

# **FINDING OF NO SIGNIFICANT IMPACT FISH BARRIER**

## **ENVIRONMENTAL ASSESSMENT**

National Park Service, U.S. Department of the Interior

Great Basin National Park

August 2013

### **INTRODUCTION**

The Department of the Interior, National Park Service has prepared this Finding of No Significant Impact (FONSI) statement, in accordance with the National Environmental Protection Act (NEPA), for the selected alternative for the Fish Barrier Environmental Assessment (EA) in Great Basin National Park. This FONSI includes a statement of the decision made, synopses of other alternatives considered, the basis for the decision, a listing of mitigation measures to minimize environmental harm, and an overview of public involvement in the decision-making process. This FONSI, along with the EA, comprise the complete record of environmental impact analysis process for the project. In keeping with 2006 Management Policies, a Determination of Non-Impairment (DNI) was also prepared and is attached to the FONSI.

The National Park Service (NPS) proposes to construct a fish barrier on the lower portion of Snake Creek, near the park boundary. The proposed fish barrier is intended to prevent the upstream invasion of non-native fishes and aquatic invasive species into Snake Creek within the park, including portions occupied by a species of management concern, Bonneville cutthroat trout (*Onchorynchus clarki utah*, BCT). This action would help the park meet the Nevada Conservation Agreement and Conservation Strategy (NV CA/CS) goals for BCT populations.

### **PURPOSE AND NEED FOR ACTION**

The purpose of the action is to better protect the Snake Creek BCT population and other native aquatic species within Great Basin National Park from invading invasive species and diseases. The need is that potential threats, including hybridization and/or competition with non-native salmonids, diseases, and aquatic invasive species threaten BCT populations and other aquatic organisms. As a signatory to the NV CA/CS (2006) and the *Range-wide Conservation Agreement and Strategy for Bonneville Cutthroat Trout* (Lentsch et al. 2000), Great Basin National Park is committed to taking measures to restore, maintain, and expand five Bonneville cutthroat trout populations within the park, including the Snake Creek population. These actions are necessary to prevent the possible listing of the species, which would have significant consequences for both federal land managers and private landowners.

### **ALTERNATIVES**

Alternative A, the No Action Alternative, would continue park operations as normal and would not construct a fish barrier on Snake Creek near the park boundary. The structure at the pipeline inlet, approximately 9.0 km (5.6 mi) west of the park boundary, above which BCT were reintroduced, would continue to serve as an assumed fish barrier. This is an assumed barrier, since it was not designed as a fish barrier and non-native trout have been detected upstream. This structure is the current pipeline intake, which is located approximately 9.0 km (5.6 mi) from the park boundary. The pipeline moves water over a karst section of streambed, where water is lost (Elliott et al. 2004). The pipeline intake consists of a 1-m (3-ft) wide box the width of the stream (approximately 2 m (6 ft) across), and 1.3 m (5 ft) high. During

spring runoff, the streamflow exceeds the pipeline capacity, and the overflow runs across the box and down into the stream channel.

Alternative B, the Selected Alternative, would install a fish barrier on Snake Creek to prevent the upstream movement of non-native fish species, aquatic invasive species, and of aquatic diseases. The proposed fish barrier would consist of a structure placed across the channel of Snake Creek approximately 100 m (300 ft) upstream of the park boundary. The proposed location is in an ephemeral section of stream with no stream flow typically from early October to mid-April. The approximate UTM coordinates (plus or minus 3 m) for the barrier are: Z11 N 0748462 E, 4311643 N. The overflow structure would be composed of a reinforced concrete wall including wing walls that would extend into the existing stream bank and a concrete downstream apron. The design and construction would be to make the fish barrier capable of withstanding high water events, including a 100-year flood event. The total height of the structure above the existing streambed would be about 1.5 m (5 ft). The length of the structure across the stream would be about 3 m (10 ft). The wing walls above the existing ground surface would range from approximately 0 to 1 m (0 to 3 ft) depending on the height of the structure and the elevation of the ground surface. Anchor bars would be drilled and cemented into existing banks and streambed to ensure the structure is securely stabilized in the channel. A center notch would be constructed in the dam face to ensure base flows achieve a full 1.2 m (4 ft) drop and focus outfall on the downstream apron only.

### **Selected Alternative**

The NPS selects Alternative B, the Selected Alternative. This alternative meets the purpose and need for the project. No changes to the preferred alternative (as described in the EA) are incorporated in the Selected Alternative.

### **Alternatives Considered and Dismissed**

One scoping comment asked the park to restore the entire drainage (from the headwaters to the valley bottom in Utah) to native fish. Although the park finds this a commendable idea, it is beyond the scope of this project and the jurisdiction of the park. In addition, it is not feasible due to the presence of the NDOW Spring Creek Rearing Station, approximately 2.3 km (1.4 mi) downstream of the park boundary and next to Snake Creek. The rearing station raises rainbow trout and escaped rainbow trout enter Snake Creek, thus this alternative is dismissed.

Another scoping comment suggested improving the structure at the pipeline inlet to make it a more effective fish barrier. Improving the de facto fish barrier does not meet the purpose and need of the project, which is to prevent non-native species and diseases from entering the park. In addition, this location is above the springsnail locations on Snake Creek, so this alternative would not protect these populations.

Park staff and consultants investigated one site for the fish barrier right at the park boundary, but found it to be unfeasible due to streambanks being too steep. In addition, it did not have a work area that would allow access to the stream bottom without causing major disturbance to the stream banks. Thus this alternative was dismissed.

Another site near the first campsite in the park was also investigated. At this site, the streambanks were not steep enough to make an effective fish barrier. In addition, it is at a site of perennial water flow and over 600 m (600 yd) into the park, thus it would protect less habitat for native species, making it unfeasible. Due to the unfeasibility, this alternative was dismissed.



## **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The National Park Service (NPS) has determined that the environmentally preferred alternative for this project is Alternative 2, the Selected Alternative. The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA (sec. 101 (b)). This includes alternatives that:

- Fulfill the responsibilities of each generation as a trustee of the environment for succeeding generations.
- Ensure for all Americans 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, whenever 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.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council on Environmental Quality (CEQ) regulations implementing NEPA and the NPS NEPA guidelines require that "the alternative or alternatives which were considered to be environmentally preferable" be identified (Council on Environmental Quality Regulations, Section 1505.2). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

The National Park Service has determined that the environmentally preferred alternative for this project is Alternative B, the Selected Alternative, due to its protection of park resources from the invasion of non-natives fishes and aquatic invasive species into Snake Creek within the park. The Environmentally Preferred Alternative also benefits the implementation of the CA/CS for BCT. Alternative A, the No-Action Alternative would have less ground disturbance but would leave native species vulnerable to non-native species and diseases, which is of greater consequence than the minor ground disturbance needed to protect them.

## **MITIGATION**

Mitigation measures are presented as part of the Selected Alternative. These measures have been developed to lessen the adverse effects of the Selected Alternative. Mitigation measures would be funded through the project budget unless specifically noted in Table 1. We also have included a table of Best Management Practices (Table 2).

## **PUBLIC INVOLVEMENT AND AGENCY CONSULTATION**

### **Scoping**

Internal scoping was held from November 17, 2011 to December 15, 2011. Internal scoping involved an interdisciplinary team of NPS staff who determined potential issues and impact topics. The team defined the purpose and need, identified potential actions to address the need, determined what the likely issues and impact topics would be, and identified the relationship, if any, of the Selected Alternative to other planning efforts at the Park.

Table 1. Mitigations for the Selected Alternative.

Impact Area	Mitigation	Responsible Party
Soils; Streamflow Characteristics	Following the completion of the project, all portions of the route used to transport equipment that are not part of a public road system will be sufficiently restored to prevent unauthorized use.	Chief of Natural Resources
Native Aquatic Species; Species of Concern	All equipment, boots, and waders entering streams should be properly decontaminated to prevent introduction of whirling disease and other diseases, parasites, and non-native species into the stream. Only clean, disinfected boots, waders and other equipment will be allowed into the streams. All mud and debris should be rinsed from boots and equipment and will be sprayed with a 10% chlorine solution and allowed to dry prior to entry into creeks.	Fisheries Biologist
Soils	Access route will be clearly marked to prevent unnecessary compaction of soils and increased disturbance footprint. Following completion of the project erosion controls will be installed on the temporary access route and construction pad and these areas will be restored and revegetated as appropriate.	Geologist

Table 2. Best Management Practices for the Selected Alternative.

Best Management Practice	Responsible Party
Prior to beginning the project, all equipment and vehicles will be thoroughly pressure washed to remove foreign soil and vegetative matter; this will minimize potential that non-native plants are introduced to the project area.	Weed Program Manager
A resource advisor from NPS will be on site to monitor the transport of equipment into and out of the project area. This will ensure that the equipment follows the designated route to the project site and that there is no undue impact to resources on the ground.	Compliance Staff
Equipment will be inspected daily to ensure there are no leaks of petroleum products or other hazardous materials.	Compliance Staff
In the event of inadvertent discovery of human remains in or near the project area at any time during the project construction or restoration, work will stop immediately and the Cultural Resource Program Manager and Superintendent will be notified immediately. The project will not resume until authorized by the Cultural Resource Program Manager. If cultural artifacts are identified during ground disturbing activity the Cultural Staff will be notified and care will be taken to avoid damage or destruction.	Cultural Resource Program Manager

Public scoping was conducted by mailing out letters to individuals and groups on the Park's NEPA mailing list on December 29, 2011. The project was noticed on the NPS Planning, Environment and Public Comment (PEPC) website. A press release was issued on December 29, 2011, and *The Ely Times* published it on January 13, 2012. The project was also noticed on the park's Facebook page and Twitter feed. During scoping, five public comments were received, three from local residents, one from a representative from the Great Basin Chapter of Trout Unlimited, and one from an individual from Texas.

These comments expressed the following issues and concerns about the project:

- \* Impact of fish barrier on water rights
- \* Desire to restore entire aquatic ecosystem by removing non-native fish from entire drainage



- \* Improving current barrier at pipeline intake location
- \* Recreational fisheries
- \* Disturbance to streambank

## EA Review

The EA was available for public review and comment from March 15 to April 20, 2013 on the PEPC website. Letters announcing availability were sent to the Park's NEPA mailing list, and a press release was sent to area newspapers, the local listserve, and was posted on the park's website. Hard copies of the EA were sent to the White Pine County Library, EskDale Center, and two individuals who submitted hard copy scoping comments. Notices of the EA availability were also posted on the Park's Facebook and Twitter pages.

A total of six responses were received, three from state agencies: the Nevada Division of Wildlife (NDOW), Nevada Division of Water Resources (NDWR), and the State Historic Preservation Officer (SHPO); one from an environmental group, the Sierra Club; one from a recreational group, the Great Basin Chapter of Trout Unlimited; and one from an individual. NDOW, SHPO, Sierra Club, and the individual all supported the project, with NDOW asking to be notified well in advance of any activity within the stream or banks of Snake Creek. In addition, NDOW requested that all work done in and around the creek adhere to "Best Management Practices" to reduce and minimize turbidity within the stream, and that Spring Creek Rearing Facility staff be notified immediately if any accident or diversion were to occur. The NPS acknowledges these requests and will do its best to ensure their completion. The President of the Great Basin Chapter of Trout Unlimited (GBCTU) commented that he does not support Alternative B, the Selected Alternative. He wanted the barrier formed by the current pipeline intake to be its own alternative. The NPS responds that this site was analyzed as part of Alternative A, the No-Action Alternative, and that making it a separate alternative would not result in any different analysis. The current pipeline intake, located approximately 9.0 km (5.6 mi) from the park boundary, would allow a much greater portion of Snake Creek to be susceptible to invading diseases and non-native species. The native springsnail populations are found in this section of the creek. Improving this site was one of the alternatives considered and dismissed, as noted above. The letter from GBCTU stated that the road and staging area would create significant land/watershed disturbance which could provide significant erosion and sediment impacts to the creek and streambed downstream. The road and staging area have already been analyzed in section 3.2.1 of the EA, and no new information has been provided to require additional analysis. The letter from GBCTU stated that removal of the existing fishery in lower Snake Creek would hurt the economic revenue. This EA does not propose to remove any existing fishery, thus economics was not an impact topic considered for an analysis. If the Park proposes to change the existing fishery in the future, the appropriate NEPA process would be followed. The letter from GBCTU stated that the EA fails to consider water quality impacts. As stated in section 1.5.3 of the EA, "Most water quality parameters, such as pH, conductivity, and temperature are not likely to be affected by installation of a fish barrier. Turbidity could be affected for a small amount of time, and design features would make any changes in water quality negligible. Thus the impact topic of water quality has been dismissed." In addition, construction of the fish barrier would occur at no or low flow.

NDWR commented that the fish barrier must not negatively impact any downstream users or water rights. The fish barrier would not do that, as it would simply create a waterfall in the creek bed. No water rights would be changed. NDWR also offered information about required permits. This is addressed in the next section, Agency Consultation.

### **Agency Consultation**

The undertakings described in this document are subject to Section 106 of the National Historic Preservation Act, as amended in 1992 (16 USC Section 470 et seq.). Park Cultural Resource Staff inventoried the project area and did not find any cultural resources present. Therefore consultation with the Nevada State Historic Preservation Office was not needed, but the SHPO did provide a comment on the EA "The SHPO supports this document as written," dated April 15, 2013.

No state or federally listed or candidate species are found in the project area, thus no consultation was needed with the US Fish and Wildlife Service.

Consultation with the US Army Corps of Engineers was initiated November 19, 2012. A Nationwide Permit Number 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities was issued on April 29, 2013.

Consultation with the Nevada Department of Environmental Protection (NDEP) was initiated November 20, 2012. A 401 Water Quality Certification was issued March 25, 2013.

As requested in their EA comment letter, Nevada Division of Water Resources will be notified at least 30 days in advance of commencement of construction. Park resource management staff will maintain contact with the Spring Creek Rearing Facility during construction in case any rainfall event might cause sediment to be washed downstream.

### **WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE QUALITY OF THE HUMAN ENVIRONMENT**

The NPS used the following NEPA criteria and factors defined in 40 CFR §1508.27 to evaluate whether the Selected Alternative would have a significant impact on the environment.

#### **Impacts that may have both beneficial and adverse aspects and which on balance may be beneficial, but that may still have significant adverse impacts that require analysis in an EIS.**

No significant impacts were identified as part of the analysis for this project. The Selected Alternative would have short-term, adverse, minor impacts to soils and streamflow characteristics and beneficial, minor to moderate impacts to sensitive species and their habitats, native species, long-term management of resources, and CA/CS. Long-term benefits derived from the information gathered in this research project outweigh short-term adverse impacts. Mitigation measures proposed will alleviate these short- and long-term impacts.

#### **Degree of effect on Public Health or Safety.**

Public health and safety will not be impacted by this project. The project construction area will not be open to the public and will not produce any health and safety risks. Vehicles traveling to and from the construction area will follow all posted speed limits and applicable laws.

#### **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.**

Park cultural resource staff surveyed the fish barrier construction site and did not find any cultural resources in the area. The effect of the project on cultural resources is expected to be nil with a no effect determination under Section 106 of the National Historic Preservation Act.



No project areas are located within prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

**Degree to which effects on the quality of the human environment are likely to be highly controversial.**

There are no highly controversial impacts anticipated to the quality of the human environment. Public scoping and comment on the proposal did not indicate a substantial dispute as to the size, nature, or effect of the action and only one of the six comments did not support the Selected Alternative. The EA did not identify significant impacts associated with the Selected Alternative.

**Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.**

No highly uncertain effects or unique or unknown risks are anticipated to occur under the Selected Alternative. Actions proposed under the Selected Alternative will utilize standard construction and operation techniques, best management practices, and other mitigations to reduce risk.

**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 Selected Alternative is not expected to set a precedent for future actions with significant effects, nor does it represent a decision in principle about any future consideration elsewhere in the National Park System.

**Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.**

Cumulative impacts were analyzed in the EA and no significant cumulative impacts were identified.

**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.**

Park cultural resource staff surveyed the fish barrier construction site and did not find any cultural resources in the area, therefore the NPS determined that no historic properties will be adversely affected. The anticipated impact to cultural resources is nil. Compliance with §106 of the National Historic Preservation Act was completed.

**Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.**

No endangered or threatened species are found in the project area.

**Whether the action threatens a violation of Federal, state, or local environmental protection law**

The Selected Alternative violates no federal, state, or local laws or environmental protection laws.

**Degree to which the action may adversely affect geological resources (soils).**

The Selected Alternative is expected to have adverse, minor, short- and long-term, localized impacts to soils along access route and construction pad resulting from compaction; and adverse, minor, short-term, localized impacts to stream banks resulting from excavation disturbance.

**Degree to which the action may adversely affect streamflow characteristics.**

The Selected Alternative is expected to have adverse, minor, short and long-term, localized impacts to streamflow during and immediately after construction of the barrier.

**Degree to which the action may adversely affect species of special concern and their habitat.**

The Selected Alternative is expected to have beneficial, moderate, long-term, localized impacts to BCT and springsnails due to a barrier to non-native species and diseases.

**Degree to which the action may introduce non-native species.**

The Selected Alternative is expected to have beneficial, moderate, long-term, localized impacts to BCT and springsnails due to a barrier to non-native species and diseases.

**Degree to which the action may adversely affect long-term management of resources.**

The Selected Alternative is expected to have beneficial, minor, long-term, localized impacts to long-term management of resources due to a barrier to non-native species and diseases.

**Degree to which the action may adversely affect the CA/CS for BCT in the State of Nevada**

The Selected Alternative is expected to have beneficial, moderate, long-term, and localized effects due to upholding the CA/CS.

**SECTION 106 COMPLIANCE**

The undertakings described in this document are subject to Section 106 of the National Historic Preservation Act, as amended in 1992 (16 USC Section 470 et seq.). Park Cultural Resource Staff inventoried the project area and did not find any cultural resources present. Therefore consultation with the Nevada State Historic Preservation Office was not needed.

**CONCLUSION**

Implementation of the Selected Alternative for the Fish Barrier Project will not have significant impacts on the human environment. The determination is sustained by the analysis in the EA, agency consultations, the inclusion and consideration of public review, and the capability of mitigations to reduce or avoid impacts. Adverse environmental impacts that could occur are negligible to moderate in intensity, limited in context, and less-than-significant. As described in the EA, there are no highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence. There are no previous, planned, or implemented actions, which in combination with the Selected Alternative would have significant effects on the human environment. Requirements of the National Environmental Policy Act have been satisfied and preparation of an Environmental Impact Statement is not required. The park will implement the Selected Alternative as soon as practical.

Recommended:

  
Steve Mietz, Superintendent  
Great Basin National Park

8/6/13  
Date

Approved:

  
Christine S. Lehnertz, Regional Director  
Pacific West Region, National Park Service

8/16/13  
Date



## **Attachment 1**

### **DETERMINATION OF NON-IMPAIRMENT**

#### **FISH BARRIER PROJECT GREAT BASIN NATIONAL PARK**

While Congress has given the National Park Service (NPS) management discretion to allow impacts within parks, that discretion is limited by the statutory requirement, generally enforceable by the federal courts, that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This cornerstone of the Organic Act establishes the primary responsibility of the NPS: to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would 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, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

National Park Service's *Management Policies 2006* requires analysis of potential effects to determine whether or not actions would impair park resources. The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the National Park System, and the benefit and inspiration provided to the American people by the National Park System; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

The authorizing legislation for Great Basin National Park ("the Park") was signed on October 27, 1986 "to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values." It further stated that the NPS is to "protect, manage and administer the Park in such a manner as to conserve and protect scenery, the natural, geologic, historic and archeological resources of the Park, including fish and wildlife and to provide for the public use and enjoyment of the same in such a manner as to perpetuate these qualities for future generations."

The Park was established to conserve and protect the natural resources, including fish and wildlife. The lack of action could preclude the Park from maintaining its purposes and values as established in the Park's enabling legislation. The Park's 1993 GMP calls for reestablishing Bonneville cutthroat trout into selected streams on the east side of the park.

#### **TOPICS INCLUDED IN IMPAIRMENT ANALYSIS**

Non-resource topics such as visitor use or public health and safety are not subject to impairment determinations. The topics which were considered in the EA and which are subject to impairment analysis are as follows:

##### **Geology / Soils**

The Selected Alternative allows for a temporary access route and construction pad. This is expected to result in compaction of soils, which would be of adverse, minor, short-and long-term, and localized impacts. The temporary access route would be only wide enough for one vehicle, and limited vehicles would be traveling on it. Excavation disturbance to install the fish barrier would include reshaping part of the stream bank for installation of the concrete walls. This action is expected to have adverse, minor, short-term, localized impacts to soil in stream



banks. Mitigation measures for geology/soils are: 1) access route will be clearly marked to prevent unnecessary compaction of soils and increased disturbance footprint. Following completion of the project, erosion controls will be installed on the temporary access route and construction pad and these areas will be restored and revegetated as appropriate; and 2) following the completion of the project, all portions of the route used to transport equipment that are not part of a public road system will be sufficiently restored to prevent unauthorized use.

There will be no impairment to soil conditions from implementing the Selected Alternative. Potential adverse effects will be mitigated through the implementation of marking the route, erosion control methods, restoring the route, and Best Management Practices (BMPs) including a resource advisor from NPS on site to monitor the transport of equipment into and out of the project area. This will ensure that the equipment follows the designated route to the project site and that there is no undue impact to resources on the ground.

### **Streamflow Characteristics**

Construction of the fish barrier would ideally be during no flow at the location on Snake Creek. This would not change streamflow characteristics to the creek. If construction is during low flow (some years the stream flow extends later into the year than others), the Selected Alternative is expected to have adverse, minor, short and long-term, localized impacts to streamflow during and immediately after construction of the barrier. Even though the fish barrier is a dam, it's minimal height and width presents only a minor and localized change to streamflow characteristics. In addition, the splash apron below the dam will prevent changes to the streambed resulting from overflow. By using the mitigation techniques and BMPs described in the Geology/Soil section above, and by designing the barrier to minimize and localize resulting changes in streamflow, the Selected Alternative will produce only minor impacts to streamflow characteristics.

The Selected Alternative will not result in impairment to streamflow characteristics at Snake Creek or the surrounding areas.

### **Species of Special Concern and Their Habitat**

Species of special concern in the project area are Bonneville cutthroat trout (BCT; *Oncorhynchus clarki utah*), and the Toquerville springsnail (*Pyrgulopsis kolobensis*). The Selected Alternative is expected to have beneficial, moderate, long-term, localized impacts to BCT and springsnails due to a barrier to non-native species and diseases.

The Selected Alternative does not result in impairment to BCT or springsnails because adverse effects are unlikely to occur. In fact, this project will enhance their survivability.

### **Non-Native Aquatic Species**

The Selected Alternative will install a barrier to block non-native aquatic species and diseases from entering the park. This alternative is expected to have beneficial, moderate, long-term, localized impacts to BCT and springsnails.

The Selected Alternative will not result in impairment to native species, as it will help to keep non-native aquatic species out of the park, which is a management goal.

### **Long-term Management of Resources**

Bonneville cutthroat trout is a species that has been studied intensively and much thought has gone into its long-term survivability. Keeping BCT disease free and away from the competition of non-native fishes allows for a better future for BCT. The Selected Alternative is expected to have beneficial, minor, long-term, localized impacts to long-term management of resources due to a barrier to non-native species and diseases.

The Selected Alternative will not result in impairment to long-term management of resources because it is actually beneficial to the species of concern. Implementing the Selected Alternative will result in higher quality habitat that is protected from non-native aquatic species and diseases that will have long-term benefits for aquatic wildlife throughout the entire upper Snake Creek watershed.

### **CA/CS for State of Nevada**

The Park has partnered with many organizations in efforts to improve habitat and restore BCT to several park streams in order to ensure their persistence. The Selected Alternative is expected to have beneficial, moderate, long-term, and localized effects due to upholding the CA/CS, and would not cause impairment to these resources.

### **SUMMARY**

Under the Selected Alternative, best management practices will be implemented during construction to minimize impacts to air or water quality and soil erosion, and project completion will maintain or improve the health of native aquatic species within the park. As described above, adverse effects and environmental impacts on resources or values whose conservation is necessary to fulfill specific purposes identified in the park's establishing legislation, key to the natural or cultural integrity of the park or to opportunities for enjoyment of the Park, or identified as significant in the Park's GMP, which may occur from implementing the Selected Alternative, will not rise to levels that would constitute impairment.