

Chapter 3K. Environmental Setting, Impacts, and Mitigation Measures - Cultural Resources

This chapter addresses potential impacts of the alternatives on cultural resources in Mono Basin and Upper Owens River basin. Impacts are generally in the realm of potential disturbance to cultural resource sites from channel erosion, recreational activity, and restoration activities along the diverted streams and Owens River. Few effects would result from establishing higher or lower lake levels because no sites are expected to be present on the relicted lands.

As described below, some diminishment in the use of the lake's food resources by Native Americans may have occurred during the diversion period, but choice of an alternative would little affect future resource utilization as long as resources of Native American importance are avoided during restoration activities.

SOURCES OF INFORMATION

Background Research

A record search was conducted at the Eastern Information Center of the California Archaeological Inventory, University of California, Riverside, to determine the types and locations of known cultural resources within the areas of concern. Primary and secondary archeological, ethnographic, and historical sources were consulted for information pertaining to the areas of concern, including:

- # the National Register of Historic Places,
- # California Historical Landmarks, and
- # California Inventory of Historical Resources.

Literature considered in this process is cited in the following discussions. Information on the Mono Lake Paiute is presented by Davis (1959, 1961, 1965, 1962, 1963, 1964), Curtis (1926), Kroeber (1925), and Merriam (1955, 1966:Part 1). Primary accounts of the Owens Valley Paiute are contained in Steward (1929, 1933, 1934, 1936, 1938a, 1938b). Additional information can be found in Davis (1961), Driver (1937), Kroeber (1925, 1939, 1959), and Merriam (1955).

Contacts with Knowledgeable Individuals

Several individuals possessing knowledge about the areas of concern were contacted by SWRCB consultants for information about cultural resources within the areas of concern. These individuals include Scott Stine, who has extensive geological field experience in Mono Basin; Wally Woolfenden, USFS district archeologist currently working in the area; and Nancy Upham, former coordinator for the USFS Mono Basin Scenic Area. Interviews with Native Americans on file with the Mono Lake Committee were also reviewed for pertinent information.

Field Methods

Based on site types and locational information obtained from the record search, several sites were selected for field visits by SWRCB consultants. Sites were selected based on their location, type, potential for impact, and accessibility. During the limited field reconnaissance, 15 previously recorded sites were revisited. This reconnaissance was designed to:

- # ascertain what types of resources have been recorded in the different physiographic regions within the area,
- # generally assess the accuracy of existing resource data,
- # evaluate the general condition of selected recorded resources,
- # determine the potential for impacts on cultural resources from the project alternatives, and
- # assess sensitivity for unknown resources within unsurveyed portions of the areas of concern.

LAWS, REGULATIONS, AND TERMINOLOGY

Applicable Laws and Regulations

Applicable laws and regulations for dealing with historical properties are outlined in Appendix K of CEQA. An impact is considered significant if a project may cause damage to an important cultural resource. A cultural resource is considered important if it:

- # is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory;
- # can provide information that is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archeological research questions;
- # has a special or particular quality such as oldest, best example, largest, or last surviving example;
- # is at least 100 years old and possesses substantial stratigraphic integrity; or
- # involves important research questions that historical research has shown can be answered only with archeological methods.

Under CEQA, public agencies should seek to avoid or mitigate impacts on significant cultural resources.

Also applicable are Section 7052 of the Health and Safety Code and Section 5097 of the Public Resources Code, which provide for the protection of Native American remains and identify special procedures to be followed when Native American burials are found. When remains are found, the Native American Heritage Commission (NAHC) and the county coroner must be notified. The NAHC provides guidance concerning the most likely Native American descendant and treatment of human remains and associated artifacts.

Definition of Key Terms

Cultural resources is a term used here to include prehistorical, historical, and architectural resources. Archeological sites are locations where past activities occurred and are marked by surface and subsurface cultural remains. Historical archeological sites date from the advent of written records. Historical sites in California generally date from the late 1700s to the first part of the 20th century and are primarily the result of Euroamerican activities. In California, prehistorical sites date from several thousand

years ago to the late 1700s and are the result of Native American activities. Ethnohistorical sites date from the period of contact between the Native Americans and Euroamericans and usually date from the late 1700s to the late 1900s or early 20th century.

Architectural properties are defined as standing structures or buildings. In the areas of concern, most standing structures are the result of Euroamerican occupation of the area, but some historical aboriginal wickiups (historical winter houses) may also be present.

PREDIVERSION CONDITIONS

Overview

During prehistorical times, streams and springs in Mono Basin provided an ample supply of fresh water; riparian corridors, meadows, and marshes contained diverse species of vegetal foods; and game and fowl were plentiful. Sources of obsidian, an important resource for hunting, could be found at Mono Craters and in the Bodie area. At certain times of the year, the shores of Mono Lake produced abundant accumulations of alkali fly larvae (*Ephydra hians*), rich in protein and prized by the native people. Together, these factors made Mono Basin an attractive location for Native American settlement and use.

The Owens River basin, like Mono Basin, supported a wide range of flora and fauna that could be exploited by Native Americans. Stands of Jeffrey pine provided nuts and Pandora moth larvae (*Coloradia pandora lindseyi*), both important food sources. Wetlands and marsh areas contributed vegetal resources and supported many important species of game and fowl, and the Owens River contained four species of native fish. Obsidian could be found less than 10 miles away from the Upper Owens River at Mono Glass Mountain and Casa Diablo obsidian quarries.

During the latter half of the 19th century, Native American use of Mono Basin was largely replaced by ranching, agriculture, mining, logging and milling, and homesteading. By the turn of the century, Native American lifeways had largely been supplanted by Euroamerican culture.

During the 1930s, LADWP constructed the water export system on Mono Basin, possibly disturbing archeological sites or inundating them at Grant Lake and Lake Crowley reservoirs as the diversions began in 1940.

Because of its lack of mineral resources and remote location, the Upper Owens River area experienced less intensive Euroamerican settlement than did Mono Basin. As a result, traditional Native American activities, such as pine nut harvesting and Pandora moth larvae collection, persisted well into the 20th century. As prime land to the north and south was appropriated, the Upper Owens River area became more attractive and several ranches were established.

Ethnographic Background

Native American Groups

Before Euroamerican settlement, the Mono Lake Paiute occupied the Mono Basin area, and the Owens River Paiute lived primarily in the Lower Owens River area. To the west of the areas of concern lived the central and southern Sierra Miwok and the Sierra Monache. Both the Owens Valley Paiute and the Mono Lake Paiute are classed as subgroups of the larger linguistic family of Numic-speaking Northern Paiute. The boundary between the two groups has traditionally been drawn near the headwaters of the Owens River, although territorial margins for the Northern Paiute were quite fluid (Hall 1983). The lands between the Owens Valley Paiute and Mono Lake Paiute have been considered a shared-use area (Liljeblad and Fowler 1986). Inter-marriage was common among the different Paiute groups and between the Paiute and other groups living nearby.

Paiute Lifestyles

Although the Owens Valley and Mono Lake Paiute shared linguistic similarities, Bettinger (1982a, 1982b, as cited in Hall 1983) has outlined differences between their adaptive strategies, settlement patterns, and organizational structure. The Mono Lake Paiute practiced what has been termed a "desert culture strategy", which depended on flexibility of movement for most of the season, with groups congregating only during winter. The family is the primary settlement unit associated with this type of economic strategy.

The Owens Valley Paiute differed from the Mono Lake Paiute in that they practiced a desert village strategy, with several extended families occupying villages year round. These villages operated as bases from which subsistence activities were undertaken. Small special-use camps were often set up at the location of hunting and gathering activities (Bettinger 1982a, 1982b, as cited in Hall 1983). In addition, large plots of land on the floor of Owens Valley were irrigated and two wild crops, hyacinth corns and yellow nut-grass, were cultivated (Hall 1983, Steward 1933).

During spring and early summer, the Mono Lake Paiute lived along streams draining the Sierra Nevada. There they gathered seeds, berries, bulbs, and grasses, and hunted for game. The Mono Lake and Owens Valley Paiute hunted antelope, as indicated by the remains of extensive game-drive fences in Mono Basin and to the south (Steward 1933).

When summer came, their attention turned to the collection of insects. Alkali fly larvae dislodged by wind-driven waves frequently formed extensive windrows around portions of the shore of Mono Lake (see Chapter 3E, "Aquatic Productivity"), providing a rich source of protein to the Mono Lake Paiute. These insect resources were so important to the Mono Lake Paiute that they called themselves Kuzedika, or "fly larvae eaters".

Another major food source for both groups was Pandora moth larvae, which were available every other summer and collected from stands of Jeffrey pine (Davis 1965, Fletcher 1987, Liljeblad and Fowler 1986, Steward 1933, Weaver and Basgall 1986). In midsummer, both groups traveled from their core occupation areas to an area they shared in Long Valley to collect the moth larvae. Both groups also had access to fishing, seeds, and game present in the Upper Owens River area. In fall, both groups collected pine nuts.

External Relationships

Both the Mono Lake and Owens Valley Paiutes had extensive interaction with other ethnographic groups. Specifically, the Monache, Sierra Miwok, Washo, and Tubutulabal often ventured into the area on trading expeditions or for social gatherings (d'Azevedo 1986, Fletcher 1987, Hall 1983, Spier 1978). Travel was also an integral part of Paiute life. They ventured frequently over the crest of the Sierra to trade for acorns, manzanita berries, shell beads, bear skins, arrows, baskets, and black and yellow paints. In return, they brought pine nuts, dried caterpillars, kutsavi (brine fly larvae), salt, obsidian, pumice, rabbit-skin blankets, and sinew-backed bows (d'Azevedo 1986, Fletcher 1987, Spier 1978). So friendly were these trade relations that when the pine nut crop on the eastern side of the Sierra was poor, the Mono Lake Paiute wintered with the Sierra Miwok in Yosemite Valley (Davis 1965, Steward 1933).

The main route over the Sierra for the Mono Lake Paiute was the Mono Trail. This trail led from the east up Bloody Canyon, over Mono Pass, and along the Dana Fork of the Tuolumne River to Tuolumne Meadows. From there, it forked to the north and south (Davis 1965, Fletcher 1987). Another frequently used trail was the Parker Pass trail just south of Mono Pass. To the south, the Mammoth Pass was used to reach the San Joaquin drainage and the western slope of the Sierra (Davis 1965).

Although many trade items were carried back and forth over these trails, none were as important to the region's economic and social structure as obsidian. Several obsidian sources are located near Mono Lake and within Owens Valley, and recent archeological research has focused on questions concerning the control of these sources and the possible relationship between the control of obsidian sources and different subsistence strategies practiced by the Owens Valley and Mono Lake Paiute and groups to the west.

Effects of Contact

When Euroamerican settlers began entering Mono Basin, the Mono Lake Paiute tried to avoid them, abandoning the west and north shores of the lake. Eventually, the settlers became too numerous and resources too scarce for the Paiute to isolate themselves, and they were forced to become participants in the local Euroamerican economy. During the late 1800s and early 1900 the Mono Lake Paiute traded goods with the settlers and worked as seasonal laborers on ranches and farms, on the Mono Mills-to-Bodie railroad, and at the Mono Mill (Fletcher 1987).

Evidence exists that despite Euroamerican influences, traditional cultural practices prevailed well into the 20th century. For example, on the east side of the lake, three wickiups have been found with artifact assemblages dating from the 1880s to possibly as late as 1920 (Arkush 1987). Arkush suggested that the historical wickiup sites evidenced a trend toward isolation from the Euroamerican population during fall and winter months. During this time, they engaged in traditional subsistence activities and craft production little affected by modern technology. This practice of seasonal isolation and traditional subsistence activities may have helped the Paiutes preserve their native lifeways to a greater degree than Native Americans elsewhere in California.

Native American Life near the Beginning of Diversions

Important Areas. Native American occupation of Mono Basin continued into the 20th century. Many Native Americans lived along Rush Creek, especially along the bottomlands (to near the prediversion shoreline, just below the current County Road crossing). When LADWP purchased these lands in the 1930s, about 20 families established a large settlement nearby (which was abandoned a few years later) (Blaver pers. comm.). Not as many people lived on Lee Vining Creek, perhaps due to the more difficult access to uplands (Hess and Andrews pers. comms.).

Some of the people still wintered in Warm Springs on the east side of Mono Lake well into the 1920s and 1930s (McPherson pers. comm.).

All families in the basin used Mono Lake for swimming, bathing, and washing clothes. Mono Lake water was an excellent detergent. The elders believed that Mono Lake water was a good panacean medicine. People usually swam near Rush Creek where fresh water was available for rinsing (Durant pers. comm.).

Rush Creek. The Rush Creek area was considered valuable by Native Americans because of its lush vegetation and natural meadows, abundant water, and, after trout were introduced by Euroamericans, good fishing. The children could be allowed to roam all over the hills and meadows near the creek. At the confluence of Rush and Walker Creeks above The Narrows, a waterfall was followed by a pool considered to be the habitat of "waterbabies", spirits who at times were said to be heard crying.

Some people lived at The Narrows, but the pine nut grinding rocks and natural garden there were maintained by the community (Blaver pers. comm.). A large bedrock area with several communal mortars existed near the top of The Narrows where women pounded and ground acorns, pine nuts, and other seeds.

Downstream from The Narrows, on a plateau above Rush Creek, was an Indian camp with three or four buildings. potatoes were grown on a big flat area below, but irrigation was unknown.

Wildlife Food Resources. Deer and jackrabbits were hunted in upland habitats, and geese and ducks were hunted around the lake in marshy areas. Duck or goose feathers were made into down pillows, rabbit skins were made into blankets, and the meat was eaten (Hess and Andrews pers. comms.). Venison was made into jerky, and fish from Grant Lake reservoir was dried. Older Euroamericans recall seeing some of people haul water from the lake to the meadows where it was poured down ground squirrel holes to drive out ground squirrels, another food source.

During the late spring, men made willow rafts and sailed to the Mono Lake islands for seagull eggs, which were a source of food used by the elders (Durant pers. comm.). Captain John, the last Mono Basin Paiute chief, used to travel to Bodie to sell gull eggs (Hess and Andrews pers. comms.).

Fishery Resources. Rush Creek had good pools for fishing, and introduced trout were very plentiful, ranging in length from 6 to 8 inches. Willows were used for poles, string for line, and pins for hooks. Insects, worms, and grasshoppers were used for bait. (Durant pers. comm.)

Fly Larvae. The earlier extensive use of the alkali fly larvae must have diminished substantially from the time of contact to the onset of diversions. By this time, some Paiute people were still screening sand for fly larvae near the mouth of Lee Vining Creek and making sandwiches with the larvae (Wood pers. comm.).

Plant Resources. The people used digging sticks to gather edible plants, usually roots and bulbs, such as the Mariposa lily. Other edible plants gathered were lambsquarter, clovers, wild rhubarb, cattail roots, sunflower stalks, wild garlic, and mint along the creek. Acorns and pine nuts were gathered in neighboring areas and brought home to be made into a soup or gruel. (Durant pers. comm.)

The Mono Lake Paiutes used the willows that grew nearby along Rush Creek as the natural source of material for basket making. Some of their woven baskets were the finest made by Native Americans. The women were creative and artistic, and many of the baskets were prize winners at the Yosemite Indian Field Days. (Durant pers. comm.).

Historical Background

Early Explorations

The first Euroamericans to venture into the areas of concern were probably fur trappers and explorers, such as Jedediah S. Smith and Peter Ogden, who came to the area in the 1820s. In the 1830s and 1840s, Joseph Reddeford Walker made several trips through the area, and in 1852, the first systematic survey of the area was undertaken by the U.S. Army, led by Lieutenant Tredwell Moore. During their

exploration, they discovered gold on Lee Vining Creek. One of Moore's group, Leroy Vining, returned and became the area's first settler (Fletcher 1987; U.S. Bureau of Land Management 1979).

Mining

The area was only sparsely inhabited until gold was discovered in Mono Basin and to the north during the late 1850s. These discoveries caused "rushes" at several locations, such as Aurora, Bodie, Dogtown, and Monoville, resulting in the almost immediate establishment of communities with considerable populations. Later, mines were developed west of Mono Lake on the eastern flank of the Sierra Nevada.

The development of mining was accompanied by the growth of the lumber industry because Bodie and other mines in the area required large amounts of timber for their mines and fuel wood for heating buildings. In the early mining years, several mills on the west side of the lake provided wood to the mines. In 1880, the Bodie Railway and Lumber Company secured rights to 12,000 acres of Jeffrey pine forest east of Mono Craters. A railroad was built along the east shore of the lake, which extended 32 miles from Bodie to a sawmill built near the timber. Both Chinese and Mono Lake Paiute worked on constructing and operating the railroad and the lumber mill.

When the population of the mining communities swelled, farmers realized the profitability of catering to the miners. The result was an agricultural boom in Mono Basin. As the market for agricultural products developed, irrigated acreages grew. Irrigation ditch systems were constructed, and by the 1880s and 1890s, about 4,000 acres within Mono Basin was under irrigation (Fletcher 1987).

Ranching

During the latter half of the 1800s, grazing also became an important economic pursuit in Mono Basin (Chapter 3G, "Land Use"). In addition to the area resident's grazing activities, thousands of sheep and cattle grazed in the area every year on their way to summer pasture in the Sierra. By the 1880s, the effects of overgrazing were apparent, but grazing in the area was reduced with the passage of the Taylor Grazing Act in 1934 (Fletcher 1987).

As roads from the Los Angeles area and over Tioga Pass were constructed, improved, and paved, the area was gradually opened to recreation. Recreational use of the area has so increased that today it is the region's primary economic base (Chapter 3J, "Recreation Resources").

ENVIRONMENTAL SETTING

Archeological Resources

Little of the Mono Basin and Upper Owens River areas has been systematically surveyed for cultural resources. Many of the prehistorical sites that have been recorded were found during unsystematic surveys conducted many years ago. Most sites records contain only minimal data, and few of the sites have been revisited or rerecorded.

A generalized archeological sequence for the project vicinity, originally defined by Bettinger (1982a), has been refined by several subsequent surveys and excavations in Mono Basin and Owens Valley. Evidence of Native American occupancy from before 5500 B.P. is indicated by projectile point assemblages of the Mohave Complex (pre-5500 B.P.). Artifacts of the Little Lake Period (5500-3200 B.P.), Newberry Period (3200-1400 B.P.), Haiwee Period (1400-700 B.P.), and Marana Period (700 B.P.) can be distinguished. Evidence exists of earlier occupation in Mono County, as indicated by fluted points found at the Komodo Site (CA-MNO-617/679). It has been suggested that this site could push back occupation in the region to 11,300 years B.P. (Infotech 1990).

Mono Basin

Archeological data for Mono Basin are limited. Davis conducted a general survey of the Mono Basin area and excavated two rock shelters at Hot Creek (Davis 1964). Other survey and evaluation work has been conducted for highway improvement projects (Biorn 1983, Grantham and Jones 1990), hydroelectric projects (Clay and Hall 1988; Crist 1982; White 1985, 1988; York 1990), telephone transmission lines (Macko 1988), private development (Burton 1984) and USFS projects (Faust 1986; Reynolds 1985a, 1987; Sawyer 1988).

As a result of these surveys, approximately 50 sites have been recorded within areas of concern in Mono Basin. Sites of Native American origin include lithic scatters, limited-use temporary camps, rockshelters, large habitation sites with middens, bedrock mortars, cremation sites, remains of historical aboriginal wickiups, obsidian quarries and lithic workshop sites, and fly-larvae collection sites.

Historical sites include the remains of residential structures and ranching facilities, refuse deposits, sheep camps, and the remains of recreational facilities. Additional historical sites are probably also present in the area, such as the remains of mining operations; milling activities; ranches, farms, domiciles, and sheep and cattle grazing camps; components of the LADWP Mono Basin water export system and earlier water diversion systems; features and refuse deposits associated with the Bodie-Mono Mills Railroad; and refuse deposits, features, and structures associated with early 20th-century hydroelectric development.

The former sites of Mono Mills and the Bodie-Mono Mills Railroad are listed on the California Inventory of Historic Resources, and triplex cottage No. 102, associated with a hydroelectric facility in the town of Lee Vining, has been determined eligible for listing in the National Register of Historic Places.

Upper Owens River

Systematic survey work along the Upper Owens River has been limited, with most restricted to land owned by USFS. Meighan (1955) conducted some of the earliest systematic surveys in the area and recorded many sites in the upper Long Valley area. Other work has been conducted primarily for USFS projects (Burton 1980; Faust 1984, 1986, 1988; Jackson and Bettinger 1985; Self 1977, 1980; Lipp 1981; Reynolds 1985b, 1985c).

Sites recorded during this work include habitation sites with large middens and bedrock mortars, lithic workshop sites and scatters, temporary camps and resource processing sites, rock rings, and stone hunting blinds. Numerous moth larvae collection sites have been found to the west, north, and south of the area (Weaver and Basgall 1987) and may also be present in areas forested with Jeffrey pine near the Upper Owens River.

Historical sites recorded in the Upper Owens River area include historical refuse deposits associated with an aboriginal resource collection site, isolated refuse deposits resulting from the construction of the LA Aqueduct, and features and artifacts associated with the East Portal of the Mono Craters segment of Mono Basin extension of the LA Aqueduct.

Current Archeological Sensitivity

Mono Lake Margin

Although little of the area around Mono Lake has been systematically surveyed, unsystematic investigations have not identified any resources near the present lake margin. A few isolated artifacts, such as projectile points and Chinese coins, have been reported near the present water line (Stine pers. comm.) where they could have been transported by natural forces from sites at higher elevations.

All recorded resources are located at elevations above 6,440 feet, which is well above the historical highstand and prediversion lake levels. One exception, marked by a few projectile points found in "dry pond beds", is located at 6,430 feet, which is also above these levels. Recorders speculated that the site was used for hunting waterfowl when the previous lake level supported fresh or brackish water in lake-fringing wetlands (Chapter 3C, "Vegetation").

Prehistorical sites surrounding Mono Lake are primarily located where water or other resources were available. Several previously identified sites are located along streams draining into Mono Lake, and others were identified near springs and obsidian quarries.

A few historical archeological sites or architectural properties have been recorded around the lake and on Paoha Island. These consist primarily of the remains of domestic structures and recreational facilities and a structure located in the town of Lee Vining that was associated with early hydroelectric development. Like the prehistorical sites, these are located above the prediversion lake level.

In terms of the overall sensitivity of Mono Lake's margin for cultural resources, additional unrecorded sites may be located below 6,440 feet; however, the possibility seems remote given the scarcity of recorded resources below the prediversion lake level. Sites that were located below 6,428 feet, if any, would have been inundated when the lake rose in 1919. Isolated artifacts transported from sites at higher elevations, however, are probably present within the inundation zone for all project alternatives.

Tributary Streams

Numerous archeological sites have been recorded during unsystematic surveys along Lee Vining, Parker, Walker, and Rush Creeks. These are primarily located on flat, elevated areas overlooking the streams. During the limited field reconnaissance, some of the sites were visited by SWRCB consultants, who noted that many sites are misplotted and most are considerably larger than plotted. Several unrecorded sites were observed during casual examination of the watercourses. Given the area's location near a major trade route (Mono Pass) and abundant water and other resources, numerous important sites are likely present on the tributary streams.

No historical archeological sites have been recorded along the tributary streams and only one architectural property has been recorded in the town of Lee Vining. Although unreached because of a lack of systematic surveys and the practice of not recording historical period resources until recently, historical resources associated with ranching and farming and construction of the LADWP water export system likely are located near the tributary streams.

Upper Owens River

In the northernmost portion of the Upper Owens River where it is constrained by steep-sided canyon walls, prehistorical sites have been recorded on flats overlooking the river. The single historical archeological site recorded in the Upper Owens River area (remains of the construction of East Portal) is similarly situated. To the south, where the river opens onto the flat expanses of Long Valley, sites are situated both along the river and away from the watercourse along a series of elevated terraces.

Many unrecorded sites undoubtedly are present along the Upper Owens River. Several large habitations sites and extensive lithic workshops have been recorded in the area, and similar sites are probably present in the unsurveyed, privately owned reaches. Historical archeological sites and architectural properties are limited in the area, but some additional refuse deposits, features, and buildings are probably present.

Current Resource-Use Activities of Native Americans

Native Americans continue to live and work in Mono Basin. Many belong to the Mono Lake Indian Community, a group that is currently seeking federal recognition. Some still live in the same places their ancestors occupied, on land granted as Indian allotments. Other Native Americans remain connected to the area but have relocated to Indian settlements in Bridgeport, Benton, and Lone Pine.

Native American use of traditional resources and the practice of certain cultural activities and religious ceremonies continues in Mono Basin. In 1986 and 1987, members of the Mono Lake Indian Community and other Native Americans living in the basin met with USFS to discuss their concern that traditionally gathered plants and animals would be affected by the lowering of the lake. The Native American community wants deer hunting and rabbit drives to remain viable activities in the Mono Basin National Forest Scenic Area and is interested in preserving alkali fly larvae (kutsavi), buck berries, willows, wild onions, waterfowl, and other area resources (U.S. Forest Service 1989).

The Native American community recently reinstated a traditional yearly ceremony in which participants walk from Mono Lake to Yosemite one year and from Yosemite to Mono Lake the next. This traditional ceremony reflects the past and present important connection between the Paiute and the Sierra Miwok (Mandelbaum pers. comm.).

IMPACT ASSESSMENT METHODOLOGY

Impact Prediction Methodology

Cultural resources could potentially be affected directly or indirectly by the project alternatives. Direct impacts could result from:

- # rising lake levels eroding or inundating historical, archeological, or Native American resources that may exist on or immediately above the relicted lands and
- # restoration activities in areas where historical, archeological, or Native American resources are located.

Indirect impacts could occur from:

- # streamflows eroding streambanks and damaging or destroying buried or surface historical or archeological resources and
- # recreation use changes possibly resulting in vandalism and unauthorized collection or inadvertent destruction of these resources.

Direct Impacts

Rising Lake Levels. As described in the "Environmental Setting" section, only one cultural resource site is known to exist within the relicited lands: the foundation of an egg collector's cabin on the north side of Negit Island, at about 6,406-foot elevation (Stine pers. comm.). The cabin was apparently constructed and used around 1861 when the lake was slightly below this elevation. The two higher lake level alternatives would result in inundation of this resource.

As described in the "Environmental Setting" section, one other recorded historical or archeological site lies at an elevation of 6,430 feet, above the relicited lands; all other sites lie above 6,440-foot elevation. Under the No-Diversion Alternative, the lake may reach an elevation of 6,436 feet in wet periods, a higher level than under prediversion conditions. Thus, there exists the possibility of erosion or inundation of the noted site and other undiscovered sites.

These facts are used to assess the potential for lake erosion or inundation of cultural resources among the alternatives.

Restoration Activities. Restoration of aquatic and terrestrial habitats could continue or be initiated to mitigate cumulative losses of these resources attributable to stream diversions. These efforts could result in ground disturbance during site reconfiguration and installation of habitat elements, as well as during activities related to access, staging, borrowing, and stockpiling of construction materials. Archeological, historical, and Native American resources could be degraded or destroyed by these activities. In addition, because Native American gathering practices may conflict with revegetation or restoration goals, they may be difficult or impossible to continue.

Indirect Impacts

Stream Erosion. Lake levels and streamflows of the alternatives create various potentials for stream channel erosion, as described in Chapter 3C, "Vegetation". Low lake levels can induce the tributary streams to incise, and high streamflows spilled over the diversion structures can provide the erosive power for both bank erosion and incision. Flow augmentation in the Upper Owens River can continue the process of bank erosion. The potentials for channel erosion associated with the different alternatives are used to

rank the relative threats to known or undiscovered cultural resources along the diverted tributary streams and the Upper Owens River.

Recreation Activity. The alternatives would result in various levels of recreational activity around Mono Lake, along the tributary streams, and along the Upper Owens River, as described in Chapter 3J, "Recreation". Recreational use represents a potential for vandalism, unauthorized collection, or inadvertent destruction of cultural resources. Prediction of changes in recreational activity under the alternatives is used to rank the relative threats to known or undiscovered cultural resources.

Criteria for Determining Impact Significance

According to the California State CEQA Guidelines, a project would have a significant impact on cultural resources if it would disrupt or adversely affect an archeological site or a property of historical or cultural significance to a community or to an ethnic or social group. For the purposes of this impact analysis, it is assumed that cultural resources in the study area are potentially significant.

SUMMARY COMPARISON OF IMPACTS AND BENEFITS OF THE ALTERNATIVES

As described in the preceding section, relative cultural resource effects of the alternatives are assessed in this chapter through four key variables:

- # potential for inundation of known or potential sites,
- # potential for damage to known or potential sites from restoration activities,
- # potential for damage to known or potential sites through stream channel erosion, and
- # potential for site disturbance from recreational activities.

Table 3K-1 provides a comparison of the alternatives using these variables. Values of the variables for each alternative are compared to values for the prediversion and point-of-reference conditions. Those values representing significant adverse changes from the point of reference are indicated. Further discussion of these impacts on an alternative-by-alternative basis is not warranted because, as the table shows, all of the alternatives have the potential to have an impact on potentially significant cultural resources.

MITIGATION MEASURES FOR SIGNIFICANT IMPACTS

As shown in Table 3K-1, all the alternatives have potential to have an impact on archeological, historical, and Native American resources; therefore, mitigation for these impacts would be similar for all alternatives. Site- or location-specific mitigation cannot be developed until cultural resources surveys are performed, an alternative is selected, and alternative-specific habitat restoration is designed. Therefore, a general mitigation strategy for cultural resources impacts is provided below that could be directed by the SWRCB, Chief of the Division of Water Rights, and implemented by LADWP after an alternative is selected.

First, areas that could be directly or indirectly affected by project-related activities should be identified and cultural resources surveys should be conducted in these areas. Consultation with the local Native American community should be undertaken to determine where traditional use areas and resources of concern are located. If impacts may occur on USFS land as a result of the project, surveys of the affected areas should be the responsibility of USFS.

Based on the surveys and Native American coordination, a cultural resources treatment plan (CRTP) should be developed. Selection of treatment options should depend on resource type, nature of potential impacts (direct or indirect), and the ability to reconfigure restoration activities to avoid important resources. Treatment options included in the CRTP should include, but not be limited to, avoidance of resources; monitoring by an archeologist during ground-disturbing activities; archeological test excavation and, if necessary, data recovery excavations; relocation or closure of public access roads; and protection measures such as capping and fencing of sites.

The CRTP should also include protection of resources of importance to Native Americans and, if requested, provisions for access to resources and areas for traditional uses. The CRTP should include provisions for unanticipated discoveries, such as human remains and other archeological materials that could be discovered during project-related activities. The CRTP should outline the requirements for archeological excavations and should call for the preparation of research designs to guide all excavations and data recovery plans to direct data recovery efforts.

To ensure that the treatment options are effective, the CRTP should outline a monitoring program. Minimally, the monitoring program should define locations that require monitoring and provide guidance on frequency for field visits and reporting methods. The CRTP should require that other treatment options, such as protection measures or data recovery, be implemented if monitoring indicates that impacts are occurring as a result of project-related activities.

CUMULATIVE IMPACTS OF THE ALTERNATIVES

As described in Chapter 3C, "Vegetation", a substantial erosion of the Rush and Lee Vining Creek corridors occurred during the diversion period. This erosion probably damaged or destroyed cultural resources along the stream margins. All alternatives could contribute to the cumulative loss, but would do so to varying degrees, as shown in Table 3K-1 and discussed in Chapter 3C, "Vegetation".

Stream dewatering, erosion, and fire may have caused loss of plants and animals important to the maintenance of Native American cultural practices during the diversion period. Changes in the use of Mono Lake by migrating ducks and in the productivity of the alkali fly population may also have affected such practices. The project alternatives might contribute to a cumulative effect on the maintenance of such practices.

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