

**National Park Service  
US Department of the Interior**



**Lake Mead National Recreation Area  
Nevada and Arizona**

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**GENERAL MANAGEMENT PLAN AMENDMENT/LOW WATER PLAN  
ENVIRONMENTAL ASSESSMENT  
Finding of No Significant Impact  
March 2019**

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**Background**

Lake Mead National Recreation Area (NRA) encompasses 142 miles of the Colorado River in northwestern Arizona (Mohave County) and southern Nevada (Clark County). Created by Hoover Dam, Lake Mead is 76 miles long and consists of four large sub-basins, the Boulder, Virgin, Temple, and Gregg Basins. Portions of the recreation area, including a 300-foot zone around the shoreline of the lake, are jointly administered by the National Park Service (NPS) and US Bureau of Reclamation. The NPS manages the lake for recreation and resource protection and the Bureau of Reclamation manages water operations. Lake Mead NRA hosts approximately 8 million visitors annually and provides \$336 million to the regional economy, supporting nearly 4,200 jobs. The NRA provides plentiful opportunities for water-based recreation, with millions of visitors coming to enjoy the area's fundamental values of boating, swimming, sailing, kayaking, fishing, and other activities.

As identified in the park's enabling legislation, Lake Mead NRA was established for the general purposes of public recreation, benefit, and use, including bathing (swimming), boating, camping, and picnicking. However, access to the lake is limited due to the rugged topography of the area. Marinas are present at Callville Bay (Nevada), Hemenway Harbor (Nevada), and Temple Bar (Arizona); major boat ramps are available at Echo Bay (Nevada), Boulder Harbor (Nevada) and South Cove (Arizona). There is also a Grand Canyon takeout site at Pearce Ferry (Arizona). These facilities enable visitors to enjoy the recreation area, support commercial operators, and contribute to the economy of the region. The park has moved and/or reconfigured marina facilities for many years and is proposing to continue to do so at Hemenway Harbor, Callville Bay, and Temple Bar as the lake elevation drops below 1,050 feet. The park will also need to make a management decision for the Echo Bay, South Cove, Government Wash, Stewarts Point, and Kingman Wash areas as lake levels continue to fluctuate.

The NPS, as the lead Federal agency, prepared an environmental assessment (EA) to provide a long-term strategy for addressing operational needs to maintain lake access and to provide safe and diverse recreational opportunities at lake elevations above 950 feet.

## **Purpose of and Need for the Project**

Persistent drought conditions in the west and reduced snowpack and runoff in the Rocky Mountains has caused Lake Mead's water level (elevation) to drop substantially over the past couple of decades. In 2000, at the start of the current drought, Lake Mead was nearly full with an average elevation of 1,203.5 feet above mean sea level; in 2016, the water level had declined to an average elevation of 1,077.2 feet above mean sea level; and in 2018, when this report was developed, the average elevation was 1,081.5 feet above mean sea level. The park has been operating under the *Lake Mead National Recreation Area General Management Plan Amendment / Environmental Assessment*, a 2005 low-water amendment to its general management plan (NPS 2005). Although the elevation of Lake Mead to date has not declined below the 1,050-foot levels considered in the 2005 Lake Mead GMP Amendment / EA, projections provided by the Bureau of Reclamation in January 2019 indicate that under certain operational scenarios the lake level could decline to below elevation 1,050 feet as early as 2020. A new plan is needed to proactively guide operations should the lake elevation drop below 1,050 feet. Low water levels could make many existing shoreline facilities unusable in their current design and location, impacting the economic viability of private concession operations and visitor access to and use of the lake.

The purpose of this Plan is to provide a long-term strategy for addressing operational needs to maintain lake access and provide safe and diverse recreational opportunities at lake elevations above 950 feet. The plan will lead to decision-making regarding the suitability and feasibility of the continued use of existing marinas, launch ramps, and other water-based visitor facilities, and identify steps necessary for their continued operation, if possible. The NPS is proposing to maintain existing facilities and services at or near their current locations to the maximum extent possible as site conditions allow subject to changes in lake levels; to maintain current marina capacity spread across current locations; and to maintain overall opportunities for visitors to access the lake even if some specific facilities may change.

## **Selected Action**

The Selected Alternative is A, which was identified and analyzed in the EA as the Preferred Action. Under Alternative A, existing marina operations would be reconfigured and launch ramps would extend farther into the lake, as site conditions allow, at or near their existing locations on the lake. Current marina capacity would be maintained with associated roads, parking, and utilities spread across those locations.

At Hemenway Harbor, the Selected Alternative is A, in which marina operations and launch ramps would extend to an elevation of 950 feet. At elevations below 1,000 feet, the launch ramp and marina facilities would be relocated to deeper water closer to Hemenway Wall with associated roads and utilities.

The Callville Bay Selected Alternative is A, in which marina operations and launch ramps would extend to an elevation of 950 feet. At elevations below 1,065 feet, the launch ramp and marina facilities would be extended farther into the lake or relocated to Swallow Bay with associated new road and utilities.

The Echo Bay Selected Alternative is A, which would analyze reestablishing full-service marina operations at this location based on public safety, utilities, and commercial interest. The launch ramp and marina (if reestablished) would extend to an elevation of 1,000 feet. At elevations below 1,050 feet, the launch ramp and marina operations (if reestablished) would be relocated north to Pumphouse Bay with associated new roads and utilities.

The Temple Bar Selected Alternative is A, in which marina operations and the launch ramp would extend to an elevation of 950 feet. At elevations below 1,050 feet, the launch ramp would be relocated farther into the lake to the northeast with associated new roads and utilities.

At South Cove, launching would continue to be authorized at the end of a park-approved road.

### **Alternatives Analyzed but Not Selected**

In addition to the Preferred Alternative, the EA also analyzed the No Action Alternative and Alternatives B and C. Under the No Action Alternative, existing marina operations would be reconfigured and launch ramps would extend farther into the lake, as site conditions allow, at their existing locations on the lake. Visitor services would discontinue when site conditions result in insufficient water depth for marinas to operate or insufficient ramp grades for boat launching. Efforts would be consistent with maintaining current marina capacity with associated roads, parking, and utilities.

Under Alternative B, existing marina operations would be modified and launch ramps would extend, as site conditions allow, at or near their existing locations on the lake. Some new services could be implemented, such as services accessible only by water (e.g., fuel, water, food). Marina capacity, associated roads, parking, and utilities would be reduced. Mooring, which includes wet and dry storage via marina slips, buoys, buoy fields, and parking areas, could be modified.

Under alternative C, existing marina operations would be discontinued. Launch ramps would extend, as site conditions allow, at or near their existing locations on the lake.

### **Alternatives Considered but Dismissed**

Extending the Echo Bay launch ramp to 950 feet was dismissed. The water level returns to that of the Virgin River and the Overton Arm becomes cut off from Lake Mead as passage at Rams Head Island becomes too narrow.

### **Environmentally Preferable Alternative**

The environmentally preferable alternative is the alternative that will satisfy the following requirements expressed in Section 10 of National Environmental Policy Act (NEPA).

- 1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- 2) Assure for all generations safe, healthful, productive, and aesthetically 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
- 6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council on Environmental Quality states that the environmentally preferable alternative is “the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (46 Federal Register 18026–18038). According to the NPS NEPA Handbook (Director’s Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*), through identification of the environmentally preferable alternative, the NPS decision-makers and the public are clearly faced with

the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

The Selected Action is the environmentally preferable alternative, as determined by and for the park. Unlike the No Action Alternative, the Selected Action will continue providing recreational opportunity and includes amenities to for safety, resource protection, and interpretation and education. Relative to Alternative B and C, the Selected Action better satisfies requirements 1-4 above because the alternative will continue to provide visitor access to Lake Mead to the greatest extent possible.

**Mitigation and Monitoring**

Best management practices and mitigation measures will be used during implementation of the selected alternative to minimize, reduce, or eliminate impacts of project activities and to protect national recreation area resources and visitors. These practices and measures will be incorporated into the project implementation documents and plans.

Resource protection measures undertaken during project implementation will include, but will not be limited to those listed in the table below. The impact analyses in the “Environmental Consequences” section of the environmental assessment were performed assuming that these best management practices and mitigation measures will be implemented as part of the selected action.

Affected Resource	Mitigation Measure	Responsible Party
Soils, Vegetation and Wildlife	Any new or relocated facilities sited above the high-water line will use previously disturbed sites to the extent practicable. In undisturbed habitats, limits will be delineated for all construction, such as road grading or utility extension. Best management practices for controlling soil erosion, such as placement of silt fences, retention and replacement of topsoil, salvage of seeds or plants, and revegetation using native species, will be implemented to reduce runoff and soil loss as a result of construction and to facilitate the reestablishment of native vegetation. Necessary measures will be determined by the park resource management restoration specialist.	Park Natural Resource Manager
Special Status Species	Razorback Sucker-- Formal consultation with the US Fish and Wildlife Service (USFWS) to determine actions necessary to ensure the conservation of the federally listed razorback sucker was concluded on December 7, 2018. Management practices to protect the species and its spawning habitat include avoiding construction activities near spawning areas during spawning season, maintaining a public-awareness campaign, and requiring the implementation of best management practices at marinas to protect water quality. Monitoring of spawning areas will continue, and temporary closures will be implemented if determined to be necessary.	Park Biologist
	Desert tortoise-- generally, upland areas and desert washes provide better habitat for this species. However, potential habitat occurs throughout the recreation area. Development proposed outside previously disturbed areas above the high-	Park Biologist

	<p>water line will be surveyed for desert tortoises and burrows prior to construction. The NPS and USFWS have developed mitigations to reduce or eliminate potential adverse impacts on desert tortoises from construction activities; clearly marking construction limits, surveying construction areas and relocating tortoises by a qualified biologist if necessary, educating construction personnel about this species and instituting a litter-control program.</p>	
<p>Water and Air Resources</p>	<p>Best management practices, such as the use of silt fences, will be implemented to ensure that construction-related effects are minimal and to prevent long-term impacts on water quality and aquatic species. Best management practices will be incorporated into all marina operations. Any activities involving dredging or the placement of fill material below the ordinary high-water line of the lake will comply with requirements of sections 404 and 401 of the Clean Water Act and with other applicable state permit programs. Dust-control measures will be used, such as watering the road and parking areas during grading operations and may include applying a dust palliative to control dust. Low-sulfur fuel (0.05% by weight) will be used when available, and construction equipment will be properly tuned. The concessioner and the NPS will consult with the Nevada Division of Environmental Protection to determine wastewater requirements and provisions. The concessioner and the NPS will work with the Nevada State Health Division for the water line requirements.</p>	<p>Park Natural Resource Manager, Park Engineer</p>
<p>Cultural Resources</p>	<p>All activities, including ground or offshore disturbances, will be assessed for potential disturbance to archeological and historic resources. Sites determined eligible for listing in the National Register of Historic Places (NRHP) will be avoided during project activities. The NPS has prepared a programmatic agreement in consultation with the Nevada and Arizona State Historic Preservation Officers (SHPO) to identify historic properties and to mitigate adverse effects. The NPS will consult with affiliated American Indian groups as required by laws, regulations, and executive orders. Work in the vicinity of cultural resources uncovered during construction will be halted, the area secured, and the NPS will consult according to 36 CFR 800.13. As appropriate, provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 will be applied, including notifying and consulting affiliated tribal representatives of the discovery of human remains, funerary objects, and sacred objects.</p>	<p>Park Cultural Resource Manager</p>
<p>Visitor Use and Experience</p>	<p>Whenever possible, the NPS will adjust work schedules, and construction activities, to minimize impacts on park visitors. Facility construction will be prioritized and phased when possible to minimize disruption of park and concession operations and visitor use. Navigational markers and no-wake areas will be established around lake-access facilities</p>	<p>Park Engineer</p>

	<p>if they are extended or relocated. Security, public notification, and a park ranger will assist with the actual move of any facilities to protect the public. Facilities will be accessible to visitors, including those with disabilities, in compliance with federal standards.</p>	
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**Why the Selected Alternative Will Not Have a Significant Effect on the Human Environment**

Consideration of the effects described in the environmental assessment, and a finding that they are not significant is a necessary and critical part of this Finding of No Significant Impact (FONSI), as required by 40 Code of Federal Regulations (CFR) §1508.13. Significance criteria are defined in 40 CFR § 1508.27. These criteria direct the National Park Service to consider direct, indirect, and cumulative impacts of the proposed action, as well as the context and intensity of impacts.

**Context.** This measure of significance considers the setting within which an impact was analyzed in the environmental assessment, such as the affected region, society as a whole, affected interest, and/or a locality. The selected alternative affects only the immediate local area, in terms of resources, employees, and/or visitors.

**Intensity.** This measure of significance refers to the severity of impacts, which may be both beneficial and adverse, and considers measures that will be applied to minimize or avoid impacts.

As directed by 40 CFR § 1508.27, significance is evaluated by considering the following factors:

1. ***Impacts that may have both beneficial and adverse aspects and which may on balance be beneficial, but that may still have significant adverse impacts, which require analysis in an Environmental Impact Statement:*** Recreation Use and Lake Access: Alternative A will beneficially impact long-term recreational use and lake access by providing launch ramps at the lowest elevations possible and relocating marina facilities for continued recreational boating, which is the primary visitor activity on the lake.

Socioeconomic Environment: There will be increased operating costs to all of the marinas on Lake Mead and to Lake Mead Cruises as a result of lake elevations declining to 950 feet. Park authorities at Lake Mead NRA will primarily pay for construction of new roadways, boat ramp access, and parking facilities; any construction will temporarily support local jobs, labor income, sales, and fiscal revenues. Spending by the marina operations, Lake Mead Cruises, and Lake Mead NRA on services to maintain operation of these facilities will support local jobs, labor income, sales, and fiscal revenues. Any direct support of jobs or local spending by these operations or their visitors will result in further rounds of beneficial induced impacts from the reduction in spending by suppliers of marinas and their employees with a continued demand for their goods and services. At 1,000 feet in elevation of the lake, the launch ramp at Echo Bay will cease and impacts will be similar to those described under the no action alternative resulting a reduction in support for local jobs, labor income, sales, and fiscal revenues in the local economy. No significant adverse impacts to the region of influence are expected under this alternative through 950 feet in elevation of the lake.

2. ***The degree to which public health and safety are affected: No impacts to public health or safety were identified in the analysis.*** No impacts to public health or safety were identified in the analysis.

3. ***Any unique characteristics of the area such as proximity to historic or cultural resources, wild and scenic rivers, ecologically critical areas, wetlands or floodplains:*** There are no wild and scenic rivers, wetlands, floodplains, or ecologically critical areas in the project area. If cultural resources that are eligible for, or listed in the NRHP, cannot be avoided, they may be adversely impacted by the project activities. However, appropriate mitigation strategies will be developed under a Memorandum of Agreement with the Nevada and Arizona State Historic Preservation Offices and affiliated tribes.
4. ***The degree to which impacts are likely to be highly controversial:*** There were no highly controversial impacts identified during preparation of the EA or during the public review period.
5. ***The degree to which the potential impacts are highly uncertain or involve unique or unknown risks:*** No highly uncertain, unique, or unknown risks were identified during the preparation of the EA or during the public review period.
6. ***Whether the action may establish a precedent for future actions with significant effects, or represents a decision in principle about a future consideration:*** No significant adverse impacts were identified during preparation of the EA. Implementation of the Preferred Alternative neither establishes a NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.
7. ***Whether the action is related to other actions that may have individual insignificant impacts but cumulatively significant effects:*** The EA analyzed impacts related to federally-listed threatened and endangered species, the razorback sucker and the desert tortoise, cultural resources, recreation and lake access, the socioeconomic environment, park operations, and safety and visitor use and experience. As described in the EA, cumulative impacts were determined by combining the impacts of the Preferred Alternative with identified impacts from other past, present, and reasonably foreseeable future projects and actions. Adverse impacts of the Preferred Alternative are minor and short-term. These impacts are offset by long-term beneficial effects and do not result in cumulatively significant impacts to any of the resource topics analyzed.
8. ***The degree to which the action may adversely affect historic properties in or eligible for listing in the National Register of Historic Places, or other significant scientific, archeological, or cultural resources:*** The NPS consulted with the Nevada and Arizona SHPOs, and 18 tribes under Section 106 of the NHPA. Since redesign or relocation of visitor facilities will be a phased process and full designs are not yet available, effects to historic properties cannot be fully determined at this time. The Programmatic Agreement will serve as a framework with which the NPS can consult on specific undertakings as they are implemented. In addition, the park has notified 18 tribes about the project and invited them to participate in the planning process.
9. ***The degree to which an action may adversely affect an endangered or threatened species or its habitat:*** While the Preferred Alternative may result in minor adverse impacts to the threatened razorback sucker due to the extension of boat ramps and the movement of marina facilities, only a very small area of the lake will be affected. It is unknown if spawning actually occurs in most of the areas targeted by this project. Although Alternative A may have minor potential to affect the razorback sucker, the effect will not be adverse to its habitat and are not significant enough to warrant analysis in an environmental impact statement.
10. ***Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment:*** The Selected Action violates no federal, state, or local environmental protection laws. The EA and the Selected Action meet all NPS requirements.

## **Public Involvement and Agency Consultation**

### *Scoping*

Public scoping occurred in October, 2017. A news release was published announcing the initiation of the planning effort and asking for public input. Public meetings were held on October 11 in Kingman, Arizona and on October 12 in Henderson, Nevada. The primary purpose of the news release and meetings was to inform known stakeholders and the public about the project and to solicit their input regarding project alternatives and other issues to be addressed in the EA. These efforts were carried out pursuant to the “scoping process” as defined by CEQ’s regulations implementing NEPA. While some of the comments received were outside the scope of this project, there was generally support for efforts to maintain recreational access on the lake.

### *Agency Consultation and Permitting Requirements*

The NPS consulted with the Nevada and Arizona SHPOs, and 18 tribes under Section 106 of the NHPA. Since redesign or relocation of visitor facilities is likely to be a phased process and full designs are not yet available, effects to historic properties cannot be fully determined at this time. The NPS has signature on a Programmatic Agreement with both the Nevada and Arizona SHPOs. The Programmatic Agreement will serve as a framework with which the NPS can consult on specific undertakings as they are implemented.

Section 7 of the Endangered Species Act requires federal agencies to take into account the effect of an undertaking on species federally listed as threatened or endangered. In 2002, the US Fish and Wildlife Service issued a biological opinion for the park’s Lake Management Plan. The NPS consulted with the US Fish and Wildlife Service to amend that opinion to address impacts associated with this Low Water Plan.

### *Public Review and Comments*

The EA was released for public review and comment on December 1, 2018. Public meetings were held in Kingman, Arizona on December 10, Henderson, Nevada on December 11, and in Meadview, Arizona on December 19. Due to the 35-day government shutdown that began on December 22, a second public comment period was allowed from February 4-February 15, 2019. A total of 42 comments were received either by direct input or through the PEPC website, email, or written correspondence. Of the 42 comments received, 27 responses were regarding access to the boat ramp at South Cove. The EA stated that the South Cove and Boulder Harbor ramp access would be maintained to a water elevation of 1,070 feet. The 27 comments all addressed the negative impacts of closing the South Cove boat ramp at this level. The park’s 2005 general management plan amendment identifies that a new ramp would be constructed at South Cove one-half mile south of the existing ramp with parking to allow for continued launching. While slopes may lessen below 1,050 feet at the new location, launching would continue to be authorized at the end of a park-approved road. Thus the concerns regarding access to this boat ramp have been resolved.

## Conclusion

Based on the analysis completed in the EA, the NPS has the capability to maintain existing facilities and services at or near their current locations to the maximum extent possible as site conditions allow for changing lake levels. The current marina capacity and services can be maintained at existing facilities or near their current locations, and overall opportunities for visitors to access the lake remain, even if some specific facilities change. The NPS has determined that the Selected Action does not constitute an action that normally requires the preparation of an environmental impact statement.

Negative environmental impacts that could occur are negligible to minor in effect. There are no unmitigated adverse impacts on public health or safety, threatened or endangered species, sites or districts listed in or eligible for listing in the NRHP, known ethnographic resources, or other unique characteristics of the region. There are no significant impacts to the affected environment. There are no highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence identified. Implementation of the Selected Action would not violate any federal, state, or local environmental protection law. Therefore, in accordance with the National Environmental Policy Act of 1969, and regulations of the Council on Environmental Quality (40 CFR 1508.9), an environmental impact statement will not be prepared for this project, and the Selected Action may be implemented as soon as practicable.

Recommended:



3-5-19

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Superintendent, Lake Mead National  
Recreation Area

Date

Approved:



3/12/19



Regional Director, Pacific West Region

Date

**DETERMINATION OF NON-IMPAIRMENT**  
**GENERAL MANAGEMENT PLAN AMENDMENT/  
LOW WATER PLAN/ENVIRONMENTAL ASSESSMENT**

**Lake Mead National Recreation Area**

**The Prohibition on Impairment of Park Resources and Values**

NPS *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

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

**What is Impairment?**

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service 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.

Section 1.4.5 of *Management Policies 2006* states:

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

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

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural

- visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
  - the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
  - any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the National Park Service was in some way responsible for the action.

### **How is an Impairment Determination Made?**

Section 1.4.7 of *Management Policies 2006* states, "[i]n making a determination of whether there would be an impairment, an NPS decision-maker must use his or her professional judgment. This means that the decision-maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969 (NEPA); consultations required under Section 106 of the National Historic Preservation Act (NHPA); relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

*Management Policies 2006* further defines "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision-maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relative to the decision.

### **Impairment Determination for the Selected Alternative**

This determination on impairment has been prepared for Alternative A described in the General Management Plan Amendment / Low Water Plan / Environmental Assessment, the selected alternative in the Finding of No Significant Impact. An impairment determination is made for all resource impact topics analyzed for the selected alternative. This determination applies only to NPS lands and resources and has been rendered solely by NPS management.

#### Federally Threatened and Endangered Species – Razorback Sucker

Under the Selected Action, the movement of marina facilities farther into Hemenway Harbor, the relocation of the marina facilities and boat launch from Callville Bay to Swallow Bay, and the movement of the Temple Bar marina facilities farther into the lake are not expected to affect known razorback spawning areas, although there would be a possibility of these actions removing existing or potential spawning areas. It is possible that the ramps may permanently remove existing or potential spawning habitat by replacing the natural substrate with concrete or other material. If this occurred, it is expected the fish would likely be able to find alternative locations to spawn, given the small area affected by the ramps and the potential for other suitable gravel areas to exist in Lake Mead. Limiting construction to

outside the spawning period (December 1- May 1) will avoid disturbing and stressing the razorback sucker. Continuing recreational boat use could also disturb the fish in the above areas, although these potential impacts are not well documented.

#### Cultural Resources

Archeological Resources and Historic Structures: Because the redesign and relocation of visitor facilities will be a phased process and full designs are not yet available, effects to archeological sites and historic structures cannot be fully determined. Therefore, a Programmatic Agreement with the Nevada and Arizona SHPOs is being developed to meet Section 106 of the NHPA. The Programmatic Agreement will serve as a framework with which the NPS can consult on specific undertakings as they are implemented. Avoidance of NRHP cultural resources during excavation, construction, and demolition will result in no adverse impacts to archeological sites and historic structures. If NRHP eligible or listed sites cannot be avoided, the impacts will be adverse. However, appropriate mitigation measures will be developed under a memorandum of agreement with the Nevada and Arizona SHPOs.

#### Recreation Use and Lake Access

The Selected Action will beneficially impact long-term recreational use and lake access by providing launch ramps at the lowest elevations possible and relocating marina facilities for continued recreational boating, which is the primary visitor activity on the lake.

#### Socioeconomic Environment

There will be increased operating costs to all of the marinas on Lake Mead and to Lake Mead Cruises as a result of lake elevations declining to 950 feet. Park authorities at Lake Mead NRA will primarily pay for construction of new roadways, boat ramp access, and parking facilities. However, construction will temporarily support local jobs, labor income, sales, and fiscal revenues in the study area during construction. Spending by the marina operations, Lake Mead Cruises, and Lake Mead NRA on services to maintain operation of these facilities will support local jobs, labor income, sales, and fiscal revenues. Any direct support of jobs or local spending by these operations or their visitors will result in further rounds of beneficial induced impacts from the reduction in spending by suppliers of marinas and their employees who will see continued demand for their goods and services. At 1,000 feet in elevation of the lake, the launch ramp at Echo Bay will cease and reductions in support for local jobs, labor income, sales, and fiscal revenues in the local economy will result. No significant adverse impacts to the region of influence are expected under the Selected Action is alternative through 950 feet in elevation of the lake.

### **SUMMARY**

As described above, adverse effects and environmental impacts anticipated as a result of implementing the Selected Action on a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or identified as significant in the park's general management plan or other relevant NPS planning documents, would not rise to levels that would constitute impairment of park values and resources.