

## Chapter 4: Environmental Consequences

This chapter describes the anticipated impacts of the Steinaker Reservoir Resource Management Plan (RMP) alternatives on resource areas described in Chapter 3: partnerships, water resources, recreation and visual resources, natural and cultural resources, and land management. Current conditions for these resources on U.S. Bureau of Reclamation (Reclamation) administered federal lands at the Steinaker Reservoir RMP Study Area (Study Area) were described in Chapter 3 and establish the baseline for the impact analysis. To the extent possible, the analysis provides quantitative impact estimates from the various alternatives in order to facilitate comparisons among alternatives during the decision-making process.

### Issues Considered but Eliminated from Detailed Analysis

Some resource issues were beyond the scope of the analysis or were determined to not be relevant issues, and were therefore not evaluated in detail. Specifically:

- water operations are governed by existing legal commitments and water rights constraints and are not within the scope of decision to be made based on this Environmental Assessment; and
- the assessment of existing conditions (Chapter 3) determined that there were no Environmental Justice communities in the Study Area and therefore no disproportionate effects to minority or low-income populations would result from implementation of any of the RMP alternatives.

### Partnerships

This section provides an assessment of how each alternative would impact resource partnerships between Reclamation and other stakeholder entities. Sources consulted in developing this information were personal correspondence with Reclamation team members, Utah Division of State Parks and Recreation (State Parks) officials, and partner agency representatives listed in Chapter 5.

#### Issue

How would implementation of the RMP affect resource management partnerships for the Study Area?

#### Impact Indicators

The following impact indicator was used to determine if implementation of the RMP would affect resource management partnerships within the Study Area:

- a change in the number and type of resource management partnerships.

**Analysis Methods**

Partnerships needed to accomplish RMP goals related to each alternative were assessed based on agency experience associated with similar past activities at the Study Area and at other comparable Reclamation facilities.

**Summary of Impacts**

Under Alternative A, current resource management partnerships would continue in much the same way as they currently exist. Under Alternative B or C, resource management presence would increase within the Study Area with the likely opportunity for additional partnerships (Table 4-1).

**Table 4-1. Summary of Partnership Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the number and type of resource management partnerships	<p>No change to the number and type of partnerships.</p> <p>Existing partnerships include:</p> <ul style="list-style-type: none"> <li>• U.S. Bureau of Land Management</li> <li>• U.S. Fish and Wildlife Service</li> <li>• Utah Division of State Parks and Recreation</li> <li>• Uintah Water Conservancy District</li> <li>• Utah Division of Wildlife Resources</li> <li>• Utah Department of Environmental Quality</li> <li>• Utah Department of Transportation</li> <li>• Uintah County</li> </ul>	<p>Current partners listed for Alternative A would remain with increased responsibilities related to a conservation emphasis.</p> <p>Potentially new resource management partners include local conservation organizations and adjacent landowners.</p>	<p>Same as Alternative B, plus additional responsibilities and/or partnerships related to a recreation development emphasis.</p> <p>Potentially new resource management partners include those listed for Alternative B and also local recreation interest groups.</p>

**Alternative A: No Action**

Because management goals would not change substantially from existing conditions, it is likely that the same partnerships currently in place with federal, state, and local governments would continue in the same manner as described in Chapter 3. Therefore, Alternative A partnerships would have little or no impact on resource management within the Study Area. While some erosion control measures would be implemented at existing recreational sites, impacts to vegetation, wildlife, and water quality at the Study Area would likely continue. No new interpretation or public education facilities for cultural or natural resources within the Study Area would be constructed.

As the sole recreation manager for Steinaker Reservoir, State Parks would continue to manage recreational activities within the Study Area. Management of fish and wildlife resources within the Study Area by the Utah Division of Wildlife Resources (UDWR) and the U.S. Fish and Wildlife Service (USFWS) would continue with little or no changes under Alternative A. All law enforcement and fire suppression activities would continue to be provided primarily by State Parks, UDWR, Uintah County, and the Uintah Basin Interagency Fire Center under Alternative A. State and county road maintenance activities would not change under Alternative A and would continue under the direction of the Utah Department of Transportation (UDOT) and Uintah County. Water quality oversight would still be provided by the Utah Department of Environmental Quality. Alternative A would not impact existing agreements between Reclamation and the Bureau of Land Management (BLM) regarding minerals leasing and development within the Study Area.

### **Alternative B: Resource Conservation Emphasis**

Because of its emphasis on conservation and enhancement of Study Area natural resources, Alternative B would provide opportunities for additional resource management partnerships. Additional cooperation would be needed with adjacent landowners (government and private) to achieve optimal protection of resources. Alternative B would increase some management roles for current partnerships as described below for cumulative impacts.

Recreation management within the Study Area would continue to be provided by State Parks under Alternative B. The level of management is expected to increase for some management areas and decrease for others. New and improved types of visitor experiences would be created by designating Natural Areas around the reservoir, restricting access to sensitive areas, and providing increased trail connectivity between developed facilities. Enhanced public information and interpretation pertaining to Study Area natural, recreational, and cultural resources would also enhance visitor experiences. Such facilities would likely help reduce impacts to resources by increasing visitor education and ultimately lessening the management burden on partnering agencies.

Management of fish and wildlife resources would continue under the jurisdiction of the UDWR and USFWS. However, under Alternative B more proactive management of these resources would likely occur. Items include providing additional angling opportunities, improving wildlife habitat with the implementation of erosion control and revegetation measures using native plant species, and managing Natural Areas for conserving important wildlife habitat. Additional partnerships would be possible with local conservation organizations dedicated to improving these resources and associated opportunities.

Water rights and water operations are outside of the scope of the Steinaker Reservoir RMP; therefore, partnering relationships related to these resources would not be impacted by this alternative. A partnership agreement for minerals leasing and development currently exists with the BLM and would not change under Alternative B. Law enforcement and fire suppression activities and partnerships are not likely to be impacted under Alternative B. Road maintenance activities on Study Area and surrounding roads are currently under the direction of UDOT and Uintah County. This would not change under Alternative B.

### **Alternative C: Recreation Development Emphasis**

Recreation management is expected to increase under Alternative C because of an increase in developed recreation facilities. In addition to enhanced trail connectivity, fishing opportunities, and interpretive programs described for Alternative B, Alternative C would expand existing Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. In site design, rental cabins and/or yurts may be added. Parking for day use would be expanded and motorized boating would likely reach the maximum capacity of 70 boats during the busiest days of the year. Off-highway vehicle (OHV) trailheads would be added in the Entrance and Honda Hills areas. Collectively, these additions would likely increase annual State Park visitation, particularly during the shoulder seasons of the spring and fall. Reclamation and State Parks would likely pursue expanded partnerships with Uintah County, BLM, and private recreation user groups to help manage use and facility maintenance. Private concessions may also be pursued as an option.

Partnerships for water rights and water operations, minerals development, fish and wildlife management, law enforcement and fire suppression, highway maintenance, and water quality would be the same under Alternative C as described for Alternative B. As with Alternative B, additional partnerships would be facilitated with adjacent landowners, USFWS, and UDWR related to protection of Study Area natural resources.

### **Cumulative Impacts**

Past partnerships have helped shape the existing resource conditions and recreational opportunities at the Study Area. An example is development of the Scenic Byway Area trailhead and interpretive boardwalk. Because much of the annual visitation at the Study Area is attributable to local visitors, future visitation rates would most likely be influenced by growth or decline of the Vernal City area population and economy. Recreation user preferences for land- and water-based recreation activities are another outside influence on the Study Area that resource managers would have to address as the need arises.

Regardless of the RMP alternative selected, State Parks would continue to have responsibility to identify and enforce recreation capacities, identify appropriate recreational use areas for various activities, and manage user conflicts. Selecting one of the two action alternatives (i.e., Alternatives B and C) would provide greater specificity and management area direction that would be utilized by Reclamation, State Parks, and other partners in making these management decisions.

### **Mitigation Measures**

No mitigation measures related to partnerships would be required.

### **Residual Impacts**

No residual impacts related to partnerships would occur as a result of selecting any alternative.

## **Water Resources**

### **Issue**

How would implementation of the RMP affect water resources within the Study Area?

## Impact Indicators

The following impact indicators were used to determine if implementation of the RMP would affect water quality within the Study Area:

- change in the amount of unimproved roads,
- change in the amount of nonmotorized trails,
- change in the amount of developed recreation areas,
- change in the amount of Natural Areas, and
- change in the number and types of toilet facilities.

Impact indicators were assessed on two scales, for the overall Study Area and for areas within 50 feet of a water body. For the overall Study Area, changes in land use affect stormwater runoff and potential for erosion to occur in a particular area. Areas with more development, particularly areas with impervious surfaces, would generate more stormwater runoff, potentially increasing erosion. Sediment yields increase with greater stormwater and erosion. Changes in land use within 50 feet of a water body are more likely to affect water quality since pollutants are more readily transported or directly discharged into the water body. This buffer represents the area 50 feet from the reservoir full pool elevation or from a tributary channel. It does not include information about riparian vegetation or other characteristics of the area within the 50-foot buffer. Toilet facilities, both septic systems and vault toilets, are indicators of the potential for water quality impacts, specifically in terms of bacteria, pathogens, and other human-health-related water quality concerns, in addition to nutrient loading.

The proposed RMP alternatives would have essentially no impact on reservoir temperature, the parameter for which the reservoir is currently listed as impaired. Temperature is predominantly controlled by the temperature of the water entering the reservoir, the amount of solar radiation, and reservoir depth, none of which are within the scope of the RMP decision.

## Analysis Methods

Background information on existing water resource conditions was compiled from a variety of sources, as described in Chapter 3. This information was used in conjunction with the impact indicators to evaluate the impacts of the various alternatives on Study Area water quality. A Geographic Information Systems (GIS) analysis was completed to determine the acreage of land use, length of new trail, and recreational facility development within each management area, as well as within 50 feet of a water body, for the water-resource assessment.

## Summary of Impacts

Overall, the three RMP alternatives would be expected to have slightly different impacts on Study Area water-resource conditions. Alternative A would not change water-resource conditions directly; however, lack of an RMP combined with the trend of increasing visitation and water demands would leave Steinaker Reservoir open to increases in erosion and sediment generation near the reservoir, and therefore the potential for decreases in water quality within the reservoir. Improved resource management, reduced disturbances, and implementation of stormwater management facilities associated with the action alternatives would have a beneficial impact on water quality.

Comparisons of the alternatives indicate that Alternative B would benefit the Study Area water quality to the greatest extent because of the reduction in pollutant sources as well as improved resource management. Alternative C would lead to slight improvements in water quality over existing conditions because of improved resource management, but to a lesser extent than Alternative B because of the increased development and ground disturbance associated with Alternative C. Assessments of the impact indicators for water resources are summarized for each alternative in Table 4-2.

**Table 4-2. Summary of Water Resource Impacts to Steinaker Reservoir.**

<b>IMPACT INDICATOR</b>	<b>ALTERNATIVE A: NO ACTION</b>	<b>ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS</b>	<b>ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS</b>
Change in the amount of unimproved roads due to decommissioning	No change from existing conditions (5 total miles of unimproved roads, including 0.7 mile within 50 feet of the reservoir or a tributary stream).	Decrease of 1.1 miles of unimproved roads, with less than 0.1 mile decrease within 50 feet of a stream or the reservoir.	Decrease of 1.0 mile of unimproved roads, with less than 0.1 mile decrease within 50 feet of the reservoir or tributary stream.
Change in the amount of nonmotorized trails	No change from existing conditions (1.7 miles of nonmotorized trails within the Study Area, including 0.4 mile within 50 feet of the reservoir or tributary stream).	Increase of 2.8 miles of nonmotorized trails within the Study Area, including 1.4 miles within 50 feet of the reservoir or tributary stream.	Same as Alternative B.
Change in the amount of developed recreation areas	No change from existing conditions (26.7 acres of existing developed recreation areas; see Table 2-1).	No change from existing conditions (26.7 acres of existing developed recreation areas; see Table 2-1).	Increase to a total of 53.3 acres of developed recreation areas, including 1.1 new acres within 50 feet of the reservoir or tributary stream.
Change in the amount of Natural Areas	No change from existing conditions (see Table 2-1).	Increase of 776 acres of Natural Area, including 50.6 acres within 50 feet of the reservoir or tributary stream.	Increase of 325 acres of Natural Area, including 23.4 acres within 50 feet of the reservoir or tributary stream.
Change in the number and types of toilet facilities	No change from existing conditions.	Additional use of existing septic systems within the State Park Area with the addition of 6–10 long-term camping sites.	Additional number of vault toilets and additional septic system use within the expanded State Park Area where developed recreation areas would be expanded and 6–10 long-term camping sites would be added. Vault toilets would be added at OHV trailheads in the Entrance and Honda Hills areas.

**Alternative A: No Action**

Current trends in water-resource conditions would continue under Alternative A. No changes would occur in water management and operation of Steinaker Reservoir, Steinaker Feeder Canal, or Steinaker Service Canal, and the existing impacts of these structures on Ashley Creek would continue. The existing rills and gully erosion observed around portions of the developed recreation areas in the State Park Area would continue to contribute nonpoint source sediment pollution to the reservoir. However, improved stormwater control design elements would be

incorporated into any redesign or rehabilitation projects completed at existing recreational sites as part of ongoing management and maintenance efforts.

Under Alternative A, no specific plans would be in place to further study, manage, or address any of the existing potential pollution sources. Water quality would potentially decline, assuming the trend of increasing visitation continues (i.e., the number of people camping, boating, and swimming increases). The types of potential pollutant sources that currently exist would not change, but the amount of pollutants would increase with increased human activity. Pollutants include oil and gas and metals from vehicles such as cars, trucks, all-terrain vehicles, and boats. Garbage and human waste also contribute to water quality issues, in particular bacteria, pathogens, and nutrients. Increases in nutrients would encourage more algal blooms and subsequently reduce dissolved oxygen concentrations. Decomposing organic material such as food waste also contributes to lower dissolved oxygen since it increases biological oxygen demand (BOD). Bacteria and pathogen pollution are a particular concern along the Scenic Byway Area that already receives heavy use but lacks sanitary facilities. No new toilet facilities would be added in the Study Area under Alternative A; however, existing facilities could be redesigned or rehabilitated as needed. The existing septic systems in the State Park Area would continue to function in the same manner as they do currently.

Increased visitation would likely increase the amount of user-created trails and foot traffic near the reservoir shoreline, increasing soil disturbance and stormwater runoff potential to some extent. Sediment generated from stormwater would increase phosphorus loads in the reservoir because phosphorus binds to sediment.

## **Alternative B: Resource Conservation Emphasis**

### ***Change in the Amount of Unimproved Roads***

Alternative B includes decommissioning of 1.1 miles of unimproved roads. All of the existing unimproved roads in the Inflow Area would be decommissioned. A boundary fence has already been installed to prevent vehicle entry directly into this area. While only a small portion of the decommissioning would occur within 50 feet of a stream or the reservoir, this action would help to reduce erosion and it would help prevent proliferation of user-created unimproved roads in this resource-sensitive portion of the Study Area. Several redundant roads within the Entrance Area would also be decommissioned under Alternative B. This decommissioning would not occur close to streams or reservoirs, but nevertheless would improve watershed vegetation cover and reduce soil disturbance.

### ***Change in the Amount of Nonmotorized Trails***

Alternative B would involve the creation of an additional 2.8 miles of new nonmotorized trails in various areas around the reservoir. About 1.4 miles would be within 50 feet of the reservoir or a tributary stream, mostly within the Scenic Byway Area. Where new trails are installed in currently undisturbed, well-vegetated areas, they can reduce infiltration and increase surface runoff during rain and snowmelt events. These changes in runoff conditions would lead to increased erosion and sediment loads, particularly when trails are located close to the reservoir or tributary streams. Other impacts from trails close to water bodies include human-related pollution such as human waste and garbage. These pollutants would potentially increase nutrient

loads in the streams or reservoir, create additional BOD from decomposition, and create dissolved oxygen issues.

In the State Park Area, about half of the proposed new trail (about 0.15 mile) would be within 50 feet of the reservoir. The trail would also cross two small tributary channels. Where practical in site-specific design, care would be taken to locate the trail outside of the riparian and marsh vegetation present between the full pool and low reservoir elevations; this existing vegetation would provide a buffer to help mitigate any runoff impacts from the proposed trail. The trails in the State Park Area would likely have heavy use during times of the year when the most visitors are present and at those times would be a potential source of trash and sediment pollution to the nearby reservoir.

About 0.15 mile of the proposed new trail in the Entrance Area would lie within 50 feet of the reservoir full pool level. However, the trail would be located in a sparsely vegetated greasewood (*Sarcobatus vermiculatus*) flat vegetation community, where a buffer of riparian and emergent marsh vegetation would be present between the trail and reservoir. The flat slopes in this area would further minimize the potential for erosion and associated sediment impacts. Water quality would likely be unimpaired, with only trash being the potential issue of concern.

Within the Scenic Byway Area, more than 1 mile of proposed trail would be within 50 feet of the reservoir. Much of the area along the proposed trail alignment has steep slopes (>20%), further increasing the likelihood of erosion during and after trail construction. The potential for impacts is greater along the northern portion of the trail, where the alignment would be located in an area of riparian vegetation, and the southern portion, where steeper slopes are present. In general, the Scenic Byway Area already receives heavy recreational use for fishing, soils are disturbed from angler access, and invasive species vegetation is extensive. If well designed and managed, the proposed new trail would help alleviate these problems by creating a stabilized trail, installing erosion control features, reducing use of informal trails, and dispersing fishing access over a broader area. Invasive species would remain a challenge to manage (see Vegetation section of this chapter).

This increase in trail length near the reservoir has the potential to decrease water quality because of increased human access to the water, increases in littering, and increases in stormwater runoff and sediment from the trail. In areas with steep slopes, stormwater is likely to discharge directly into the reservoir and carry more sediment (particularly if the soils are easily eroded). Given the length of the trail adjacent to the reservoir, there is potential for the trail to be a source of sediment and associated nutrient inputs to the reservoir if soil erosion and stormwater runoff are not properly managed.

Increases in nutrients would increase the likelihood of algal blooms and associated dissolved oxygen problems, particularly in shallower areas along the reservoir edge and in the northern areas of the reservoir with poor mixing.

***Change in the Amount of Developed Recreation Areas***

There would be no change in the amount of developed recreation areas from existing conditions in the Study Area under Alternative B.

***Change in the Amount of Natural Area***

Under Alternative B, approximately 776 acres would be designated as Natural Area. With this designation, off-trail recreational access, including the Honda Hills Area, would be discouraged and measures such as fencing, signage, regular monitoring, and increased ranger patrols would be implemented as necessary to prevent impacts to natural and cultural resource features and to protect wildlife habitat. More stringent erosion control measures would also be implemented. These changes would result in a slight reduction in the amount of disturbed ground within the Study Area. However, no major erosion problems associated with off-trail dispersed recreation were observed in the Study Area, so any improvements to runoff and erosion conditions would be expected to be minor.

Approximately 50 acres of Study Area lands within 50 feet of a stream or the reservoir would be designated as Natural Area. This change, along with appropriate management and enforcement of these areas, would reduce human use, resulting in a potential reduction in trash, food waste, human waste, and erosion and sedimentation. Such reductions would reduce the nutrient load to the reservoir, effectively reducing potential for algal blooms, eutrophication, and subsequent dissolved oxygen issues. In addition, the vegetation and soils in these areas along the water body would not be trampled, allowing the area to act as a filter for stormwater generated upslope of Natural Areas. In general, areas so managed are highly effective in filtering and retaining pollutants such as sediments, nutrients, and metals often associated with stormwater. These benefits would primarily occur in the Entrance and Inflow areas, since the portions of the Scenic Byway and State Park areas near the shoreline would be expected to continue to receive heavy use.

***Change in the Number and Types of Toilet Facilities***

Under Alternative B, no additional toilet facilities would be added in the Study Area. As is the case with Alternative A, existing facilities could be redesigned or rehabilitated as needed. The existing septic systems would continue to function in the same manner as they do currently. As with Alternative A, bacteria and pathogen pollution would remain a concern along the Scenic Byway area that currently receives heavy use but lacks sanitary facilities. Development of 6–10 long-term camping sites would add incrementally to use of existing septic systems in the State Park Management Area.

**Alternative C: Recreation Development Emphasis*****Change in the Amount of Unimproved Roads***

Alternative C would include the same road decommissioning as described for Alternative B, except that the 0.1 mile-long spur road to the proposed OHV trailhead in the Entrance Area would remain. Therefore, road decommissioning under Alternative C would also improve water resource and water quality conditions, but to a slightly lesser extent than Alternative B.

***Change in the Amount of Nonmotorized Trails***

As with Alternative B, Alternative C would involve the creation of an additional 2.8 miles of new nonmotorized trails in various areas around the reservoir. Anticipated water quality impacts would be the same as described above for Alternative B.

***Change in the Amount of Developed Recreation Areas***

Under Alternative C, developed recreation areas, which include expansions of Developed Overnight and Day Use Group recreation areas, would increase by a total of 26.5 acres. The majority of this new development would occur within the State Park Area, where the existing developed recreation areas would be expanded. Where these expansions include new paved roads and parking areas, they would result in increased amounts of impervious pavement, leading to higher runoff and potential increases in erosion and sediment inputs. Erosion problems associated with runoff from paved surfaces already exist in the campground and day-use parking areas, where soil conditions are very sandy and susceptible to erosion. Therefore, there is a greater potential for water quality impacts under Alternative C. In addition to the expansion of developed recreation facilities within the State Park Area, Alternative C would also allow for development of OHV trailheads and Developed Day Use Recreation Areas at the Honda Hills and Entrance areas. These developments would involve creating designated parking areas, installing trailhead signage, and installing vault toilets. Both of these areas currently receive informal use, and the proposed Alternative C improvements would be expected to help stabilize these areas and protect existing vegetation over existing conditions. Therefore, an overall reduction in the potential for erosion would be expected as compared to Alternative A.

Under Alternative C, developed recreation areas within 50 feet of the reservoir or other water body would increase by approximately 1.1 acres. This increase would occur entirely in the State Park Area. Increases in developed recreational areas have the potential to create an increase in pollutants, particularly if impervious surface area and human use increases. Without proper construction practices and facility design, erosion would also increase, resulting in increased sediment loads to nearby drainages and the reservoir. In addition, recreation users would have access to more areas along the reservoir, making the reservoir more susceptible to impacts from human use such as increased garbage, food waste, and stormwater runoff impacts. These impacts would be mitigated through site designs that include adequate sanitation facilities and animal-proof trash receptacles.

***Change in the Amount of Natural Area***

Under Alternative C, the Inflow and Scenic Byway areas would be designated as Natural Areas. In these areas, off-trail recreational access would be discouraged and measures such as fencing, signage, and regular monitoring would be implemented to prevent impacts to natural and cultural resource features and to protect wildlife habitat. Efforts to monitor and preclude OHV use would be implemented in Natural Areas along with more stringent erosion control measures. These changes would result in a slight reduction in the amount of disturbed ground within the Study Area. However, existing recreational use levels in the Inflow Area and in the portion of the Scenic Byway Area east of U.S. Highway 191 (US-191) are generally quite low, and no major erosion problems associated with off-trail dispersed recreation were observed in the Study Area. Therefore, any improvements to runoff and erosion conditions would be expected to be minor. Under Alternative C, approximately 22.3 acres of Natural Area would be designated within 50 feet of a tributary stream or the reservoir at the Inflow and Scenic Byway areas. Such designation in the Inflow Area would improve water quality by potentially reducing human access, and therefore reducing the amount of human waste and trash left by users. In addition, the vegetation and soils along the water body would not be trampled, allowing the area to act as a filter for stormwater runoff generated upslope of the reservoir. In general, areas so managed are highly effective in filtering and retaining pollutants such as sediments, nutrients, and metals often

associated with stormwater runoff. These benefits would primarily occur in the Inflow Area, since the portion of the Scenic Byway Area near the shoreline would be expected to continue to receive heavy use.

### ***Change in the Number and Types of Toilet Facilities***

Under Alternative C, additional vault toilets would be installed at the expanded, developed recreation areas and new vault toilets would be installed at the proposed OHV trailheads. Since these facilities are some distance from the reservoir, they would have less impact on water quality but are important for human health reasons. Increased human presence at the trailhead locations would likely increase the potential for sediment and trash, but the vault toilets would reduce potential pollution from human waste including bacteria, pathogens, viruses, and nutrients. Additional facility development in the State Park Management Area would increase use of existing septic systems in the State Park Management Area. Any upgrade or expansion of existing septic systems would have minimal impact on reservoir water quality over current conditions since upgrades or expansions would have to meet current health department and state regulations for septic systems. As with Alternatives A and B, no new toilet facilities are proposed for the Scenic Byway Area, and bacteria and pathogen pollution would remain a concern due to high recreation use in this area.

### **Cumulative Impacts**

Other activities in the watershed and Study Area contribute to or compound impacts to water quality at Steinaker Reservoir. Logging and grazing on federal lands administered by the U.S. Forest Service and BLM contribute incrementally to erosion and a sediment load to tributary streams, particularly where these activities expose highly erodible soils adjacent to streams. The Ashley Creek watershed also has some extensive dead forest stands from pine beetle infestation that are a known watershed condition. There are also state lands within the watershed with proposed phosphorous mining that is likely to occur in the future.

Recreation such as dispersed camping within the watershed would also contribute some pollutants to the streams and subsequently the reservoir. Pollutants would include sediment, nutrients, and trash. However, the magnitude of this impact depends largely on the quantity of dispersed camping, with heavy use near contributing water bodies having a greater impact compared to minimal use away from water bodies. Recreation development such as trails for off-highway vehicles, mountain bikes, and hiking also increase land disturbance, stormwater runoff, and potential pollutant loads. An extensive trail system totaling 55 miles of new, nonmotorized trail is currently proposed on the BLM-owned land just to the north and west of Steinaker reservoir, and would cumulatively contribute to the water resource effects of the new trails proposed under RMP Alternatives B and C.

Any increased sediment and phosphorus loads to Ashley Creek would be transported to Steinaker Reservoir via the Steinaker Feeder Canal, particularly during spring runoff when inflows contain high amounts of suspended sediment. Any increase in phosphorus load would be important because it would contribute to eutrophication, associated algal blooms, and potential for dissolved oxygen issues including anoxic conditions in the reservoir. The State of Utah already considers Steinaker Reservoir impaired for temperature, which affects dissolved oxygen concentration in the water column. Dam operations also have some impact on water temperature and dissolved oxygen concentrations in the reservoir.

All of these factors are important ongoing concerns for the management of the Study Area as well as the surrounding BLM-designated Red Mountain-Dry Fork Area of Critical Environmental Concern and the larger Ashley Creek watershed. Interagency coordination and partnerships are important for addressing cumulative impact issues and maintaining water quality at Steinaker Reservoir.

### **Mitigation Measures**

Potential impacts to water quality associated with RMP action alternatives would be mitigated through proper design, installation, and maintenance of stormwater best management practices (BMPs), placement of vault toilet facilities in high-use recreation areas, and use of animal-proof garbage receptacles. Stormwater BMPs would reduce or eliminate stormwater-generated sediment and potentially eliminate untreated stormwater discharge into the reservoir. Vault toilets address impacts from untreated human waste entering the reservoir, and animal-proof garbage receptacles also reduce the amount of trash potentially entering the water body.

Riparian vegetation restoration and bank stabilization, as well as maintaining existing riparian buffers, would provide protection from soil erosion, reduce sediment loads to the reservoir or tributary streams, and filter pollutants transported by stormwater runoff. Locating trails outside of the riparian and marsh vegetation present between the full pool and low reservoir elevations would provide a buffer to help mitigate any runoff impacts from the proposed trail.

Under any alternative, Reclamation will continue existing interagency partnerships that maintain Steinaker Reservoir water quality and will participate in any future interagency coordination and partnership efforts associated with the Ashley Creek watershed.

### **Residual Impacts**

With the previously stated mitigation measures, there would be no residual impacts to water resources resulting from any RMP alternatives.

## **Recreational and Visual Resources**

### **Issues**

How would implementation of the RMP affect recreation activities and visual resource conditions within the Study Area?

### **Impact Indicators**

The following impact indicators were used to determine if implementation of the RMP would affect recreation activities and visual resource conditions within the Study Area:

- change in recreational opportunities,
- change in visitation and facilities,
- change in Water and Land Recreation Opportunity Spectrum (WALROS) Classification, and
- change in visual resource conditions.

## **Analysis Methods**

### ***Change in Recreational Opportunities***

Recreational opportunities were described using the recreation-based land use categories defined during the development of alternatives (see Chapter 2). Land use categories were applied to each kind of recreational opportunity and the area where it occurs. For purposes of evaluating alternatives, any change in an existing land use category was considered a change in recreational opportunity. The total area involved in the change of land use categories was compared between alternatives.

### ***Change in Visitation and Facilities***

Visitation is a function of how many people use the Study Area. Visitation numbers for this analysis are expressed as persons at one time (PAOT) and were estimated for developed camping and day-use areas based on facility capacities and an assumed party size.

When the existing Developed Overnight Recreation Area is expanded, as in Alternative C, it is assumed to include 20 new campsites. When the existing Developed Day Use Recreation Area is expanded, as in Alternative C, it is assumed to include 20 new picnic sites. The assumed party size was five persons per campsite, day-use picnic site, and boat parking stall and 3.5 persons per parking lot stall at trailheads. The resulting calculation (number of campsites, picnic sites, and boat parking stalls multiplied by five persons) is equivalent to PAOT, which represents usage typical of a peak weekend or holiday. During a typical summer weekday, PAOT would likely be less. While PAOT is useful as a relative comparison between alternatives, it is not intended to represent a definitive number of people.

As the number and types of facilities change with the alternatives, it is possible to estimate relative changes in the actual number of people who would use the areas. Again, the total acreage of various kinds of land uses was compared between alternatives, along with the number of developed facilities. This analysis documents how many people would be accommodated at the developed recreation areas in the Study Area under each alternative.

### ***Change in Water and Land Recreation Opportunity Spectrum (WALROS) Classification***

Using the Water and Land Recreation Opportunity Spectrum Analysis method (Reclamation 2011b), recreational opportunities have been classified at the Study Area (see Chapter 3). Changes in existing land use categories were evaluated, by alternative, to determine the effect on physical, social, and managerial setting components for each use area. Changes in setting components were evaluated to determine a change in WALROS Classification.

### ***Change in Visual Resource Conditions***

As described in Chapter 3 Visual Resources, the BLM uses the Visual Resource Management (VRM) system and the four VRM classes to analyze and determine the visual impacts of proposed activities on the land and gauge the level of disturbance an area can tolerate before it exceeds the visual objectives of each VRM class. The method that the BLM uses to determine whether proposed projects conform to an area's VRM class objectives is a contrast rating system that evaluates the effects of proposed projects on visual resources. Contrast rating is accomplished from critical viewpoints or along a transportation corridor using BLM Contrast Rating Worksheets to determine whether the level of disturbance associated with the any of the

alternatives would exceed the VRM objectives for that area. The evaluator rates the degree of visual contrasts based on form, line, color, and texture of the existing landform, vegetation, and structures, and determines how these features would look after project implementation. Under this system, it is assumed that the greater the degree of contrast between the existing landscape and the project-altered landscape, the greater the change in the existing character of the landscape.

During a site visit conducted in August 2012, a visual contrast rating worksheet (Form 8400-4) was completed for Alternatives B and C. A knoll overlooking the State Park Area was selected as the key observation point for evaluating proposed projects. Contrast ratings were assigned to the proposed project or activity in comparison to the existing landscape character. Contrast ratings were noted as being strong, moderate, weak, or none, depending on degree of change. For a contrast to be rated as strong, the proposed project would be evaluated as dominant and demanding attention and would not be overlooked by the casual observer. For contrast to be rated as moderate, the proposed project would be evaluated as beginning to attract attention and beginning to dominate the characteristic landscape. For a contrast to be rated as weak, the proposed project would be evaluated as being seen but not attracting attention to the casual observer. For the contrast to be rated as none, the proposed project would be evaluated as not attracting attention or not being visible. The four levels of contrast correspond to the Visual Resource Classes IV, III, II, and I, referred to in Chapter 3.

### **Summary of Impacts**

Impacts to recreational resources at the Study Area are summarized in Table 4-3. The change in the amount of land use category areas according to alternative was considered a change in recreational opportunities. A description of the existing recreational opportunities available in each land use category is included in Chapter 2. Tables 2-1 and 2-2 (see Chapter 2) list the change in acreage for each land use category under each alternative and the number and kind of recreation facilities. The Primary Jurisdiction Area and Reservoir Inundation Area land use categories remain unaffected at the Study Area under any of the alternatives. For all other land use categories, there would be changes in recreational opportunities as shown by the change in acreage and PAOT under each alternative.

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

#### ***Change in Recreational Opportunities***

There would be no change to existing recreational opportunities under Alternative A for the Study Area. No new recreational opportunities would be added to the current available spectrum.

At the present time, State of Utah administrative rules (R651-411-2(2)) specify that OHVs may be used to access ice fishing areas at Steinaker Reservoir from the State Park boat ramp. Under Alternative A, Reclamation would officially designate that use under federal regulation 43 CFR § 420.2, but would not designate any other areas, roads, or trails open to public OHV use at Steinaker Reservoir.

**Table 4-3. Summary of Recreational and Visual Resource Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in recreational opportunities	No change from existing conditions.	Developed Recreation Areas would remain the same. Undeveloped Day Use Recreation Areas would decrease by 776.2 acres as Natural Areas would be designated. Administrative, Primary Jurisdiction, and Reservoir Inundation Areas would remain the same.	Developed Day Use Recreation Areas would increase by 16.7 acres. Developed Overnight Recreation Areas would increase by 4.8 acres. Developed Overnight and Day Use Group Recreation Areas would increase by 5.1 acres. Undeveloped Day Use Recreation Areas would decrease by 352.1 acres as 325.0 acres of Natural Areas would be designated and 26.6 acres of Developed Recreation Areas would be designated.
Change in visitation and recreational facilities	No change from existing conditions. Total developed campsites at 31. Total day-use picnic sites at 38. Group camping at 50 persons at one time (PAOT). Total boat parking at 36. Total Trailhead parking at 63. Total PAOT: 795. Total boat ramps at 1.	Increase in boat parking stalls to 60. Total PAOT increases to 915. Total boat ramps remain at 1.	Expanding the footprint of the existing State Park Area facilities to Developed Overnight and Developed Day Use Recreation Areas would increase campsites from 31 to 39 and the picnic sites from 41 to 49. Total PAOT increases to 790. Total boat ramps remain at 1.
Change in Water and Land Recreation Opportunity Spectrum (WALROS) Classification	No change from existing conditions.	The Inflow Area WALROS Classification would change from RN7 to SP8. The Scenic Byway Area WALROS Classification would change from RD5 to RD4. All other areas would exhibit no change in WALROS Classification from existing conditions.	The Inflow Area WALROS Classification would change from RN7 to SP8. The Scenic Byway Area WALROS Classification would change from RD5 to RD4. The Honda Hills Area WALROS Classification would change from RN7 to RN6. The Entrance Area WALROS Classification would change from RN6 to RD6. The State Park Area WALROS Classification would change from RD5 to RD4. All other areas would exhibit no change in WALROS Classification from existing conditions.
Change in visual resource conditions	No change from existing conditions.	No change in visual resource conditions.	No change in visual resource conditions.

**Change in Visitation and Facilities**

There would be no change to existing recreational facilities under Alternative A for the Study Area. The current trend in visitation would be expected to continue. The total PAOT would remain at 795, assuming a party size of 5 persons for 31 campsites, 38 day-use picnic tables, 34 boat parking spaces, a maximum of 50 people at the group site, and trailhead parking for 63 vehicles. The number of boat ramps would remain at one.

***Change in WALROS Classification***

There would be no change to existing recreational facilities or opportunities under Alternative A for the Study Area. Therefore, there would be no change in WALROS Classification.

***Change in Visual Resource Conditions***

There would be no changes in resource management at the Study Area under Alternative A; therefore, this alternative meets the visual objectives of VRM Class II and results in no impacts on visual resources within the Study Area.

**Alternative B: Resource Conservation Emphasis**

***Change in Recreational Opportunities***

Under Alternative B, recreational opportunities in developed campsites would be the same as those under existing conditions. A substantial portion of the Study Area (775.6 acres) would be designated as Natural Area with a focus on conservation of natural and cultural resources. Because of the Natural Area designation, there would be some reduced recreational OHV access in areas where it currently exists (e.g., Honda Hills, Inflow Area) thereby improving the nonmotorized recreational user experience. In other areas there would be increased trail connectivity between developed facilities with the addition of proposed trails. Enhanced public information and interpretation projects would also improve visitor experiences.

Under Alternative B, Reclamation would allow public OHV access to the Reservoir Inundation Area for ice fishing from the State Park Area boat ramp, as conditions permit and in accordance with existing Utah administrative rule R651-411-2(2). State Parks would be responsible to manage this use. Reclamation would also coordinate with the appropriate management entities regarding potential OHV use on designated state and county roads, or portions thereof, within the Study Area. However, Reclamation would not propose any new developed OHV trailhead facilities under Alternative B. Additionally, an existing informal OHV riding area (Honda Hills Area) would be closed to that use, consistent with the conservation emphasis of Alternative B.

***Change in Visitation and Facilities***

Some improvements to existing recreational facilities, such as sanitary facilities and utility upgrades, are included, and boat parking will be expanded from 36 to 60 spaces. The total PAOT would increase from 795 to 915 under Alternative B.

A portion of the existing Administrative Area would be designated as a Special Use Area for long-term camping. The location for the Special Use Area is separated from recreational camping areas and would not be expected to create any conflicts with recreational uses. Fencing would be installed to prevent trespass into the Administrative Area where administrative equipment, vehicles, and materials may be stored.

***Change in WALROS Classification***

Decommissioning existing roads and trails and revegetating disturbed areas with native plant species in the Inflow Area would result in a WALROS Classification change from RN7 to SP8. Adding two nonmotorized trailheads and improving fishing access in the Scenic Byway Area would result in a WALROS Classification change from RD5 to RD4. All other areas would exhibit no change in WALROS Classification from existing conditions.

***Change in Visual Resource Conditions***

Using the visual contrast rating process by comparing the proposed project features with the major features of the existing landscape's form, line, color, and texture, there would be minimal changes (weak contrast) in visual resource conditions at the Study Area under Alternative B. Therefore, this alternative meets the visual objectives of VRM Class II. Site redesign or rehabilitation of existing recreation facilities would be implemented on lands already disturbed. Expanding the existing boat parking area, expanding existing hiking trails, and providing a trail along US-191 for fishing access would be consistent with Alternative B land use designations. Alternative B does not include any additional buildings, picnic areas, OHV trails, or trailheads. A long-term camping area is proposed for a previously developed location that is visually separated from recreational camping areas. The proposed location is currently used for outdoor storage. Because the area is already visually disturbed, redevelopment of this area for long-term camping would not significantly alter visual resource conditions.

**Alternative C: Recreation Development Emphasis*****Change in Recreational Opportunities***

Recreational opportunities in the Study Area would increase under Alternative C. In addition to the enhanced trail connectivity, interpretive programs, and increased boat parking space described for Alternative B, Alternative C would expand existing Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. Rental cabins and/or yurts may also be added. New OHV trailheads would be developed in the Entrance and Honda Hills areas. State Parks and/or Uintah County would maintain these trailheads and collect day-use fees as warranted. Reclamation would allow public OHV access to the Reservoir Inundation Area for ice fishing from the State Park Area boat ramp, as conditions permit and in accordance with existing Utah administrative rule R651-411-2(2). State Parks would be responsible for managing this use. Reclamation would also coordinate with the appropriate management entities regarding potential OHV use on designated state and county roads, or portions thereof, within the Study Area. Additional vault toilets would be installed in the expanded, developed recreation areas and at the proposed OHV trailheads. With these additions, overall recreation use would likely increase and would occur at more locations around the reservoir under Alternative C.

***Change in Visitation and Facilities***

In addition to the enhanced trail connectivity and increased boat parking space described for Alternative B, new facilities under Alternative C would include parking areas and sanitation facilities at the two proposed OHV trailheads. The expansion of the existing State Park Area facilities, including Developed Overnight and Developed Day Use Recreation Areas, would increase the number of campsites from 31 to 51 and the number of picnic sites from 38 to 58. This would increase total PAOT capacities to 1,115 under Alternative C. An upward trend in visitation would be expected under alternative C as a result of constructing additional recreation facilities.

A portion of the existing Administrative Area would be designated as a Special Use Area for long-term camping. The location for the Special Use Area is separated from recreational camping areas and would not be expected to create any conflicts with recreational uses. Fencing

would be installed to prevent trespass into the Administrative Area where administrative equipment, vehicles, and materials may be stored.

***Change in WALROS Classification***

Decommissioning existing roads and trails and revegetating disturbed areas with native plant species in the Inflow Area would result in a WALROS Classification change from RN7 to SP8. Adding two nonmotorized trailheads and improving fishing access in the Scenic Byway Area would result in a WALROS Classification change from RD5 to RD4. Adding a OHV trailhead in the Honda Hills Area would result in a WALROS Classification change from RN7 to RN6. Adding hiking trails and a OHV trailhead at the Entrance Area would result in a WALROS Classification change from RN6 to RD6. Expanding the footprint of the existing State Park Area facilities in the Developed Overnight and Developed Day Use Recreation Areas would result in a WALROS Classification change from RD5 to RD4. All other areas would exhibit no change in WALROS Classification from existing conditions.

***Change in Visual Resource Conditions***

There would be some localized changes in visual resource conditions at the Study Area under Alternative C. New facilities would be constructed on suitable lands, including new trailhead, camping, and picnicking facilities with accompanying parking and access roads. The contrast to the basic visual elements caused by the proposed facilities, while seen, would remain subordinate to the existing landscape and not attract attention. Therefore, this alternative would meet the visual objectives of VRM Class II by retaining the existing character of the landscape within the Study Area.

A long-term camping area is proposed for a previously developed location that is visually separated from recreational camping areas. The proposed location is currently used for outdoor storage. Because the area is already visually disturbed, redevelopment of this area for long-term camping would not significantly alter visual resource conditions.

***Cumulative Impacts***

The Study Area is frequently visited by recreational users and tourists. Implementation of any proposed projects or actions would have both temporary and permanent effects on the recreational opportunities and the visual resources. However, these effects are not considered to be cumulatively significant. Evaluating cumulative impacts to these resources includes review of proposed onsite projects or actions and offsite projects proposed in the reasonably foreseeable future, any of which may not be significant on its own but when combined could be significant. This assessment was based on information that is reasonably available during the RMP process.

The Study Area's recreational opportunities are mostly water based (e.g., boating and fishing, with associated camping and picnicking) and do not depend on a pristine viewshed. Any proposed facilities are similar to existing facilities and therefore will not change the overall visitor experience. The Alternative with the greatest impact on recreation facilities would be Alternative C, which proposes an estimated increase of 320 PAOT. However this is not enough to create a significant cumulative impact change from the historical baseline visitation conditions.

Visual conditions of adjacent lands have been or are being altered by past and present actions as development continues in the Ashley Valley and more people visit popular nearby recreation areas. However, there have been no large projects or actions that have significantly impacted the visual character of lands adjacent to the Study Area.

Projects on adjacent lands proposed for the foreseeable future include the development of private property and the development of new trails surrounding the Study Area. The BLM's 2004 environmental assessment for the Red Mountain/Steinaker/Red Fleet Trail System identifies a number of projects under the Proposed Action, including development of 55 miles of hiking or horseback trails and 12 miles of mountain bike trails within the Red Mountain-Dry Fork ACEC Complex. This includes hiking trails connecting into the Study Area. In addition, the Uintah County Land Use Plan designates the area directly to the south of the Study Area as low-density residential, agriculture, medium-density residential, and commercial development planned along North Vernal Avenue. The commercial and residential growth will mean more visitation pressure put on the Study Area, but any changes to the surrounding land uses that are reasonably foreseeable would not change the overall recreational opportunities, the WALROS designations, or the overall viewshed character.

### **Mitigation Measures**

Because the cumulative impact effects of the proposed projects and actions in all three alternatives are not significant, no major mitigation measures are needed. However, in site-specific design, visual-resource impacts can be reduced or eliminated by using facility design and land-planning techniques that borrow from naturally established line, form, color, and texture. Design considerations include building materials, size and scale, color, location, screening, and distance from critical viewpoints or transportation corridors. Visual-resource values must be considered throughout the RMP process as the assignment of visual-management classes is based on the management decisions made in the RMP. All proposed actions that would result in surface disturbances must consider the importance of the visual resource and the impacts the project may have on the characteristic landscape. Management decisions must reflect the importance of visual resources within the Study Area while also giving consideration to other resource values and uses.

### **Residual Impacts**

Residual impacts to recreation resources from implementation of any alternative could include restricting certain recreational activities, limiting user numbers, or eliminating recreational opportunities in some areas. However, these impacts are not considered significant. There are no foreseeable, residual impacts under any of the proposed alternatives with regard to visual resources.

## **Natural and Cultural Resources**

### **Geology**

This section evaluates the proposed RMP alternatives for potential impacts on the geologic processes within the Study Area.

**Issue**

How would implementation of an RMP affect geologic processes within the Study Area?

**Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect geologic processes within the Study Area:

- change in the amount of shoreline erosion.

**Analysis Methods**

The evaluation of impacts to geologic processes was based on a review of ongoing shoreline erosion within the Study Area.

**Summary of Impacts**

Shoreline erosion is expected to continue with implementation of any of the RMP alternatives. As long as Steinaker Reservoir is utilized for water storage and water-based recreation purposes, wave action and fluctuating water levels would continue to cause reservoir shoreline erosion. Under Alternative B or C, a Habitat Management Plan would be developed with provisions to protect and maintain Natural Areas for wildlife habitat values. From a geologic standpoint, this may slightly reduce the amount of shoreline erosion in these areas. Table 4-4 provides a summary of impacts to geologic processes at the Study Area.

**Table 4-4. Summary of Impacts to Geologic Processes at Steinaker Reservoir.**

<b>IMPACT INDICATOR</b>	<b>ALTERNATIVE A: NO ACTION</b>	<b>ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS</b>	<b>ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS</b>
Change in the amount of shoreline erosion	Shoreline erosion would be expected to continue. No change from existing conditions and trends.	Slightly reduced shoreline erosion with designation of Natural Area.	Same as Alternative B, with fewer acres designated as Natural Area.

**Alternative A: No Action**

Alternative A would not change the amount of shoreline erosion within the Study Area.

**Alternative B: Resource Conservation Emphasis**

Under Alternative B, more portions of the reservoir shorelines would be designated as Natural Area. These designations would slightly decrease the amount of shoreline erosion in these areas when the reservoir is full pool. This would be contingent on development of a Habitat Management Plan and assessment of practicability in consultation with State Parks.

**Alternative C: Recreation Development Emphasis**

Same as Alternative B, with fewer Study Area acres designated as Natural Area.

### **Cumulative Impacts**

The greatest factor influencing past, present, and future shoreline erosion is reservoir water level management. The RMP action alternatives (Alternative B or C) would to a small degree incrementally reduce shoreline erosion, contingent on development and implementation of a Habitat Management Plan.

### **Mitigation Measures**

Shoreline erosion is currently occurring along the reservoir full pool elevation throughout much of the Study Area, except in those areas where shoreline stabilization has been provided (e.g., along the dam and US-191). Appropriate erosion control and shoreline stabilization measures should be installed where appropriate to prevent further erosion in high-use areas.

### **Residual Impacts**

Implementation of an RMP alternative would not result in any residual impacts to geologic processes.

### **Soils**

This section evaluates RMP alternatives for their potential impacts on the soils within the Study Area.

### **Issue**

How would implementation of an RMP affect soils within the Study Area?

### **Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect soils within the Study Area:

- change in the amount of soil disturbance.

### **Analysis Methods**

For the soil impact analysis, the amount of soil that would be disturbed or removed from vegetation production because of construction or paving activities was calculated using a GIS database for each RMP alternative. The land areas proposed for campgrounds, access roads, and other improvements were calculated and totaled.

The amount of existing soil disturbance varies with each land use category. Table 4-5 shows the percentage of these disturbances for each land use category under current conditions. Under the proposed RMP alternatives, the amount of soil that would be disturbed or removed from vegetation production as a result of construction or recreation activities was calculated by applying these same disturbance percentages to the action alternatives and their proposed changes in land uses.

**Table 4-5. Percentage of Existing Soil Disturbance for Each Land Use Category at Steinaker Reservoir.**

LAND USE CATEGORY	PERCENT DISTURBED
Administrative Area	60
Developed Day Use Recreation Area	50
Developed Overnight Recreation Area	30
Developed Overnight and Day Use Group Recreation Area	50
Undeveloped Day Use Recreation Area	5
Natural Area	3
Primary Jurisdiction Area	25

**Summary of Impacts**

Under Alternative A, soil conditions within the Study Area would not be expected to change from the existing conditions. Currently, a total of approximately 92 acres, or 5 percent, of the entire Study Area is disturbed. Under Alternative B, no soil would be disturbed or lost as a result of constructing new campgrounds, restrooms, roads, or other developed recreational facilities, and overall soil disturbance would decrease compared with Alternative A as a result of Natural Area designation and associated land management and from decommissioning of some unimproved roads. Under Alternative C, overall soil disturbance would also decrease compared with Alternative A, though to a lesser degree than with Alternative B. The amount of soil disturbance by alternative is presented in Table 4-6.

**Table 4-6. Acres of Soil Disturbance by Alternative for Steinaker Reservoir.**

LAND USE AREAS	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Administrative Area	2.9	2.9	2.9
Developed Day Use Recreation Area	5.2	5.2	13.6
Developed Overnight Recreation Area	4.2	4.2	5.6
Developed Overnight and Day Use Group Recreation Area	1.2	1.2	3.8
Undeveloped Day Use Recreation Area	44.5	5.7	26.9
Natural Area	N/A <sup>a</sup>	23.3	9.8
Primary Jurisdiction Area	33.9	33.9	33.9
Total Soil Disturbance <sup>b</sup>	91.9	76.4	96.5

<sup>a</sup> N/A (Not Applicable) means that this land use category does not exist or would not be designated under the given Alternative.

<sup>b</sup> Due to rounding, columns may not sum exactly to the total soil disturbance.

**Alternative A: No Action**

Under Alternative A, no soil would be lost as a result of construction or paving activities related to building new camping and recreational facilities. The existing amount of soil disturbance related to existing roads, campgrounds, campsites, administrative areas, and so forth was calculated to be 91.9 acres (see Table 4-6). However, the amount of total soil disturbance would likely increase as visitation and use of the Study Area increases over time under Alternative A.

**Alternative B: Resource Conservation Emphasis**

Under Alternative B, a minor amount of soil disturbance would occur in the Study Area from the construction of additional nonmotorized trails. An estimated 23.3 acres of soil disturbance would occur within the Natural Area land use designation. This represents a reduction over existing soil disturbance for these areas, which is primarily Undeveloped Day Use Recreation Area. Total soil disturbance with Alternative B is estimated at 76.4 acres (see Table 4-6).

**Alternative C: Recreation Development Emphasis**

Under Alternative C, the existing Developed Day Use, Developed Overnight, and Developed Overnight and Day Use Group Recreation Areas would be expanded from existing conditions (Table 4-6). Additionally, a minor amount of soil disturbance would occur in the Study Area from the addition of nonmotorized trails along Eagle Ridge and near the shores of the reservoir, as described in Alternative B. Overall, soil disturbance is estimated as 96.5 acres with Alternative C.

**Cumulative Impacts**

In addition to RMP actions, soil erosion would continue to occur within the Study Area as a result of reservoir water operations. As a result of campground and associated recreation facility upgrades or construction, soils would be removed from vegetative production. Cumulative impacts would include this loss of productive soil, combined with the loss of soils from similar activities in the past. Designating portions of the Study Area as a Natural Area would restrict vehicle access and create a beneficial cumulative impact by reducing soil disturbances and erosion in these areas.

Additionally, federal, state, local, and private entities are expected to conduct a number of projects in the watershed of the Study Area that have the potential to cause soil erosion. These projects include the following: (1) the U.S. BLM plans to develop 55 miles of hiking or horseback trails and 12 miles of mountain biking trails near the Study Area. They also plan to develop recreation facilities, including parking, restrooms, and campsites, outside of the relict vegetation area on Red Mountain; (2) Uintah County Transportation District plans new construction or reconstruction on several roads in the vicinity of the Study Area; (3) phosphate mining in the vicinity of the Study Area is expected to expand and to continue over the long term; (4) The Uintah County Land Use Plan indicates that the area directly on the south side of the Study Area is either low-density residential/agriculture, medium-density residential, or commercial. It is anticipated that these disturbances would use appropriate mitigation measures to minimize soil erosion impacts.

## **Mitigation Measures**

To mitigate soil erosion impacts, Reclamation would implement erosion control measures for individual projects under Alternatives B and C. Implementation of proper erosion controls would mitigate impacts caused by construction activities and stormwater runoff. Mitigation measures would include requiring a Storm Water Pollution Prevention Plan for all construction operations that disturb 1.0 or more acres; this would require use of published BMPs for controlling erosion and sedimentation from stormwater runoff and would address runoff from all roads (paved and unpaved), trails, campgrounds, parking lots, and administrative buildings. Other elements of Alternatives B or, to a somewhat lesser extent, Alternative C, would help mitigate soil erosion, including restricting vehicle access to sensitive areas in the Study Area and restoring areas that have been damaged by unmanaged recreation use.

## **Residual Impacts**

Soil erosion is a natural process that occurs as a result of climate conditions and the nature of the soils in the Study Area. Human activity (e.g., construction, recreation, reservoir operations) has the potential to increase soil erosion rates. Under all alternatives, a minor amount of soil would be eroded and deposited in Steinaker Reservoir as the result of natural and human-induced erosion, both within and outside of the Study Area. Mitigation measures described above would avoid or mitigate most of the soil erosion impacts resulting from implementation of the RMP alternatives.

## **Vegetation**

### **Issue**

How would implementation of the RMP affect upland and riparian-wetland vegetation communities within the Study Area?

### **Impact Indicators**

The following impact indicators were used to determine if implementation of the RMP would affect upland and riparian-wetland vegetation communities within the Study Area:

- change in the quantity, condition, and levels of disturbance of the upland vegetation communities; and
- change in the quantity, condition, and levels of disturbance of riparian-wetland vegetation communities.

### **Analysis Methods**

The land use categories defined and described in Chapter 2 provide the basis for the vegetation impact analysis. As the boundaries of the land use categories change with each alternative, so do the condition and amount of disturbance to plant communities within each land use category. Each land use category and its associated quantity of land disturbances for each alternative are listed in Table 4-6 in the Soils section. Specifically, decommissioning of some unimproved roads, new facility construction, and changes in land use designation were used to describe potential impacts. Typical disturbances related to the RMP alternative actions being considered include elimination of vegetation within developed use areas such as campsites, roads, trails or

parking areas; indirect effects to vegetation conditions resulting from increased use in an area; and increased potential for facilitating the spread of noxious or undesirable species into areas where vegetation was removed.

The placement of dredge or fill material within riparian-wetland communities is regulated under Section 404 of the Clean Water Act. The action alternatives do not identify specific project-related fill activities. These fill activities within riparian-wetlands would need to be identified on a project-by-project basis and all efforts to avoid and minimize impacts to riparian-wetlands would be required as a part of the Section 404 permitting process. Therefore, for this analysis it is assumed that direct ground disturbance would occur primarily in upland vegetation communities and not in riparian-wetland vegetation communities because of jurisdictional wetlands regulations.

### **Summary of Impacts**

Impacts to vegetation communities are described in Table 4-7. The analysis for vegetation involved comparing changes in the quantity and condition of upland and riparian-wetland vegetation communities as a result of changes in the designated land use classification. Alternative A involves no changes from existing conditions and trends. Alternative B includes decommissioning of some unimproved roads, construction of new nonmotorized trails, and changes in the designated land use classification affecting upland and riparian-wetland vegetation communities within Natural Areas. Alternative B has the potential to improve the overall condition and decrease the level of disturbance of vegetation within the Study Area. Alternative C includes the decommissioning of some unimproved roads, the construction of new nonmotorized trails, and the expansion of Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas within the Study Area. Therefore, Alternative C has the potential to slightly increase the level of disturbance to upland and riparian-wetland vegetation communities within the Study Area.

Potential impacts on riparian-wetlands are primarily related to the decommissioning of unimproved roads, the construction of new nonmotorized trails, or changes to the designated land use categories. Either Alternative B or C would cause potential impacts to riparian-wetland vegetation communities due to new trail construction and the related increase in disturbance from use. Alternative B would provide an increase in the overall function of the riparian-wetland community due to Natural Area land use designation, as would Alternative C but to a lesser extent.

Noxious weeds are present in the Study Area as discussed in the Vegetation section of Chapter 3. They tend to occur in scattered patches throughout the Study Area, with more dense growth in high-use recreation areas and along the shoreline of the reservoir. The primary concerns are the propagation of noxious weeds and the introduction of additional populations within the Study Area. The amount of disturbance for each alternative is useful in comparing the potential of noxious weed invasion under each alternative.

**Table 4-7. Summary of Upland and Riparian-Wetland Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the quantity, condition, and level of disturbance of upland vegetation communities	Existing level of disturbance is 91.9 acres.  No change in current upland vegetation conditions and trends.	Level of disturbance reduced to 76.4 acres through designation of 776 acres of Natural Area.  Construction of 2.8 miles of new trails.  Overall potential for improved condition of upland vegetation.	Level of disturbance increases to 96.5 acres through development of new facilities.  Construction of 2.8 miles of new trails.  Conversion of 26 acres to developed recreational uses.  Overall slight potential for decreasing condition of upland vegetation.
Change in the quantity, condition, and level of disturbance of riparian-wetland vegetation communities	No change from existing riparian-wetland conditions and trends.	Potential for some impacts due to new trails proposed within riparian-wetland areas.  Potential for improvement due to designation of Natural Areas within riparian-wetland areas.	Potential for some impacts due to new trails proposed within riparian-wetland areas and recreation facility expansion adjacent to riparian-wetlands.  Potential for improvement due designation of Natural Areas within riparian-wetlands.

**Alternative A: No Action**

***Change in the Quantity, Condition, and Level of Disturbance of Upland Vegetation Communities***

Under Alternative A the quantity, condition, and level of disturbance of upland vegetation communities would remain unchanged from existing conditions and trends described in Chapter 3. Currently there are 864 acres of upland vegetation communities and approximately 91.9 acres of disturbance within the Study Area. Reclamation, State Parks, and other partners would continue existing levels of effort in managing access and controlling invasive species. However, no formal Habitat Management or Integrated Pest Management Plans would be developed.

***Change in the Quantity, Condition, and Level of Disturbance of Riparian-Wetland Vegetation Communities***

The quantity, condition, and level of disturbance of riparian-wetland vegetation communities would not change under Alternative A.

## **Alternative B: Resource Conservation Emphasis**

### ***Change in the Quantity, Condition, and Level of Disturbance of Upland Vegetation Communities***

Alternative B includes construction of approximately 2.8 miles of new trails. Approximately 776 acres of the Study Area would be designated as Natural Area. The net impact of these changes would be an overall potential for improved condition of upland vegetation communities through reduction of disturbance levels to 76.4 acres. The proposed long-term camping area would be developed within an already disturbed portion of the State Park Management Area; therefore this facility would not create new disturbance of upland vegetation communities.

### ***Change in the Quantity, Condition, and Level of Disturbance of Riparian-Wetland Vegetation Communities***

New recreational facilities that are included with Alternative B involve 0.9 miles of new trails within riparian vegetation communities. Trails and increased day-use activity associated with them would lead to potential degradation in the condition of the riparian-wetland community through increased noxious weed introduction and dispersal, disturbance of wetland vegetation due to foot traffic, increased erosion and sedimentation, and disturbance of wildlife within riparian-wetland communities. Negative impacts would be concentrated around developed facilities, but they would be balanced by the beneficial impacts of designating 776 acres of Natural Areas and development of Habitat Management and Integrated Pest Management Plans.

## **Alternative C: Recreation Development Emphasis**

### ***Change in the Quantity, Condition, and Level of Disturbance of Upland Vegetation Communities***

Alternative C includes the construction of approximately 2.8 miles of new trails. Approximately 325 acres of the Study Area would be designated as Natural Areas and 53 acres would be designated as Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. Combined, these actions would result in a slight increase in overall disturbances within the Study Area to 96.5 acres. A proposed long-term camping area would be developed within an already disturbed portion of the State Park Management Area; therefore this facility would not create new disturbance of upland vegetation communities.

### ***Change in the Quantity, Condition, and Level of Disturbance of Riparian-Wetland Vegetation Communities***

Riparian-wetland communities have been largely avoided as part of the suitability analysis (Chapter 2). However, it is probable that site-specific facility design would involve some impacts to riparian-wetland communities, such as trail crossings of washes or streams, elevated boardwalk trails constructed through wetland communities, or other features. Site-specific design would require further environmental analysis and any impacts to jurisdictional wetlands would need to comply with Section 404 of the Clean Water Act.

New recreational facilities that are included with Alternative C involve 0.9 mile of new trails within riparian vegetation communities. Trails and increased day-use activity associated with them would lead to potential degradation in the condition of the riparian-wetland community through increased noxious weed introduction and dispersal, disturbance of wetland vegetation

due to foot traffic, increased erosion and sedimentation, and disturbance of wildlife within riparian-wetland communities. Negative impacts would be concentrated around developed facilities, but they would be balanced by the beneficial impacts of designating 325 acres of Natural Areas and development of Habitat Management and Integrated Pest Management Plans. However, fewer acres of riparian-wetlands would be designated as Natural Area with Alternative C compared to Alternative B.

### **Cumulative Impacts**

Public use and the continued threat of noxious weed invasion are the most likely cumulative impacts expected as a result of past, present, and reasonably foreseeable future impacts on both upland and riparian-wetland plant communities within the Study Area and on surrounding lands. An RMP action alternative would incrementally improve Study Area riparian-wetland conditions, with Alternative B providing greater improvements throughout and Alternative C providing less overall and more localized improvements.

Past, present, and future fluctuations in the water level of Steinaker Reservoir have the greatest overall impact on both the quantity and condition of riparian-wetland plant communities in the Study Area. The impacts of water fluctuation are both detrimental and beneficial depending on seasonal timing, duration of flooding or low-water period, and depth. However, water level rises are based on a combination of water right delivery requirements and climate conditions, both of which are beyond the scope of the RMP decision.

### **Mitigation Measures**

Mitigation measures for either action alternative will include the development of noxious and invasive weed control strategies as a part of an Integrated Pest Management Plan. Fence lines can facilitate weed invasion as winds blow invasive vegetation against fences, where it becomes trapped and releases seed. Therefore, including a provision for removal of redundant/unnecessary fence lines as part of the Integrated Pest Management Plan would provide some weed management benefit. Additionally, the plan should address weed control strategies to be implemented along all existing and future boundary and access control fences in the Study Area.

After site-specific environmental assessment and design, appropriate sediment and erosion control strategies would be implemented during construction activities to limit impacts to the upland and riparian-wetland vegetation communities. In site-specific designs, disturbed areas would be replanted with appropriate native species. Should it be found that any site-specific projects would involve filling riparian-wetland communities, Reclamation would comply with Section 404 of the Clean Water Act. Section 404 requires wetland impacts be mitigated and that no net loss of wetland occurs. The Section 404 permitting and mitigation process is under the jurisdiction of the U.S. Army Corps of Engineers.

### **Residual Impacts**

With the previously stated mitigation measures, impacts to upland vegetation communities from either action alternative would be avoided or fully mitigated. Pending site-specific design and environmental assessment, the two action alternatives would likely have some minor to moderate

(i.e., less than significant) disturbance impacts to riparian-wetland communities as a result of new recreation facility development.

## **Wildlife**

Wildlife of interest to state and federal agencies and the general public in the Study Area include special status species (federally and state-threatened and endangered species and other species of concern), big game, raptors, waterfowl, and general wildlife populations. Wildlife viewing opportunities, big game and vehicle conflicts, presence of nuisance wildlife species, and the impact of reservoir uses on wildlife habitats are also concerns in the Study Area. Sources of information used in developing this assessment of impacts to wildlife and habitat included UDWR reports, websites, data, and maps; published literature; consultations with agency personnel; and field observations made in October 2011.

### **Issue**

How would implementation of an RMP affect wildlife and their habitat in the Study Area?

### **Impact Indicators**

The following impact indicators were used to determine if implementation of the RMP would affect wildlife and their habitat within the Study Area:

- changes in the quality and amount of wildlife habitat, and
- changes in the amount of human-related disturbance.

### **Analysis Methods**

Changes in the amount and quality of available habitat were determined by the habitat type and amount of area that would be impacted as a result of constructing recreation facilities (e.g., campgrounds, picnic areas, parking areas, boat facilities), trails and roadway systems, the designation of Natural Areas, and developing a Habitat Management Plan for the Study Area.

Increased human activity and loss of habitat can have a direct impact on wildlife and would increase stress, reduce reproductive success, and cause displacement. Disturbance is detrimental during critical seasonal periods, especially during spring and winter. Changes in disturbance were determined based on the estimated increase or decrease in public use and the location of the use in relation to important wildlife habitat. The amount and location of public use were based on the review of each alternative in terms of the types of recreation facilities, trail systems, and roadways; the decommissioning of roads; and the designation of Natural Areas.

### **Summary of Impacts**

Impacts to wildlife are summarized in Table 4-8. Under Alternative A, wildlife conditions within the Study Area would not be expected to change from existing conditions and trends. Alternative B would improve wildlife conditions through improved management of resources and increased protection of sensitive wildlife habitat and important wildlife areas. Alternative C would potentially negatively impact wildlife, based on the increased recreational activities and facility development impacts to wildlife and wildlife habitat. Mitigation measures are included with

**Table 4-8. Summary of Impacts to Wildlife at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the overall quality and amount of wildlife habitat	No change from existing conditions and trends.	Little or no impacts related to the loss of wildlife habitat. Enhancement and protection of important habitats as a result of designating Natural Areas.	Minimal impacts related to habitat loss as a result of facility development and uses.
Change in the amount of human-related disturbance	No change from existing conditions and trends.	Decrease in disturbance related to restrictions of vehicle access and designated parking areas.  Short-term increase in disturbances during construction of facilities in localized areas where human activity would increase in association with the development of new facilities. Impacts would be minimal because of the limited amount of proposed development, current condition of areas proposed for development, and availability of similar habitat in the surrounding area.	New facilities would be constructed under Alternative C, resulting in more short- and long-term wildlife disturbances. Impacts would be minimal because of the current condition of areas proposed for development and the availability of similar habitat in the surrounding area.

action alternatives to eliminate or reduce potential impacts, as described in the subsections below for each alternative.

**Alternative A: No Action**

Additional recreational facility site development would not be pursued under Alternative A. In addition, land use category changes, erosion control measures, and protective wildlife habitat measures would not be pursued. Therefore, these actions would not change wildlife habitat or disturbance levels from existing conditions and trends.

**Alternative B: Resource Conservation Emphasis**

Under Alternative B, wildlife in the Study Area would generally benefit from reduced disturbance, especially in key wildlife habitat and proposed Natural Area designations.

***Change in the Quality and Amount of Wildlife Habitat***

Under Alternative B, approximately 776 acres would be designated as Natural Area, which under present management receives no protection from day-use recreation impacts. Classification of this land use category would enhance wildlife habitat by reducing the amount and intensity of recreational use and providing long-term protection of areas that support a relatively higher diversity and number of wildlife species than other portions of the Study Area.

While the amount of wildlife habitat would not increase, the quality of habitat would improve with development and implementation of a Habitat Management Plan. Specific management efforts that would be included in the Habitat Management Plan under Alternative B would be to

limit the carrying capacity of boats on the reservoir to the current maximum capacity of 60 boats, decommission unimproved roads that are not county roads and that are not needed for administrative access purposes, and manage habitat needs for special status species.

### **Change in the Amount of Human-Related Disturbance**

Under Alternative B, wildlife in the Study Area would generally benefit from reduced disturbance, especially in key wildlife habitat within the proposed Natural Area designations. Protecting quality wildlife areas, restricting vehicle access to sensitive areas, and managing for a reduced number of users would decrease the amount of stress to and displacement of wildlife over the long term, especially during critical periods such as the nesting season.

Short-term disturbance to wildlife would likely occur during the improvement of existing recreational facilities (e.g., picnic and camping areas, sanitary facilities, utility upgrades), development of a long-term camping area, and future implementation of erosion control measures and habitat enhancements. No long-term impacts are anticipated. Short-term impacts would include greater stress to the inhabitants and possible temporary displacement of wildlife to adjacent habitats. However, impacts would be minimal because of the limited amount of proposed development and the availability of similar habitat in the surrounding area.

Designation of the riparian area in the northern end of the Study Area as Natural Area would be beneficial to the local wildlife community, particularly the birds using the cottonwoods (*Populus* spp.) and willows (*Salix* spp.) in this area. Protection from human disturbance during spring and summer in particular would improve reproduction and survival of songbirds, and potentially improve habitat conditions for the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), a sensitive species with potential to occur in Uintah County.

Of the other sensitive species identified as potentially occurring in the Study Area, greater sage-grouse (*Centrocercus urophasianus*) would benefit from the decrease in human disturbance under Alternative B. The designation of portions of the Study Area as Natural Area would provide this species protection from disturbance during critical periods, such as when birds gather on leks for breeding and during nesting and brood rearing. Protecting sensitive areas from recreation has been identified as an important management action for protecting and enhancing greater sage-grouse populations (Stiver et al. 2006). Surveys specifically targeting the greater sage-grouse are recommended to document the species' presence and use within the Study Area, in order to properly estimate the number of birds impacted by management actions.

Suitable habitat for other special status species—the black-footed ferret (*Mustela nigripes*), Mexican spotted owl (*Strix occidentalis lucida*), and Canada lynx (*Lynx canadensis*)—does not currently exist within the Study Area and is not likely to be created by current or proposed management actions under Alternative B. Therefore, Alternative B would not impact these species.

### **Alternative C: Recreation Development Emphasis**

Under Alternative C, wildlife in the Study Area would generally benefit from improved management and the designation of parking areas as described under Alternative B.

***Change in the Quality and Amount of Wildlife Habitat***

Under Alternative C, more recreational opportunities would be pursued, including developing new camping, picnicking, and recreational facilities; improving developed camping facilities; and developing new hiking trails. This would occur throughout the Study Area but primarily in areas where some level of recreational use already exists. While the development of facilities would result in some loss of habitat, impacts would be restricted to currently disturbed areas or upland plant communities that are common in the surrounding area. Construction of the hiking trail in the northeastern section of the Study Area and along the northern and eastern shoreline would remove a minor amount of habitat in currently undisturbed areas. Overall impacts of habitat loss would be minimal under Alternative C, although greater than those described under Alternative B.

***Change in the Amount of Human-Related Disturbance***

Under Alternative C, wildlife in the Study Area would generally benefit from reduced disturbance in important wildlife areas. Vehicle access would be restricted to the proposed parking areas and designated roads and trails, thereby protecting sensitive wildlife habitat and important wildlife areas. This would decrease the amount of stress to and displacement of wildlife over the long term, especially during critical periods such as the nesting season.

Short- and long-term disturbance impacts for any special status species under Alternative C would be similar to the impacts previously described for general wildlife. Short-term disturbance to wildlife would occur during the development of new recreation facilities and a long-term camping area. Impacts would be minimal because of the limited duration of the disturbance activities and availability of similar habitat in the surrounding area. Longer-term wildlife disturbance would occur in areas where human activity would increase in association with the new facilities. Impacts would include stress, reduced reproductive success, and displacement.

**Cumulative Impacts**

Past actions that have contributed to current conditions for wildlife in the Study Area include grazing and agricultural development, reservoir construction, reservoir water level fluctuations, and human disturbance from recreational activity. Alternative C would incrementally add to wildlife habitat disturbances by developing new facilities. Either of the action alternatives (Alternative B or C) would result in some general improvements to wildlife habitat over existing conditions as a result of developing and implementing a Habitat Management Plan for the Study Area and by designating portions of the Study Area as Natural Areas.

**Mitigation Measures**

Mitigation measures that would minimize or avoid impacts to wildlife are recommended below. These measures would be integrated into development of a Habitat Management Plan if either action alternative is selected for the RMP:

- Signs would be posted to encourage recreationists to stay on the trail and within developed recreation facility boundaries to minimize the amount of vegetation trampling and disturbance to wildlife.

- Wetland and riparian habitats would be protected in accordance with existing federal regulations. During the development and expansion of recreation facilities, construction would avoid disturbance (both directly and indirectly) of wetland and riparian areas.
- Wildlife management would be coordinated between Reclamation and appropriate partner agencies to specify suitable recreation within the Natural Areas and identify measures to target areas that were previously impacted by recreationists and are in need of restoration.

### **Residual Impacts**

Under either action alternative, beneficial impacts to wildlife would occur. Potential negative impacts under each alternative would be minimized or avoided by implementing mitigation measures. However, regardless of the mitigation measures, some wildlife habitat would be impacted by the development of recreation facilities and recreational use, especially under Alternative C. Disturbance levels would also increase in localized areas. Overall net impacts of either action alternative would be beneficial because of improved management of Study Area resources.

### **Fisheries**

This section evaluates RMP alternatives for potential impacts on Study Area fishery resources, including habitat quantity and quality, angling pressure, and potential threat of aquatic invasive species (AIS) infestation.

#### **Issue**

How would implementation of the RMP affect the fishery within the Study Area?

#### **Impact Indicators**

The following impact indicators were used to determine if implementation of the RMP would affect the fishery within the Study Area:

- change in the quality or quantity of fish spawning and recruitment habitat,
- change the amount of angling pressure, and
- change in the threat of AIS infestation.

#### **Analysis Methods**

Impacts to spawning and recruitment habitat were assessed qualitatively by assuming that various resource management actions would have negative, beneficial, or no impacts on littoral and inflow habitats important to egg, larval, and juvenile stages of fishes. Beneficial resource management actions would include revegetating disturbed areas, implementing erosion control measures, and providing access controls to riparian, shoreline, and inflow areas. Proposed resource management actions where changes to shoreline areas would increase siltation or disturbance to littoral areas, such as the creation of new campground facilities, were considered negative. Areas where the existing management situation, if left unchanged, would result in a negative impact to the fishery were also included in the analysis.

Change in the amount of angling pressure was assessed by reviewing proposed resource management actions that would impact angling pressure on the reservoir. Factors such as boating restrictions and the amount of development or enhancement of recreational facilities were analyzed to determine whether these actions would be beneficial, negative, or have no influence on fishing pressure. Those improvements that had the potential to considerably increase angling pressure were identified as negative impacts, while those that limited fishing pressure, such as boating limits, were identified as positive impacts.

Infestation of AIS was assessed by reviewing the proposed resource management actions that would impact numbers of boaters utilizing the reservoir. Factors such as boat launching, trailer parking capacity, and development or enhancement of recreational facilities were analyzed to determine whether these actions would be beneficial, negative, or have no influence on the potential for AIS infestation. Improvements that had the potential to increase the number of boats traveling to and launching in the reservoir were identified as negative impacts, while those which limited boat traffic were identified as positive impacts.

### **Summary of Impacts**

Alternative A would have a slight negative impact on the existing fishery at the Study Area because ongoing resource management conditions are allowing for bank erosion and siltation in some areas. Alternative B should have no negative impacts to the fishery. Alternative C would have a slight negative impact from developing camping and picnicking facilities and associated access roads, trails, and boat ramps. Impacts to fisheries are summarized in Table 4-9.

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

#### ***Change in the Quality or Quantity of Fish Spawning and Recruitment Habitat***

The minimal negative impacts resulting from Alternative A would be related to continued bank erosion and trampling of littoral habitat by vehicle and foot traffic. An anticipated increase in future visitation would also result in the disturbance of surface soils through the creation of informal use areas. Reducing the amount of sediment entering the reservoir and reducing the access to shoreline areas by motor vehicles would help maintain a littoral area that contains substrates and plants important to macroinvertebrates, young sport fish, and prey species.

#### ***Change in the Amount of Angling Pressure***

If Study Area visitation and angling pressure increased under Alternative A, it is likely that the quality of the fishing experience would diminish. If angling pressure were to increase without actions to improve the fishery, it is likely that fish recruitment and survival would decrease for some species.

#### ***Change in the Threat of Aquatic Invasive Species Infestation***

Alternative A would result in continued existing conditions with regard to AIS. If visitation increased in the future, the added boat traffic would increase the likelihood for AIS infestation. Continuing to limit boat capacity and parking would diminish the opportunity for AIS infestation.

**Table 4-9. Summary of Fishery Resources Impacts at Steinaker Reservoir.**

<b>IMPACT INDICATOR</b>	<b>ALTERNATIVE A: NO ACTION</b>	<b>ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS</b>	<b>ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS</b>
Change in the quality and quantity of fish spawning and recruitment habitat	Ongoing negative impacts associated with unfettered shoreline access around Steinaker Reservoir.	Minimal impact associated with designating Natural Areas and creating hiking trails.	Negative impact associated with continued unfettered shoreline access, as well as developing new recreational facilities.
Change in the amount of angling pressure	No change from existing conditions. However, a future increase in visitation would continue to increase fishing pressure.	Slight negative impact with increased walking/hiking access and shoreline access, which would increase fishing pressure.	Negative impact associated with developing new recreational facilities with more boat launching and recreational capacity, as well as increased shoreline fishing access through walking/hiking trails.
Change in the threat of AIS infestation	No change from existing conditions. However, a risk is always present.	Little to no impact without increases or improvements to facilities and boat ramps.	Negative impact associated with developing new recreational facilities and increasing boat launching traffic allowing for greater potential for infestation.

### **Alternative B: Resource Conservation Emphasis**

#### ***Change in the Quality or Quantity of Fish Spawning and Recruitment Habitat***

As under Alternative A, minimal impacts to spawning and recruitment habitat in the Study Area would result from Alternative B. There would also be a slight increase in impacts to riparian vegetation and shoreline substrate from increased shoreline erosion due to increased foot traffic.

#### ***Change in the Amount of Angling Pressure***

An anticipated increase in future visitation would negatively impact the fishery by increasing angling pressure. Higher angler pressure could reduce sport fish catch rates. If angling pressure were to increase, it is possible that fish recruitment and survival would decrease for some species. Changes in the amount of accessible shoreline through trail development would increase angling pressure for the Study Area.

#### ***Change in the Threat of Aquatic Invasive Species Infestation***

As with Alternative A, Alternative B would result in continued existing conditions with regard to AIS. If visitation increases in the future, the added boat traffic would increase the likelihood for AIS infestation. Continuing to limit boat capacity and parking would diminish the opportunity for increased traffic.

### **Alternative C: Recreation Development Emphasis**

#### ***Change in the Quality or Quantity of Fish Spawning and Recruitment Habitat***

Minimal beneficial impacts to spawning and recruitment habitat would result from implementing Alternative C. There would be a slight reduction in impacts to riparian vegetation and shoreline substrate from reduced shoreline erosion. These benefits would result from implementing erosion control measures and designating Natural Areas.

Negative impacts to the fishery would be associated with expanding recreation facilities in the developed recreation areas. These activities would contribute to erosion and siltation of the reservoir's littoral area. Adding an access trail along the Scenic Byway Area would impact the fishery if vegetation clearing and erosion occurred in those areas.

Alternative C would have a slight negative impact from developing new camping and picnicking facilities and associated access roads and trails.

***Change in the Amount of Angling Pressure***

Alternative C would result in a slight negative impact associated with increased angling pressure from the development of new recreation facilities. Angling pressure would increase as more access becomes available. This is especially true in the Scenic Byway Area.

***Change in the Threat of Aquatic Invasive Species Infestation***

Alternative C would result in increased likelihood of an AIS infestation. With increased angling pressure and increased boat traffic, the threat of an AIS being brought into Steinaker Reservoir becomes higher.

**Cumulative Impacts**

Other factors impacting the Study Area fishery include reservoir water level fluctuations and water quality conditions. Under past, present, and reasonably foreseeable conditions, late spring and summer irrigation draw-downs typically occur during the spawning and young-of-the-year rearing periods. At times, such dewatering likely affects the reproductive success of littoral spawning fishes and reduces the aquatic invertebrate food base available to these fishes. Additionally, summer low-water levels are usually associated with depressed dissolved oxygen levels, which at times would result in fish kills. Low dissolved oxygen levels would also lead to anoxic conditions during winter when ice and snow covering the reservoir limit oxygen-producing photosynthetic activity. Water quality is also influenced by upstream land use practices such as grazing, timber management, agriculture, mining, and other factors. Sediment inputs from upstream and nearshore activities can impair littoral habitat and also contribute to reduced water quality.

Assuming fishery management practices continue as they have in the past or improve as a result of developing a Fishery Management Plan (Alternative B or C), and because the reservoir is managed as a put-and-take fishery, there is little threat of losing quality angling opportunities at the Study Area.

With any alternative, the threat of introducing an AIS to the reservoir is possible. Under Alternative C, as facilities are improved or added, visitation is more likely to increase along with the distance traveled to visit. With visitors traveling from other regions, the risk of new AIS invasions would potentially increase.

**Mitigation Measures**

Under Alternative B or C, Reclamation will engage partners, particularly State Parks and UDWR, in developing a Fishery Management Plan. Among other elements, the Fishery Management Plan would include goals to emphasize AIS awareness and preventive measures for

the Study Area. Other mitigation measures to improve water quality and upland habitats that would be implemented with Alternative B or C would also benefit fishery resources.

### **Residual Impacts**

With the previously stated mitigation measures, neither of the RMP action alternatives would have residual impacts to the Study Area fishery.

## **Threatened, Endangered, and other Special Status Species**

### **Issues**

How would the implementation of an RMP affect threatened, endangered, and other special status species and their habitats in the Study Area?

### **Impact Indicators**

The following impact indicators were used to determine if implementation of the RMP would affect threatened, endangered, and other special status species and their habitats within the Study Area:

- change in the quantity and quality of habitat for a given species, and
- change in the level of human-related disturbance.

### **Analysis Methods**

Methods used to assess impact indicators for special status wildlife species are similar to those described in the wildlife section of this chapter. Species potentially occurring in the Study Area are the American white pelican (*Pelecanus erythrorhynchos*), bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), greater sage-grouse, Townsend's big-eared bat (*Corynorhinus townsendii*), and white-tailed prairie dog (*Cynomys leucurus*).

None of the special status fish species discussed in Chapter 3 are known to occur in Steinaker Reservoir. None of the RMP alternatives would be expected to impact special status fish species outside of the reservoir because none of the alternatives would change water rights or facilities operations.

For special status plants (rare plants), RMP alternatives were compared with existing rare plant habitat to provide an estimate of how each alternative would impact appropriate habitat within vegetation communities. Each community within the Study Area with potential to support rare plant habitat was analyzed. Specifically, new trail and trailhead construction and changes in the land use designation were used to describe potential for impacts. Typical disturbances related to the RMP alternative actions would include elimination of vegetation within developed use areas, construction of new trails and trailheads, increased foot traffic and motorized disturbance, and increased potential for noxious weed invasion.

### **Summary of Impacts**

Impacts of RMP alternatives to special status wildlife species are summarized in Table 4-10. Under Alternative A, conditions for special status species would not be expected to change.

**Table 4-10. Summary of Impact Assessments for Special Status Wildlife Species at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the quantity and quality of habitat for special status species	No change from existing conditions and trends.	Minimal impacts to the quantity and quality of habitat related to facility upgrades and improvements.  Enhancement of habitat through designation of Natural Areas and development of a Habitat Management Plan.	Minimal impacts of habitat loss due to facility improvements and new facility developments; site-specific environmental analysis required.  Enhancement of habitat through designation of Natural Areas and development of a Habitat Management Plan.
Change in the level of human-related disturbance for special status species	No change from existing conditions and trends.	Short-term increase in disturbance during improvements to facilities in localized areas.  Long-term decrease in disturbance due to decommissioning of unimproved roads and Natural Area designations.	Some localized increase in disturbance with facility improvement and new facility development; site-specific environmental analysis required.  Long-term decrease in disturbance due to decommissioning of unimproved roads and Natural Area designations.

Alternatives B and C would generally provide benefits to special status species by improving resource management and increasing habitat protection within the Study Area. Alternative C would have less benefit because of its emphasis on recreational development and resulting increases in area disturbed by human activity and fewer acres of Natural Area land use designation. Site-specific assessments would be required for any new recreation facility developments under Alternative C in order to determine actual presence and potential for impacts to special status species.

Five bird species—American white pelican, bald eagle, ferruginous hawk, greater sage-grouse, and burrowing owl—either nest, forage, or are expected to occur within Uintah County, Utah, and potentially the Study Area. Three of the species—bald eagle, ferruginous hawk, and greater sage-grouse—occur throughout the year. The remaining two species, burrowing owl and American white pelican, do not occur during winter.

Two mammal species, Townsend’s big-eared bat and white-tailed prairie dog, either are known to occur or potentially occur in the Study Area.

Impacts to the vegetation communities that have potential to support rare plants are summarized in Table 4-11. The analysis involved comparing changes in the quantity and condition of rare plant habitat, as well as changes in the designated use classification. Alternative A involves no actions that would alter existing conditions and trends for rare plants. Alternative B includes the construction of new trails. Alternative B has potential for improving the overall condition of rare plant habitat but also increasing disturbance through the expansion of trails. Alternative C includes the construction of new trails and changes in the designated use classification of upland

**Table 4-11. Summary of Potential Rare Plant Habitat Impacts at Steinaker Reservoir.**

VEGETATION COMMUNITIES WITH POTENTIAL TO SUPPORT RARE PLANTS	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Pinyon-Juniper Woodland	No change from existing conditions and trends.	416 acres of Natural Area. 0.9 mile of new trails.	410 acres of Natural Area. 0.9 mile of new trails.
Sagebrush Shrubland	No change from existing conditions and trends.	127 acres of Natural Area. 0.2 mile of new trails.	112 acres of Natural Area. 0.2 mile of new trails.
Riparian	No change from existing conditions and trends.	19.5 acres of Natural Area. 0.9 mile of new trails.	8.8 acres of Natural Area. 0.9 mile of new trails.

vegetation communities. Alternative C has the potential to slightly increase the level of disturbance to overall rare plant habitat.

**Alternative A: No Action**

Additional recreational development would not occur under Alternative A. In addition, land use category changes, erosion control measures, and habitat management planning would not be pursued under Alternative A. Because these actions would not occur under Alternative A, there would be no change in habitat quantity and quality, or disturbance levels for special status species, compared with existing conditions and trends.

**Alternative B: Resource Conservation Emphasis**

***Change in the Quantity and Quality of Habitat for a Given Species***

Under Alternative B, special status species would generally benefit from reduced disturbance in areas designated as Natural Areas (775.6 acres, or 41.3% of the total Study Area acreage). Special status species also would likely benefit from the following management actions: maintaining the current carrying capacity of no more than 60 boats on the reservoir at any given time, revegetation of disturbed areas, and restricting motorized access in Natural Areas.

***Change in the Level of Human-Related Disturbance***

Under Alternative B, special status species in the Study Area would generally benefit from reduced amounts of human-related disturbance in areas that provide suitable habitat. Short-term disturbance to special status species would likely occur during the improvement of existing recreational facilities (e.g., sanitary facilities, utility upgrades) and implementation of erosion control measures and habitat improvements. Short-term impacts would include greater stress to the inhabitants and temporary displacement of wildlife to adjacent habitats. However, impacts would be minimal because of the limited amount of proposed development and availability of similar habitat in the surrounding area. No long-term impacts are anticipated on any of the listed species.

The American white pelican would benefit from Alternative B. Although the designation of Natural Areas is most likely to benefit terrestrial species, Alternative B also would provide the opportunity to develop a Fisheries Management Plan that would include addressing habitat needs for aquatic species.

For the bald eagle, specific benefits or impacts under Alternative B are likely directly related to Study Area visitation levels and, just as importantly, the presence of super-canopy roost trees, such as eastern cottonwood (*Populus deltoides*), narrowleaf cottonwood (*Populus angustifolia*), and Fremont cottonwood (*Populus fremontii*). During winter, the bald eagle has less specific foraging habitat requirements than it does during the breeding season (Buehler 2000). Under Alternative B, creation of Natural Areas would reduce the likelihood of harassment or disturbance by visitors, but the benefits would be minimal, at least during winter, when there are fewer visitors and associated disturbances.

The ferruginous hawk, should it occur on the Study Area, is likely to benefit from management actions under Alternative B, primarily from designation of Natural Areas. Study Area habitat types known to be used by the ferruginous hawk and designated as Natural Areas would provide benefits to this species. In particular, the Bedrock Canyon and Tableland habitat type potentially provides nest sites for this species, which are typically located on slightly elevated terrain, such as rocky outcroppings (Bechard and Schmutz 1995).

Currently the UDWR has not delineated habitat for the greater sage-grouse within the Study Area, suggesting that suitable habitat does not exist there. If it does occur, the greater sage-grouse would likely benefit from habitat improvements and potential decreases in human disturbance expected to occur under Alternative B. Protecting sensitive areas from recreation has been identified as an important management action for protecting and enhancing greater sage-grouse populations (Stiver et al. 2006).

If it does occur within the Study Area, the white-tailed prairie dog would benefit from the designation of Natural Areas under Alternative B. The degree to which it would benefit depends on where it occurs in the Study Area; this species is known to use montane meadows and semidesert grasslands (Kays and Wilson 2009). In the Study Area, it would occur in one of four habitat types: Pinyon-Juniper Shrubland, Sagebrush Shrubland, Mixed Salt Desert Scrub, or Greasewood Flat.

Potential benefits of Alternative B for the white-tailed prairie dog would similarly benefit the burrowing owl, because throughout much of its range the burrowing owl uses prairie dog burrows as both nest and roost sites (Poulin et al. 2011).

If it occurs within the Study Area, the Townsend's big-eared bat is likely to benefit from management actions under Alternative B, primarily from the designation of Natural Areas. In Utah, this species is known to occur in Pinyon-Juniper Shrublands (Adams 2003; Kays and Wilson 2009), which composes 602 of the 1,880 total acres (32.0%) in the Study Area. Because of this, the Townsend's big-eared bat would potentially benefit from the creation of Natural Area.

Alternative B includes the construction of approximately 2.8 miles of new nonmotorized trails. Pinyon-Juniper, Sagebrush Shrubland, and Riparian communities would have a slight increase in overall disturbance. However, 776 acres would be designated as Natural Area and would be managed under a Habitat Management Plan to be developed as an RMP objective of Alternative B. This designation and associated planning would generally benefit rare plant species.

### **Alternative C: Recreation Development Emphasis**

#### ***Change in the Quantity and Quality of Habitat for a Given Species***

Under Alternative C, special status species would generally benefit from designation of Natural Areas and maintaining the current carrying capacity of 70 boats on the reservoir at any given time. However, because Alternative C increases the amount of land devoted to developed recreation uses, there would be potential for localized short-term and long-term impacts to those same species, as detailed below.

#### ***Change in the Level of Human-Related Disturbance***

Four of the five special status bird species—bald eagle, American white pelican, ferruginous hawk, and burrowing owl—have potential to be affected by actions proposed under Alternative C. Short- and long-term disturbance impacts for any of these special status species under Alternative C would be similar to the impacts previously described for general wildlife. Short-term disturbance would occur during the development of new recreation facilities. These impacts would be minimal because of the limited duration of the activities and availability of similar habitat in the surrounding area. Longer-term disturbance would occur in areas where recreational use would increase in association with the new facilities. Impacts would include stress, reduced reproductive success, and displacement.

There are no expected detrimental impacts on the greater sage-grouse because the UDWR has not delineated habitat for this species within the Study Area, suggesting that suitable habitat does not currently exist there.

If it occurs within the Study Area, the Townsend's big-eared bat is likely to benefit from designation of Natural Area under Alternative C. In Utah, the Townsend's big-eared bat is known to occur in Pinyon-Juniper Shrublands (Adams 2003; Kays and Wilson 2009), which composes 602 of the 1,880 total acres (32.0%) in the Study Area, some of which would be reclassified as Natural Area under Alternative C.

Because actual occurrence of any of the special status species is not known, surveys for species and assessment of potential impacts should be completed prior to implementation of site-specific designs.

Alternative C includes the reclassification of 325 acres of Undeveloped Day Use Recreation Area to Natural Area and reclassification of 26 acres of Undeveloped Day Use Recreation Area to Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. Alternative C also includes the construction of approximately 2.8 miles of new nonmotorized trails and two OHV trailheads. Pinyon-Juniper, Sagebrush Shrubland, and Riparian communities would have an overall increase in disturbance. Due to the potential for more intense disturbances within the developed use areas, Alternative C has the potential for

slightly decreasing the overall level of disturbance to the upland vegetation community that has potential to support rare plants.

### **Cumulative Impacts**

Cumulative impacts to special status wildlife species would be the same as those described in the Wildlife section of this chapter. For rare plants, public use and the continued threat of noxious weed invasion are the most likely cumulative impacts expected as a result of past, present and reasonably foreseeable future impacts. Riparian areas are especially vulnerable to weed invasion. Alternative C would slightly increase the level of cumulative impacts on rare plant habitat.

### **Mitigation Measures**

Mitigation measures for special status species are inclusive of those previously described for vegetation, wildlife, and fisheries. Surveys for special status species (wildlife and rare plants) would be completed as a component of site-specific environmental analysis prior to implementing any recreation facility developments.

### **Residual Impacts**

With the previously stated mitigation measures and pending site-specific environmental assessments, the RMP action alternatives would not have significant residual impacts on any special status species occurring in the Study Area.

## **Cultural Resources**

### **Issue**

How would implementation of an RMP affect the physical integrity of cultural resources within the Study Area?

### **Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect the cultural resources within the Study Area:

- change in the integrity of cultural resource sites.

### **Analysis Methods**

A Class I cultural resource literature search was conducted by Reclamation's archeologist to identify any previously conducted cultural resource inventories and recorded cultural resource sites within the Study Area. Files at Reclamation and General Land Office maps were also examined. Previously determined site integrity information ascertained from the literature search was used as a basis to address the impact indicator for each RMP alternative.

### **Summary of Impacts**

Each alternative has the potential to impact to a varying degree the integrity of cultural resource sites within the Study Area. As proposed development increases within an alternative, so does the potential for impacts to the integrity of cultural resources. A summary of the projected impacts to cultural resources as a result of each alternative are shown in Table 4-12.

**Table 4-12. Summary of Cultural Resources Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the integrity of cultural resource sites	Potential impacts to integrity of surficial and subsurface cultural resources unchanged.	Potential slight increased impact to the integrity of surficial and subsurface cultural resources.	Increased potential to impact the integrity of surficial and subsurface cultural resources caused by increased development.

**Alternative A: No Action**

Under Alternative A, there is a potential for impacts to the integrity of cultural resources. This alternative maintains existing recreation development areas but allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. This alternative also involves managing a large portion of the Study Area as an Undeveloped Day Use Recreation Area. This potentially increases public access into these areas. Increased public access has the potential to increase the unauthorized collection or excavation of cultural resources, thus impacting site integrity. Alternative A potentially involves the replacement or repair of existing facilities, which in some cases represent cultural resources themselves. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of implementing management practices under Alternative A. This type of activity has the potential to impact the integrity of both surficial and subsurface cultural resources.

**Alternative B: Resource Conservation Emphasis**

Under Alternative B, a large portion of the Study Area would be designated as Natural Areas; however, there is still a potential for impacts to the integrity of cultural resources. The land use proposed under this alternative is similar to that of Alternative A, with lands devoted to developed recreation remaining unchanged. Alternative B still allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. This alternative would also continue the management of a portion of the Study Area as an Undeveloped Day Use Recreation Area. This designation potentially increases public access into these areas. Increased public access has the potential to increase the unauthorized collection or excavation of cultural resources, thus impacting site integrity. As with Alternative A, Alternative B potentially involves the replacement or repair of existing facilities, which in some cases represent cultural resources themselves. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of implementing management practices under Alternative B. This type of activity has the potential to impact the integrity of both surficial and subsurface cultural resources.

**Alternative C: Recreation Development Emphasis**

Under Alternative C, there is an increased potential for impacts to the integrity of cultural resources. Alternative C still allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. Additionally, Alternative C includes the development of additional boating, camping, picnicking, and parking facilities as well as associated access roads. This alternative also includes potential development of group recreation sites, rental cabins/yurts, hiking trails, shoreline access, and an accessible

fishing dock. Development increases the potential to impact the integrity of both surficial and subsurface cultural resources.

Alternative C also involves expanding developed portions of the Study Area, including Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. These designations potentially increase public access into these areas. Increased public access has the potential to increase the unauthorized collection or excavation of cultural resources, thus impacting site integrity. As with Alternatives A and B, Alternative C potentially involves the replacement or repair of existing facilities, which in some cases represent cultural resources themselves. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of implementing management practices under Alternative C. This type of activity has the potential to impact the integrity of both surficial and subsurface cultural resources.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable cumulative impacts to cultural resources would be likely to occur under any of the three RMP alternatives. Fluctuations in reservoir levels (wave action) as well as sedimentation would continue to impact cultural resources located at Steinkaker Reservoir. Upgrades to existing facilities, which in some cases represent cultural resources themselves, are another form of potential cumulative impact. Other potential cumulative impacts, such as unauthorized collection or excavation of cultural resources and erosion, would potentially result from development and increased public use within the Study Area.

### **Mitigation Measures**

Reclamation will ensure the completion of cultural resource compliance for all site-specific undertakings as a means to fulfill Section 106 of the National Historic Preservation Act, as well as to avoid, reduce, or mitigate impacts to the integrity of cultural resources. Avoidance is the preferred method of cultural resource mitigation. If historic properties are located within the area of potential effects associated with a specific undertaking, and if they would be impacted by activities associated with the undertaking, a Memorandum of Agreement (MOA) would be developed. The MOA would be among Reclamation, the Utah State Historic Preservation Office, the Advisory Council on Historic Preservation (if it chooses to participate), and any other party that assumes responsibility under the agreement. The MOA would include the terms and conditions agreed upon to resolve (mitigate) the impacts of the undertaking upon historic properties.

### **Residual Impacts**

Cultural resources are, by definition, nonrenewable resources. If alternative impacts to cultural resources remain unmitigated, the integrity of the resource is likely to be lost. In turn, information and data associated with the resource also becomes unavailable. With implementation of the above-stated mitigation measures, selection of an action alternative would not cause significant impacts to cultural resources.

## Paleontological Resources

### Issue

How would implementation of an RMP affect paleontological resources within the Study Area?

### Impact Indicators

The following impact indicator was used to determine if implementation of the RMP would affect the paleontological resources within the Study Area:

- change in the condition of paleontological resource localities.

### Analysis Methods

A paleontological resource file search was conducted by the Utah Geological Survey, at the request of Reclamation, to identify any previously conducted paleontological resource surveys and recorded paleontological resource localities within the Study Area. Files at Reclamation were also examined. Previously determined locality condition information ascertained from the file search was used as a basis to address the impact indicator for each RMP alternative.

### Summary of Impacts

Each alternative has the potential to impact to a varying degree the condition of paleontological resource localities within the Study Area. As proposed development increases within an alternative, so does the potential for impacts to the condition of paleontological resource localities. A summary of the projected impacts to paleontological resources as a result of each alternative are shown in Table 4-13.

**Table 4-13. Summary of Paleontological Resources Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the condition of paleontological resource localities	Potential impacts to condition of surficial and subsurface paleontological resources.	Potential impacts to condition of surficial and subsurface paleontological resources.	Increased potential to impact the condition of surficial and subsurface paleontological resources caused by increased development.

### Alternative A: No Action

Under the Alternative A, there is a potential for impacts to the condition of paleontological resources. This alternative maintains existing recreation development areas but allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. This alternative also continues management of a large portion of the Study Area as Undeveloped Day Use Recreation Area. This designation potentially increases public access into these areas, which has the potential to increase the unauthorized collection or excavation of paleontological resources, thus impacting locality condition. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of implementing management practices under Alternative A. This type

of activity has the potential to impact the condition of both surficial and subsurface paleontological resources.

### **Alternative B: Resource Conservation Emphasis**

Under Alternative B, a large portion of the Study Area would be designated as Natural Area, which would limit public access to these areas. However, there is still a potential for impacts to the condition of paleontological resources. Other land uses proposed under this alternative are similar to Alternative A, with lands devoted to developed recreation remaining unchanged. Alternative B still allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. This alternative also involves continuing management of a portion of the Study Area as an Undeveloped Day Use Recreation Area. This designation potentially increases public access into these areas. Increased public access has the potential to increase the unauthorized collection or excavation of paleontological resources, thus impacting locality condition. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of implementing management practices under Alternative B. This type of activity has the potential to impact the condition of both surficial and subsurface paleontological resources.

### **Alternative C: Recreation Development Emphasis**

Under Alternative C, there is an increased potential for impacts to the condition of paleontological resources. Alternative C still allows for facility upgrades, site redesign, and the installation, maintenance, or upgrading of boundary fencing, gates, and cattle guards. Additionally, Alternative C includes the development of additional boating, camping, picnicking, and parking facilities, as well as associated access roads. This alternative also includes expanding group recreation sites, rental cabins/yurts, hiking trails, shoreline access, and an accessible fishing dock. Development increases the potential to impact the condition of both surficial and subsurface paleontological resources.

Alternative C also involves expanding developed portions of the Study Area including Developed Day Use, Developed Overnight, and Developed Day Use and Overnight Group Recreation Areas. Many of these designations potentially increase public access into these areas. Increased public access has the potential to increase the unauthorized collection or excavation of paleontological resources, thus impacting locality condition. In addition, there would likely be other ground-disturbing activities, such as erosion control, revegetation, and road maintenance, as a result of practices under Alternative C. This type of activity has the potential to impact the condition of both surficial and subsurface paleontological resources.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable cumulative impacts to paleontological resources would likely occur under any of the three RMP alternatives. Fluctuations in reservoir levels (wave action) as well as sedimentation would continue to impact paleontological resources located at Steinaker Reservoir. Other potential cumulative impacts, such as unauthorized collection or excavation of paleontological resources and degradation, would potentially result from development and increased public use within the Study Area.

### **Mitigation Measures**

Reclamation will ensure the completion of paleontological resource compliance for all site-specific projects as a means to fulfill Section 6302 of the Paleontological Resources Preservation Act, as well as to avoid, reduce, or mitigate impacts to the condition of paleontological resources. Avoidance is the preferred method of paleontological resource mitigation. If avoidance of paleontological resources is not possible, a mitigation plan would be developed. The mitigation plan would include the terms and conditions agreed upon to resolve (mitigate) the impacts to paleontological resources.

### **Residual Impacts**

Paleontological resources are, by definition, nonrenewable resources. If alternative impacts to paleontological resources remain unmitigated, the resource is likely to be destroyed. In turn, information and data associated with the resource also becomes unavailable. With implementation of the above-stated mitigation measures, selection of an action alternative would not cause significant impacts to paleontological resources.

## **Indian Trust Assets**

### **Issue**

How would implementation of an RMP affect Indian Trust Assets (ITAs) within the Study Area?

### **Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect the ITAs within the Study Area:

- change in the use and quality of ITAs.

### **Analysis Methods**

Reclamation contacted the Bureau of Indian Affairs (BIA) Uintah and Ouray Agency in Fort Duchesne, Utah, to identify any potential impacts to ITAs within the Study Area. According to the BIA, the only known ITA involves a water right in the Green River held in trust for the Ute Indian Tribe of the Uintah and Ouray Reservation. This ITA information was used as a basis to address the impact indicator for each RMP alternative.

### **Summary of Impacts**

The water right in the Green River held in trust for the Ute Indian Tribe of the Uintah and Ouray Reservation would not be impacted by any RMP alternative. A summary of the projected impacts to ITAs as a result of each alternative are shown in Table 4-14.

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

Under Alternative A, there is no projected impact to ITAs.

### **Alternative B: Resource Conservation Emphasis**

Under Alternative B, there is no projected impact to ITAs.

**Table 4-14. Summary of Indian Trust Assets (ITAs) Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the use and quality of Indian Trust Assets (ITAs)	No projected impact to ITAs.	No projected impact to ITAs.	No projected impact to ITAs.

**Alternative C: Recreation Development Emphasis**

Under Alternative C, there is no projected impact to ITAs.

**Cumulative Impacts**

There are no projected cumulative impacts to ITAs following implementation of any of the RMP alternatives.

**Mitigation Measures**

Reclamation will ensure the completion of ITA compliance for all site-specific projects as a means to fulfill both U.S. Department of the Interior (512 DM 2) and Reclamation policies regarding ITAs, as well as to avoid, reduce, or mitigate impacts to ITAs. Avoidance is the preferred method of ITA mitigation. If avoidance of ITAs is not possible, a mitigation plan would be developed. The mitigation plan would include the terms and conditions agreed upon to resolve (mitigate) the impacts to ITAs.

**Residual Impacts**

There are no projected residual impacts to ITAs following implementation of any of the RMP alternatives.

**Land Management**

**Energy, Minerals, and other Extractive Resources**

This section evaluates RMP alternatives for potential impacts on the energy, minerals, and other extractive resources within the Study Area.

**Issue**

How would implementation of an RMP affect the exploration and development of energy, minerals, and other extractive resources within the Study Area?

**Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect energy, minerals, and other extractive resources within the Study Area:

- change in the development of locatable, saleable, or leasable mineral resources.

**Analysis Methods**

The impact indicator noted above was used to determine impacts to locatable, saleable, and leasable mineral resources. Impacts to these mineral resources are discussed qualitatively below.

**Summary of Impacts**

Impacts to locatable mineral resources (e.g., gold and silver) would not occur because these types of mineral resources do not occur within the Study Area. Limited quantities of saleable mineral resources (e.g., sand, gravel, and cobbles) do exist in the Honda Hills Area. The potential for leasable mineral resources does exist within the Study Area. Leasable mineral resources are located in the vicinity of the Study Area, but they have not been documented within the Study Area. Under Alternative C, the exploration and development of these resources would be impacted by the development of proposed Developed Day Use Recreation Area. Table 4-15 summarizes the impacts to the development of mineral resources.

**Table 4-15. Summary of Energy, Minerals, and Other Extractive Resources Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the development of locatable, saleable, or leasable mineral resources	No projected impacts to energy, minerals, and other extractive resources.	No projected impacts to energy, minerals, and other extractive resources.	Possible impacts to the development of saleable mineral resources in the Honda Hills portion of the Study Area.

**Alternative A: No Action**

Under Alternative A, there would be no change in the management of the exploration and development of locatable mineral resources because these resources do not occur in the Study Area. Saleable minerals have been documented in the Honda Hills Area. Leasable minerals have been documented in the vicinity of the Study Area, but they have not been documented within the Study Area. Impacts to the exploration or development of saleable or leasable mineral resources within the Study Area would not occur because there would be no change in management of these resources under Alternative A.

**Alternative B: Resource Conservation Emphasis**

Impacts to mineral resources under Alternative B would be the same as those described for Alternative A.

**Alternative C: Recreation Development Emphasis**

Under Alternative C, impacts to locatable or leasable mineral resources would be the same as those described for Alternative A. Development of saleable mineral resources in the Honda Hills Area would be impacted through the development of a proposed Developed Day Use Recreation Area in this portion of the Study Area. However, there are no known plans for development of saleable mineral resources within the Study Area.

### **Cumulative Impacts**

Implementation of an RMP would not result in any cumulative impacts to the exploration and development of locatable or leasable mineral resources in the Study Area. Cumulative impacts to the development of saleable mineral resources in the Honda Hills Area include limiting access to the resource due to the development of a proposed Developed Day Use Recreation Area.

### **Mitigation Measures**

No mitigation measures for locatable or leasable mineral resources are necessary as there are no impacts to the exploration and development of the resources in the Study Area. Potential mitigation measures for saleable mineral resources would include designing and developing the proposed Developed Day Use Recreation Area near Honda Hills such that the saleable mineral resources continue to be accessible.

### **Residual Impacts**

Implementation of any RMP alternative would result in no residual impacts to the exploration and development of mineral resources in the Study Area.

## **Wastewater, Solid Waste, and Hazardous Materials**

This section evaluates RMP alternatives for the potential of wastewater, solid waste, and hazardous materials to contaminate soil, groundwater, and surface water in the Study Area.

### **Issue**

How would implementation of an RMP affect the likelihood of contamination of soil, groundwater, and surface water by wastewater, solid waste, and hazardous materials?

### **Impact Indicators**

The following impact indicator was used to determine if implementation of the RMP would affect the likelihood of contamination of soil, groundwater, and surface water by wastewater, solid waste, and hazardous materials within the Study Area:

- change in the amount of sanitation facilities.

### **Analysis Methods**

Existing and proposed recreational facility plans were used to determine the variation in the amount of restroom facilities and refuse control proposed for each RMP alternative. Potential impacts to soil, groundwater, and surface water are discussed qualitatively.

### **Summary of Impacts**

Under Alternative A sanitation facilities would potentially be redesigned or rehabilitated, but otherwise would not change. Alternative B would be the same as Alternative A. Under Alternative C, the existing Developed Day Use, Developed Overnight, and Developed Overnight and Day Use Group Recreation Areas would be expanded. This would likely include the expansion of the existing septic systems and the addition of a small number of vault toilets. Additionally, the same vault toilet addition, as described for Alternative B, would be added to the existing northern trailhead. The additional vault toilets would not pose a risk for groundwater,

soil, or surface water contamination because the restrooms would be self-contained and pumped regularly. The possible expansion of septic systems under Alternative C has the potential to slightly increase nitrogen loads to Steinaker Reservoir via groundwater transport (Table 4-16).

**Table 4-16. Summary of Wastewater, Solid Waste, and Hazardous Materials Impacts at Steinaker Reservoir.**

IMPACT INDICATOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE CONSERVATION EMPHASIS	ALTERNATIVE C: RECREATION DEVELOPMENT EMPHASIS
Change in the amount of sanitation facilities	No change from existing conditions.	Additional use of existing septic systems with the addition of a long-term camping area.	Increase in the number of vault toilets and possible expansion of existing septic systems.

**Alternative A: No Action**

Under Alternative A, restroom facilities and refuse controls would not change. Currently, the Study Area has flush toilets at the Developed Overnight Recreation Area and vault toilets at the Developed Day Use and Developed Overnight and Day Use Group Recreation Areas. The waste from these restrooms is either discharged to septic tanks and absorption fields or pumped regularly. Therefore, these restrooms do not pose a risk to groundwater, soil, or surface water quality. All solid waste is currently transported out of the Study Area for disposal in a local landfill.

**Alternative B: Resource Conservation Emphasis**

Under Alternative B, restroom facilities and refuse controls would be the same as under Alternative A. Development of 6–10 long-term camping sites would add incrementally to the use of existing septic systems in the State Park Management Area.

**Alternative C: Recreation Development Emphasis**

Under Alternative C, the existing Developed Day Use, Developed Overnight, and Developed Overnight and Day Use Group Recreation Areas would be expanded and a long-term camping area would be added. These developments would likely include the expansion of the existing septic systems and the addition of a small number of vault toilets. The possible expansion of septic systems under this alternative has the potential to slightly increase nitrogen loads to Steinaker Reservoir via groundwater transport. An increase in the number of vault restrooms does not pose a risk for groundwater, soil, or surface water contamination because the restrooms would be self-contained and pumped regularly. An increase in the number of visitors would necessitate additional refuse collection in the Study Area. The vault toilet that would be provided at the existing northern trailhead would reduce the risk of groundwater, soil, or surface water contamination by human waste in this area.

**Cumulative Impacts**

Implementing an RMP and ongoing use of flush restroom facilities would continue to result in the cumulative change to the groundwater, soil, or surface water quality in the Study Area. As a result of campground and associated recreation facility construction, the risk of groundwater,

soil, or surface water quality degradation would increase. Cumulative impacts would include this potential impact, combined with the change to the groundwater, soil, or surface water quality in the past.

### **Mitigation Measures**

Under Alternative A or B, no mitigation measures are necessary for wastewater, solid waste, or hazardous materials, as there are no anticipated impacts. Under Alternative C and pending site specific environmental analysis and design, local and state regulations concerning septic tank renovations would be followed during the possible expansion of the existing septic systems in the Developed Overnight Recreation Area. Additionally, providing adequate refuse collection frequency at all refuse collection locations in the Study Area will help reduce the potential for accumulated trash to create groundwater, soil, or surface water contamination.

### **Residual Impacts**

With implementation of the above-stated mitigation measures, none of the RMP alternatives would result in significant impacts to Study Area resources related to waste water, solid waste, and hazardous materials.