

# Lake Mead

National Recreation Area  
National Park Service  
U.S. Department of the Interior



## Repair of Yuma Cove Razorback Sucker Rearing Pond

### Environmental Assessment





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

### **Introduction**

The National Park Service (NPS) is considering the repair of the Yuma Cove razorback sucker backwater rearing pond at Lake Mead National Recreation Area (NRA). Lake Mead NRA is situated in southeastern Nevada and northwestern Arizona and encompasses lands around Lake Mead and Lake Mohave (Figure 1). The NPS has prepared this environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council of Environmental Quality's Regulations for Implementing the National Environmental Policy Act (1993), and NPS Director's Order 12: Conservation Planning, Environmental Impact and Decision Making (2000).

The EA evaluates the no action alternative and two action alternatives. The action alternatives relate to the repair of the backwater and, more specifically, methods for transporting heavy equipment to the site to complete the repairs. The alternatives analyzed are: Alternative A: No Action; Alternative B: Re-Use of Restored Roads; and Alternative C: Use of Approved Roads and Shoreline. Also included is a discussion of alternatives that have been ruled out and justifications for their elimination. The EA analyzes impacts of the alternatives on the human and natural environment. It outlines project alternatives, describes existing conditions in the project area, and analyzes the effects of each project alternative on the environment.

### **Background**

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) is a multi-stakeholder Federal and non-Federal partnership responding to the need to balance the use of lower Colorado River water resources and the conservation of native species and their habitats in compliance with the Endangered Species Act (ESA). This is a long-term (50 year) plan to conserve at least 26 species along the Colorado River from Lake Mead to the Southerly International Boundary with Mexico through the implementation of a Habitat Conservation Plan. Four of the 26 species covered by the LCR MSCP are fish. Two fish, the bonytail chub and the razorback sucker have augmentation programs as part of the overall conservation measures for these species. The augmentation program provides for the stocking of up to 620,000 bonytail and 660,000 razorback suckers into designated critical habitat for each species. Under this augmentation program, biologists collect larvae from Lake Mohave during the spawning season and grow them in labs and backwater ponds to a target size of 300 mm before stocking them into Lake Mohave.

### **Purpose and Need**

The purpose of this project is to repair the earthen berm at Yuma Cove that separates the backwater from Lake Mohave. The berm was rebuilt in 1999, nine years after its original construction, and has slowly eroded away due to wind and wave action. At the northern

most end of the berm, the elevation has dropped approximately one foot and the crest width has narrowed to less than one foot. This repair is needed because endangered razorback suckers grown in the backwater pond require protection from non-native species found in Lake Mohave proper. If the berm is allowed to be compromised, the razorback suckers will fall prey to larger, non-native species in Lake Mohave.

The Bureau of Reclamation (Reclamation) needs to repair the berm at Yuma Cove backwater and perform maintenance on other backwater ponds around Lake Mohave in October and November 2010. This would require the elevation of Lake Mohave to be lowered and maintained at 633 feet above mean sea level (amsl) for approximately three weeks during the above-mentioned time frame.

One low-ground-pressure dozer, one front loader, and one 4X4 pickup with a 100 gallon fuel tank for refueling the heavy equipment would be required for the project. Three days work with this equipment would be required to complete the repair. Approximately 760 cubic yards of material is expected to be moved during rebuild of the earthen berm. Given a 300 feet haul, one front loader can move 330-500 cubic yards of material per day. One day would be required to transport equipment to the work site, and one day would be required to transport equipment from the work site following project completion. A total of 5 days would be required to complete the project.

Since 1950, the historical high elevation of Lake Mohave has been 646.75 feet amsl. Once the repair is complete, the berm would have a crest width of 12 feet, a height of 5 feet, and a 3:1 slope, giving a base width of 42 feet. The lakeside toe of the berm would be 647 feet. Crest height would be 652 feet (647 feet + 5 feet).

### **Project Area Location**

Lake Mead NRA is located in southeastern Nevada and northwestern Arizona (Figure 1). The park is approximately 1.5 million acres in size and includes both Lake Mead, formed by Hoover Dam, and Lake Mohave, formed by Davis Dam (Figure 2). Yuma Cove is located on the Arizona side of Lake Mohave immediately north of Arizona Bay. Yuma Cove is approximately 2 miles north of, and on the opposite shore from, the Cottonwood Cove developed area (Figure 3).

**Figure 1. Regional Map  
Lake Mead National Recreation Area**

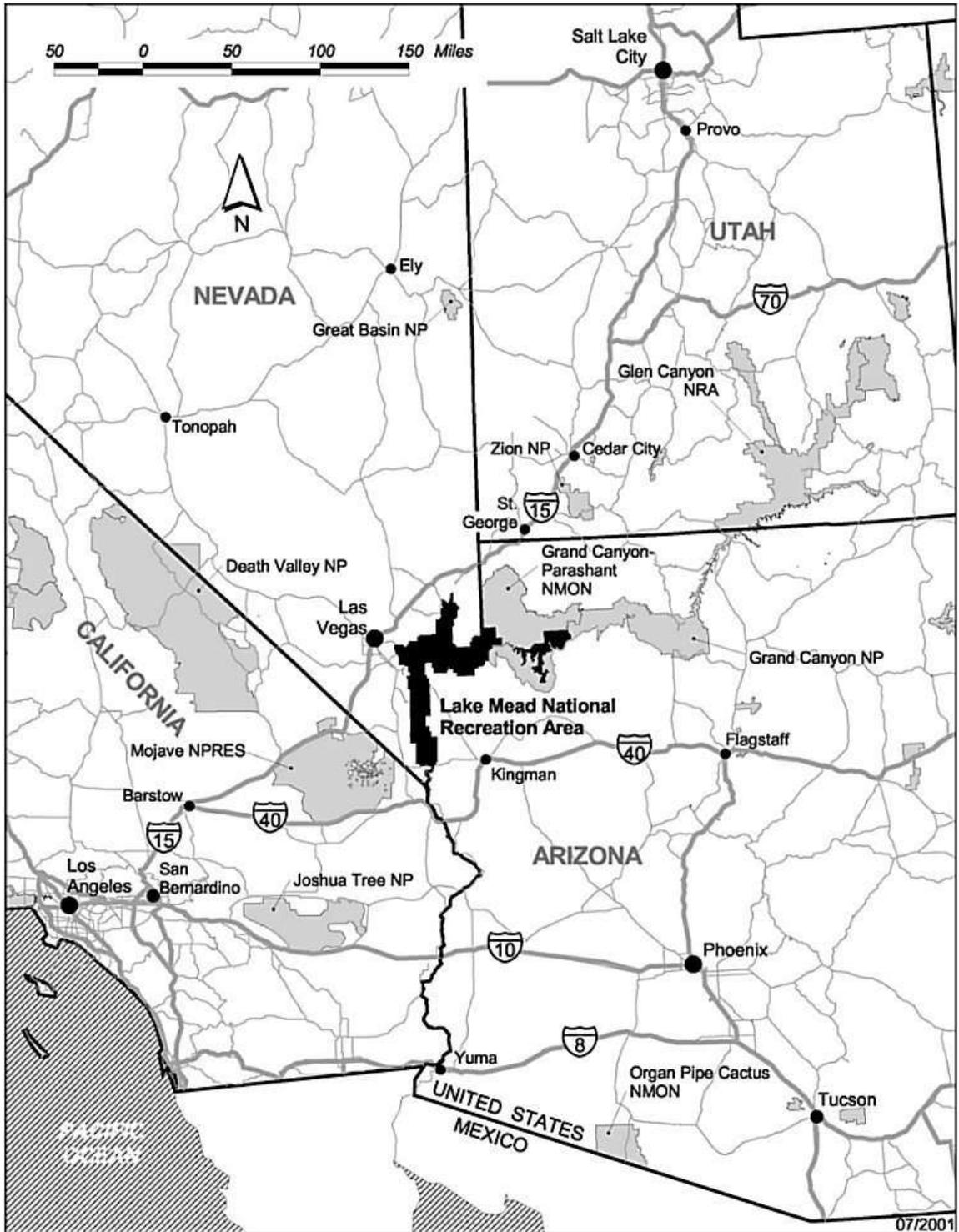
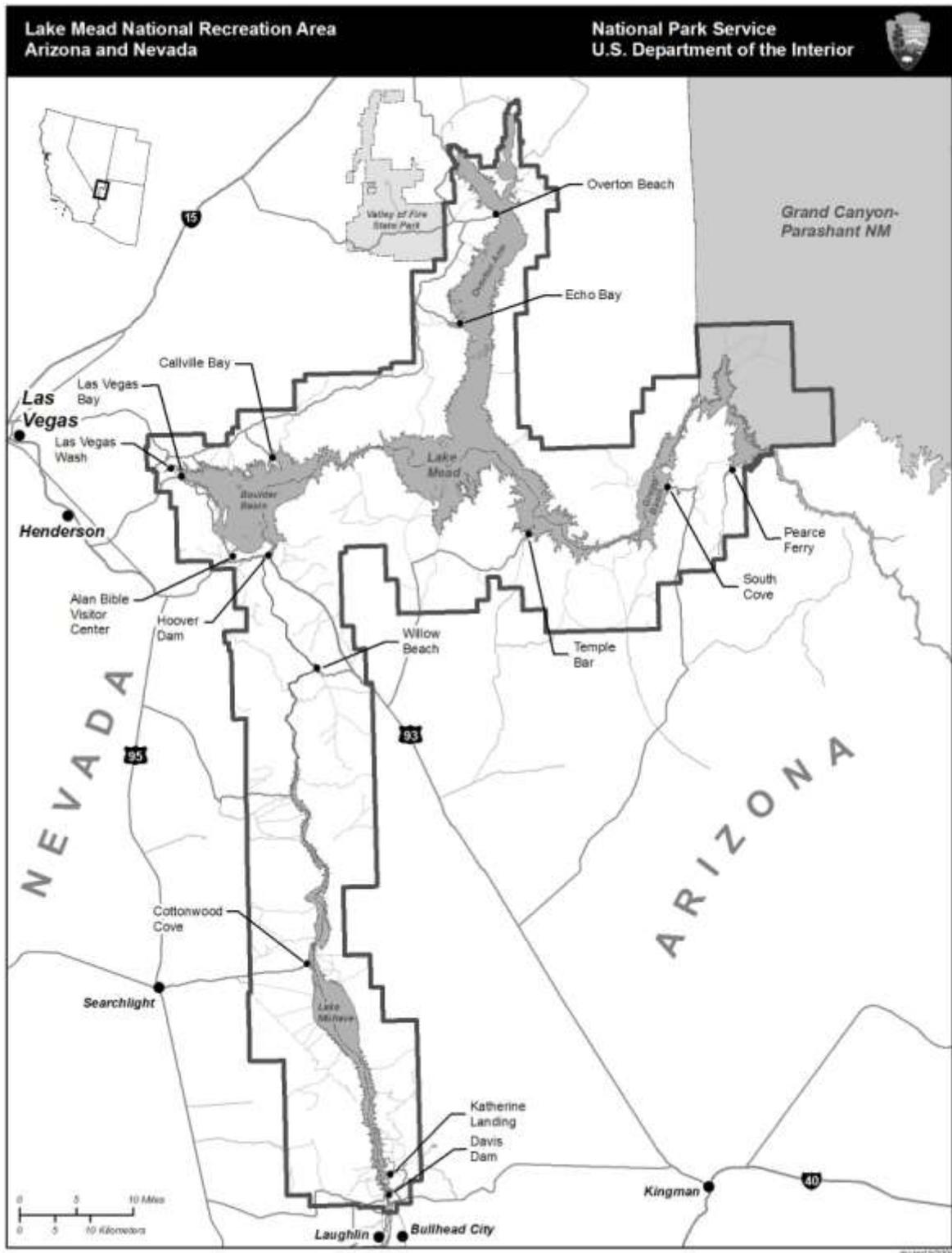


Figure 2. Area Map  
Lake Mead National Recreation Area





## **Related Laws, Legislation, and Other Planning and Management Documents**

### **Service-wide and Park Specific Legislation and Planning Documents**

The NPS Organic Act of 1916 directs the NPS to manage units “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations.” Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.” The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts. An action constitutes an impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values.”

NPS Management Policies (2006) requires the analysis of potential effects of each alternative to determine if actions would impair park resources. To determine impairment, the NPS must evaluate “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.” The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values.

NPS units vary based on their enabling legislation, natural and cultural resources, missions, and the recreational opportunities appropriate for each unit, or for areas within each unit. The enabling legislation for Lake Mead NRA (Public Law 88-639), established the recreation area “for the general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area, consistent with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within such area.” An action appropriate at Lake Mead NRA, as designated by the enabling legislation, may impair resources in another unit. The Lake Mead National Recreation Area Lake Management Plan (2002) provides guidance for the long-term management of Lakes Mead and Mohave, the associated shoreline, and development areas within the park to ensure protection of resources while allowing for a range of recreational activities to support visitor needs. This environmental assessment analyzes the context, duration, and intensity of impacts related to the repair of the Yuma Cove razorback sucker rearing pond, as well as the potential for resource impairment, as required by Director’s Order 12: Conservation Planning, Environmental Impact Analysis and Decision Making (2000).

NPS Management Policies (2006) directs the Service to strive to recover all species native to national park system units that are listed under the Endangered Species Act. This includes cooperating with other agencies to ensure that recovery areas on park-managed lands provide conservation benefits to the total recovery efforts being conducted by all participating agencies. The National Park Service is a participating agency in the Native Fish Work Group and works cooperatively with Reclamation in the recovery of the razorback sucker.

### **Issues and Impact Topics**

Issues are related to potential environmental effects of project alternatives and were identified by the project interdisciplinary team. Once issues were identified, they were used to help formulate the alternatives and mitigation measures. Impact topics based on substantive issues, environmental statutes, regulations, and executive orders were selected for detailed analysis. A summary of the impact topics and rationale for their inclusion or dismissal is given below.

### **Issues and Impact Topics Identified for Further Analysis**

The following relevant impact topics are analyzed in the EA. Whether each issue is related to taking action or no action is specified.

Geology and Soils: Erosion would continue under the No Action alternative. Under the actions alternatives, erosion would be repaired, but transport of equipment to the site would impact upland soils.

Vegetation: Transport of equipment under the action alternatives would impact native vegetation.

Wildlife: Transport of equipment under the action alternatives would impact native wildlife.

Special Status Species: The No Action alternative would result in the loss of a rearing area for the federally endangered razorback sucker. The action alternatives are designed to prevent this loss.

Water Resources: The use of heavy equipment near the shoreline could temporarily impact water quality under both action alternatives.

Air Quality: The use of heavy equipment would temporarily impact air quality under both action alternatives.

Soundscapes: The use of heavy equipment would generate noise under both action alternatives.

Visual Resources: The access routes delineated for heavy equipment under the action alternatives could create visual impacts.

Park Operations: Under both action alternatives, NPS staff would need to coordinate the repair efforts with Reclamation (the project proponent).

Safety and Visitor Use and Experience: Yuma Cove is often used by visitors. Under the No Action Alternative, the breach of the existing berm would impact the Yuma Cove beach. Under both action alternatives, heavy equipment would occupy the beach for several days.

### **Impact Topics Considered but Dismissed from Further Consideration**

The following topics are not further addressed in this document because there are no potential effects to these resources, which are not in the project area or would be imperceptibly impacted: wilderness, cultural resources, designated ecologically significant or critical areas, wild or scenic rivers, wetlands, floodplains, designated coastal zones, Indian Trust Resources, prime and unique agricultural lands, sites on the U.S. Department of the Interior's National Registry of Natural Landmarks, and sole or principal drinking water aquifers.

In addition, there are no potential conflicts between the project and land use plans, policies, or controls (including state, local, or Native American) for the project area.

Regarding energy requirements and conservation potential, construction activities would require the increased use of energy for the construction itself and for transporting materials. However, overall, the energy from petroleum products required to implement action alternatives would be insubstantial when viewed in light of production costs and the effect of the national and worldwide petroleum reserves.

There are no potential effects to local or regional employment, occupation, income changes, or tax base as a result of this project. The project area of effect is not populated and, per Executive Order 12898 on Environmental Justice, there are no potential effects on minorities, Native Americans, women, or the civil liberties (associated with age, race, creed, color, national origin, or sex) of any American citizen. No disproportionate high or adverse effects to minority populations or low-income populations are expected to occur as a result of implementing any alternative.

## **DESCRIPTION OF ALTERNATIVES**

### **Introduction**

This section describes the alternatives considered, including the No Action Alternative. The alternatives described include mitigation measures and monitoring activities proposed to minimize or avoid environmental impacts. This section also includes a description of alternatives considered early in the process but later eliminated from further study, and reasons for their dismissal are provided. The section concludes with a comparison of the alternatives considered.

### **Elements Common to All Alternatives**

Both action alternatives are designed to repair the earthen berm separating the Yuma Cove backwater rearing pond from Lake Mohave. The repair would re-establish the height and width of the berm, which has been slowly eroded by wave action and storm events. One low-ground-pressure dozer, one front loader, and one 4X4 pickup with a 100-gallon fuel tank for refueling the heavy equipment would be required for the project. The repair would take approximately three days to complete, in addition to the time needed to transport equipment to and from the site. Approximately 760 cubic yards of material would be moved to restore the berm. This material would come from the shoreline in front of the backwater pond, where most of the material eroded from the berm has been deposited. Upon completion of the repair, the berm would have a crest width of 12 feet, a crest height of 652 feet above mean sea level (5 feet above the lake's historical high of 647 feet), and a slope of 3:1.

### **Alternative A: No Action**

Under the No Action Alternative, the Yuma Cove backwater pond would not be repaired. Heavy equipment would not be brought to Yuma Cove. The berm separating the rearing pond from Lake Mohave would continue to be eroded by wave action. Eventually, this erosion would cause a breach and restore connectivity between the rearing pond and Lake Mohave. The loss of functionality of one razorback sucker rearing pond would reduce the number of razorback suckers that can be raised and released each year. Additionally, the rearing program would lose some of the redundancy provided by an increased number of rearing ponds.

### **Alternative B: Re-Use of Restored Roads (Management-Preferred Alternative)**

Under Alternative B, the heavy equipment (dozer, front loader, and pick-up truck with fuel tank) needed to complete the repair of the berm would be transported to Yuma Cove via a previously existing route that has since been restored (Figure 4). This route, which was used to do a similar project at Yuma Cove in 1999, leaves U.S. Highway 93 at Milepost 45 in Arizona and enters the park as Approved Road 38. From there it follows what was formerly the western-most road of the Desert Rose Subdivision, an unfinished housing tract planned in the fifties and located on a private inholding that was eventually acquired by the park in 1973. The route then enters a wash that leads to Yuma Cove.

In 2006-2007, the Resource Management and Maintenance Divisions of Lake Mead NRA restored the Desert Road Subdivision by ripping the roads, removing berms, replacing rocks and boulders, and replanting vegetation. Vertical mulch was used to hide access points to the subdivision from Approved Road 38. Under Alternative B, one of the subdivision's roads would be used for equipment access. Restoration occurred on approximately 200 meters of this road, beginning from the point at which it leaves Approved Road 38. While it would not be necessary to re-blade the road, minor earthwork would be required in areas that have washed out to restore connectivity of the roadway sections, allowing the equipment to pass. Unless more preferable options become available in the future, this route would be retained for future administrative access to Yuma Cove as necessary, perhaps every 10 years, but there would be some restoration immediately following the berm repair to prevent unauthorized use of the route and additional impacts to the area.

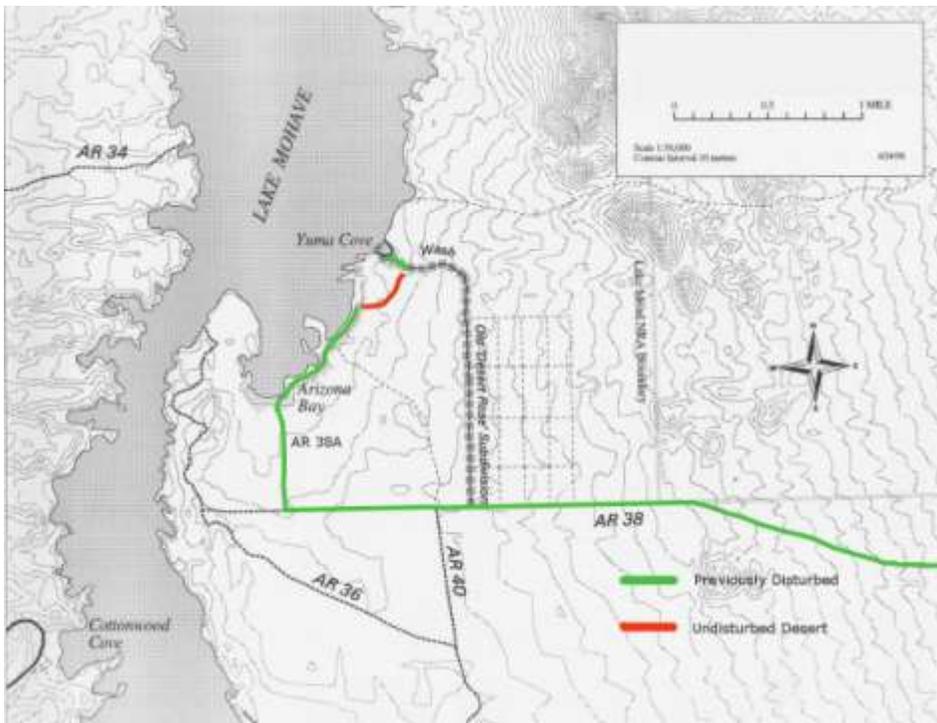
### **Alternative C: Use of Approved Roads and Shoreline**

Under Alternative C, the necessary heavy equipment would be transported along Approved Roads 38 and 38A, reaching the shoreline of Lake Mohave at Arizona Bay (Figure 5). From there, the equipment would travel north along the shoreline, below the lake's high-water line. Just south of Yuma Cove is a large bluff that would block equipment from accessing the backwater. A new route, approximately 500 meters in length, would have to be constructed up a wash and around the bluff; this new route would descend into the wash that leads to Yuma Cove (the same wash utilized under Alternative B). As in Alternative B, there would be some restoration following completion of the project, but the route would be retained for future administrative access to Yuma Cove as necessary.

**Figure 4: Transport Route Under Alternative B**



**Figure 5: Transport Route Under Alternative C**



## **Alternatives Considered but Dismissed from Further Evaluation**

The use of barges or helicranes to transport the heavy equipment from Cottonwood Cove (the closest launching point) to Yuma Cove was considered by NPS and Reclamation as a means of avoiding off-road ground transport and its associated impacts. However, no barges on Lakes Mead and Mohave are capable of transporting equipment of this size. Transport of a barge from southern California is not practical and would require a crane for off-loading, which NPS and Reclamation cannot provide. Helicranes can lift a maximum of 25,000 pounds, and the weight of the equipment needed for this project exceeds 30,000 pounds and thus cannot be transported in this manner.

## **Mitigation and Monitoring**

Mitigation measures are specific actions designed to reduce, minimize, or eliminate impacts of alternatives and to protect Lake Mead NRA resources and visitors. Monitoring activities are actions to be implemented during or following project implementation to assess levels of impact. The following measures would be implemented under all applicable alternatives and are assumed in the analysis of effects for each alternative.

- 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.
- Prior to beginning the project, all heavy equipment will be thoroughly pressure washed to remove foreign soil and vegetative matter; this will ensure that non-native plants are not introduced to the project area.
- Equipment will be inspected daily to ensure there are no leaks of petroleum products or other hazardous materials.
- Best management practices will be in place during refueling and other activities that may release hazardous materials into the environment. A hazardous spill plan will be developed prior to beginning the project.
- To minimize ground disturbance, heavy equipment will be restricted to one mobilization into Yuma Cove and one de-mobilization out of the park.
- Heavy equipment will be parked in previously disturbed areas designated by NPS; no new staging areas will be created.
- The work will be conducted on weekdays (Monday to Friday) to minimize inconveniences to park visitors, who use the lake in greater numbers on weekends.
- 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 are no known cultural resources in the project area. However, if cultural resources are discovered, all necessary steps will be taken to avoid them. If the resources cannot be avoided, the NPS will consult with the Arizona State Historic Preservation Office (SHPO) to determine the significance of the resources and the

potential effect of the project on the resources. If the effect is adverse, the NPS will continue consultation with the SHPO to develop a plan to mitigate the adverse effect.

### **Coordination, Consultation, and Permitting**

The following consultation and coordination will occur as part of this environmental assessment:

The construction, operation, and maintenance of the razorback rearing ponds on Lake Mohave is addressed in the Reclamation's LCR MSCP and covered in the Biological Opinion issued for the MSCP by the U.S. Fish and Wildlife Service. No additional consultation under Section 7 of the ESA is required.

If it is determined that a permit from the U.S. Army Corps of Engineers is required for the maintenance work, this permit will be obtained by Reclamation.

As stated above, there are no known cultural resources in the project area, but if any are discovered, NPS and Reclamation shall consult with the SHPO to mitigate any adverse effects.

### **Environmentally Preferred Alternative**

The environmentally preferred alternative is the alternative that will promote NEPA, as expressed in Section 101 of NEPA. This alternative will satisfy the following requirements:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences;
4. 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;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and,
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative B is the environmentally preferable alternative because overall it would best meet the requirements in Section 101 of NEPA. This alternative allows for the repair, and hence continued use of the razorback rearing pond, while minimizing resource impacts associated with access. As trustees of the environment, the federal agencies involved have a responsibility to promote the recovery of the endangered razorback

sucker and to ensure the continued existence of a valuable natural resource for future generations. As such, Alternative B best achieves requirements 1, 2, and 4 above. Alternative A does not meet the project’s purpose and need and would compromise the ability of federal agencies to recover the razorback sucker population by allowing the continued degradation and eventual loss of an important rearing area. Alternative C would maintain the rearing area but, due to more difficult access issues, would result in greater collateral impacts to other natural resources than would Alternative B.

**Comparison of Impacts**

Table 1 summarizes the potential long-term impacts of the proposed alternative. Short-term impacts are not included in this table, but are analyzed in the Environmental Consequences section. Impact intensity, context, and duration are also defined in the Environmental Consequences section.

**Table 1:** Comparison of Long Term Impacts

<b>IMPACT TOPIC</b>	<b>ALTERNATIVE A (NO ACTION)</b>	<b>ALTERNATIVE B (PREFERRED)</b>	<b>ALTERNATIVE C</b>
GEOLOGY AND SOILS	No effect	Minor adverse impacts	Moderate adverse impacts
VEGETATION	No effect	Minor adverse impacts	Moderate adverse impacts
WILDLIFE	No effect	Minor adverse impacts	Moderate adverse impacts
SPECIAL STATUS SPECIES	Likely to adversely affect	Beneficial effects	Beneficial effects
VISUAL RESOURCES	No effect	Minor adverse impacts	Moderate adverse impacts

## **AFFECTED ENVIRONMENT**

### **Introduction**

This section provides a description of the existing environment in the project area and the resources that may be affected by the proposals and alternatives under consideration. Complete and detailed descriptions of the environment and existing use at Lake Mead NRA are found in the Lake Mead NRA Lake Management Plan and Final Environmental Impact Statement (2002), Lake Mead NRA Resource Management Plan (NPS 2000) and the Lake Mead NRA General Management Plan (NPS 1986).

### **Location and General Description of Lake Mead NRA and the Project Area**

Yuma Cove is located on the Arizona side of Lake Mohave immediately north of Arizona Bay. Lake Mohave is bound by Hoover Dam upstream and Davis Dam downstream. In addition to several backcountry access routes, Lake Mohave is served by three developed areas: Willow Beach, Cottonwood Cove, and Katherine's Landing. Yuma Cove is approximately 2 miles north of, and on the opposite shore from, the Cottonwood Cove developed area.

### **Geology and Soils**

The routes leading to Yuma Cove consist mainly of upland soils interspersed with large washes, typical of many areas in the park. Rain events constantly change and reshape the washes and turn upland soils into hard, compacted desert pavement. Sandier soils are found in the wash leading to the Yuma Cove backwater. The Lake Mohave shoreline at Yuma Cove is a mixture of sand and gravel.

### **Vegetation**

This vegetation community upland of Yuma Cove is regionally common and covers nearly three quarters of the Lake Mead NRA. Vegetation cover is sparse and is dominated by creosote bush and bursage. Other species common to this community are beaver-tail cactus, Mormon tea, brittle-brush, range ratany, and indigo bush. Following periods of above-average precipitation, profusions of annual wildflowers can be observed. The desert wash community is found in the washes and includes plants of the surrounding creosote bush community as well as species such as mesquite, catclaw acacia, desert willow, cheeseweed, and non-native tamarisk. The shoreline along Lake Mohave and surrounding Yuma Cove contains desert willow and tamarisk.

### **Wildlife**

Diurnal lizards and nocturnal snakes are relatively common reptiles in this community. Numbers of bird species are low in the upland areas, although more species can be found in the desert wash community. Additionally, several species of shorebirds and waterfowl may use the lakeshore and the Yuma Cove backwater. Among mammals, the black-

tailed jackrabbit and the desert cottontail, as well as smaller rodents, can be locally abundant. Carnivores such as the coyote and kit fox are relatively common. In addition to the endangered endemic fishes mentioned below, Lake Mohave supports nongame fish (such as carp) and game fish (such as bass, catfish, and trout).

### **Special Status Species**

The razorback sucker is a large bronze to yellow fish that grows to a weight of about 15 pounds and has a sharp-edged keel along the back behind its head. Razorback suckers formerly occurred throughout the Colorado River basin, from Wyoming and Colorado to Sonora and Baja California. This species is now greatly reduced in range and abundance due to habitat alteration and non-native fish predation. In 1991, the United States Fish and Wildlife Service listed the species as endangered. In March 1994, the USFWS published its determination of critical habitat for the razorback sucker, which includes all of Lake Mohave. Lake Mohave is home to the largest existing population of razorback sucker and is central to recovery efforts for this species. Razorbacks spawn at Yuma Cove from January through April.

The endangered bonytail chub is also present in Lake Mohave, although in much smaller numbers than the razorback. Other special status species that inhabit the project area (defined as Yuma Cove, the associated backwater, and the upland access routes) include bald eagles (which overwinter at the park), southwestern willow flycatchers (which migrate along the Lake Mohave corridor), and potentially desert tortoises and western burrowing owls.

### **Water Resources**

Lake Mohave provides an environment for aquatic life and for human recreation uses such as swimming, water skiing, windsurfing, fishing, and boating. The water of Lake Mead NRA typically meets state drinking quality standards, although there is occasional degradation near harbors and high-use coves. The primary water concern for Lake Mead NRA is reduction of quality due to chemical and biological pollutants in lake water, including petrochemicals and bacteria associated with human waste. Turbidity (water cloudiness) and sedimentation have not been major concerns thus far. Washes in the project area are ephemeral and do not contribute measurably to siltation.

### **Air Quality**

Lake Mead NRA is designated as a Class II air quality area, and air quality in the region is generally good. Most reductions in air quality are due to air flows from adjacent urban areas. Yuma Cove is located in a remote area of the park, approximately 25 miles north of the cities of Laughlin, Nevada and Bullhead City, Arizona, so air quality is typically good in the project area.

## **Soundscapes**

The park soundscape includes both natural and human components. The natural soundscape is considered a park resource and includes natural sounds such as wind, water and waves, and birds and other wildlife. Yuma Cove is a quiet remote area where natural sounds can be appreciated. The human influence on the soundscape comes from recreation. Since the area is not accessible by automobile, these sounds are mostly those of boats and other types of personal watercraft.

## **Visual Resources**

The park's scenic vistas are an important visual resource, and striking backdrops for recreational activities include deep canyons, dry washes, sheer cliffs, distant mountain ranges, the lakes, colorful soils and rock formations, and mosaics of different vegetation. Many of these features are visible from Lake Mohave, and boaters have the chance to enjoy views that are not available from land.

## **Park Operations**

Backcountry protection is shared by the Resource Management, Ranger Activities, and Maintenance Divisions of Lake Mead NRA. Within Resource Management, the branches of Environmental Compliance and Vegetation Management work to minimize or prevent habitat disturbance associated with both lawful and unlawful activities. However, with no direct road access or visitor facilities, the Yuma Cove area receives little visitation from park staff, except for that which occurs as part of the razorback sucker recovery program.

## **Safety and Visitor Use and Experience**

Lake Mead NRA receives approximately 8 million visitors annually. Of those, approximately 1.5 million visit Lake Mohave. Many of these visitors are involved in water-based recreational activities between May and September. Visitor use is typically highest on weekends from spring through the fall. Shoreline use is most heavily concentrated near developed areas and in areas with approved road access. To a lesser extent, boaters access remote shorelines for camping, swimming, fishing, or other recreational activities. Yuma Cove is a popular stretch of shoreline for those with boat access.

## ENVIRONMENTAL CONSEQUENCES

### Introduction

This section presents the likely beneficial and adverse effects to the natural and human environment that would result from implementing the alternatives under consideration. This section describes short-term and long-term effects, direct and indirect effects, cumulative effects, and the potential for each alternative to result in unacceptable impacts or impairment of park resources. Interpretation of impacts in terms of their duration, intensity (or magnitude), and context (local, regional, or national effects) are provided where possible.

### Methodology

In describing potential environmental impacts, it is assumed that the mitigation identified in the Mitigation and Monitoring section of this EA would be implemented under any of the applicable alternatives. Impact analyses and conclusions are based on NPS staff knowledge of resources and the project area, review of existing literature, and information provided by experts in the NPS or other agencies. Any impacts described in this section are based on preliminary design of the alternatives under consideration. Effects are quantified where possible; in the absence of quantitative data, best professional judgment prevailed.

Impacts are characterized as negligible, minor, moderate, or major, according to definitions provided for each impact topic below. In addition, the following terms may also be used in characterizing impact type:

- *Localized Impact*: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.
- *Direct Effect*: The effect is caused by the action and occurs at the same time and place.
- *Indirect Effect*: The effect is caused by the action and may occur later in time or be farther removed in distance, but is still reasonably foreseeable.
- *Short-Term Effect*: The effect occurs only during or immediately after implementation of the alternative.
- *Long-Term Effect*: The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more and could be beneficial or adverse.

In the absence of quantitative data concerning the full extent of actions under a proposed alternative, best professional judgment prevailed.

## **Impairment Analysis**

In addition to determining the environmental consequences of the alternatives, NPS Management Policies (2006) requires the analysis of potential effects to determine if actions would impair park resources. Under the NPS Organic Act of 1916 and the NPS General Authorities Act of 1970, as amended, the NPS may not allow the impairment of park resources and values except as authorized specifically by Congress. The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values.

Impairment to park resources and values has been analyzed within this document. Impairment 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. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the enabling legislation or proclamation of the park; is key to the cultural or natural integrity of the park or to opportunities for enjoyment of the park; or is identified as a goal in the park's general management plan or other relevant NPS planning document. An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

Impairment may result from NPS activities in managing the recreation area, visitor activities, or from activities undertaken by concessioners, contractors, and others operating in the recreation area. In this "Environmental Consequences" section, a determination on impairment is made in the conclusion statement of the applicable resource impact topics for each alternative. The NPS does not analyze recreational values, visitor use and experience (unless impacts are resource based), socioeconomic values, health and safety, or park operations in terms of impairment.

## **Unacceptable Impacts**

The impact threshold at which impairment occurs is not always readily apparent. Therefore, the NPS will apply a standard that offers greater assurance that impairment will not occur. NPS Management Policies (2006) requires that park managers evaluate existing or proposed uses and determine whether the associated impacts on park resources and values are acceptable. Unacceptable impacts are impacts that fall short of impairment, but are still not acceptable within a particular park's environment.

Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or

that a particular use must be disallowed. For the purposes of this analysis, an unacceptable impact is an impact that individually or cumulatively would

- be inconsistent with a park's purposes or values
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process
- create an unsafe or unhealthful environment for visitors or employees
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values
- unreasonably interfere with
  - park programs or activities
  - an appropriate use
  - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park
  - NPS concessioner or contractor operations or services

### **Cumulative Impacts**

Cumulative effects are the direct and indirect effects of an alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action. Federal agencies are required to identify the temporal and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. This includes potential actions within and outside the recreation area boundary. The geographical boundaries of analysis vary depending on the impact topic and potential effects. While this information may be inexact at this time, major sources of impacts have been assessed as accurately and completely as possible, using all available data.

Specific projects or ongoing activities with the potential to cumulatively affect the resources (impact topics) evaluated for the project are identified in this document and described in the following narrative. Some impact topics would be affected by several or all of the described activities, while others could be affected very little or not at all. How each alternative would incrementally contribute to potential impacts for a resource is included in the cumulative effects discussion for each impact topic.

Impacts from the proposed project result from the transport of heavy equipment off the approved road system and the use of the equipment at or near the shoreline. Other sources of off-road disturbances at Lake Mead NRA are related both to authorized projects (such as necessary road improvements or new development consistent with park planning documents) and illegal activities (such as off-road vehicle driving). The Lake Mohave shoreline experiences impacts from recreational use, marina maintenance activities, and exotic plant management efforts. Use of heavy equipment in the park is common for new development and for maintaining roads and ramps, especially as it relates to low water conditions. Some of the impacts of the proposed project build

cumulatively on the impacts created when the backwater was originally constructed in 1990 and repaired for the first time in 1999.

## **Geology and Soils**

### **Laws, Regulations, and Policies**

NPS Management Policies (2006) stipulates that the NPS will preserve and protect geologic resources as integral components of park natural systems. Geologic resources include geologic features and geologic processes. The fundamental policy, as stated in the NPS Natural Resource Management (NPS-77, 1991) is the preservation of the geologic resources of parks in their natural condition whenever possible.

Soil resources would be protected by preventing or minimizing adverse potentially irreversible impacts on soils, in accordance with NPS Management Policies (2006). NPS-77 specifies objectives for each management zone for soil resources management. These management objectives are defined as: (1) natural zone- preserve natural soils and the processes of soil genesis in a condition undisturbed by humans; (2) cultural zone- conserve soil resources to the extent possible consistent with maintenance of the historic and cultural scene and prevent soil erosion wherever possible; (3) park development zone- ensure that developments and their management are consistent with soil limitations and soil conservation practices; and, (4) special use zone- minimize soil loss and disturbance caused by special use activities, and ensure that soils retain their productivity and potential for reclamation.

Zones within the recreation area have been designated in the Lake Mead NRA General Management Plan, which provides the overall guidance and management direction for Lake Mead NRA.

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to geology and soils in the project area.

- *Negligible impacts*: Impacts have no measurable or perceptible changes in soil structure and occur in a relatively small area.
- *Minor impacts*: Impacts are measurable or perceptible, but localized in a relatively small area. The overall soil structure is not affected.
- *Moderate impacts*: Impacts are localized and small in size, but cause a permanent change in the soil structure in that particular area.
- *Major impacts*: Impact on the soil structure is substantial, highly noticeable, and permanent.

*Impairment*: For this analysis, impairment is considered a permanent change in a large portion of the overall acreage of the park, affecting the resource to the point that the

park's purpose cannot be fulfilled and the resource is degraded, precluding the enjoyment of future generations.

### Alternative A

Under Alternative A, the Yuma Cove Razorback sucker rearing pond would not be repaired, and there would be no impact to geology or soils, other than the continued erosion of the artificial backwater berm via natural processes.

*Cumulative Effects:* There would be no cumulative effects to geology and soils as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on geology and soils, there would be no unacceptable impacts, and no impairment would occur.

### Alternative B

Under Alternative B, construction equipment would access Yuma Cove using previously closed and restored roads. This activity would re-compact approximately 200 meters of restored roadway beginning at the point at which the access route leaves Approved Road 38. Beyond the initial 200 meters, the old roadbed has not been actively decompacted, but additional soil compaction would occur as a result of the equipment travelling over it. Soil compaction in the wash leading to Yuma Cove is of much less concern because the soil is sandier and subject to scouring during flooding events. Upon completion of the project, equipment tracks would be raked out to decompact surface and aid in restoration of soils. All impacts under this alternative would occur where soils and geology have been previously disturbed.

*Cumulative Effects:* The Park does not plan to re-open or utilize any other previously closed roads. Impacts to geology and soils at Lake Mead NRA result from both lawful (new development) and unlawful (off-road vehicle use) activities. This project would not appreciably add to the adverse cumulative effects to soils and geology, as the activity would occur in an area already heavily impacted by past actions (including the original construction of the pond and earlier repair of the berm), and mitigation measures would be implemented to reduce impacts caused by this project.

*Conclusion:* Alternative B would result in minor, long-term, localized adverse impacts to geology and soils. There would be no unacceptable impacts and no impairment of geology and soils resulting from the implementation of Alternative B.

### Alternative C

Under Alternative C, construction equipment would access Yuma Cove using the Lake Mohave shoreline. At the point where progress along the shoreline becomes obstructed, a 500 meter route would be constructed to connect this section of shoreline to the wash leading to Yuma Cove (Figure 5).. The additional area necessary for road construction

would require work in mostly undisturbed desert soils and would require a considerable amount of earthwork and grading to create a route that is passable with heavy equipment. Alternative C would create new disturbance resulting in the permanent alteration of desert soils and geology along a 500 meter linear corridor. Desert restoration immediately following project completion would reduce, but not eliminate, this impact.

*Cumulative Effects:* Illegal off-road activity both within Lake Mead NRA and on adjacent federal lands create widespread disturbance to desert soils. Construction of facilities and maintenance of infrastructure also impact soils and geology within the Park. These activities sometimes result in the permanent alteration of soil structure or geology. Maintenance and construction activities are largely confined to developed areas or previously disturbed sites and are consistent with park planning documents. Alternative C would impact 500 meters of desert soils and would permanently alter portions of geologic features in this area. Considering past, present, and foreseeable actions occurring within this area of Lake Mohave, this action would result in moderate, adverse, long-term cumulative effects to geology and soils.

*Conclusion:* Alternative C would result in moderate, long-term, localized adverse impacts to geology and soils. There would be no unacceptable impacts and no impairment of geology and soils from the implementation of Alternative C.

## **Vegetation**

### **Laws, Regulations, and Policies**

The NPS Organic Act directs the park to conserve the scenery and the natural objects unimpaired for future generations. NPS Management Policies (2006) defines the general principles for managing biological resources as maintaining all native plants and animals as part of the natural ecosystem. When NPS management actions cause native vegetation to be removed, then the NPS will seek to ensure that such removals will not cause unacceptable impacts to native resources, natural processes, or other park resources. Exotic species, also referred to as non-native or alien, are not a natural component of the ecosystem. They are managed, up to and including eradication, under the criteria specified in NPS Management Policies (2006) and NPS-77.

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to vegetation in the project area:

- *Negligible impacts:* Impacts have no measurable or perceptible changes in plant community size, integrity, or continuity.
- *Minor impacts:* Impacts are measurable or perceptible and localized within a relatively small area. The overall viability of the plant community is not affected and the area, if left alone, recovers.

- *Moderate impacts:* Impacts cause a change in the plant community (e.g. abundance, distribution, quantity, or quality); however, the impact remains localized.
- *Major impacts:* Impacts to the plant community are substantial, highly noticeable, and permanent.

*Impairment:* The impact contributes substantially to the deterioration of the park's native vegetation. These resources are affected over the long term to the point that the park's purpose cannot be fulfilled and the resource cannot be experienced and enjoyed by future generations.

### Alternative A

Under Alternative A, the Yuma Cove Razorback sucker rearing pond would not be repaired, and no impact to vegetation would occur.

*Cumulative Effects:* There would be no cumulative effects to vegetation as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on vegetation, there would be no unacceptable impacts, and no impairment would occur.

### Alternative B

Under Alternative B, construction equipment would access Yuma Cove using previously closed and restored roads. The restored road section is approximately 200 meters long and includes dispersed planting of some shrub species. The plant community has exhibited a well developed recovery along the entire road grade proposed for use under this alternative. Travel along the roadway would result in crushing of individual plants. This may cause direct mortalities of individual plants and may result in reduced vigor of plants that survive crushing. Upon completion of the project, equipment tracks would be raked out to de-compact the surface, aid in restoration of soils, and increase the ability of native plant seed to re-colonize impacted areas.

*Cumulative Effects:* Illegal off-road activity both within Lake Mead NRA and on adjacent federal lands creates widespread disturbance to vegetative communities. Construction of facilities and maintenance of infrastructure also impact vegetative communities within the Park. Maintenance and construction activities are largely confined to developed areas or previously disturbed sites and are consistent with park planning documents. Because the area to be utilized has already been highly impacted during the backwater's initial construction and previous maintenance, and because restoration efforts would mitigate damage to the plant community, the cumulative effects to vegetation would be negligible.

*Conclusion:* Alternative B would result in minor, long-term, localized adverse impacts to vegetation. There would be no unacceptable impacts and no impairment of vegetation from the implementation of Alternative B.

### Alternative C

Under Alternative C, construction equipment would access the Yuma Cove using the Lake Mohave shoreline. At the point where progress along the shoreline becomes obstructed, a route would be constructed to connect this section of shoreline with the wash leading to Yuma Cove (Figure 5). The shoreline line to be used under this alternative is below the seasonal high water line and has no established vegetative community other than dispersed non-native tamarisk. Construction of the additional route would require the complete removal of all vegetation between the shoreline and the wash leading to Yuma Cove. Alternative C would result in the denudation of vegetation along a 500 meter linear corridor. Restoration efforts (i.e. soil decompaction) immediately following project completion would facilitate the re-establishment of some plants in the long-term.

*Cumulative Effects:* Illegal off-road activity both within Lake Mead NRA and on adjacent federal lands creates widespread disturbance to vegetative communities. Construction of facilities and maintenance of infrastructure impacts vegetative communities within the Park. These activities sometimes result in the complete removal of vegetation and permanent conversion of land. Maintenance and construction activities are largely confined to developed areas or previously disturbed sites and are consistent with park planning documents. Alternative C would result in the removal of 500 meters of Mojave Desert vegetation. Considering past, present, and foreseeable actions occurring within this area of Lake Mohave, this action would result in minor, adverse, long-term cumulative effects to vegetation.

*Conclusion:* Alternative C would result in moderate, long-term, localized adverse impacts to vegetation. There would be no unacceptable impacts and no impairment of vegetation from the implementation of Alternative C.

## **Wildlife**

### **Laws, Regulations, and Policies**

The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the NPS to mean native animal life should be protected and perpetuated as part of the recreation area's natural ecosystem. Natural processes are relied on to maintain populations of native species to the greatest extent possible. The restoration of native species is a high priority. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and ecological integrity of plants and animals.

The recreation area also manages and monitors wildlife cooperatively with the Arizona Game and Fish Department and the Nevada Division of Wildlife.

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to wildlife and wildlife habitat in the project area:

- *Negligible impacts:* No species of concern are present; no impacts or impacts with only temporary effects are expected.
- *Minor impacts:* Nonbreeding animals of concern are present, but only in low numbers. Habitat is not critical for survival; other habitat is available nearby. Occasional flight responses by wildlife are expected, but without interference with feeding, reproduction, or other activities necessary for survival. Mortality of species of concern is not expected.
- *Moderate impacts:* Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or winter; mortality or interference with activities necessary for survival expected on an occasional basis, but not expected to threaten the continued existence of the species in the park.
- *Major impacts:* Breeding animals are present in relatively high numbers, and/or wildlife is present during particularly vulnerable life stages. Habitat targeted by actions has a history of use by wildlife during critical periods, but there is suitable habitat for use nearby. Few incidents of mortality could occur, but the continued survival of the species is not at risk.

*Impairment:* The impact contributes substantially to the deterioration of natural resources to the extent that the park's wildlife and habitat no longer function as a natural system. Wildlife and its habitat are affected over the long term to the point that the park's purpose is not fulfilled, and the resource cannot be experienced and enjoyed by future generations.

#### Alternative A

Under Alternative A, the Yuma Cove Razorback sucker rearing pond would not be repaired, and no impact to wildlife would occur.

*Cumulative Effects:* There would be no cumulative effects to wildlife as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on wildlife, there would be no unacceptable impacts, and no impairment would occur.

## Alternative B

Under Alternative B, there exists the potential for a small number of direct mortalities to lizards, snakes, and small mammals. Construction equipment could strike individuals crossing the road. However, equipment will be led into and out of the project area at low speeds by a biological monitor, so direct collision with wildlife is unlikely. Equipment may also collapse burrows used by wildlife, but the route is a highly compacted road bed and, overall, less suitable for burrowing than most of the surrounding area. Construction activity in this area may cause a short-term flight response in avifauna. To reduce impacts to birds, work would occur outside of the nesting season for birds. To minimize disturbance to wildlife, heavy equipment would be restricted to one mobilization into and out of the Yuma Cove area. A pick-up sized service truck may need to make multiple trips to supply the equipment with fuel during the project.

*Cumulative Effects:* Off-road activity both within Lake Mead NRA and on adjacent federal lands impacts wildlife, especially species that live in burrows. Construction of facilities also removes wildlife habitat, although such activities are largely confined to developed areas or previously disturbed sites and are consistent with park planning documents. Because the area to be utilized under Alternative B has already been highly impacted during the backwater's initial construction and previous repair, the cumulative effects to wildlife would be negligible.

*Conclusion:* Alternative B would result in minor, short-term, localized adverse impacts to wildlife. There would be no unacceptable impacts and no impairment of wildlife from the implementation of Alternative B.

## Alternative C

The shoreline line to be used under Alternative C is below the seasonal high water line. This area has marginal habitat value, but transport of equipment could cause some flight response. Construction of the new route would permanently alter a 500 meter linear section of wildlife habitat in undisturbed desert. There exists the potential for a small number of direct mortalities to lizards, snakes, and small mammals. Construction equipment could strike individuals crossing the road. However, equipment will be led into and out of the project area at low speeds by a biological monitor, so direct collision with wildlife is unlikely. Equipment may also collapse burrows used by wildlife, but the route is a highly compacted road bed and, overall, less suitable for burrowing than most of the surrounding area. . Activity in this area may cause a short-term flight response in avifauna. To reduce impacts to birds, work would occur outside of the nesting season for birds. To minimize disturbance to wildlife, heavy equipment would be restricted to one mobilization into and out of the Yuma Cove area. A pick-up sized service truck may need to make multiple trips to supply the equipment with fuel during the project.

*Cumulative Effects:* Off-road activity both within Lake Mead NRA and on adjacent federal lands impacts wildlife, especially species that live in burrows. Construction of facilities also removes wildlife habitat, although such activities are largely confined to

developed areas or previously disturbed sites and are consistent with park planning documents. Because Alternative C would create a new 500 meter route in undisturbed wildlife habitat, the cumulative effects to wildlife under this alternative would be minor.

*Conclusion:* Alternative C would result in minor, short-term and long-term, localized adverse impacts to wildlife. There would be no unacceptable impacts and no impairment of wildlife from the implementation of Alternative C.

## **Special Status Species**

### **Laws, Regulations, and Policies**

Section 7 of the Endangered Species Act mandates all federal agencies determine how to use their existing authorities to further the purposes of the Act to aid in recovering listed species, and to address existing and potential conservation issues. Section 7(a)(2) states that each federal agency shall, in consultation with the Secretary of the Interior, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

NPS Management Policies (2006) directs the parks to survey for, protect, and strive to recover all species native to National Park System units that are listed under the Endangered Species Act. It sets the direction to meet the obligations of the Act. NPS Management Policies (2006) also directs the NPS to inventory, monitor, and manage state and locally listed species, and other native species that are of special management concern to the parks, to maintain their natural distribution and abundance.

The General Management Plan designated 1,050,030 acres, or 70 percent of the NRA, as natural zones, and areas with known habitat or potential habitat for rare, threatened, or endangered species were further protected by placement in the environmental protection or outstanding natural feature subzone of the natural zone. Management of these zones focuses on the maintenance of isolation and natural process and restoration of natural resources.

### **Criteria and Thresholds for Impact Analysis**

The Endangered Species Act defines the terminology used to assess impacts to listed species as follows:

- *No effect:* The appropriate conclusion when the action agency determines that its proposed action would not affect a listed species or designated critical habitat.
- *Is not likely to adversely affect:* The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable

effects are those extremely unlikely to occur. Based on the best judgment, a person would not: (1) able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

- *Is likely to adversely affect:* The appropriate finding if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action “is likely to adversely affect” the listed species. If incidental take is anticipated to occur as a result of the proposed action, an “is likely to adversely affect” determination should be made.
- *Is likely to jeopardize listed species/adversely modify critical habitat:* The appropriate conclusion when the action agency or the U.S. Fish and Wildlife Service identifies situations in which the proposed action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat. This determination would be considered impairment by the National Park Service.

#### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired. Within a few years, the rearing pond would be breached and would no longer be used for razorback sucker rearing. The Yuma Cove backwater is the second largest of ten backwater ponds in terms of area and usually produces the greatest number of fish. Therefore, the loss of functionality of this pond would substantially reduce yearly recovery efforts.

*Cumulative Effects:* The damming of the Colorado River at Hoover Dam (Lake Mead) and Davis Dam (Lake Mohave) and the introduction of sport fish has diminished the habitat required for successful recruitment of razorback suckers. The species can no longer survive without active management. Rearing ponds, like the one at Yuma Cove, are necessary to raise juvenile fish to a size where predation does not eliminate recruitment. Rearing ponds are essential to recovery of this species. The cumulative effects of the no-action alternative would result in major, long-term, adverse effects to the Razorback sucker.

*Conclusion:* Alternative A is likely to have a major, long-term, adverse effect to the razorback sucker.

#### Alternative B

Under Alternative B, the Yuma Cove razorback sucker rearing pond berm would be repaired, ensuring that the Native Fish Work Group would continue its razorback recovery efforts to its fullest capacity.. Repair of the rearing pond would require

earthwork, and ground disturbing activities would be conducted over a one week period in the fall. Yuma Cove is an active spawning location for razorback suckers, but construction would be scheduled outside the spawning season to avoid impacts to both the razorback sucker and the bonytail chub.

Impacts to other special status species would be negligible. Burrows that could be utilized by desert tortoises or burrowing owls would be identified by the resource monitor and avoided during equipment transport. Southwestern willow flycatchers are transitory along the Lake Mohave shoreline and vacate the area in late summer. Bald eagles may be returning to the park at the time the project is implemented but have ample shoreline along which to disperse.

*Cumulative Effects:* Heavy predation by sport fish on juvenile razorback suckers and the lack of suitable habitat required for recruitment necessitates active management of the species to ensure recovery. Maintaining rearing ponds is necessary to raise razorback suckers to a size at which predation will not greatly affect recruitment. Alternative B proposes to repair the Yuma Cove rearing pond so it may continue to serve its function in rearing razorback suckers. Under this alternative, the Native Fish Work Group would be able to maintain its current rearing capacity. The cumulative effects of Alternative B would result in major, long-term, beneficial effects to the razorback sucker.

*Conclusion:* Alternative B would result in major, long-term beneficial effects to the razorback sucker. There would be no unacceptable impacts and no impairment of special status species from the implementation of Alternative B.

### Alternative C

Impacts to special status species under Alternative C are the same as those under Alternative B.

*Cumulative Effects:* Cumulative effects under Alternative C are the same as those under Alternative B.

*Conclusion:* Alternative C would result in major, long-term beneficial impacts to the razorback sucker. There would be no unacceptable impacts and no impairment of special status species from the implementation of Alternative C.

## **Water Resources**

### **Laws, Regulations, and Policies**

The Clean Water Act of 1987, and supporting criteria and standards promulgated by the Environmental Protection Agency (EPA), the Nevada Department of Environmental Protection (NDEP), and the Arizona Department of Environmental Quality (ADEQ), are used at Lake Mead NRA to protect the beneficial uses of water quality, including human health, health of the aquatic ecosystem, and recreational use.

A primary means for protecting water quality under the Clean Water Act is the establishment, implementation, and enforcement of water quality standards. Generally, the federal government has delegated the development of standards to the individual states subject to EPA approval. Water quality standards consists of three components: (1) the designated beneficial uses of a water body, such as aquatic life, cold water fishery, or body contact recreation (i.e. swimming or wading); (2) the numerical or narrative criteria that define the limits of physical, chemical, and biological characteristics of water that are sufficient to protect the beneficial uses; and (3) an anti-degradation provision to protect the existing uses and quality of water.

A state's anti-degradation policy is a three-tiered approach for maintaining and protecting various levels of water quality. In Tier 1 waters, the existing uses of a water body and the quality necessary to protect the uses must be maintained. This is considered to be the base level of protection that must be applied to the water body. If the water quality in a water body already exceeds the minimum requirements for the protection of the designated uses (Tier 2), then the existing water quality must be maintained. The third level provides protection for the state's highest quality waters or where ordinary use classification may not suffice; these water bodies are Tier 3 waters and are classified as Outstanding National Resource Waters. The existing water quality must be maintained and protected at this level. Lakes Mead and Mohave are Tier 1 water bodies.

Water quality in Lake Mead NRA in Nevada is regulated by NDEP under water quality standards and regulations that are promulgated in the Nevada Administrative Code (Chapter 445A.118-445A.225). Consistent with federal regulations, Nevada has established numerical and narrative standards that protect existing and designated uses of the State's waters, and implements the anti-degradation requirements by establishing "requirements to maintain existing higher quality." Compliance with the numerical standards for water quality is determined at control points that are specified in the regulations.

Title 18, chapter 11 of the Arizona Administrative Code lists ADEQ's water quality standards. The standards establish water quality criteria for the waters of Arizona and designated uses for surface waters, including Lakes Mead and Mohave.

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to water resources in the project area:

- *Negligible impacts*: Effects are not detectable or are well within water quality standards and/or historical ambient or desired water quality conditions.
- *Minor impacts*: Effects are detectable but within water quality standards and/or historical ambient or desired water quality conditions.

- *Moderate impacts:* Effects are detectable and within water quality standards, but historical baseline or desired water quality conditions are being altered on a short-term basis.
- *Major impacts:* Effects are detectable and significantly and persistently alter historical baseline or desired water quality conditions. Limits of water quality standards are locally approached, equaled, or slightly singularly exceeded on a short-term and temporary basis.

*Impairment:* Effects alter baseline or desired water quality conditions on a long-term basis, or water quality standards are exceeded several times on a short-term and temporary basis. Impacts result in the deterioration of water quality to the extent that the Lake Mead NRA aquatic life and habitat no longer function as a natural system. Aquatic life is affected over the long-term to the point that the Lake Mead NRA purpose cannot be fulfilled and the resource cannot be experienced and enjoyed by future generations.

#### Alternative A

Under Alternative A, the Yuma Cove Razorback sucker rearing pond would not be repaired, and no impact to water resources would occur.

*Cumulative Effects:* There would be no cumulative effects to water resources as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on water resources, there would be no unacceptable impacts, and no impairment would occur.

#### Alternative B

Under Alternative B, the transport of material to rebuild the berm could result in ancillary erosion that would increase turbidity in Yuma Cove, but this effect would be temporary, localized, and minor. Use of heavy equipment has the potential to contaminate the environment with hazardous materials, but daily inspections of equipment and best management practices during refueling minimize this risk.

*Cumulative Effects:* Heavy equipment is used routinely at or near the waterline at Lake Mead NRA. Extension of launch ramps and utilities is ongoing as the level of Lake Mead continues to drop. Boats and other motorized watercraft are sources of pollution in Lakes Mead and Mohave. Heavy shoreline recreation during periods of high use can cause temporary localized reductions in water quality. Cumulative effects resulting from the repair of the Yuma Cove berm are therefore considered to be negligible.

*Conclusion:* Alternative B would result in negligible, short-term, localized adverse impacts to water resources. There would be no unacceptable impacts and no impairment of water resources from the implementation of Alternative B.

## Alternative C

Impacts to water resources under Alternative C would be similar to those under Alternative B. However, since a portion of the transport route involves the Lake Mohave shoreline under Alternative C, ancillary erosion and subsequent water turbidity would occur over a larger area, but these effects would still be classified as temporary, localized, and minor.

*Cumulative Effects:* Cumulative effects under Alternative C are the same as those under Alternative B

*Conclusion:* Alternative C would result in negligible, short-term, localized adverse impacts to water resources. There would be no unacceptable impacts and no impairment of water resources from the implementation of Alternative C.

## **Air Quality**

### **Laws, Regulations, and Policies**

Air pollution sources within parks must comply with all federal, state, and local regulations. Lake Mead NRA is designated as a Class II Air Quality area under the Clean Air Act of 1990. The main purpose of this act is to protect and enhance the nation's air quality to promote the public health and welfare. The act establishes specific programs to provide protection for air resources and values, including the program to prevent significant deterioration of air quality in clean air regions of the country. Although Lake Mead NRA is designated as a Class II Air Quality area, the park strives to maintain the highest air quality standards, and project work within the recreation area is completed in accordance with regional standards. However, the recreation area does not possess sufficient autonomous authority to address issues of air quality improvements when air pollution originates outside the boundary.

NPS Management Policies (2006) directs parks to seek to perpetuate the best possible air quality to preserve natural and cultural resources, sustain visitor enjoyment and human health, and preserve scenic vistas. Parks are directed to comply with all federal, state, and local air quality regulations and permitting requirements. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the NPS "will err on the side of protecting air quality and related values for future generations."

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to air quality in the project area:

- *Negligible impacts:* There is no smell of exhaust and no visible smoke. Dust from construction activities can be controlled by mitigation.
- *Minor impacts:* There is a slight smell of exhaust and smoke is visible during brief periods of time. Dust from the use of dirt roads is visible during brief

periods. Dust from construction activities is visible only during the work period, but most can be controlled by mitigation.

- *Moderate impacts:* There is a smell of gasoline fumes and exhaust in high-use areas. Smoke is visible during periods of high use. Dust from the use of dirt roads is visible for an extended area. Dust from construction activities is visible for over a large area for an extended period, but is reduced by mitigation.
- *Major impacts:* Smoke and gasoline fumes are easily detectable for extended periods of time in a large area. Dust from the use of dirt roads and construction activities are visible for an extended period of time, and mitigation is unable to alleviate the conditions.

*Impairment:* Air quality impacts have a major, adverse effect on park resources and values; contribute to the deterioration of the park's air quality to the extent that the park's purpose cannot be fulfilled as established in its enabling legislation; affect resources key to the park's natural and cultural integrity or opportunities for enjoyment; and/or affect the resource whose conservation is identified as a goal in the park's general management plan or other planning documents.

#### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired, and no impact to air quality would occur.

*Cumulative Effects:* There would be no cumulative effects to air quality as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on air quality, there would be no unacceptable impacts, and no impairment would occur.

#### Alternative B

Under Alternative B, repair of the rearing pond would require earthwork and ground disturbing activities conducted over a one week period. Dust and exhaust would be visible within a localized area and only during construction operations.

*Cumulative Effects:* Air quality at Lake Mohave is affected by a variety of factors including region-wide construction activities, automobile traffic, power generation, vehicle traffic along dirt roads, exhaust from water craft, and dust. During the berm repair, exhaust fumes would be detectable within the localized area of construction activities. Earthwork during this project would increase the quantity of fine particulates within the local vicinity. Considering the project footprint, the duration of the project, and the substantial exogenous inputs to air quality, this alternative would result in minor, adverse, short-term cumulative effects to air quality.

*Conclusion:* Alternative B would result in minor, short-term, localized adverse impacts to air quality. There would be no unacceptable impacts and no impairment of air quality from the implementation of Alternative B.

### Alternative C

Under Alternative C, repair of the rearing pond would require earthwork and ground disturbing activities conducted over a one week period. Creation of a transport route between the shoreline and the wash leading to Yuma Cove would generate a greater amount of dust than would be produced under Alternative B. Dust and exhaust would only be visible within a localized area and only during construction operations.

*Cumulative Effects:* Cumulative effects under Alternative C are the same as those under Alternative B.

*Conclusion:* Alternative C would result in minor, short-term, localized adverse impacts to air quality. There would be no unacceptable impacts and no impairment of air quality from the implementation of Alternative C.

## **Soundscapes**

### **Laws, Regulations, and Policies**

A variety of laws, regulations, and policies direct and guide the management of natural soundscapes as an inherent value of national parks to be conserved and as a resource to be enjoyed, including NPS Management Policies 4.9 (Soundscape Management), and Director's Order 47: Soundscape Preservation and Noise Management (2000). In accordance with policy derived from basic NPS mandates, the NPS will preserve, to the greatest extent possible, the natural soundscapes of parks. The natural soundscape is considered a park resource having inherent value, as well as having properties that may be enjoyed by people.

### **Criteria and Thresholds for Impact Analysis**

The impacts on soundscapes were evaluated in terms of frequency, magnitude, and duration of unnatural sound affecting the natural environment, park resources and values, and visitor experience. The following were used in interpreting the level of impact to soundscapes:

- *Negligible impacts:* The effects to the natural sound environment are short-term and at or below the level of detection. The changes are so slight that they are not of any measurable or perceptible consequence to park resources or to visitor experience.
- *Minor impacts:* Effects to the natural sound environment are detectable, although the effects are short-term, localized, and are small and of little

consequence to park resources or to visitor experience. Mitigation measures, if needed to offset adverse effects, are simple and successful.

- *Moderate impacts:* Effects to the natural sound environment are readily detectable and long-term, but localized. Mitigation measures, if needed to offset adverse effects, are extensive and likely successful.
- *Major impacts:* Effects to the natural sound environment are obvious, long-term, and have substantial consequences to park resources, visitor experience, or to other resources in the region. Extensive mitigation measures are needed to offset any adverse effects, and their success is not guaranteed.

*Impairment:* The frequency, magnitude, and duration of the impact contribute substantially to the deterioration of the park's natural soundscape to the extent that the natural soundscape, park resources and values, visitor experience, and other resources in the region are significantly compromised. The natural soundscape is affected over the long-term to the point that the park's purpose is not fulfilled, and the resource cannot be experienced and enjoyed by future generations.

#### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired, and no impact to soundscapes would occur.

*Cumulative Effects:* There would be no cumulative effects to soundscapes as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on soundscapes, there would be no unacceptable impacts, and no impairment would occur.

#### Alternative B

Under Alternative B, repair of the rearing pond would require earthwork and ground disturbing activities conducted over a one week period. Operation of heavy equipment would create sound disturbance within a localized area and only during construction operations.

*Cumulative Effects:* Natural soundscapes within Lake Mead NRA are most heavily impacted by the noise from watercraft engines, airplane over-flights, and visitor automobile traffic. Additionally, two large construction projects (Southern Nevada Water Authority Third Intake construction and US Highway 93 widening) that impact the natural soundscape will be under construction during the time of the proposed berm repair. Operation of construction equipment would cause sound disturbances within the localized Yuma Cove area for less than one week's time. This alternative would result in minor, short-term, adverse cumulative effects to natural soundscapes.

*Conclusion:* Alternative B would result in minor, short-term, localized adverse impacts to soundscapes. There would be no unacceptable impacts and no impairment of soundscapes from the implementation of Alternative B.

### Alternative C

Impacts to the soundscape under Alternative C are the same as those under Alternative B.

Cumulative Effects: Cumulative effects under Alternative C are the same as those under Alternative B.

*Conclusion:* Alternative C would result in minor, short-term, localized adverse impacts to soundscapes. There would be no unacceptable impacts and no impairment of soundscapes from the implementation of Alternative C.

## **Visual Resources**

### **Laws, Regulations, and Policies**

The enabling legislation of Lake Mead NRA specifically addresses the preservation of the scenic features of the area. The NPS manages the natural resources of the park, including highly valued associated characteristics such as scenic views, to maintain them in an unimpaired condition for future generations.

The intent of this analysis is to identify how each alternative would affect the overall visual character of the area. The assessment of potential visual impacts involves a subjective judgment concerning the degree of landscape modification allowable before a threshold of impact is exceeded. Human preference for landscape types or characteristics is not uniform across cultures and populations, but there are common preferences among visitors to federal lands, and natural-looking landscapes are thought to be the most appealing.

In determining impacts on the visual resource, the NPS considered the visual sensitivity of the area and the level of visual obtrusion each alternative would have on the existing landscape. Visual sensitivity is dependent on the ability of the landscape to absorb the potential impact and the compatibility of the change with the overall visual character of the area. Absorption relates to how well the project will blend into the landscape, taking into account factors such as form, line, and color. Compatibility considers the character of the visual unit and how much contrast is created by the project.

### **Criteria and Thresholds for Impact Analysis**

The following impact thresholds were established for analyzing impacts to visual resources in the project area:

- *Negligible impacts:* The impact is at the lower level of detection and causes no measurable change. The effects of the project do not dominate the landscape and are essentially imperceptible. The ability of the landscape to absorb the

effects is very high, and the change is compatible with the existing visual character of the area.

- *Minor impacts:* The impact is slight but detectable and the change would be small. The project effects are subordinate to the surrounding landscape and relatively low in dominance. The ability of the landscape to absorb the effects is high, and the change is compatible with the existing visual character of the area. If mitigation is needed to offset adverse effects, it is simple and likely to be successful.
- *Moderate impacts:* The impact is readily apparent and the change attracts attention and alters the view, and the dominance of the effects on the landscape is high. The ability of the landscape to absorb the impact is low, and the change is moderately compatible with the existing visual character of the area. Mitigation measures are necessary to offset adverse effects and are likely to be partially successful.
- *Major impacts:* The impact is severe and the change would be highly noticeable. The effects of the project dominate the landscape. The ability of the landscape to absorb the impact is very low, and the impact has very little compatibility with the overall visual character of the area. Extensive mitigation measures are needed to offset adverse effects, and their success is not guaranteed.

*Impairment:* The impact occurs within an extremely visually sensitive area. The impact is not compatible with the overall visual character of the area, the landscape is unable to absorb the impact, and mitigation measures are unsuccessful in alleviating the impact. The impact contributes substantially to the degradation of the overall scenic quality to the point that the park's purpose cannot be fulfilled, and resource degradation precludes the enjoyment of future generations.

#### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired, and no impact to visual resources would occur.

*Cumulative Effects:* There would be no cumulative effects to visual resources as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on visual resources, there would be no unacceptable impacts, and no impairment would occur.

#### Alternative B

Under Alternative B, an existing structure would be repaired, and equipment transport would follow previously utilized routes. Since no new blading would occur, visual

impacts would result from crushed vegetation and the appearance of tracks across the old road bed. Most vegetation would be expected to recover, and tracks would be raked out upon completion of the project. Therefore, visual impacts would be negligible under this alternative.

*Cumulative Effects:* Maintaining the natural, visual quality of the landscape is a high priority for Lake Mead NRA. All construction and development projects have the potential to create visual impacts. However, most projects at Lake Mead NRA occur within developed or previously disturbed areas, which automatically lessens the impact. Visual impacts to backcountry areas come from litter, vandalism, and off-road disturbances. Given that Alternative B uses previously existing routes and includes follow-up restoration, cumulative impacts to visual resources would be negligible.

*Conclusion:* Alternative B would result in negligible, localized adverse impacts to visual resources. There would be no unacceptable impacts and no impairment of visual resources from the implementation of Alternative B.

### Alternative C

Under Alternative C, construction of the route connecting the shoreline to the wash leading to the Yuma Cove rearing pond would create a new, visible scar on the landscape. Only small portions of this 500 meter section of the route would be visible, and these sections would only be visible to boaters within limited areas of Lake Mohave. Restoration immediately following the project would reduce the visual impact, although full revegetation would take many years. Visibility of the route would decline over time, but minor impacts are unavoidable under Alternative C.

*Cumulative Effects:* Maintaining the natural, visual quality of the landscape is a high priority for Lake Mead NRA. All construction and development projects have the potential to create visual impacts. However, most projects at Lake Mead NRA occur within developed or previously disturbed areas, which automatically lessens the impact. Visual impacts to backcountry areas come from litter, vandalism, and off-road disturbances. Alternative C creates a new backcountry disturbance which would be subject to restoration upon completion of the project; this alternative would result in minor, long-term, adverse cumulative effects to visual resources.

*Conclusion:* Alternative C would result in minor, localized adverse impacts to visual resources. There would be no unacceptable impacts and no impairment of visual resources from the implementation of Alternative C.

## **Park Operations**

### **Criteria and Thresholds for Impact Analysis**

Park operations refer to the ability of the park to adequately protect and preserve vital park resources and to provide for an enjoyable visitor experience. Operational efficiency is influenced not only by park staff, but also by the adequacy of the existing infrastructure

used in the day to day operation of the park. Analysis of impacts to park operations must consider (1) employee and visitor health and safety, (2) the park's mission to protect and preserve resources, and (3) existing and needed facilities and infrastructure. The following impact thresholds were established for analyzing impacts to park operations in the project area:

- *Negligible impacts:* Park operations are not affected, or the effects are at low levels of detection and do not have an appreciable effect on park operations.
- *Minor impacts:* The effect is detectable and likely short-term, but is of a magnitude that does not have an appreciable effect on park operations. If mitigation is needed to offset adverse effects, it is simple and likely to be successful.
- *Moderate impacts:* The effects are readily apparent, likely long-term, and result in a substantial change in park operations in a manner noticeable to staff and to the public. Mitigation measures are necessary to offset adverse effects and are likely to be successful.
- *Major impacts:* The effects are readily apparent, long-term, and result in a substantial change in park operations in a manner noticeable to staff and the public. Changes are markedly different from existing operations. Extensive mitigation measures are needed to offset adverse effects, and their success is not guaranteed.

#### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired, and no impact to park operations would occur.

*Cumulative Effects:* There would be no cumulative effects to park operations as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on park operations, and there would be no unacceptable impacts.

#### Alternative B

Under Alternative B, the park's environmental compliance personnel would be required to walk heavy equipment along the previously closed road to Yuma Cove and walk equipment out once the project is completed to ensure minimal resource disturbance. After project completion, a restoration team from the Resource Management Division at Lake Mead NRA would be required to restore the access route. Restoration actions that may be required include raking vehicle tracks, planting supplemental vegetation, placing vertical mulch, and repairing or installing barriers to prevent off-road access.

*Cumulative Effects:* The park's environmental compliance staff currently oversees mitigation and monitoring for large development projects including the expansion of U.S. Highway 93, the reconstruction of Northshore Road, the construction of the Southern Nevada Water Authority's third intake, the construction of new entrance stations, and the construction and rehabilitation of launch ramps and other visitor facilities. The Vegetation Branch's restoration crew assesses off-road disturbances all over the park and must frequently rake out vehicle tracks, plant supplemental vegetation, remove graffiti, and repair or install barriers. Repair of the Yuma Cove berm would require one week of staff time from compliance and restoration personnel. Alternative B would result in minor, short-term, adverse cumulative effects to park operations.

*Conclusion:* Alternative B would result in short-term, minor impacts to park operations. There would be no unacceptable impacts from the implementation of Alternative B.

### Alternative C

Impacts to park operations under Alternative C would be similar to those under Alternative B. However, the disturbance of new ground to connect the shoreline to the wash leading to Yuma Cove would require a greater restoration effort upon completion of the project. Therefore, the amount of staff time required by restoration personnel would be greater under Alternative C than under Alternative B.

*Cumulative Effects:* The park's environmental compliance staff currently oversees mitigation and monitoring for large development projects including the expansion of U.S. Highway 93, the reconstruction of Northshore Road, the construction of the Southern Nevada Water Authority's third intake, the construction of new entrance stations, and the construction and rehabilitation of launch ramps and other visitor facilities. The Vegetation Branch's restoration crew assesses off-road disturbances all over the park and must frequently rake out vehicle tracks, plant supplemental vegetation, remove graffiti, and repair or install barriers. Repair of the Yuma Cove berm would require one week of staff time from compliance and restoration personnel. Alternative B would result in minor, short-term, adverse cumulative effects to park operations

*Conclusion:* Alternative C would result in short-term, minor impacts to park operations. There would be no unacceptable impacts from the implementation of Alternative C.

## **Safety and Visitor Use and Experience**

### **Laws, Regulations, and Policies**

NPS Management Policies (2006) states that the enjoyment of the park's resources is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitor enjoyment.

Part of the purpose of Lake Mead NRA is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the park's management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility,

diversity, and quality of the park's facilities, services, and appropriate recreational opportunities.

### **Criteria and Thresholds for Impact Analysis**

Public scoping input and observation of visitation patterns, combined with an assessment of what is available to visitors under current management, were used to estimate the effects of the actions in the various alternatives of this document. The impact on the ability of the visitor to safely experience a full range of Lake Mead NRA resources was analyzed by examining resources and objectives presented in the park's significance statement. The potential for change in visitor experience proposed by the alternatives was evaluated by identifying projected increases or decreases in use of the areas impacted by the proposal, and determining how these projected changes would affect the desired visitor experience. The following impact thresholds were established for analyzing impacts to safety and visitor use and experience:

- *Negligible impacts:* Safety would not be affected, or the effects are at low levels of detection and do not have an appreciable effect on visitor or employee health and safety. The visitor is not affected, or changes in visitor use and experience are below or at the level of detection. The visitor is not likely be aware of the effects associated with the alternative.
- *Minor impacts:* The effect is detectable, but does not have an appreciable effect on health and safety. Changes in visitor use and experience are detectable, although the changes would be slight. Some visitors are aware of the effects associated with the alternative, but the effects are slight and not noticeable by most visitors.
- *Moderate impacts:* The effects are readily apparent and result in substantial, noticeable effects to health and safety on a local scale. Changes in visitor use and experience are readily apparent to most visitors. Visitors are aware of the effects associated with the alternative and might express an opinion about the changes.
- *Major impacts:* The effects are readily apparent and result in substantial, noticeable effects to health and safety on a regional scale. Changes in visitor use and experience are readily apparent to all visitors. Visitors are aware of the effects associated with the alternative and are likely to express a strong opinion about the changes.

### Alternative A

Under Alternative A, the Yuma Cove razorback sucker rearing pond would not be repaired, and no impact to Safety and Visitor Use and Experience would occur.

*Cumulative Effects:* There would be no cumulative effects to Safety and Visitor Use and Experience as a result of Alternative A.

*Conclusion:* Alternative A would have no effect on Safety and Visitor Use and Experience, and there would be no unacceptable impacts.

### Alternative B

Alternative B would allow construction activities along a section of shoreline popular among Lake Mohave boaters. Heavy equipment use in this area would preclude visitor use at Yuma Cove for the duration of construction activities. Construction limits would be clearly demarcated to alert visitors about potential hazards in the area. The project would last for five days and would avoid weekends to further mitigate potential safety issues and conflicts with visitors.

*Cumulative Effects:* Visitor experience is impacted through construction-related activities at varying locations throughout Lake Mead NRA. Drought-induced low water conditions have forced Park management into a continual state of boat ramp construction, repair, and extension. Current construction activities at Willow Beach and the Southern Nevada Water Authority intake have altered public access to popular shoreline areas. However, most construction-related activities that impact visitor experience occur in developed areas where the purpose of construction is to improve visitor use and experience. Considering the seasonal timing, the localized area, the duration, and the level of activity, the repair of the rearing pond will result in short-term, minor, adverse cumulative effects to visitor use and experience.

*Conclusion:* Alternative B would result in short-term, minor impacts to safety and visitor use and experience. There would be no unacceptable impacts from the implementation of Alternative B.

### Alternative C

Impacts to safety, visitor use, and experience under Alternative C are the same as those under Alternative B.

*Cumulative Effects:* Cumulative effects under Alternative C are the same as those under Alternative B.

*Conclusion:* Alternative C would result in short-term, minor impacts to safety and visitor use and experience. There would be no unacceptable impacts from the implementation of Alternative C.

## **PUBLIC AND AGENCY INVOLVEMENT**

A 30-day public scoping period occurred from May 23 to June 24, 2010. A scoping press release (Appendix A) was sent to television stations, newspapers, magazines, and radio stations in Las Vegas, Henderson, Boulder City, Pahrump, Overton, Logandale, Laughlin, Nevada; Meadview, Kingman, Phoenix, and Bullhead City, Arizona; and Needles and Los Angeles, CA. The press release was also posted on the Lake Mead NRA internet website, on the NPS Planning, Environment, and Public Comment (PEPC) internet website, at the Cottonwood Cove ranger station, and at the Alan Bible Visitors Center. One comment was received from the Nevada Department of Wildlife expressing concern about the lowering of the lake level and how it may interfere with the rearing of trout in net pens at the Willow Beach Fish Hatchery. (The lake level will be maintained at an elevation of 633 feet, which allows for normal hatchery operations.)

A press release announcing the availability of this environmental assessment is sent to the above entities and is posted on the park and PEPC websites. In addition, the announcement is posted at the Alan Bible Visitors Center and the Cottonwood Cove Ranger Station.

Lake Mead NRA's mailing list is comprised of 235 federal, state, and local agencies; individuals; businesses; and organizations. The environmental assessment is distributed to those individuals, agencies, and organizations likely to have an interest in this project. Entities on the park mailing list that do not receive a copy of the environmental assessment receive a letter notifying them of its availability and methods of accessing the document.

The environmental assessment is published on the Lake Mead NRA internet website at (<http://www.nps.gov/lame>) and on the NPS PEPC internet website at (<http://parkplanning.nps.gov/>). Copies of the environmental assessment are available at area libraries, including: Boulder City Library, Clark County Community College (North Las Vegas), Clark County Library, Las Vegas Public Library, Green Valley Library (Henderson), James I. Gibson Library (Henderson), Sahara West Library (Las Vegas), Mohave County Library (Kingman, AZ), Sunrise Public Library (Las Vegas), University of Arizona Library (Tucson, AZ), University of Nevada Las Vegas James R. Dickinson Library, Meadview Community Library, Moapa Valley Library (Overton, NV), Mesquite Library, Mohave County Library (Lake Havasu City, AZ), Laughlin Library, Searchlight Library, and Washington County Library (St. George, UT).

Comments on this environmental assessment must be submitted during the 30-day public review and comment period. Comments on the EA can be submitted on the PEPC website at <http://parkplanning.nps.gov/> or may be submitted in writing to the following address:

National Park Service, Lake Mead NRA  
Attention: Compliance Office  
601 Nevada Way  
Boulder City, Nevada 89005

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

## **LIST OF PREPARERS**

### Preparers:

A.J. Monatesti, Environmental Protection Specialist, Lake Mead NRA  
Michael Boyles, Environmental Compliance Specialist, Lake Mead NRA

### Contributors:

Joe Hutcheson, Geographer, Lake Mead NRA  
Ty Wolters, Biologist, Bureau of Reclamation  
Mitch Urban, Biological Science Technician, Lake Mead NRA

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## APPENDIX A: SCOPING PRESS RELEASE

National Park Service  
U.S. Department of the Interior

LAKE MEAD NATIONAL RECREATION AREA News Release

For Immediate Release: May 23, 2010  
Release No.: 2010-17  
Contact: Kevin Turner (702-293-8712)

### NPS SEEKS PUBLIC COMMENT ON PROPOSED YUMA COVE BACKWATER MAINTENANCE

SEARCHLIGHT, NEV - The National Park Service is seeking public comment on the proposed maintenance of a backwater pond located at Yuma Cove on Lake Mohave, within the Lake Mead National Recreation Area. The pond is used to raise razorback suckers, an endangered fish species, prior to releasing them into Lake Mohave. The pond is a critical component of the razorback recovery program.

The earthen berm that separates the pond from Lake Mohave has slowly eroded away due to wind and wave action. At the northern end of the berm, the elevation has dropped approximately one foot and the crest width has narrowed to less than one foot. Restoration is necessary to ensure the berm is not compromised and that young razorbacks are not preyed on by other species in Lake Mohave.

Heavy equipment will be transported to the site to move material and repair the erosion. The work is proposed for the fall, when the lake is at its lowest level, to allow the equipment sufficient room to make the repairs. An environmental assessment is being prepared to analyze the effects of alternative methods of completing the project.

Comments and recommendations concerning the scope of the environmental assessment, the issues it should cover, the alternatives to consider, and other resource concerns will be accepted through June 24, 2010. They may be submitted by U.S. Mail to Lake Mead National Recreation Area, Compliance Office, 601 Nevada Way, Boulder City, NV 89005 or via the internet at <http://parkplanning.nps.gov/>.

- NPS -