore the native species that comprise the park's natural aquatic community further the intentions of that Act. Reducing threats to a federally listed species (the endangered humpback chub) by reducing mainstem populations of predacious non-native fishes (i.e., trout) is also consistent with NPS directives to comply with the Endangered Species Act of 1973, as amended, and with the

non-native fish control measures in the U.S. Fish and Wildlife Service (USFWS) recovery goals for the humpback chub (USFWS 2002a).

Finally, the proposed action furthers Grand Canyon's management objectives as articulated in the park's 1995 *General Management Plan*. Specifically, the project would help the park meet the following objectives:

- To the maximum extent possible, restore altered ecosystems to their natural conditions. In managing naturalized ecosystems, ensure the preservation of native components through the active management of non-native components and processes.
- Manage ecosystems to preserve critical processes and linkages that ensure the preservation of rare, endemic, and specially protected (threatened/endangered) plant and animal species.

In August 2006 the National Park Service (NPS) prepared an *Environmental Assessment/Assessment of Effect for the Bright Angel Creek Trout Reduction Project.* This EA/AEF analyzes the impacts that will likely result from implementation of the project. The environmental assessment evaluated two alternatives in detail, Alternative A, the No Action Alternative, and Alternative B, the agency's preferred alternative. Several preliminary alternatives and components of alternatives that were initially considered during the progression through internal and external scoping and alternative development are described on pages 15 – 16 of the EA/AEF and were dismissed from further detailed analysis as discussed in the EA/AEF.

SELECTION OF THE PREFERRED ALTERNATIVE

Alternative B was identified in the EA/AEF as the NPS preferred alternative as well as the proposed undertaking for §106 compliance. After consideration of public and agency comments on the EA/AEF, Alternative B, as modified in response to the comments, is selected as the preferred alternative and proposed undertaking as described in this document.

Under Alternative B, all non-native fish, primarily brown trout and rainbow trout, would be mechanically removed from Bright Angel Creek using 1) a weir to capture them as they move upstream into the creek to spawn, and 2) electrofishing and dip netting (depletion sampling) in conjunction with weir use as part of fish community response monitoring to determine the effects of the project on the fish community in the creek. Before implementing the selected action, the park will ensure that it has complied with 43 CFR §24.4 regarding consultation with the state and application for any required state permits.

Beginning as early as November 2006, a weir would be installed and operated throughout the trout spawning season (approximately October-January) for approximately 70-86 consecutive days. At the end of this period, the weir would be removed. The most likely location for the weir would be in the creek downstream of Phantom Ranch near the footbridge by the NPS river ranger station, but other suitable locations may be selected where stream depths are appropriate. The reduction efforts would continue annually for five years, with annual monitoring and evaluation of the project. Details of the procedures to be followed were detailed in the EA/AEF.

To determine the effects of trout reduction on the fish community in Bright Angel Creek, population changes in that community would be monitored annually. Two approaches would be used: 1) population estimates of fish species present in the creek would be determined using electrofishing and the depletion survey method; and 2) a weir would be placed in the creek during early spring/summer (as determined to be the most effective time period each year) to capture and census native fish (e.g., flannelmouth and bluehead suckers) moving into Bright Angel Creek to spawn.

To monitor spawning flannelmouth and bluehead suckers moving into Bright Angel Creek, biologists would install the weir at the same location identified for the trout reduction effort. For approximately

45 days, during spring/summer, all large-bodied fish moving upstream would be captured in the weir (speckled dace would pass through). Captured fish would be removed, identified, measured, inspected for reproductive condition, and scanned for the presence of PIT tags. Native fish not previously tagged would be injected with PIT tags. Native species would be released above the weir. Non-native fish (e.g., trout) would be euthanized and the remains disposed of as described below.

Following euthanization, non-native fish remains would be appropriately preserved or stored and transported out of the canyon (with the possible exception noted below). The fish remains would be made available for beneficial uses such as garden composting by Native American tribes. Final disposition of the remains would be determined after consultation with Native American tribes. If after consultation the fish remains cannot be reasonably stored and transported for beneficial uses by Native American tribes, the remains may be disposed of by the NPS on a case-by-case basis in a manner that complies with all laws and policies concerning waste disposal and/or in a manner that causes no more than negligible environmental impact on the park.

ALTERNATIVES CONSIDERED

The EA/AEF evaluated two alternatives in detail for addressing the purpose of and need for action; the no action alternative (Alternative A) and the preferred alternative (Alternative B). The preferred alternative is as previously described.

Alternative A – No Action Alternative

Under this alternative no changes would be made to the existing environment. Trout and other non-native fish from the mainstem of the Colorado River and its tributaries would continue to be allowed to spawn and reside in Bright Angel Creek without human interference. This alternative would not address the purpose and need for the project.

Alternatives Considered and Dismissed

In addition, several other alternatives were identified in the EA/AEF (pages 15-16) as considered and dismissed from further consideration, along with the rationale for dismissing the alternatives. These alternatives included chemical removal, increased angling, dewatering or other flow modification, and alternative fish barrier structure.

In addition, some of the comments received on the EA/AEF suggested an additional alternative: rather than euthanizing all non-native fish, only euthanizing brown trout and releasing unharmed any rainbow trout captured in the weir or by electrofishing. This suggestion was carefully considered, but it was dismissed because the scientific evidence currently available strongly supports the need to remove all non-native fish from the creek to meet the goals of the project (i.e., to benefit humpback chub and to restore and enhance the native fish community in Bright Angel Creek).

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in NEPA and further articulated in Council on Environmental Quality (CEQ) guidelines (1981). According to those guidelines, "the environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101." That policy is to:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;

- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative B (the preferred alternative) is also the environmentally preferred alternative. Overall, it more fully meets the above criteria than does Alternative A. Alternative B would meet the project's purpose and objectives to enhance the natural environment of the creek, resulting in beneficial impacts to Grand Canyon's native aquatic resources in both Bright Angel Creek and the Colorado River. It is also expected to benefit a federally listed species, the endangered humpback chub, although at a minor or negligible level. Alternative A, on the other hand, would proliferate the unnatural aspects of the environment that Alternative B seeks to correct, creating adverse effects on the creek's environment and the humpback chub.

MITIGATION MEASURES

The mitigation measures listed below are considered part of the preferred alternative and will be followed during project implementation. These actions were developed to lessen the potential for adverse impacts from implementing the preferred alternative, and have proven to be effective in reducing environmental impacts on previous projects.

To minimize potential impacts on visitor experience, native fish, human safety, and other resources, the following measures would be implemented as part of the preferred alternative.

General Measures

- Care would be taken when entering and exiting the creek to minimize impact to streambanks and riparian vegetation and wildlife. Unvegetated, stony banks would be used whenever possible to minimize erosion.
- All project personnel would be familiar with and strictly adhere to research permit guidelines and limitations.
- The NPS will conduct discussions and consultations concerning this project with other agencies and tribes through multiple venues, including the Glen Canyon Dam Adaptive Management Program. Consultation under §106 of the NHPA concerning this project with all tribes will be completed before a decision is made concerning this project.
- If any cultural resources are discovered during the project, including any ethnographic resources/ traditional cultural properties, a park cultural resource specialist will be contacted immediately. All work in the immediate vicinity of the discovery will stop until the resources can be identified and documented and appropriate consultation and mitigation strategy is developed, if necessary, in accordance with the stipulations in the 1995 Programmatic Agreement among the NPS, the Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the General Management Plan, Environmental Impact Statement, Grand Canyon National Park, Arizona.
- Educational and informational measures will be instituted that encourage anglers to assist the project in appropriate ways; examples may include not releasing trout caught in Bright Angel Creek and encouraging increased fishing for trout.
- The use of helicopters or mules in support of this project will be minimized, and existing procedures will be followed for review and approval of such use. Trips scheduled for other purposes will be utilized whenever possible.

- Biologists would be sensitive to public perception and be prepared to explain weir and electrofishing activities to any visitor who expresses interest.

Fish Handling Measures

To minimize stress and injury to fish, capture techniques would follow Ward (2002), including:

- Be respectful of all fish regardless of size and species.
- Minimize the time that fish are out of the water.
- Change water [in holding containers] frequently when fish must be held for more than a few minutes or if fish surface for air. Remember that handling stress increases as water temperature increases.
- No more than 8-10 fish in a holding container at one time.
- Watch straps, lapel badges and jewelry can damage fish.
- Do not hold fish tightly around the throat and avoid touching the gills.
- Rinse all sunscreen or lotions from hands prior to handling fish.
- Always wet hands and equipment such as nets and fish boards before use. Dry hands and equipment cause damage to fish skin by removing coatings that protect fish from disease. Equipment such as length boards and scales become hot in the sun and can damage fish if not wetted prior to use.

Electrofishing Measures

Electrofishing would be performed in a manner that minimizes harm to native fish and ensures the safety of project personnel and the public.

- All personnel involved in electrofishing would be trained in the safe and proper use of the backpack electrofisher to be used (e.g., Smith-Root LR24). The equipment would be kept in good working order, and all personnel would wear appropriate protective gear.
- A temporary sign would be posted at the reach being electrofished, warning people to stay out of the creek in that location (the electrical field extends only a few feet from the anode). The sign would include a brief explanation of the project.
- The minimum voltage would be used, sufficient to attract fish, but not enough to injure them. Biologists would observe the condition of captured fish. If signs of injury or handling stress are noted (dark bands on the body and longer recovery times), the settings for the electrofishing unit would be adjusted.
- Fish would be removed from the electrical field immediately. Each fish would be completely revived before releasing it into the live-well. Care would be taken not to crowd fish in the live-well, and holding time would be minimized. Trout would be kept separate from smaller, prey-sized native fish to avoid predation.

Other Measures

- Project personnel would be instructed not to interact with California condors, bald eagles or osprey, and to immediately contact the appropriate Park staff if a condor, bald eagle or osprey appears in close proximity to project operations. If a condor, eagle or osprey is observed in the area, project personnel will note its behavior and report it to the Park biologist. Fish carcasses would be handled in such a way as not to attract condors, eagles or osprey.
- All project equipment (including personal gear like waders) would be cleaned prior to use to ensure that no invasive exotic species are introduced into the project area. Project personnel would be instructed to look for non-native New Zealand mudsnails in particular and to ensure that none are brought into the area or transported from one location to another.

- **Special Status Species**

- All actions will be consistent with the Biological Opinion issued for this project.
- Prior to the start of the project, the park would contact personnel monitoring California condor locations and movement to determine condor status in or near the project.
- If a condor occurs at the project site, operations would cease until it leaves on its own or until permitted personnel employ techniques resulting in the condor leaving.
- Project workers and supervisors would be instructed to avoid interaction with condors and to contact the appropriate park or Peregrine Fund personnel immediately if and when condor(s) occur at the project site.
- The project site would be cleaned up at the end of each work day (i.e., trash disposed of, scrap materials picked up) to minimize the likelihood of condors visiting the site. Park condor staff may complete a site visit to ensure adequate clean-up measures.
- If condor nesting activity is known within 0.5 mile of the project area, then light and heavy construction would be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the park biologist and the USFWS.
- Biologist and biological technicians will be instructed to refrain from interacting with any eagles or osprey that may be present
- If an eagle or osprey is observed in the area, biologists and technicians will note its behavior and report it to the Park biologist.
- All fish will be disposed of in such a manner as to avoid creating an attractant to eagles or osprey.
- In the unlikely event that a humpback chub (or even more unlikely, a razorback sucker) should be captured in the weir or as a result of electrofishing, it will be dealt with according to established protocols for handling endangered fish in Grand Canyon. If caught, individual endangered fish would be released into the creek upstream of the weir after being measured and PIT-tagged (if not already tagged). The incident will be reported to the park biologist, and the park biologist will notify the US Fish and Wildlife Service.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. As fully discussed in the EA/AEF, the preferred alternative will not affect historic properties, floodplains or wetlands, Indian trust resources, most special status species, environmental justice, ecologically critical areas, Wild and Scenic Rivers, other unique natural resources, prime and unique farmland, urban quality and design of the built environment, energy requirements and conservation potential, public safety, geologic resources, water resources, air quality, soundscapes, terrestrial biological resources, invasive exotic species, socioeconomic resources, park operations, or recommended wilderness, so those impact topics were dismissed from further analysis in the EA/AEF.

Impacts on Bright Angel Creek's natural ecosystem values, including native fish species, would be moderate, direct and indirect, beneficial, and local. Impacts on non-native trout species would be moderate (because the impact would be largely local) and adverse. The duration of the impact would depend on the duration of the action. If the trout reduction program is terminated, non-native trout would eventually re-invade from the mainstem, and the system would revert to existing conditions.

Impacts to native fish in the mainstem are expected to be minor, direct (predation) and indirect (competition), beneficial, and regional. The duration of the impact would depend on the duration of the action. Because established protocols would be followed to minimize potential stress and injury, the potential impact to the native fish from handling or electrofishing would be negligible, direct, adverse, local, and short term.

The combined past, present, and future non-native trout reduction programs in Grand Canyon may result in moderate, indirect, beneficial, and regional effects on native fish in the Colorado River.

Impacts under the preferred alternative are primarily beneficial for special status species. The preferred alternative is expected to benefit humpback chub and other native fish by reducing predation and competition pressures from the trout that spawn and reside in Bright Angel Creek. These beneficial effects would be minor, with the duration of the impact depending on the duration of the action. The potential adverse impact of capturing individual humpback chub, flannelmouth sucker, or razorback sucker in the weir or by electrofishing would be negligible and short term. Utilization of appropriate fish handling protocols would mitigate the impact. Northern leopard frog may benefit from an increase in food availability and reduction in predation pressure, but effects are likely to be negligible. Bald eagles and ospreys may be adversely affected to a minor degree as a result of fewer trout being available for food, particularly in the Bright Angel Creek inflow area during the spawn. The duration of impact would depend on the duration of the action. The reduction in food availability for bald eagles and ospreys in the mainstem is expected to be negligible.

Under the preferred alternative, the quality of angling in Bright Angel Creek would be reduced but not eliminated. During the trout spawn in fall/winter, the abundance of trout immediately upstream of the weir would diminish compared to No Action, although spawning trout typically do not feed very much. In the first years of the project, recreational fishing would still be productive downstream of the weir and along the banks of the Colorado River. Over subsequent years, as returning trout are eliminated, the quality of angling downstream of the weir would diminish as well. Eventually, fewer trout would be available anywhere in Bright Angel Creek, but some trout would always be available for fishing in the creek and the river. A small portion of visitors to the area would still fish as an incidental part of their experience, but fewer individuals would travel to the area solely or principally to fish. The reduction in the sport fishery could be felt by up to 2,300 visitors per year, but for the overwhelming majority of the Park's 4-5 million visitors, and for most of the more than 60,000 people who stay overnight in the Bright Angel Creek area (i.e., Bright Angel and Cottonwood Campgrounds, and Phantom Ranch), the change would go unnoticed. Consequently, the impacts to visitor experience at Grand Canyon would be minor, indirect, adverse, and local. The duration of the impacts would depend on the duration of the action but is likely to be long term.

Few visitors to Bright Angel Creek would see the weir. It would be placed in an unobtrusive location near the mouth of the creek, out of sight of the main trail. People crossing a footbridge to a public restroom and ranger station may notice the structure from the bridge. If anyone approaches the weir and expresses interest, the biologist on duty would explain the purpose of the project. Electrofishing depletion reaches upstream in the creek would be selected in part with visitor sensibilities in mind. Again, project personnel would take time to explain the purpose of the project to any visitor who notices the operation and expresses interest. Impacts on the aesthetic qualities of Bright Angel Creek and intrusions to visitor experience would be negligible, direct, adverse, and short term.

Degree of effect on public health or safety. The preferred alternative involves electrofishing, which does have a slight potential to harm crew and park visitors. However, with the appropriate application of the mitigation measures for the use of electrofishing equipment, no impacts to public health or safety are expected.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. As fully discussed in the EA/AEF, the preferred alternative will not affect historic properties, floodplains or wetlands, Indian trust resources, most special status species, environmental justice, ecologically critical areas, Wild and Scenic Rivers, other unique natural resources, prime and unique farmland, urban quality and design of the built environment, energy requirements and conservation potential, public safety, geologic resources, water resources, air quality, soundscapes, terrestrial biological resources, invasive exotic species, socioeconomic resources, park operations, or recommended wilderness, so those impact topics were dismissed from further analysis in the EA/AEF. Mitigation measures will be implemented that minimize the potential for adverse impacts to natural and cultural resources.

Degree to which effects on the quality of the human environment are likely to be highly controversial. As evidenced in the comments received on the EA/AEF and included in the Errata Sheet attached to this document, there is some disagreement associated with this project, primarily with including the killing of rainbow trout in the project. However, as described above, the science supports the project as proposed, and the disagreement does not rise to the point of being highly controversial.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. There were no highly uncertain, unique or unknown risks identified in the EA/AEF or during the public review period. Although some commenters questioned the scientific evidence supporting killing rainbow trout in addition to brown trout, the US Fish and Wildlife Service, the government authority on the subject, supports the preferred alternative as proposed and the level of scientific evidence supporting it.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The preferred alternative neither establishes a precedent for future actions with significant effect nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Implementation of the preferred alternative will not result in any significant cumulative impacts.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. No known ethnographic resources are expected to be affected by the preferred alternative in the project area (i.e., negligible impacts). If upon further consultation, any of the affiliated tribes subsequently identify the presence of ethnographic resources within the project area, appropriate mitigation measures would be undertaken in consultation with the tribes. The location of any ethnographic sites would not be made public.

After applying the Advisory Council Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the National Park Service concludes that implementation of the preferred alternative would have no affect on historic properties or on ethnographic resources. The State Historic Preservation Office concurred that there would be no historic properties affected on October 5, 2006.

Degree to which the action may adversely affect an endangered or threatened species or its critical habita*t*. According to a Biological Opinion issued for this project on 7 November 2006 by the US Fish and Wildlife Service, implementation of the preferred alternative is not likely to

adversely affect the California condor, and is not likely to jeopardize the continued existence of the bald eagle and humpback chub. However, an incidental take statement, along with reasonable and prudent measures, were provided for the humpback chub in the Biological Opinion, in the unlikely, but possible, event that a humpback chub is captured during the project and suffers harm due to the capture.

Whether the action threatens a violation of Federal, state or local environmental protection law. The preferred alternative violates no federal, state, or local environmental protection laws.

IMPAIRMENT OF PARK RESOURCES OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, National Park Service policy (Management Policies, 2001 and 2006) requires analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values. Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impact to any park resource or value may constitute impairment. An impact will be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Because there will be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Grand Canyon National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there will be no impairment of Grand Canyon National Park's resources or values as a result of implementation of the preferred alternative.

PUBLIC INVOLVEMENT

Public scoping began on December 10, 2003, with letters sent to 283 recipients, including Native American tribes, stakeholder groups, agencies, libraries, and private individuals who were likely to be interested in, or concerned about, the proposed action. The letter was also posted on the Grand Canyon website. Public scoping ended on January 12, 2004. Comments in the form of e-mails,

letters, and phone conversations with park staff were received from 50 respondents, including 44 individuals, 5 organizations, and 1 state agency (Arizona Game and Fish Department).

In addition to public scoping, results of the 2003 Bright Angel Creek feasibility study and the proposed action were presented to stakeholder groups and the scientific community on two occasions. On October 1, 2003, a presentation was made to a meeting of the Glen Canyon Adaptive Management Program Technical Work Group (GCDAMP-TWG).

On October 29, 2003, a similar presentation was made at a science symposium sponsored by GCMRC (The Colorado River: An Ecosystem Science Symposium, Tucson, Arizona, October 28-30, 2003). Feedback from both presentations, in addition to comments at subsequent GCMRC and GCDAMP-TWG meetings, as well as public and agency comments received during the scoping period, were taken into account when considering alternatives and issues to be analyzed for the EA/AEF and this document.

Agency Consultation

US Fish and Wildlife Service. The Park developed a Biological Assessment (December 16, 2003) that was submitted to the Phoenix office of the US Fish and Wildlife Service (USFWS) on December 22, 2003. The park requested and obtained concurrence that the proposed action (Alternative B) was "not likely to adversely affect" humpback chub or California condor. On February 9, 2004, the Park requested formal consultation for the bald eagle. On March 2, 2004, the USFWS issued a Biological Opinion concluding that the project, as proposed, is "not likely to jeopardize the continued existence of the bald eagle."

The USFWS provided comments on the EA/AEF in a letter dated October 12, 2006. The letter expressed agreement that non-native fish species are a serious threat to the native fish fauna of the Colorado River; confirmed that Bright Angel Creek appears to be a primary spawning habitat for brown trout, and that removal of this species at this location should reduce their numbers throughout the Colorado River in Grand Canyon benefiting all remaining native fishes; offered suggestions for the timing and protocols of weir operation and depletion sampling; recommended considering a comprehensive approach, including the use of piscicides (fish poison), to remove non-native fishes from the park with the goal of complete removal; and urges continued coordination with stakeholders, including the Arizona Game and Fish Department, and with the Glen Canyon Dam Adaptive Management Program.

The USFWS also provided a Biological Opinion on November 7, 2006. The Biological Opinion states that implementation of the preferred alternative is not likely to adversely affect the California condor, and is not likely to jeopardize the continued existence of the bald eagle and humpback chub. However, an incidental take statement, along with reasonable and prudent measures, were provided for the humpback chub in the Biological Opinion, in the unlikely, but possible, event that a humpback chub is captured during the project and suffers harm due to the capture.

Arizona Game and Fish Department. The Arizona Game and Fish Department provided comments on the EA/AEF in an October 2, 2006 letter. The letter provided detailed information supporting increasing the estimates of anglers that might be affected by the preferred alternative in the EA/AEF; concurred from their work on the Colorado River that brown trout management is likely a useful strategy in conservation of native fishes, but that they are less certain of the efficacy and value of removal of rainbow trout in contributing to conservation of native fishes; and suggested considering enlisting the assistance of anglers to assist in the removal of trout through recreational harvest.

State Historic Preservation Office. Initiation of consultation with the State Historic Preservation Office (SHPO) occurred on 18 November 2003. In response to the park's letter concerning the

EA/AEF dated 6 September 2006, the SHPO concurred on 5 October 2006 that no historic properties would be affected by the project.

American Indian Tribes. NPS initiated consultation with all affiliated tribes (Havasupai, Hopi, Hualapai, Kaibab Band of Paiute Indians, Navajo, Paiute Indian Tribe of Utah, White Mountain Apache, Yavapai Apache, San Juan Southern Paiute, Moapa Band of Paiute, Las Vegas and Pueblo of Zuni) as part of the review of the EA/AEF. A letter with an attached copy of the EA/AEF was distributed to all affiliated tribes for their review and comment.

At a meeting with a representative of the Hualapai Tribe on 10 October 2006 where the project was discussed among many park issues, the representative expressed the Tribe's continued desire that a beneficial use be made of non-native fish euthanized as part of projects in the canyon to benefit the native ecosystem and/or endangered species. From past electrofishing efforts near the confluence of the Little Colorado River with the mainstem Colorado River, the Hualapai Tribe received fish remains and used them as fertilizer in a community garden. The Tribe expressed a similar wish to receive and use the fish remains from this project.

At a meeting with representatives of the Hopi Tribe on October 30, 2006, where the project was discussed among many park issues, the representatives discussed the Tribe's concerns about the value of all life. Although they understood the purposes of the project, they had serious concerns about killing anything for any reason. They said that putting the trout to a beneficial use would reduce their concerns.

Telephone calls were made to all the other tribes between October 20 and November 3, 2006, to complete consultation concerning this project.

In response to the tribal consultation, measures were added to the preferred alternative to make the trout remains reasonably available for beneficial use, to carefully handle the remains, and to determine final disposition of the fish remains after consultation with Native American tribes.

Comments Received on the EA/AEF

The EA/AEF was made available for public review and comment during a 30-day period beginning 31 August 2006 and ending 2 October 2006, through a combination of direct mailing, issuance of a press release and posting on the park's Planning, Environment and Public Comment website (http://parkplanning.nps.gov/grca). All persons on the established park mailing list and interested and affected agencies, tribes and organizations received a copy of the EA/AEF during the public review period, including all those that commented during the scoping period. A letter was sent to the full 300-person park compliance mailing list, with notification that the EA/AEF was available for review.

Eighteen comment letters, website submissions or e-mails were received. The majority was from people expressing an interest in fishing, and either supporting the No Action Alternative or opposing the Preferred Alternative. Some included rationale such as the project would provide too little benefit to justify the impacts, or there seemed to be too little difference in impacts between No Action and the preferred alternative to justify the project. Several suggested that more angling opportunities be used to reduce the number of non-native fish in Bright Angel Creek, rather than a weir and electrofishing. A few suggested that there were many more anglers who would be affected by the project than was reflected in the EA/AEF. Several suggested that the project would be ineffective, and a waste of effort and funds that could be better used for other purposes.

Substantive comments are addressed in detail in the errata sheets attached to this document.

CONCLUSION

The preferred alternative does not constitute an action that normally requires preparation of an environmental impact statement (EIS). The Preferred Alternative would not have a significant effect on the human environment. Adverse environmental impacts that could occur are negligible to moderate in effect. There are no unmitigated adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, known ethnographic resources, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that the project does not constitute a major federal action significantly affecting the quality of the human environment and an EIS will not be required for this project and thus will not be prepared.

Approved: Anthony J. Schetzsle 11-9-06

For Michael D. Snyder
Intermountain Regional Director

Date

ERRATA SHEET

Bright Angel Creek Trout Reduction Project
Grand Canyon National Park

Substantive comments were considered to be comments which:

- question, with reasonable basis, the accuracy of information in the EA.
- question, with reasonable basis, the adequacy of environmental analysis.
- present reasonable alternatives other than those presented in the EA.
- cause changes or revisions in the proposal.

In addition to the comments below, the EA/AEF did not include information concerning helicopter flights or mule packing that may be needed to transport equipment, trout remains, and/or people in and out of the canyon as part of the project. The NPS will make every effort to minimize the need for such use, and will comply with existing park procedures and approval processes, including Minimum Requirements Analysis, when such use is necessary. The park will also attempt to "piggy-back" onto trips scheduled for other purposes whenever possible. However, it is possible that some additional helicopter or mule trips will be needed to accomplish the goals of the project. Because such use will be in the non-wilderness Cross-Canyon Corridor using existing procedures, and infrequent, no new impacts are expected. The following general mitigation measure is added to page 17 of the EA/AEF, and also to the Finding of No Significant Impact (page 4): "*The use of helicopters or mules in support of this project will be minimized, and existing procedures will be followed for review and approval of such use. Trips scheduled for other purposes will be utilized whenever possible.*"

AL1500 - Encourage Fishing to Remove Trout

Comment **Organization:** *Not Specified*

I have an idea that may appease the fishermen and biologists alike. Why not increase the bag-limit on both Rainbow and Brown Trout on the Bright Angel Creek alone? Perhaps even offer a bounty on trout caught on the river (as flyfishermen are notorious for catch-and-release). Not only will this solve the problem of the dwindling native species of fish, it will also save money on man-hours installing traps and electro-fishing the creek.

Organization: Arizona Game and Fish Department

One component of an alternative to managing introduced trout in tributaries could perhaps include anglers. Perhaps some consideration should be given to enlisting the assistance of anglers visiting Phantom Ranch to assist in the removal of trout through recreational harvest. Anglers are conservationists as well, and many will embrace the conservation of not only the fishes that they wish to pursue but also the broader range of fishes that make up our aquatic fauna.

Response: Encouraging fishing will increase the effectiveness of the preferred alternative. Therefore, the NPS will continue to encourage fishing in Bright Angel Creek and will take measures to educate fishermen not to release any fish that they catch (i.e., catch-and-keep rather than catch-and-release); a mitigation measure has been added to the EA/AEF page 17 and to the Finding of No Significant Impact page 7 to address this. There have been no bag and size limits on trout in Bright Angel Creek for several years, and this will continue. However, as described on page 16 of the EA/AEF, fishing alone has not proven to be effective in reducing the numbers of non-native fish in the creek, so additional measures are needed.

AL2000 - Alternatives: Alternatives Eliminated

Comment **Organization:** US Fish and Wildlife Service

We note that you eliminated from further consideration the option to use piscicides to remove non-native fish from Bright Angel Creek ... We understand your rationale in this regard ... However, mechanical removal is often only effective at controlling non-native fishes over the short term. We recommend that you consider a comprehensive approach, using all means necessary, to remove non-native fishes from the park, with the goal of complete removal. This likely can only be accomplished with an effort that includes the use of piscicides. Thus, we urge you to continue consideration of the use of piscicides in Grand Canyon.

Response: The use of chemicals, such as piscicides, was dismissed from further consideration for this project in Bright Angel Creek as described on pages 15-16 of the EA/AEF. This decision is specific to this project, and is not intended to affect future decisions concerning other projects in the park. Also, as a clarification, the fishery between Glen Canyon Dam and Lees Ferry is not in Grand Canyon National Park, and is not part of any current or reasonably foreseeable future effort regarding non-native fish removal.

AL4000 - Alternatives: New Alternatives Or Elements

Comment **Organization:** Federation of Fly Fishers

The EA/AEF does not mention that the original advice from stakeholder groups (including the AZGF) in 2002 was to kill migrating spawning Brown Trout ONLY! Why is the NPS ignoring the recommendation from stakeholders? Why is the NPS not offering an alternative that would kill only the migrating Brown Trout? If Rainbow Trout killing will only be "coincidental" isn't that an admission in the EA/AEF that killing RBT is not important but gratuitous?

Organization: Member of Northern Arizona Fly Casters

The stated purpose of the feasibility study done in 2002-2003 (page 4) was to determine if a weir could be used to remove brown trout. What leap of information was used to change the scope of the project from brown trout to include the rainbow trout? ... Rainbow trout were not part of the original feasibility study and appear to have been included in Alternative B at the last minute because of convenience! Can't the trained biologists return the rainbow trout to the creek as was done in the feasibility study?

Response: To determine the feasibility of using a weir to remove trout, both species of trout did not need to be euthanized during the feasibility study. However, after extensive consultation with the US Fish and Wildlife Service, both species of trout do need to be removed from the creek to meet the purposes of the project to restore and enhance the native fish community in Bright Angel Creek, and to benefit the endangered humpback chub.

The monitoring results will be examined closely, and the project will continue to be discussed with stakeholders as part of the Glen Canyon Dam Adaptive Management Program, and other efforts as appropriate, to determine if there is any basis for modifying the project.

AL5510 – Insufficient Project Benefits

Comment **Organization:** *Not Specified*

There are many more important projects the NPS can and should be spending time and money on to restore habitat and to provide a better visitor experience within the park. This project provides neither.

Organization: *Not Specified*

Bright Angel Creek is not going to provide enough habitat to curb the possible future extinction of the Humpback Chub. The fact is that we have made changes to the ecosystem that will be in place for hundreds of years (if not thousands). Nature is still reacting and trying to cope with those changes. Those changes came with certain consequences, one of those being the loss of native

species of fish in the Colorado River. Nature has responded to those changes and no matter how hard we try or how many projects we attempt to implement unless the fish manages to survive on its own through natures good grace it will become extinct. The only way for it not to is to decommission Glen Canyon Dam (which in my opinion is totally out of the question and would be absolutely absurd). I feel it is a waste of time and tax payers dollars to continue implementing programs to save these fish. I too would be sad for their loss and it truly would be a great misfortune but the fact is that no matter what man tries to do to save these fish we cannot change the course that nature is taking, to truly think that we can save the endangered fish species in the Colorado River is a very ignorant thought in my opinion. Please don't waste more money by doing something that won't matter.

Organization: *Not Specified*

The fact is that you may go in and spend five years removing the trout and planting native species of fish in the creek, even if you are successful initially do you honestly think that the trout will stay out of the creek. Are you willing to spend more and more money to try to keep the trout out of the creek for the rest of time, because that's what will need to happen in order for you to accomplish your intended goal. Not to mention the other non-native species that is adapting and moving its way up the Colorado River, the Striped Bass. The Striped Bass is a much larger threat than the trout are; are you prepared to handle that issue as well?

Organization: Federation of Fly Fishers

Even this NPS EA/AEF concludes on page 45 that with the no-action alternative "THERE WOULD BE NO IMPAIRMENT OF THE PARK'S RESOURCES OR VALUES" and on page 19 the EA/AEF states that any benefit to HBC from the Trout killing would be "minor or negligible" contradicting the NPS news release claim that a purpose of the project is to benefit HBC!

Organization: *Not Specified*

As evidenced by the Report's own research, the Bright Angel trout are insignificant to the overall population of trout in the Grand Canyon system and the weir would remove an inconsequential number of trout. The weir that was installed in 2003 removed only 423 brown trout during the spawning run. That represents only 0.5% of the total estimated mainstem brown trout population of 84,000. For rainbow trout the numbers are even more dramatic. The 2003 weir removed 188 rainbow trout, or 0.05% of the total estimated mainstem rainbow trout population 369,000. This is best summed up from the following statement in the report regarding Alternative A, "The intensity of impact (to the
native species) would likely be minor because the number of trout that spawn in the creek appears to be small compared to the total trout population in the area."

Similarly, the Report concludes that the Alternative B, the weir removal of trout, would only have a minor beneficial impact on, or be of little consequence to, the native fish in the mainstem. So why, if both Alternative A and Alternative B are of little consequence to the native species, would the National Park Service spend the time, effort and money on Alternative B? How can that be the preferred alternative?

Organization: Member of Northern Arizona Fly Casters

Save the money, spend it on something of value. Build our park better, don't spend the money destroying something that costs nothing to keep.

Response: Meeting the mandates described on page 3 of the EA/AEF is required, not discretionary. The EA/AEF discusses how the project would help to meet those NPS mandates. The NPS acknowledges that the project may need to continue for many years, at considerable expense. It can be very difficult to reverse the effects of many years of human influence on the natural ecosystem. While it may not be possible to immediately restore the natural ecosystem, the NPS is required to do its best to begin the restoration process. This project is considered to be the best option currently available to begin that process. The project includes monitoring to continually evaluate its effectiveness in achieving its purpose and goals, as well as evaluating cost effectiveness and

impacts. The project may change over the years based upon the monitoring results and other information and techniques that may become available.

This project focuses on Bright Angel Creek, not the mainstem Colorado River. The fact that there are many more trout in the Colorado River is the subject of other projects focused on the river. As described in the EA/AEF (e.g., page 28), Bright Angel Creek is believed to be the primary spawning grounds for brown trout in the canyon.

CC1000 - Consultation and Coordination: General Comments

Comment **Organization:** Federation of Fly Fishers

The EA/AEF does not explain the delay of almost 3 years since scoping ended Jan 12th 2004. During the scoping period in 2003, the NPS (Jeff Cross) said that when the EA was finished public meetings would be held to develop public support for the project. Have any public meetings been scheduled? What notification methods will be used to inform the public? For a project this EXTREME, there has been very little public notice and only two 30 day comment periods over almost three years. Is this considered adequate NEPA compliance?

Response: The responses received from public scoping, as well as other information available to the NPS, did not indicate a need for public meetings. Letters announcing the availability of the EA/AEF were sent to everyone who commented during the 2003 scoping period, in addition to approximately 300 individuals and organizations on the park's mailing list. The park also sent out a press release and made the documents available on the NPS-wide park planning website, which is a "clearing house" for NPS projects at Grand Canyon as well as nationwide. None of the comments received on the EA/AEF, including the one above, requested public meetings or additional time for the comment period.

GA1010 - Impact Analysis - Need Cost Info

Comment **Organization:** Federation of Fly Fishers

How much money will this trout killing cost? Where will the money come from? The NPS complains constantly in the press about not having enough money for important things

Organization: *Not Specified*

Taxpayers do not want their hard earned money spent on a costly alternative that will yield the same result as an alternative that will cost nothing. It is also disingenuous to make such a recommendation without disclosing the costs of such action. Where is the cost benefit analysis in the Report? What is the estimated cost to taxpayers to execute Alternative B?

Response: The cost depends upon the exact methodology as well as who will implement the project. The best estimate is that the initial first-year implementation of the project will cost approximately $130,000. In response to the comment, the following text is added to the description of Alternative B on page 12 of the EA/AEF at the end of the third paragraph on the page providing an overview of Alternative B: *"The cost of the project is estimated to be approximately $130,000 in the first year, and up to $500,000 over 5 years. However, as part of the monitoring program designed into the project, cost efficiencies will be constantly evaluated to get the most effective results with the least cost."*

In addition, the following text is added at the end of the description of Alternative A (No Action) on page 12 of the EA/AEF: *"There would be no new direct costs associated with implementing Alternative A."*

PN8000 - Purpose And Need: Objectives In Taking Action

Comment **Organization:** *Not Specified*

I'm writing to say how unusual your killing healthy trout seems to me and every other conservationist I know. Just finding water suitable to support trout is getting scarce, I can't conceive of anyone killing any of the current healthy ones.

Organization: *Not Specified*

it seems to me that the [HBC] prospered when the Colorado was a warm water system (undammed). The Colorado has been changed and will never again be a warm water system, to try and artificially support a fish that won't thrive in cold water seems like an enormous waste of manpower and funds; only to fail in the long haul anyway.

Organization: Federation of Fly Fishers

Even this NPS EA/AEF concludes on page 45 that with the no-action alternative "THERE WOULD BE NO IMPAIRMENT OF THE PARK'S RESOURCES OR VALUES" and on page 19 the EA/AEF states that any benefit to HBC from the Trout killing would be "minor or negligible" contradicting the NPS news release claim that a purpose of the project is to benefit HBC!

Organization: *Not Specified*

Many anglers look forward to fishing the Colorado and its side streams. The federal government spent much time and money making this system a prime trout fishery. Why abandon what has worked so well?

Response: There will still be opportunities for trout fishing in Bright Angel Creek after implementation of this project, and as described in the EA/AEF, the project will have at most minor impacts on fishing in the Colorado River. The project objectives were developed to meet NPS mandates to protect the natural ecosystem and endangered species. In some cases, meeting those mandates involves attempts to reverse past decisions which caused problems not anticipated when those decisions were made.

The NPS Organic Act requires NPS to avoid impairment of park resources. However, the NPS is also required by its mandates to maintain or reduce impacts well below the impairment level.

SE4000 - Socioeconomics: Impact Of Proposal And Alternatives

Comment **Organization:** *Not Specified*

I for one enjoy trout fishing very much and if you diminish the trout in that area you will have a far more damaging impact on that community then you think. I'm sure you get a lot of tourists in your area due to the fishing, what would it due to the local businesses and the money that is generated from it.

Organization: Member of Northern Arizona Fly Casters

I know that the money made from the fishing park visitor is small in the scope of the entire park. But we must consider that it is like many of the park activities ...hiking, rafting, and the tourist who checks out the viewscape, we are all important visitors to Grand Canyon National Park. We all pay the entrance fees.

Response: Socioeconomics was dismissed from further consideration as an impact topic in the EA/AEF (page 10). In that discussion, it is acknowledged that fishing is very important to some visitors, but that all information available to the NPS indicates that the economic impact of those visitors is negligible in the scope of all Grand Canyon visitation. Also, as explained in responses to other comments, there would still be opportunities to fish for trout in Bright Angel Creek after

implementation of this project, and the project would have at most minor effects on trout fishing opportunities in the Colorado River.

VE4000 - Visitor Experience: Impact Of Proposal And Alternatives

Comment **Organization:** *Not Specified*

I have fished for trout numerous times in Bright Angel Creek. Fishing in Bright Angel Creek is a prized Grand Canyon experience for me. In fact, every time I hike in to the area I bring my fishing gear, and so do my friends and family.

Organization: Federation of Fly Fishers

This project would be a gratuitous and extravagantly expensive destruction of a valuable park recreational fishing opportunity already diminished by government neglect and abuse, but appreciated by park visitors since the 1920's.

Organization: *Not Specified*

...some curtailing of trout populations might be needed but not entirely annhilating the brown and rainbow fishery in Bright Angel. You've already destroyed much of the trout fishery in the main river, Nankoweap and Thunder River. Leave it at that. Do this project as you have proposed and outdoor writers will have to advise against buying a fishing license for anything below Lees Ferry.

Organization: Member of Northern Arizona Fly Casters

To imply in your assessment that because the number of fishermen is low and that the loss of this resource will not have much of an effect on the Park as a whole is a misguided concept. Fishing at Bright Angel Creek is one of America's great backcountry experiences.

Response: The NPS will continue to encourage trout fishing in Bright Angel Creek to increase the effectiveness of the weir and electrofishing proposed in this project (please see the response to AL1500). However, the NPS will also educate anglers to catch-and-keep rather than catch-and-release. None of these efforts are expected to completely eliminate trout from the creek, but they will make trout fishing more challenging and reduce catch rates.

The NPS acknowledges the great value of the fishing experience to some park visitors, but must also consider the value of visitor experiences in the context of its other mandates, some of which are reflected in the purpose and goals of this project. Please also see the response to VU2000.

VU2000 - Visitor Use: Methodology And Assumptions

Comment **Organization:** *Not Specified*

The overall statistics the researchers provide regarding the number of anglers may be vastly underestimated. Over the past 28 years, I've probably fished Bright Angel Creek 35 or more times. Counting friends and family who do the same, I would attribute just to people I know some 250 angler days over this period. Using the statistics in this EA, just myself and the people I know would represent an major chunk of all fishing activity in Bright Angel Creek in close to 3 decades, which is of course very hard to believe.

Our experience is reason to suspect the methodology the researchers used to determine the frequency and number of anglers is inadequate or seriously flawed. In my experience, never once have I encountered a ranger or anyone else who appeared to be tracking the number of anglers on the creek. To the extent the number of anglers is underestimated, therefore, this then draws into question some the underlying reasons for the recommendations of the EA.

Organization: Arizona Game and Fish Department

We believe the angler use estimates ...on Page 43, Table 4 are low. Angler use was not extrapolated to the entire year or period of use by anglers, it was only reported for the period of time that creel surveys were conducted. In the 1977-78 data, an average of 6.3 anglers were counted each day, over 20 days. Total use extrapolation in the EA only included the number of days that creel counts were conducted. From our reading, it implied that was total use. Total use should be estimated using the total number of days in the year or season of fishing use multiplied by the average number of anglers per day.

For example, in your Table 4 the EA/AEF reported 6.3 anglers/day * 20 days that anglers were counted = 126 anglers for 1977-78. A more applicable extrapolation is probably closer to 6.3 anglers/day * 365 days/year = 2,300 anglers. If angler counts were only conducted during peak use periods, the extrapolation should be weighted by the average number of anglers each month. Similar errors in extrapolation are apparent for the 1989-90 data also. Data from Appendix 7-1 in Carothers and Minckley (1981) show an estimated 951 anglers during the months that anglers were counted (November-March). Assuming similar use patterns during the rest of the year, we would estimate that up to 2,283 anglers fished Bright Angel creek in 12 months during 1977-78. While the order of magnitude difference in the estimates may seem minor, we would hold that it is important to reflect the relatibve value placed on the activity by visitors to the best of our abilities. Angler use of Bright Angel creek may not seem large, avid anglers who visit Bright Angel Creek and other tributaries within Grand Canyon National Park will view trout fishing as an important issue. We suggest that you reassess angler use estimates for Bright Angel Creek so that annual angler use can disclosed and assessed in the context of overall use of the creek.

Organization: Member of Northern Arizona Fly Casters

Fishing licenses are most likely to be purchased in Flagstaff ... This makes counting the licenses sold at the park an unreliable way to guage the number of anglers.

Response: Estimates for the number of anglers fishing in Bright Angel Creek are included in the EA/AEF primarily on pages 42-45. The above comments question the numbers, and suggest increasing the estimates. The EA/AEF simply reported the numbers available to the NPS; use was not extrapolated to an entire year because the NPS did not believe it had sufficient basis for such an extrapolation.

The underlying reasons for the recommendations (in the Purpose and Need section on EA/AEF page 1) are not affected by angler use estimates. However, the extent of impact on anglers is called into question by these comments.

In response to the comments. the NPS is revising the language in the EA/AEF on page 45 to indicate that "*up to 2,300 visitors per year*" rather than "an estimated 200 visitors per year" may be adversely affected by the project. However, even if the suggested figure of approximately 2,300 anglers per year is used, that number would compare to approximately 36,000 people who camp each year at Bright Angel and Cottonwood Campgrounds, and approximately 25,000 people who stay overnight at Phantom Ranch (plus over 22,000 river runners who currently pass through the area). Therefore, although more people may be affected than originally portrayed in the EA/AEF, the conclusion on page 45 is still accurate that the proportion is very small and the impacts to the visitor experience at Grand Canyon would still be minor, indirect, adverse, and local as stated (EA/AEF page 45).

WH2000 - Wildlife And Wildlife Habitat: Methodology And Assumptions

Comment **Organization:** *Not Specified*

Representative Quote: In reference to the non-native species removal, I must say I do not agree. Nature has a way of selecting species through several methods. There are storms, changes in climate, food, or water. Nature is a dynamic force, dynamic in that it is constantly changing

and adapting. It is arrogant to decide that "we" can decide how nature should look and what species should survive or not survive.

Organization: *Not Specified*

Bright Angel Creek is not going to provide enough habitat to curb the possible future extinction of the Humpback Chub. The fact is that we have made changes to the ecosystem that will be in place for hundreds of years (if not thousands). Nature is still reacting and trying to cope with those changes. Those changes came with certain consequences, one of those being the loss of native species of fish in the Colorado River. Nature has responded to those changes and no matter how hard we try or how many projects we attempt to implement unless the fish manages to survive on its own through natures good grace it will become extinct. The only way for it not to is to decommission Glen Canyon Dam (which in my opinion is totally out of the question and would be absolutely absurd). I feel it is a waste of time and tax payers dollars to continue implementing programs to save these fish. I too would be sad for their loss and it truly would be a great misfortune but the fact is that no matter what man tries to do to save these fish we cannot change the course that nature is taking, to truly think that we can save the endangered fish species in the Colorado River is a very ignorant thought in my opinion. Please don't waste more money by doing something that won't matter.

Organization: *Not Specified*

The fact is that you may go in and spend five years removing the trout and planting native species of fish in the creek, even if you are successful initially do you honestly think that the trout will stay out of the creek. Are you willing to spend more and more money to try to keep the trout out of the creek for the rest of time, because that's what will need to happen in order for you to accomplish your intended goal. Not to mention the other non-native species that is adapting and moving its way up the Colorado River, the Striped Bass. The Striped Bass is a much larger threat than the trout are; are you prepared to handle that issue as well?

Organization: Federation of Fly Fishers

HBC do not live in BA creek because the water is too cold! Even John Wesley Powell in the 1860's thought BA creek was a trout stream! Historically, native Apache Trout or native Colorado River Cutthroat Trout could have been present in BA creek! Would minnows and suckers alone constitute a balanced fish population in BA creek?

Organization: Federation of Fly Fishers

The EA/AEF does not mention that just last year, 2005, the trout fishery through out the Grand Canyon again suffered at least a 50% decline likely due to destruction of the food supply for fish resulting from the November 2004 high flow (flood) experiment intended to increase the size of camping beaches in the Grand Canyon. It is LIKELY that there would be very few Trout to catch with the weir if it is used in November 2006 as planned since the trout population in the Grand Canyon is currently at very low numbers.

Organization: Federation of Fly Fishers

The EA/AEF does not mention that the GCMRC trout killing project and the NPS BA creek trout killing project were drastic emergency responses to what was an inaccurately low estimate of only 1000 HBC in 2002. Also the estimate of 8,000 HBC in the 1980s is now thought by the USFWS to have been inaccurately high! It seems that HBC probably have been stable at about 5,000, which coincidentally may be about the carrying capacity of the LCR even with all the warm water non-native fish living in the LCR!

Organization: Federation of Fly Fishers

The EA/AEF does not mention that the NPS drastically reduced the quality of BA creek fish habitat in 1991 by removing beavers, beaver dams and beaver ponds in the lower 2 miles to protect trees they planted to shade their buildings. This seriously reduced fish habitat quality and recreationally fishing quality for park visitors. The NPS did not notify the public or do any NEPA

compliance before removing the beavers and when questioned now they claim (Jeff Cross) the beavers were washed away by flash floods. However, several anglers witnessed the NPS destroying beaver dams. Several of the beaver dams were very large, beautiful park features, and resistant to flash flooding. See photos included!

Organization: Federation of Fly Fishers

The EA/AEF does not mention that the U.S. Geological Survey's Grand Canyon Monitoring and Research Center (GCMRC) found only 1 percent of the 20,000 Rainbow Trout (RBT) they killed in the Grand Canyon in the past four years had fish in their stomachs and those were mostly either common suckers or baby trout.

Organization: Federation of Fly Fishers

The EA/AEF references high numbers of anglers fishing BA creek ("20 or more anglers per day", page 43) in the 1980's when trout fishing was phenomenal and coincidentally HBC numbers were thought to be at their highest. Fishing quality as referenced in the EA/AEF has been poor in the last decade and a half and the HBC have been thought to have declined also in the last 15 years

Organization: Federation of Fly Fishers

Why is the NPS not asking to kill the "monster Carp" (USFWS observations) and other warm water non-native fish (Channel Catfish, Green Sunfish, Black Bullheads, fathead minnows, Red Shiners etc.) residing in the Little Colorado River (LCR), the warm water home of the endangered Humpback Chubs (HBC) in the Grand Canyon? Trout do not live in the warm water of the LCR!

Organization: *Not Specified*

John Wesley Powell's journals indicate the presence of fish in Bright Angel. These could well be Colorado River cutthroat. How can you prove there were not trout native to this system? Why not consider restoring cutthroats?

Organization: *Not Specified*

What proof is there that trout far downstream from the Little Colorado (prime humpback chub habitat) at Bright Angel prey on or bother the chubs?

Organization: *Not Specified*

Admittedly, I am fisherman and whole heartedly agree with the statement in the report that "angling in the spectacular setting at the bottom of Grand Canyon is a unique and prized experience." Why deny me and others that opportunity based on incomplete evidence and flawed conclusions. It's clear that if the humpback chub populations have stabilized then both trout and native species can co-exist.

Organization: Arizona Game and Fish Department

We concur from our work on the Colorado River that brown trout management is likely a useful strategy in conservation of native fishes. We are less certain of the efficacy and value of removal of rainbow trout in contributing to the conservation of native fishes. ... We do place emphasis on conservation of native fishes in the Colorado River through Grand Canyon below the Lees Ferry Reach down to the Lake Mead influence and believe that it is a focal area for native fish conservation.

Organization: Member of Northern Arizona Fly Casters

Removal of the rainbow and brown trout will not correct the removal of the beaver ponds. The flannel mouth sucker needs slack water to spawn; the beaver ponds did provide that habitat. Competition for space with trout did not drive them out of the creek. The Park Service removal of the beaver habitat to protect the new trees at Phantom Ranch did.

Organization: US Fish and Wildlife Service

The EA/AEF currently calls for two methods to assess weir effectiveness. First, the weir will be operated in early spring from April to May to catch native suckers migrating into Bright Angel creek. Second, the EA/AEF describes depletion sampling in Bright Angel Creek during the same period. We recommend that sampling be scheduled later in the year, from mid- to late-summer (prior to the monsoon season), to minimize the potential impact on spawning fish, primarily the suckers that the weir will be catching in the spring. Additionally, if sampling is pushed back until late July, hoopnets could also be used to catch young of the year which may provide a better overall index of how the native fishes are potentially benefiting from removal of non-native salmonids. While depletion sampling has merit, especially in December/January when native fish densities are likely at their lowest, because depletion sampling can be very hard on non-target species, a better measure of the benefit of the weir is how it affects recruitment in the spring. Also, ... reduces manpower needed ... during weir operation ... five days should be an appropriate amount of time to accomplish monitoring objectives. We also recommend that the 45-day weir operation scheduled for spring remain as fluid as possible ... factors are unpredictable ... starting day and ending day can be tailored around fish movement ...We further recommend that all biologists on the project be educated in existing protocols for conducting fish research in Grand Canyon, that fish of any species larger than 150 mm be scanned for a passive integrated transponder (PIT) tag, and that all unmarked native fish larger than 150 mm be marked with a PIT tag.

Response: The above responses to AL5510, PN8000, and VE4000 address most of the issues raised in these comments.

Additional issues include:
If striped bass or other non-native fish are caught during this project, they will be euthanized. Comprehensive efforts to address non-native fish in other parts of the Colorado River system are outside the scope of this project.

While beaver dams and ponds were removed by the NPS in Bright Angel Creek, the NPS has nothing but anecdotal evidence of their value (either positive or negative) to the native fish community. Similarly, any correlation between fishing quality and humpback chub populations are at this time hypothetical or anecdotal.

As discussed in the EA/AEF (e.g., pages 26-29), the proportion of fish in the diet of brown and rainbow trout varies by many factors, including whether they are spawning as many of the fish were in the study cited in the comment (they usually eat very little when spawning).

Powell did not specify what species of fish he found in the creek. There is insufficient basis to consider any species of trout as native in Bright Angel Creek, and no evidence that brown or rainbow trout are anything but non-natives.

On pages 3-4 of the EA/AEF, GCMRC 2006 is cited indicating that the humpback chub population in Grand Canyon may be stabilizing. The reference also acknowledges that the exact causes of stabilization, and the relative importance of the various factors (including non-native fish removal) that may be contributing to it cannot be specified at this time. This issue does not affect the need to take action to benefit the chub, nor does it affect the other project purpose to restore the native fish community in the creek.

Changes to the methodology such as those suggested in the comment are of a level of detail that do not affect the impacts or decision. Such changes may be made as a result of the monitoring program in future years as well. The suggested changes are reflected in the description of the preferred alternative in the Finding of No Significant Impact.

WH4000 - Wildlife And Wildlife Habitat: Impact Of Proposal And Alternatives

Comment **Organization:** *Not Specified*

No evidence was presented that the native species would benefit, particularly the humpback chub, from the removal of trout via a weir placed in Bright Angel Creek. In fact, the report concludes that the benefit to the native species from Alternative B would be of little consequence.

Organization: *Not Specified*

The Assessment Report is glaring in its omission of an analysis of the relative contributing factors to the decline of the native species. What impact have various other environmental factors, like pollution and water flows, had on the native species? Are trout 1%, 5%, 50%, 80% responsible for the decline? Where is the data or the discussion?

Although this information is not presented directly, the Report's own words indicate that trout, or at least the trout spawning in Bright Angel, have very little to do with the decline of the native species. The Assessment Report states that the No Action alternative would have a minor adverse impact on the humpback chub and flannelmouth sucker and no effect, or negligible adverse effect, on the razorback sucker. Minor is defined in the Report as "measurable but small and localized and of little consequence".

Organization: *Not Specified*

The Report states that "it appears that the humpback chub population in Grand Canyon may be stabilizing." If that is the case, why kill one species, trout, for the alleged benefit of another species, humpback chub, that may not even be in decline? Shouldn't an assessment be made of the true current status of the native species before another species is destroyed? Seems like good common sense to me.

Organization: US Fish and Wildlife Service

As you have clearly identified, non-native fish species are a serious threat to the native fish fauna of the Colorado River. A suite of non-native fishes prey on and compete with native fishes in the mainstem Colorado River, and are considered a prime cause in their decline. ...Because Bright Angel Creek appears to be a primary spawning habitat for brown trout (*Salmo trutta)*in Grand Canyon, removal of this species at this location should reduce their numbers throughout the Colorado River in Grand Canyon and should benefit all the remaining native fishes (humpback chub, speckled dace (*Rhinichthys osculus*), flannelmouth sucker (*Catostomus latipinnis*), and bluehead sucker (*Catostomus discobolus*)).

Response: The comment by the Fish and Wildlife Service answers most of the criticism evident in the other comments. While the relative importance of all factors in the decline of the native species is not known, it is well established that trout predation and competition plays an important part. The EA/AEF, on pages 31-32, indicates a moderate benefit to the creek's natural ecosystem.