3.13 Cultural and Historic Resources

This section discusses the Proposed Action and alternatives' potential effects on cultural resources, historic properties, and historical resources. United States Department of the Interior (DOI) elected to utilize the National Environmental Policy Act (NEPA) process to meet the requirements of Section 106 of the National Historic Preservation Act (NHPA) as allowed under 36 CFR Section 800.8(c). DOI defines the undertaking, for purposes of Section 106 of the NHPA, as the removal of the four PacifiCorp dams which may be a result of the Secretarial Determination. The proposed undertaking has the potential to affect historic properties triggering compliance with Section 106 of the NHPA. The analysis and consultations concerning any effects of the Proposed Action and alternatives on historic properties will be integrated into the NEPA review and documentation pursuant to the criteria identified in 36 CFR Section 800.8(c)(1)-(4). The following section also incorporates the compliance requirements of the California Environmental Quality Act (CEQA).

3.13.1 Area of Analysis

The area of analysis for cultural and historic resources includes the area of potential effects (APE) for the Proposed Action (removal of the four dams and facilities) as this represents the largest APE of all alternatives and is inclusive of all APEs for each of the other alternatives. The APE is defined as the entire 263 mile length of the Klamath River from Upper Klamath Lake to the Pacific Ocean and a 0.5-mile-wide corridor surrounding the river, all four dams and associated facilities, and each of the four reservoirs.

3.13.2 Regulatory Framework

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

> **Cultural Landscape** is a geographic area, including both cultural and natural resources, associated with an historic event, activity, or person or exhibiting other cultural or aesthetic values. (Birnbaum 1994). An ethnographic landscape, one type of cultural landscape, is described as a landscape containing a variety of natural and cultural resources that associated people define as heritage resources. (Birnbaum 1994). Cultural landscapes may be evaluated for eligibility following the criteria 36 CFR Section 60.4.
>
> **Cultural resource** is a term used to describe several different types of properties, both made/modified by people and natural: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of traditional or historic importance to Indian tribes and other cultural groups.

Historic properties is a term defined in 36 CFR Section 800, the implementing regulations for Section 106 of the NHPA, as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (National Register), including artifacts, records, and material remains related to such a property. The term includes properties of traditional religious and cultural importance (Traditional Cultural Properties or Cultural Landscapes) to an Indian tribe or other cultural group that also meet the National Register criteria for listing found at 36 CFR Section 60.4.

Historical resource is a CEQA term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance, and is eligible for listing or is listed in the California Register of Historical Resources (California Register).

Historic District is a significant concentration, linkage, or continuity of sites, buildings, or structures united historically or aesthetically by plan or physical development. A Historic District derives its importance from being a unified entity, even though it is often composed of a wide variety of resources. The identity of a District results from the interrelationship of its resources, which can convey a visual sense of the overall historic environment or be an arrangement of historically or functionally related properties. A District can include sites, structures, and features that, on their own, lack individual distinction, but are significant as a group. A District will have an identified theme and time period of significance.

Programmatic Agreements are negotiated agreements between federal agencies, the Advisory Council on Historic Preservation (ACHP), and State Historical Preservation Officers (SHPOs), in consultation with other interested parties, that govern the implementation of a particular program or the resolution of adverse effects from certain complex project situations or multiple undertakings, as defined in 36 CFR Section 800.14. Programmatic Agreements may be used when effects on properties are similar and repetitive or are multi-state; when effects on historic properties cannot be fully determined prior to approval of an undertaking; when nonfederal parties are delegated major decision making responsibilities; and for dealing with the potential adverse effects of complex projects or multiple undertakings.

Traditional Cultural Property (TCP) is defined as a property eligible for inclusion in the National Register "because of its association with cultural practices or beliefs of a living community that (a) are noted in that community's history, and (b) are important in maintaining the continuity of the community (Parker and King 1998)."

3.13.2.1 National Historic Preservation Act of 1966, as amended in 1992

The NHPA is the primary federal legislation governing preservation of cultural and historical resources in the United States. The NHPA established a national historic preservation program which encourages the identification and protection of cultural resources. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties listed in or eligible for the National Register of Historic Places and afford the ACHP a reasonable opportunity to comment on such undertakings (16 USC Section 470f). The ACHP promulgated the Section 106 implementing regulations, found at 36 CFR Part 800, which sets forth the Section 106 process, including consultation requirements.

Compliance with Section 106 of the NHPA As allowed under the Section 106 regulations, DOI has elected to integrate compliance with Section 106 through the NEPA process pursuant to 36 CFR Section 800.8(c)(1)-(4). This integrated approach satisfies the regulatory steps of the Section 106 process by using the NEPA process and the documentation required for the preparation of an Environmental Impact Statement (EIS)/ Record of Decision (ROD) to evaluate and resolve an undertaking's potential adverse effects on historic properties. The regulations identify specific requirements that the federal agency must meet through the NEPA process and documentation in lieu of the Section 106 process set forth in 36 CFR Sections 800.3 through 800.6. These standards, and a description of how DOI will meet those standards, are described below.

Initiation of the Section 106 Process: The definition of the federal undertaking is an important step in the initiation of the Section 106 process. In this case, the proposed undertaking is the potential removal of the four lower PacifiCorp dams. The proposed undertaking and the alternatives being analyzed in this EIS/ Environmental Impact Report (EIR) are limited to only the selection of an approach involving partial or full dam removal and the installation of fish passages. The specific details of how the proposed undertaking or the alternatives might be implemented are not fully known at this time and cannot be fully analyzed in this EIS/EIR, nor will a decision through the EIS/EIR authorize the removal of dams without additional compliance with NEPA and other federal environmental laws, including Section 106 of the NHPA. Future decisions will evaluate how to implement the Proposed Action or other selected alternative.

Use of the NEPA Process In Lieu of the Section 106 Procedures Set Forth in 36 CFR Sections 800.3 through 800.6: The regulations for Section 106 permit federal agencies to integrate Section 106 compliance with the NEPA process (36 CFR Section 800.8). Due to the scope and scale of this undertaking, DOI has chosen to utilize this provision in order to reduce redundancies when complying with both laws; provide the broadest possible opportunities and greatest convenience for the public to review and consult on DOI's proposed actions; and ensure that concerns pertaining to historic properties are fully integrated into the EIS and the ROD.

The Section 106 regulations clearly state that integrating the Section 106 compliance process with NEPA does not waive federal agency obligations under either law. While the regulations do permit the DOI to take advantage of the NEPA process, the Agency

must still adhere to the fundamental direction for compliance with Section 106. The following summarizes the DOI's actions to comply with these provisions (36 CFR Sections 800.8(c)(1) through 800.8(c)(4)).

Notifications: A federal agency must disclose its intent to integrate the Section 106 process with the NEPA process to the appropriate SHPOs and the ACHP prior to the review. DOI notified the ACHP and the California SHPO and Oregon SHPO, of its intent to implement the Section 106 regulations through the NEPA process by letter dated June 24, 2011.

Identifying consulting parties pursuant to 36 CFR Section 800.3(f): The public involvement process for NEPA has been extensive and sustained. It has included outreach and invitations to consult to other federal agencies, state and local governments, nongovernmental organizations, and the public. In addition, DOI has separately notified the ACHP, California SHPO, Oregon SHPO, six federally recognized Indian tribes, two Indian organizations, and other interested parties.

Identify Historic Properties and Assess the Effects: For purposes of the proposed action to remove the four lower PacifiCorps dams (and for the evaluation of alternatives), DOI established as the APE the entire 263 miles of the Klamath River and a 0.5 mile corridor around it. The effort to identify and assess effects reflects DOI's consideration of the project alternatives and is commensurate with the assessment of other environmental factors. The identification of and potential effect on some historic properties cannot be fully determined prior to approval of either the proposed undertaking or an alternative evaluated in this EIS/EIR. Future decisions regarding implementation of the selected alternative will further develop the APE and identify cultural and historic properties that may be affected by future actions such as road construction or improvements and reservoir drawdown.

DOI identified known historic properties listed or eligible for the National Register, such as the Klamath Hydroelectric Facilities, and also the types of historic properties likely to occur within this area through records searches at the North Central Information Center at California State University, Chico; the North Coastal Information Center, Klamath, California; the Oregon Office of Historic Preservation; the Klamath National Forest; a sacred lands search conducted by the California Native American Heritage Commission; and a review of archaeological, ethnographic, and historic information. DOI also sought information from the SHPOs, Indian tribes, Indian organizations, and the public regarding information about historic resources through the scoping process for the EIS/EIR and the initiation of consultations under Section 106 of the NHPA. This data is presented in Section 3.13.3. The potential effects of the proposed undertaking and the alternatives are discussed in Section 3.13.4.

Consult Regarding the Effects of the Undertaking with Tribes that May Attach Religious and Cultural Significance to Affected Historic Properties: Tribal consultation for Section 106 was initiated via letter dated October 19, 2010. Tribal consultation is ongoing.

Involve the Public in accordance with the Agency's Published NEPA Procedures: The public has been involved in the scoping process for this EIS/EIR and will be provided an opportunity to review and comment on this EIS/EIR during the public review period.

Develop, in Consultation with Consulting Parties, Alternatives and Proposed Measures that Might Avoid, Minimize, or Mitigate Any Adverse Effects of the Undertaking on Historic Properties: Selection of one of the proposed alternatives, other than the No Action Alternative, would be the first part of a multi-tiered decision-making process. The Proposed Action and the alternatives being evaluated in this EIS/EIR will require additional environmental compliance prior to initiation of ground disturbing activities. Section 106 consultation was initiated with ACHP, SHPOs, and other consulting parties, and will be ongoing through a final decision and any future agency decisions. DOI identified known historic properties and methods to further identify and evaluate historic properties. DOI has also sought information from Indian tribes regarding the identification of areas with religious or cultural importance, and this section discusses the potential effect to such resources. Measures to avoid, minimize or mitigate adverse effects are also evaluated in this section. These measures would be offered as binding commitments for future decisions, and will help to coordinate future development through those decisions. The mitigation measures also serve as a program of action to avoid, minimize, or mitigate the effects on historic properties associated with the selected alternative.

Review of Environmental Documents: DOI will submit the Draft EIS/EIR for review and comments to the SHPOs, Tribal Historical Preservation Officers (THPOs), ACHP, Indian tribes, Indian organizations, and other parties identified as interested parties.

Approval of the Undertaking: The measures to avoid, minimize, or mitigate potential adverse effects associated with the Proposed Action or the selected alternative will be incorporated into the Record of Decision and represent a binding commitment as the selected alternative is carried out.

3.13.2.2 Native American Graves Protection and Repatriation Act (NAGPRA)

Section 3 of NAGPRA applies to Indian human remains and other cultural items found on federal lands and tribal lands, and addresses the treatment and disposition of those remains and items in consultation with relevant tribe(s) (see Appendix D of NAGPRA). Any Indian human remains or other cultural items found on federal land or tribal land affected by the Proposed Action and alternatives would be subject to the procedures under NAGPRA.

3.13.2.3 California Environmental Quality Act

For the purpose of this Klamath Facilities Removal EIS/EIR, California public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section

21083.2 requires agencies to determine whether proposed projects would have effects on "unique archaeological resources."

"Historical resource" is a term with a defined statutory meaning (PRC, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a], [b]). The term embraces any resource listed in or determined to be eligible for listing in the California Register. The California Register includes resources listed in or formally determined to be eligible for listing in the National Register, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the California Register and are presumed to be historically or culturally significant for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC, Section 21084.1 and California Code of Regulations, Title 14, Section 4850).

In addition to assessing whether historical resources potentially affected by a proposed project are listed in the California Register or have been identified as historically or culturally significant in a survey process, lead agencies have a responsibility to evaluate them against the California Register criteria prior to making a finding as to a proposed project's impacts on historical resources (PRC, Section 21084.1 and California Code of Regulations, Section 15064.5 [a][3]). Under California Code of Regulations (CCR), Title 14, Chapter 3, Section 15064.5 (a)(3) a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that meets the following criteria:

> a) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California.
>
> b) Meets any of the following criteria:
>
> (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
>
> (B) Is associated with the lives of persons important in our past.
>
> (C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
>
> (D) Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as "historical resources" and PRC 5024 requires consultation with the Office of Historic Preservation when a project may affect historical resources located on state-owned land.

For historic structures, CEQA Guidelines Section 15064.5, subdivision (b)(3), indicates that a project that follows the Secretary of the Interior's *Standards for the Treatment of*

Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995) shall be considered as mitigating impacts to a less-than-significant level.

CEQA addresses impacts, potentially significant and significant impacts, to historical resources. Historical resources are properties that are either listed on or determined eligible for inclusion on the California Register and significant impacts are defined at CCR Section 15382 as: "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

As noted above, CEQA also requires lead agencies to consider whether projects will affect "unique archaeological resources." PRC Section 21083.2, subdivision (g), states that "'unique archaeological resources' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3) Is directly associated with a scientifically recognized, important prehistoric or historic event or person."

Treatment options under PRC Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under PRC Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

In addition, California law protects Indian human remains and associated cultural items regardless of their antiquity and provides for the sensitive treatment and disposition of those remains. Section 7050.5(b) of the California Health and Safety Code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or

> any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

California Health and Safety Code at Sections 8010-8011 established the California NAGPRA 2001. The state repatriation policy is consistent with and facilitates implementation of the federal NAGPRA. The California act strives to ensure that all California Indian human remains and cultural items are treated with dignity and respect by encouraging voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California. The act also provides a mechanism for aiding California Indian tribes, including non-federally recognized tribes, in filing repatriation claims and obtaining responses to those claims.

CCR Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Indian tribes, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Indian tribes, if any, as identified by the Native American Heritage Commission. CCR Section 15064.5 directs the lead agency, under certain circumstances, to develop an agreement with the Indian tribes for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to the accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to CCR Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Burials would be subject to federal NAGPRA on federal land and Indian land, California state burial laws in California, and Oregon state burial laws in Oregon.

3.13.3 Existing Conditions/ Affected Environment

The presence of historic properties (or historical resources under CEQA) within the APE for each alternative was identified by conducting background and archival research and consulting with parties with knowledge of the area to identify known resources. In addition, through archival and background research, consultations, and knowledge of known resources, the types of historic properties likely present in inaccessible areas (primarily areas currently inundated by the reservoirs) were identified.

Due to the nature of the action being proposed, potential effects on all historic properties cannot be fully determined prior to approval of either the Proposed Action or an alternative evaluated in this EIS/EIR. The identification and evaluation of certain resources, and the potential effects to those resources, can only be understood and addressed as particular details of how to carry out the selected alternative are developed. One particular example is historic properties and cultural resources that are thought to be currently under water that could be exposed during reservoir draw down, as a direct result of dam removal. Another example is the construction or modifications to related facilities, roads, or temporary systems that may be necessary to implement the selected alternative, which will only be know when DOI develops particular details for accomplishing the proposed alternative. As specific details are developed through designs and plans to implement the selected alternative, the designated federal officials will conduct additional steps to identify and evaluate historic properties and alternatives to avoid, minimize, or mitigate adverse effects, in consultation with the consulting parties, in accordance with 36 CFR Part 800 and the stipulations identified in this EIS/EIR.

3.13.3.1 Regional Prehistory and Ethnography

The cultural resources area of analysis includes four culture areas; the Columbia Plateau, Great Basin, California, and Northwest Coast. These culture areas have unique histories and are occupied by different Indian tribes that exhibit diverse traits and ecological adaptations. The cultural resources analysis will focus on The Klamath Tribes, Shasta, Karuk, Hoopa, and Yurok that occupy the territory along and adjacent to the Klamath River. These tribes have a long history of occupation of the area and tribal beliefs identify that the groups have occupied the area for time immemorial.

Columbia Plateau and Great Basin Culture Areas

Prehistory

The upper Klamath River and Klamath Lakes area exhibit a blend of cultural traits from the Columbia Plateau and Great Basin culture areas. The chronology of the area may be organized into the Paleoarchaic, Early Archaic, Middle Archaic, Late Archaic, and Late Prehistoric periods.

Paleoarchaic (14,000 to 7,000 Before Present [BP])

During the Paleoarchaic period, the Klamath Basin was occupied by hunter-gatherers that tended to focus on hunting large game animals, but also supplemented their diet with fish, birds, and plant resources. These groups were seasonally mobile and generally small in size (Ames et al. 1998). Two of the oldest sites in the region are Paisley Cave, which is dated at 14,200 BP (Balter 2008) and Fort Rock Cave, which is dated between 13,200 and 10,200 BP (Aikens and Jenkins 1994). The oldest site in the upper Klamath River area is the Klamath Shoal midden site, 35KL21, which yielded a date of 7,700 BP.

Early Archaic (7,000 to 4,500 BP)

Most of the archaeological evidence for early human occupation in the Klamath River Canyon dates to the beginning of the Early Archaic period (Mack 1983 and 1991). Semi-subterranean house pits first appear in the Plateau region during this period suggesting

that some people were adopting a less mobile lifestyle. Typical artifacts associated with the Early Archaic include large stemmed, lanceolate, or leaf-shaped projectile points, knives, gravers, scrapers, and some cobble and ground stone tools (e.g., abraders or grinding slabs, mortars, mullers, and stone bowls).

Middle Archaic (4,500 to 2,500 BP)

The Middle Archaic period is characterized by an increase in the exploitation of riverine and marsh environments and food resources such as salmon and various plant roots/tubers. There was also an increase in the use of milling stones and pestles at sites during this period. Typical Middle Archaic artifacts include broad-necked, corner-notched, and side-notched projectile points, many types of ground stone tools, bone and antler tools (e.g., chisels and wedges), and specialized fishing gear (e.g., bone harpoon barbs and net sinkers).

Late Archaic/Late Prehistoric (2,500 to 200 BP)

Several major cultural changes occurred during the Late Period, including: the widespread appearance of pit houses; a shift to a heavy reliance on fishing; the use of storage pits for salmon; camas exploitation; the development of seasonal land use patterns (i.e., use of "winter villages"); the appearance of the bow as evidenced by the presence of small corner- and side-notched projectile points at sites; and the appearance of Olivella shell beads. Extensive trade networks became important across the region by as early as 1,500 years ago, as suggested by tools made from obsidian sources 110 to 120 miles away and the presence of beads made from marine shells.

Ethnography

The Klamath Tribes were constituted as a result of the Klamath Treaty of 1864, and includes the Klamath, Modoc, and Yahooskin Band of Snake Indians. Prior to their placement on a shared reservation, these groups utilized overlapping resource areas in the Klamath Basin, but were necessarily friendly with one another. When these groups were forcefully placed on the same reservation, they began to become more integrated. The Klamath and Modoc people occupy the entire upper Klamath Basin and adjacent interior drainages to the east, living in close association with the marsh and riverine resources of this area. The Klamath and Modoc tribes were the only populations residing in the Upper Klamath Basin prior to Euro-American contact, but they participated in salmon fishing and social gatherings along the Klamath River at least as far downstream as Seiad Valley in California. The Yahooskin principally occupy lands east of the Klamath Basin, but did participate in resource harvests, including salmon harvests, with Klamath and Modoc on the Sprague River and other Klamath River tributaries. The discussion of The Klamath Tribes will focus on the Klamath and Modoc because of their close proximity to the APE.

Stern (1998) summarizes ethnographic information regarding the Klamath Tribe collected by Barrett (1910), Spier (1930), and Berreman (1937). Deur (2011) also presents a summary of the ethnography of the Klamath Tribes and their relationship to the Klamath River. The Klamath and Modoc are members of the Plateau Penutian language family and they speak dialects of a single language (Stern 1998). Klamath ancestral territory stretches from the southern boundary of the Deschutes River watershed

in the north to Shovel Creek, which is along the Klamath River south of the Oregon and California border and from the Cascade Mountains in the west to the escarpment of Winter Rim in the east (Stern 1998). This area encompasses the Sprague River and Sycan Rivers, Sycan Marsh, Klamath Lake, and Klamath Marsh (Spier 1930; Berreman 1937). Modoc ancestral territory extends from Mount Shasta in the south to an area near the current California and Oregon border in the north and from the eastern slope of the Cascade Range near Mount Shasta to the area around Goose Lake in the east (Ray 1963). This area encompassed Lower Klamath Lake and Tule Lake.

Klamath and Modoc were both organized in villages that collectively owned productive fishing or other resource (e.g., seed or other plants) gathering areas. Influential heads of households, supported by extended families, assumed leadership roles in the villages (Stern 1998). Villages included various types of structures including semi-subterranean winter lodges for families and extended families. The Klamath and Modoc rebuilt their winter lodges in the fall. Spier (1930) identified five geographic subdivisions of winter villages:

- Klamath Marsh-Williamson River group on the southern margin of Klamath Marsh and the Lower Williamson and Sprague rivers (about 34 villages, plus four to five villages on the upper Sprague and Sycan rivers).
- Agency Lake group on Agency Lake and the northern arm of Klamath Lake (one village and one hamlet).
- Lower Williamson River group close to the mouth of Williamson River (about seven villages).
- Pelican Bay group that includes the Pelican Bay district on the west side of Klamath Lake, Four Mile Creek, and the marsh north of the lake (about eight villages).
- Klamath Falls group: along Klamath Lake south of Modoc Point (about 14 villages).

The permanent winter villages were never totally abandoned during the year. Each group of villages maintained one or more places for cremation of the dead. The ashes of cremated individuals were covered with soil and rocks. Individuals dying away from home might be interred under piles of rocks or cremated and returned to the cremation ground. Particular sweat houses, said to have been built by the legendary *Kemu'kumps*, and a hot spring were used to cleanse mourners.

Fish is the primary resource for the Klamath and Modoc; consequently settlements clustered near rivers and streams. Runs of fish began in the early spring and lasted into the fall (Spier 1930). Men, with some assistance from women, fished throughout the year from the banks of rivers or streams or from canoes using long-handled dip nets, spears, harpoons, and hook-and-line. During parts of the year, fish drives were also used to harvest fish. Members of the tribe would drive fish toward individuals dragging triangular nets on A-frames or purse nets through the water either on foot or from a canoe. Gill nets drawn between canoes and traps were also used to acquire fish. In

addition, stone barriers were constructed on some streams to restrict fish passage and facilitate fishing.

Klamath and Modoc typically left their winter villages in early spring to begin a seasonal round of harvest activities. Spring activities began with harvesting fish from the run of large suckers that took place in Upper Klamath Lake in March. Fish were dried on the branches of pine saplings and sometimes pounded into a meal and bagged for storage. As the spring sucker run subsided, Klamath and Modoc women turned their attention to digging ipos (*Carum oregonum*) roots, gathering waterfowl eggs, and scraping the cambium layers of young ponderosa pines for food. By late spring, women dug camas bulbs in wet meadows, baking them in earth ovens and sun-drying them for storage while men hunted waterfowl and other animals.

Summer was the season when women harvested wocas, the nutritious seeds of the yellow pond lily, at Klamath Marsh, Sycan Marsh, Tule Lake, Lower Klamath Lake, and other water bodies. Wocas were an important food resources and shaman conducted a ceremony at the beginning of the harvest. The seeds were processed for soup and flour. Women also collected cattail roots for drying and grinding into meal. During the summer months men hunted waterfowl and a variety of small mammals.

In fall, Klamath and Modoc gathered chokecherries, serviceberries, Klamath plums, pine nuts, blackberries, and gooseberries. Klamath and Modoc eventually moved into the high country of the western Cascades to harvest huckleberries. Women dried the berries before fires, while men hunted deer and elk and trapped furbearing mammals. Deer hunting methods included stalking and driving the animals into the lakes, rivers, or confined spaces where they could be clubbed by women in canoes or shot with bows and arrows. Whitefish were also harvested in the fall primarily by the use of dip-nets.

Klamath and Modoc sought power by visiting places where they believed that sacred beings resided and sought to gain their power through ritualized activities. Klamath and Modoc parents sent boys and girls on a power quest when they reached puberty. Fathers and mourning kinsmen sometimes sought power at the birth of a child or death of a wife or child (Stern 1998). Seekers of power often sought specific competence such as luck in hunting or fishing, war, love-making, gambling, foot-racing, or curing. Seekers of power went alone into the mountains for 5 days to fast, pile rocks, wrestle with trees, run, perhaps take sweat baths, and climb hills. Power might come in the form of a dream or a visit by a spirit, which would be followed by the seeker waking with blood in his mouth or nose and a personalized spirit song in his ears.

Shamans, mourners, and gamblers also sought power by swimming in deep river eddies. During the day, the seeker sweated and fasted, waiting in the brush until nightfall. At that time the power seeker went to the river and dove to the bottom in search of a spirit. The seeker did not appear to be frightened even if he saw something moving under the water. Similar to other power seeking events, it is reported that sometimes a seeker surfaced from the bottom of the river unconscious, with blood flowing from his mouth and/or nose (Spier 1930).

Shamans performed important ceremonies in midwinter gatherings, first-fruit rites for wocas gathering, and other occasions. They also cured illnesses and provided spiritual and practical support during warfare. Novice shamans received their initiation as a group at midwinter ceremonies. Helpers worked with shamans over a 5-day period during the ceremonies to call spirits, interpret spirit messages, and lead the audience in singing sacred songs.

Euroamerican expansion into Klamath and Modoc territory had a dramatic effect on their traditional cultural practices. Regardless, The Klamath Tribes exhibited considerable and well-documented persistence in their ceremonial and social traditions, particularly as they related to site-specific and resource-specific traditions. However, in 1954 Congress terminated the reservation and its trust relationship with The Klamath Tribes. The Klamath Tribes retained some rights to resources, but a majority of the tribal members withdrew from the tribe and received a portion of the tribal holdings. The trust account created for the rest of the members was later liquidated. In addition, in 1974 the federal government condemned thousands of forest acres that had been part of the Klamath Reservation so that the forest land could be added to the Winema National Forest (Klamath Tribes 2003).

The Klamath Tribes accomplished restoration of federal recognition in 1986 and began to rebuild their tribal government, economy, and community. Currently, the tribal Culture and Heritage Department is working to protect, preserve, and enhance traditional cultural values (Klamath Tribes 2003). The Klamath Tribes are also pursuing a variety of economic enterprises through their Economic Self-Sufficiency Plan.

Northern Interior California Culture Area

Prehistory

Previous archaeological investigations near the area of analysis were conducted in response to hydroelectric developments and highway construction projects beginning in the 1940s. The more recent investigations of Basgall and Hildebrandt (1989) and Cleland (1997a, 1997b) are the most relevant to this analysis because it is likely that the subsistence and settlement patterns they identify are similar to the patterns along the Klamath River in California.

Basgall and Hildebrandt (1989) propose a three-phase cultural chronology for the northern Sacramento River Canyon that includes the Pollard Flat Phase (2,700–5,300 BP), the Vollmers Phase (1,700–4,500 BP), and the Mosquito Creek Phase (1,900 BP to contact). The Pollard Phase appears to represent a forager population that occupied residential base camps for extended periods of time, and is characterized by relatively large projectile points, ground stone tools, anvils, mauls, and net weights. The Vollmers Phase represents populations that were more mobile than those of the previous phase, while still maintaining residential camps, and are characterized by medium size projectile points, ground stone tools, anvils, mauls, and net weights. The Mosquito Creek Phase populations consisted of small groups that practiced a pattern of seasonal transhumance, and are characterized by small projectile points, ground stone tools, and the absence of hand stones, milling stones, hammer stones, anvils, mauls, and net weights.

Cleland's (1997a, 1997b) chronology for the Lake Britton area is divided into six periods spanning 7,000 years. The six periods include: Paleo-Indian (prior to 7,500 BP; Early Archaic-A (5,000–7,500 BP); Early Archaic-B (3,900–5,000 BP); Middle Archaic-A (3,000–3,900 BP); Middle Archaic-B (2,000–3,000 BP); Late Archaic (1,000–2,000 BP); and Emergent (150–1,000 BP).

The Paleo-Indian Period is poorly represented and indicates sporadic use of the area. The Early Archaic-A Period reflects an intensification of use of the area. Sites associated with this period are usually on mid-slope terraces and tend to be situated some distance from the Pit River. The Early Archaic-B Period reflects increased occupation of the area. Sites still tend to be situated on terraces and benches above the Pit River, but freshwater mussel shells appear at sites suggesting the exploitation of riverine resources.

The Middle Archaic-A Period is highlighted by a continued increase in the intensity of use of the area and a diversification of the overall settlement pattern. Occupation of the higher terraces above the Pit River continues, but habitation sites also occur closer to the river. The diversified settlement pattern of the Middle Archaic-A Period continues during the Middle Archaic-B Period, but there is increased occupation of sites near the Pit River. The Late Archaic-A Period is characterized by an increase of more riverine sites. This pattern continues into the Emergent-A Period during which occupation of riverine sites intensifies.

Ethnography

Silver (1978) summarizes ethnographic information regarding Shasta collected by Dixon (1907), Voegelin (1942), and Holt (1946). Shasta territory extended north to a point about 20 miles north of Ashland, Oregon, including the Rogue River; south to Mt. Shasta; west to Seiad Valley on the Klamath River, southwest to New River; and east to Beswick (Silver 1978). Shasta groups are members of the Hokan language family.

There are several groups of Shasta that exhibit different cultural traits. Information presented here focuses on the Klamath River Shasta, called the Wiruhikwaiiruka or Kammatwa (Daniels 2003). Shasta were organized into autonomous tribelets consisting of extended family groups that occupied a group of villages. The family was the basic social unit of the Shasta, with the village being the political and economic unit. Each village had a chief, whose position was usually hereditary, to provide leadership and organize important social, political, and economic events (Silver 1978). Shamans conducted a variety of ceremonies in villages, and Shasta considered Mount Shasta to be sacred ground that was used for healing, blessing, and ceremonies. Mount Shasta is a significant part of Shasta traditions and ceremonialism.

Shasta along the Klamath River tended to build their winter villages near the river. Villages had recognized territories with areas for each family, including fishing places with fish weirs along the Klamath. Hunting territories also were held privately over the long term, in contrast to tobacco-growing plots and acorn-gathering trees, which were claimed only for brief periods. Typical villages consisted of brush shelters, bark houses, sweathouses, assembly houses, and winter houses (Silver 1978).

During the spring and summer, Shasta established temporary hunting and gathering camps in the foothills and mountains to exploit seasonally available resources in those ecological zones. Shasta relied on a subsistence pattern emphasizing gathering, hunting, and fishing, and exploited a variety of plant and animal resources as they became seasonally available. For example, resources used by the Shasta included deer, brown bear, rabbit, a variety of small mammals, fish, birds, insects, acorns, buckeye, pine nuts, manzanita berries, and a variety of other plants. Acorns were a staple of the Shasta diet. Regardless of the variety of resources available to the Shasta, the primary components of their diet were deer, Chinook salmon, and acorns (Dixon 1907; Silver 1978).

Individual hunters and communal hunting parties hunted deer using bows and arrows, snares, dogs, and drives (e.g., driving deer over cliffs). Waterfowl and quail were taken using nets, snares, and traps (Moratto 1984). Spring and fall salmon runs were important fishing times for the Shasta. Fishing techniques included using set, dip, and long flat seine nets, basket traps, weirs, hook and line, and spears. In the spring Klamath River Shasta waited to catch salmon until a member of another Shasta group called the Kammatwa caught the first fish and performed a ritual. Klamath River Shasta could then catch and process the fish for storage but could not eat them until the Karuk performed the White Deerskin Dance ceremony. Salmon and trout were sun dried and stored in baskets for winter consumption (Silver 1978). Women and children also dove for mussels in the Klamath River during the spring.

Shasta traded pine nuts, obsidian blades, and juniper beads with their neighbors for obsidian from the Achumawi; pine nut necklaces from the Wintu; canoes from Karuk and Yurok; acorns, baskets, dentalia shells, haliotis shells, and other shells from the Karuk, Hoopa, and Yurok; and beads from Wintu (Silver 1978). Shasta also acted as a middleman for the Achumawi, who acquired dentalia shells from groups in the Columbia River area. In addition, Shasta occasionally attended Karuk, Hoopa, and Yurok dances.

Euroamerican settlement of the study area accelerated as a result of the Gold Rush. Conflicts between Indian tribes and Euroamericans resulted in the Rogue River Indian Wars of 1850-1857 that pushed Shasta from their traditional fishing, hunting, and village sites. A treaty in 1851 established a reservation in Scott Valley for Shasta, but conflict between Euroamericans and Shasta persisted. Consequently, in the 1870s Shasta welcomed cultural revivalist movements such as the Ghost Dance. From the 1870s through the 1940s most Shasta in the APE lived at the Frain Ranch or Bogus Tom Smith's Rancheria (Daniels 2003) and continued to practice their traditional subsistence activities. Currently, Shasta are attempting to preserve, protect, and maintain traditional cultural practices, including sites associated with those practices.

Northwest California Culture Area

Prehistory

Fredrickson (1973) identified six patterns or modes of adaptation (i.e., Post, Borax Lake, Berkeley, Mendocino, Gunther, and Augustine Patterns) for northwest California and the North Coast Ranges and assigned them to six time periods: Paleo-Indian (10,000–6,000 B.C.); Lower, Middle, and Upper Archaic (6,000 B.C.–A.D. 500); and Upper and Lower

Emergent (A.D. 500–1800) periods. The patterns applicable to northwest California are the Post, Borax Lake, Mendocino, and Gunther.

The Post Pattern (12,000–8,000 BP) represents the earliest occupation of the area and is characterized by fluted, concave-base projectile points and crescents. Regardless, archaeological sites with well-defined assemblage of typical Post Pattern artifacts are not well represented in northwest California.

The Borax Lake Pattern (8,000–2,500 BP) represents a generalized hunting and gathering subsistence pattern. It is characterized by heavy, wide-stemmed points with indented bases, serrated bifaces, ovoid tools, hand stones, and milling slabs (Hildebrandt 2007). The Borax Lake Pattern is identified at sites across a wide variety of environments in Humboldt and Trinity Counties. For example, sites CA-HUM-567 and CA-HUM-367 are along Pilot Ridge and South Fork Mountain and site CA-TRI-1008 is along a river terrace adjacent to the Trinity River. Site CA-HUM-567 includes a house floor and post holes dated at 6,000 BP.

The Mendocino Pattern (5,000 BP–AD 500) appears to represent a hunting and gathering subsistence pattern that is well adapted to local environments and typically exploits seasonally available resources across different ecological zones. It is characterized by side-notched, corner-notched, and concave base dart points, hand stones, milling slabs, and in some cases small numbers of cobble mortar and pestles. The Mendocino Pattern is not clearly defined in northwestern California, but it has been identified at sites such as CA-DNO-11 at Point St. George, CA-DNO-1 and CA-DNO-26 along the Smith River, CA-HUM-351 in Humboldt Bay, and CA-HUM-538, -588, and -595 in the northern mountains of Humboldt County (Hildebrandt 2007).

The Gunther Pattern (Post A.D. 500) appears to be associated with the exploitation of marine and riverine resources. It is characterized by Gunther barbed projectile points, concave based points used for composite harpoons, spears, hooks ground and polished stone artifacts, flanged pestles, notched net sinkers, and steatite bowls. Sites representing the Gunther Pattern in Del Norte and Humboldt Counties that are associated with exploitation of marine mammals and fish include sites CA-DNO-11, CA-HUM-129, -118, and -67 (Hildebrandt 2007). The Gunther Pattern appears to represent the earliest evidence of subsistence patterns associated with the exploitation of marine mammals and fish that is typical of the Yurok, Hoopa, and Karuk that currently inhabit northwest California and the Klamath Basin.

Ethnography

Karuk

Bright (1978) summarizes ethnographic information regarding Karuk primarily from information presented by Gifford (1939a, 1939b, and 1940) and Kroeber and Barrett (1960). Karuk occupy territory west of the Shasta, which stretches along the middle part of the Klamath River near the western boundary of Siskiyou County from Seiad to Bluff Creek just west of Orleans (Bright 1978). Karuk are members of the Hokan language

family (Bright 1978). Karuk share similar cultural traits with the Yurok and Hoopa and regularly interact with each other.

Karuk were organized in villages with a relatively loose political structure. The acquisition of wealth is an important part of Karuk culture, and wealthy men assumed leadership roles because of their prestige. Villages varied in size and consisted of rectangular cedar plank houses and sweat houses. Karuk focused on the exploitation of fish and aquatic resources, but other terrestrial resources were also important supplements to their diet. Karuk also harvested acorns and hunted in upland areas around the Klamath River for deer, elk, birds, and fur bearing mammals. The hides of mammals were used for a variety of clothing and bird feathers and pelts were used for ceremonial regalia.

Plentiful fish resources facilitated the occupation of numerous villages along the Klamath and Salmon Rivers (i.e., Salter [2003] reports that 100 villages existed along the two rivers). The villages were in advantageous locations on bends of the Klamath River and bluffs above it, such as near the mouths of Camp Creek (Tishaniik), the Salmon River (Mashuashav), and Clear Creek (Inam).

Karuk tools reflect their emphasis on the acquisition of fish and other aquatic resources and include harpoons, nets, and hooks. Facilities constructed to harvest fish include weirs, dams, and fishing platforms. Karuk also constructed canoes from hollowed out logs for fishing and transportation along the Klamath River and its tributaries. Transportation along the river and streams was essential to Karuk ceremonial activity. Indeed, Karuk traditions state that the Klamath River was created to facilitate their interaction with Yurok and Hoopa and with salmon.

The political and social organization and material cultural of the Karuk are important topics, but their religious and ceremonial practices highlight their relationship to the Klamath River and its associated resources. Of particular importance are world renewal ceremonies and ceremonies for bountiful harvests of fish and other resources (Bright 1978). World renewal ceremonies include the White Deerskin and Jump ceremonies at which the earth and the creator are honored for providing food and facilitating the prosperity of the tribes. These ceremonies were and continue to be conducted at sites along the Klamath River such as Panaminik (Drucker 1936). Ceremonies to insure harvests of fish include the First Fish, First Salmon, and Fish Dam ceremonies. Other ceremonies related to world renewal and curing are the Boat Dance and the Brush Dance. Karuk, Hoopa, and Yurok regularly attend each other's ceremonies and the ceremonies are conducted for the benefit of all the groups.

The White Deerskin and Jump ceremonies honor the earth and the creator for providing food resources and maintaining the tribes. The White Deerskin ceremony is held from late August into September, depending on the river and its waters. The Jump ceremony is conducted after the conclusion of the White Deerskin ceremony and is also held for the "good" of the world. Both the White Deerskin and the Jump ceremonies depend on a healthy Klamath River system for fish, basket materials, and bathing. The First Fish ceremony is conducted in spring and the Fish Dam ceremony is conducted to in mid-

summer to celebrate the harvesting of fish and to pray for continuing prosperity and access to subsistence resources, primarily fish resources. The Boat ceremony forms part of the White Deerskin ceremony, celebrating the flows and health of the rivers. The Brush Dance is held to cure the sick, particularly children.

As noted above, Euroamerican settlement in the area of analysis accelerated as a result of the Gold Rush. Conflicts between Indian tribes and Euroamericans were commonplace across Karuk territory. Consequently, Karuk welcomed cultural revivalist movements in the 1870s such as the Ghost Dance, but traditional cultural practices and numbers of Karuk continued to decline. Regardless, the Karuk persisted even though they do not have a reservation, and contemporary Karuk continue to practice their traditional activities and are actively engaged in programs related to improving the health of the Klamath River and its fishery.

Yurok

Pilling (1978) summarizes ethnographic information regarding Yurok collected by Waterman (1920), Waterman and Kroeber (1934), and others. Sloan (2004, 2011) also presents a summary of the ethnography of the Yurok and the relationship to the tribe to the Klamath River. Yurok are members of the Algonquian language family. Yurok ancestral territory extends along the Pacific coast of California from Crescent City in the north to Trinidad in the south and along the Klamath River from the coast to a point near the confluence of the Klamath and Trinity Rivers and the town of Weitchpec (Pilling 1978). The Yurok life, language, ceremonies, society, and economy are linked with the Klamath River. There are Yurok stories that reinforce the Yurok belief that the River was created in a distinct way in order to provide Yurok people with the best of worlds (Sloan 2004, 2011). Yurok refer to the river as *HeL kik a wroi* or "watercourse coming from way back in the mountains". Contemporary Yurok often refer to the Klamath River as the "Yurok Highway" emphasizing its comparison to a blood vessel that provides the main flow of sustenance. Indeed, Karuk, Yurok, and Hoopa share similar cultural traits and traditional stories state that the Klamath River was created to facilitate their interaction with each other and with salmon.

Yurok were organized into villages and districts with a relatively loose political structure (Pilling 1978). The acquisition of wealth is an important part of Karuk culture, and wealthy men assumed leadership roles in the village, district, and family. Villages varied in size and consisted of rectangular cedar or redwood plank houses and sweat houses. Pilling (1978) cites 44 villages, 97 fishing spots, 82 significant cultural places (e.g., places used for ceremonies, gathering, and hunting), and 41 rocks of cultural significance along the Klamath River.

Yurok focused on the exploitation of fish and aquatic resources, but other terrestrial resources were also important supplements to their diet. Yurok harvested acorns and hunted in upland areas around the Klamath and Trinity River for deer, elk, birds, and fur bearing mammals. The hides of mammals were used for a variety of clothing and bird feathers and pelts were used for ceremonial regalia.

Yurok tools reflect their emphasis on the acquisition of fish and other aquatic resources and include harpoons, nets, and hooks. Facilities constructed to harvest fish include weirs, dams, and fishing platforms. Yurok also constructed canoes for fishing and transportation along the Klamath and Trinity Rivers and their tributaries. Transportation along the rivers and streams was essential to Yurok ceremonial activity.

One of the most important aspects of Yurok technology was the river- and ocean-going canoe or yoch, which were carved from selected redwood trees (Sloan 2004, 2011). The Yurok ocean-going canoe was from 30 to 40 feet in length, 6 to 8 feet in width and 3 feet deep. It could haul up to five tons of cargo (e.g., seal carcasses) and was customarily paddled by 5 to 20 paddlers and an oarsman who steered the boat from the back. There are historic accounts of expeditions traveling 180 miles along the coast (Sloan 2004, 2011). A typical river canoe measured 16 to 20 feet in length and 3 to 4 feet in width. River canoes were customarily paddled and/or pushed with a long pole. Yurok technology and facilities do not only serve utilitarian functions, but also include ceremonial aspects of Yurok culture. For example, facilities, such as fish weirs, were created specifically to signify the time of sacred ceremonies (e.g., the Deerskin and Jump ceremonies).

Fishing places along the Klamath River were owned by individuals, families, or groups of individuals. Fishing places were borrowed, leased, inherited, or bought and sold (Sloan 2004, 2011). Some ownership rights at fishing places depended on species of fish caught at the site, while others depended on the water level (i.e., individuals owned the right to fish at a place if the river was below or above a certain level). Yurok still recognize this traditional form of resource management and use of the river. Families and individuals continue to use and own rights to fishing places on the Klamath River.

Like the Karuk, the religious and ceremonial practices highlight the Yurok's relationship to the Klamath River and its associated resources. Of particular importance were the Jump, Deerskin, Boat, and Brush ceremonies. The Jump and Deerskin ceremonies were held in late fall to give thanks for food resources abundance collected during the year and to insure a continued abundance of food resources for the next year (Sloan 2004, 2011).

Affluent individuals and religious leaders conducted most ceremonies, and wealthy individuals were expected to feed salmon to everyone attending the ceremonies. The Boat Ceremony was part of the Deerskin Ceremony. In this ceremony, several boats filled with participants traveled down the Klamath River. The participants thanked the river for continuing to flow and provide resources. The Brush Ceremony unfolded over a four-day period and highlighted the importance of Klamath River resources to Yurok. For example, baskets made of plant materials collected at the water's edge were used to hold food and ceremonial medicine; acorns were cooked in the baskets using hot rocks gathered at specific river bars; ceremonial regalia was made from various plant and animals that live along the river; ceremonial bathing was performed; and participants listened to the sounds made by the Klamath River.

The social and ceremonial significance of the Klamath River is evident in and reinforced by Yurok traditions. For example, there are at least 77 Yurok stories that make direct reference to the Klamath River (Sloan 2004, 2011). These Yurok stories reinforce the belief that the Klamath River was created to provide Yurok with a very good place to live.

Spanish explorers and vessels traveling from the Philippines may have interacted with Yurok along the coast in the late 1700s. Other explorers such as Peter Skene Odgen and Jedediah Smith certainly encountered Yurok along the Klamath River in the early 1800s. Regardless, Euroamerican settlement and use of Yurok territory did not begin until after the discovery of gold in California. As a result of the discovery of gold in the Trinity River, gold prospectors inundated the region affecting Yurok traditional culture (Pilling 1978).

In 1851 a "Treaty of Peace and Friendship" was signed between the United States Government and the Klamath River Indians, but the United States Congress did not ratify this treaty. Subsequently, on November 16, 1855, the Klamath River Reserve, also known as the Klamath Indian Reservation, was established by Executive Order. The Order designated the reservation lands from the mouth of the Klamath River, one mile on each side extending approximately 20 miles upriver to Tectah Creek (Sloan 2004, 2011).

Escalating conflict between Yurok and Euroamericans during the 1860s and 1870s over encroachment onto the Klamath Indian Reserve resulted in the gradual displacement of Lower Klamath Indians further upriver (Sloan 2004, 2011). Euroamericans on the reserve resisted attempts to remove them, including eviction in 1879 by the United States Army (Sloan 2004, 2011). After decades of struggle to regain their traditional homelands, the Yurok Tribe was re-organized and was granted its own reservation in 1988. As a result of the 1988 Hoopa-Yurok Settlement Act (PL-100-580), the Yurok Indian Reservation was established.

The Yurok Tribe is the largest tribe in California, with over 4,500 enrolled tribal members and over 200 tribal government employees. The Yurok Tribe is actively pursuing economic development and resource management both on the reservation and Yurok ancestral lands, including a fisheries program.

Hoopa

Wallace (1978) summarizes ethnographic information regarding Hoopa primarily collected by Goddard (1903). Hoopa are members of the Athabascan language family. Hoopa ancestral territory is centered in Hoopa Valley and the area surrounding the Trinity River near its confluence with the Klamath River. Hoopa, Karuk, and Yurok share similar cultural traits and regularly interact with each other.

Hoopa were organized in villages with a relatively loose political structure. Villages typically consisted of family groups (Wallace 1978). Villages varied in size and consisted of rectangular cedar plank houses. Hoopa focused on the exploitation of fish and aquatic resources, but other terrestrial resources were also important supplements to

their diet. Hoopa also harvested acorns and hunted in upland areas around the Trinity and Klamath River for deer, elk, birds, and fur bearing mammals. The hides of mammals were used for a variety of clothing and bird feathers and pelts were used for ceremonial regalia.

Hoopa tools reflect their emphasis on the acquisition of fish and other aquatic resources and include harpoons, nets, and hooks. Facilities constructed to harvest fish include weirs and dams. Hoopa used canoes for fishing and transportation along the Trinity and Klamath Rivers, but obtained their canoes from the Yurok. Transportation along the river and streams was essential to Hoopa ceremonial activity. Indeed, Hoopa believe that the Klamath River was created to facilitate their interaction with Yurok and Hoopa and with salmon.

Like the Karuk and the Yurok, the Hoopa's religious and ceremonial practices highlight their relationship to the Klamath and Trinity Rivers and their associated resources. Of particular importance are world renewal ceremonies and ceremonies for bountiful harvests of fish and other resources (Wallace 1978). World renewal ceremonies include the White Deerskin and Jump ceremonies at which the earth and the creator are honored for providing food and facilitating the prosperity of the tribes. Ceremonies to ensure harvests of fish and acorns include the First Salmon ceremony and Acorn Feast (Wallace 1978). Hoopa, Karuk, and Yurok regularly attend each other's ceremonies and the ceremonies are conducted for the benefit of all the groups.

Euroamerican settlement of the APE accelerated as a result of the Gold Rush, resulting in the establishment of the Hoopa Valley Reservation in 1864. President Harrison expanded the existing Hoopa Valley Indian Reservation in 1891 to include lands within one mile on either side of the Klamath River from the Pacific Ocean to the Hoopa Valley (Salter 2003). This area included the Klamath Indian Reserve. The 1988 Hoopa-Yurok Settlement Act (PL-100-580) established the Yurok Indian Reservation (Salter 2003).

The culture of Karuk, Hoopa, and Yurok is closely related to the Klamath and Trinity Rivers. These tribes subsist wholly or in large part on the resources acquired from the river, most of their sacred sites are located along it, and their cultural traditions are related to it (Bright 1978; Pilling 1978; and Wallace 1978). Contemporary Hoopa practice their traditional activities and are actively engaged in programs related to improving the health of the Klamath River and its fishery.

3.13.3.2 Historic Context

Before the influx of Euroamericans that began in the 1840s, the APE was settled primarily by Indian tribes (as described in Section 3.13.3.1). Euroamerican exploration of the Klamath Basin began in the early 19th century. Jedediah Strong Smith and Peter Skene Ogden explored current Siskiyou and Klamath County in 1826 and 1827 for beaver, and in 1829 a party of Hudson Bay Company trappers and explorers, led by Alexander Roderick McLeod, also passed through the area (Klamath Hydroelectric Project [KHP] 2004). The fur trade ended in the mid-1840s. Largely, the area remained

sparsely occupied by Euroamericans until the late 1800s, when mining and logging attracted settlers to the area.

The discovery of gold at Sutter's Mill in Coloma in 1848 was the catalyst that caused a dramatic alteration of both Indian tribes and Euroamerican cultural patterns in California. A flood of Euroamericans entered the region once news of the discovery of gold spread. Initially, the Euroamerican population grew slowly, but soon exploded as the presence of large deposits of gold was confirmed. The population of California quickly swelled from an estimated 4,000 Euroamericans in 1848 to 500,000 in 1850 (Bancroft 1888). The discovery of gold and the large influx of Euroamerican immigrants had a positive effect on the growth and economic development of California, but a negative effect on Indian cultures. The discovery of gold in California marked the beginning of a relatively rapid decline of both Indian populations and culture. Euroamericans displaced Indian tribes from their traditional territory, discouraged the use of traditional languages and the practice of religious ceremonies, and Euroamerican economic pursuits (e.g., gold mining, logging, ranching, and farming) limited the practice of traditional Indian subsistence activities.

Gold was discovered by Abraham Thompson and his party just north of the present-day location of Yreka in 1851 (Hoover et al. 2002). Known as "Thompson's Dry Diggins", the population quickly exploded to 2,000 miners, and the town of Shasta Plains was established (Hoover et al. 2002). The town primarily included tents and brush shanties, but also included a saloon built out of shakes and canvas by Sam Lockhart. The first permanent house in the town was built by D. H. Lowry and his wife, who is credited with being the first white woman in Siskiyou County.

Euroamerican settlement in the Klamath River watershed continued to grow through the 1850s due to the completion of roads such as the Southern Emigrant Road, also known as the Applegate Trail, in 1846 (KHP 2004). These roads brought prospectors to the region and helped to establish communities such as Henley (Cottonwood), Gottville, Happy Camp, and Somes Bar. Fertile soil and plentiful water sources provided opportunities for homesteading and the private development of agriculture and ranching by unsuccessful prospectors, particularly in the area around current Upper Klamath Lake. The expansion of agricultural activities in southeastern Oregon resulted in execution of treaties with The Klamath Tribes and the relocation of groups of Indians in the area (KHP 2004).

Logging began in the Klamath Basin in the 1860s and sustained logging enterprises appeared in the 1880s (KHP 2004). Early companies were generally small, family-run operations managed by ranching families trying to supplement their income. In 1867, President Ulysses S. Grant signed legislation to create a land-grant subsidy for the construction of the Oregon & California Railroad (O&C) (KHP 2004). The grant allowed the O&C Railroad Company to select off-numbered sections from the public domain for the construction of the railroad. In 1887, the O&C Railroad Company claimed "lieu" lands on the Pekegama Plateau as compensation for other lands that had already been claimed by homesteader or military and wagon road companies. Title to these lieu lands were immediately (and illegally) transferred to the Pokegama Sugar Pine

Lumber Company (PSPLC). To move the logs from the Pokegama Plateau, the PSPLC built a log chute on the rim of the Klamath River Canyon and the first railroad in Klamath County (Gavin 2003). During this period, larger scale logging companies such as Pokegama Sugar Pine Lumber Company and Klamath River Lumber and Improvement Company were established on the north rim of the Klamath River Canyon.

The end of the nineteenth and beginning of the twentieth century witnessed an ongoing and growing immigration of Euroamericans into the area, which was facilitated by the construction of the of the railroad through the region. The railroad provided a reliable means of transportation in the area and stimulated regional cultural and economic development. In addition to improving transportation, a railroad grade constructed at the northern end of Lower Klamath Lake functioned as a dike that facilitated drainage of wetlands for agriculture and control of the flow of water from the Klamath River.

The Oregon & California Railroad constructed in 1877 was the first railway through the region (KHP 2004). It extended from Siskiyou County, California, to Jackson County, Oregon, and facilitated travel and the transport of goods between Sacramento and Portland. Subsequently, the Southern Pacific Railroad Company acquired the Oregon & California Railroad, and by 1909 agricultural and lumber products of the Klamath Basin could be distributed to a nationwide market.

The first hydroelectric development in the Klamath Basin was established in 1891 in the Shasta River Canyon below Yreka Creek to provide electricity to Yreka (KHP 2004). Four years later, in 1895, the Klamath Falls Light & Water Company built a power plant along the banks of the Link River and soon thereafter began power generation for the town of Klamath Falls (KHP 2004). The first decade of the 20th century brought a number of mergers and reorganizations of power companies in the APE. The California-Oregon Power Company (Copco) was one of the companies that emerged from this period of reorganization (KHP 2004). The Bureau of Reclamation's Klamath Project was developed by the DOI to supply farmers with irrigation water and farmland in the Klamath Basin.

Copco proposed to develop hydroelectric power facilities along the Klamath River. Residents in the Klamath Falls area were divided over Copco's proposal to dam and generate power on the river. Farmers feared the depletion of precious irrigation water while other businesses saw Copco operations as an addition to the local economy. Regardless, with the increasing power needs of both irrigation and lumber mills and a huge influx of military personnel stationed at Medford and Klamath Falls, it was only a matter of time before additional power generation facilities were needed in the area. Envisioned in 1911, the Klamath Hydroelectric Project was built in phases through 1962 (see Kramer [2003a, 2003b] for a detailed history of the Klamath Hydroelectric Project). Klamath Hydroelectric Project facilities were constructed by Copco beginning with Copco 1 (1918), followed by Copco 2 (1925), and reconstruction of the old East Side facility in 1924. After World War II, regional population growth prompted a new round of hydroelectric power expansion highlighted by Copco's Big Bend project in 1958 and the construction of the Iron Gate facilities in 1962. While the Iron Gate facilities were

still under construction, Copco merged with Pacific Power & Light, currently PacifiCorp. PacifiCorp currently owns and operates the Klamath Hydroelectric Project.

The development of the Klamath Hydroelectric Project played a significant role in the area's economic development, both as part of a regionally significant, locally owned and operated private utility and through the role that increased electrical capacity played in the expansion of the timber, agriculture, and recreation industries during the first six decades of the 20th century. The Klamath Hydroelectric Project dams and associated facilities are recommended as eligible for inclusion on the National Register as the Klamath Hydroelectric Historic District (KHHD) under criterion a for its association with the industrial and economic development of southern Oregon and northern California from 1903-1962 (see Table 3.13.1 below) (Kramer 2003a, 2003b; Cardno Entrix 2010).

3.13.3.3 Known Cultural and Historic Resources in the APE

Record searches and archival research were conducted for the vicinity of the APE. Previously, 191 cultural resources surveys were conducted covering 30,746 acres (approximately 36 percent of the APE) and 681 sites were identified (Cardno Entrix 2010). Most of the surveys were conducted around Upper and Lower Klamath Lakes and on Yurok lands. The majority of the sites within the APE are prehistoric sites associated with Indian occupation and use of the area. These sites include small lithic scatters, traditional fishing sites, ceremonial sites, and large village sites. The historic sites within the APE are mostly related to the development of agriculture and hydroelectric power.

Sixty-eight sites in the APE are recommended eligible for inclusion on the National Register. The Klamath Hydroelectric Project dams and other associated facilities also are recommended eligible for inclusion on the National Register as a historic district (Kramer 2003a, 2003b and Cardno Entrix 2010). Table 13.13-1 identifies key features of the hydroelectric system and their eligibility recommendation.

The review of ethnographic information for the study area identified TCPs and other culturally sensitive sites along and near the Klamath River. The TCPs and other sites include villages at traditional salmon fishing sites, villages associated with secondary resource procurement areas, ceremonial sites, and burial sites (cf., Daniels 2003; Deur 2004, 2011; Kreober and Barrett 1960; Sloan 2004, 2011; and Waterman 1920). Deur (2004, 2011) identified 11 TCPs along the Klamath River and Theodoratus et al. (1990) identified 3 sites along the river between J.C. Boyle Dam and Scott River that have "cultural value" to The Klamath Tribes. Daniels (2003) identified 47 ethnographic sites (e.g., habitation, hunting, fishing, gathering, and spiritual/ceremonial sites) along the Klamath River and at least 5 village sites submerged by the formation of Copco 1 Reservoir that have cultural value to the Shasta. Theodoratus et al. (1990) also identified 24 sites along the Klamath River between J.C. Boyle Dam and Scott River that have "cultural value" to Shasta. Additionally, the Bureau of Land Management (BLM) has previously identified a culturally significant area along the Upper Klamath River for a proposed National Register District.

Table 3.13-1. Klamath Hydroelectric Facilities Historic District National Register Eligibility Recommendation

J.C. Boyle	
Dam	Historic Contributing
Communications Building	Non-Contributing
Fire Protection Building	Non-Contributing
Red Barn	Non-Contributing
Maintenance Shop	Non-Contributing
Water Conveyance Features	Potentially Contributing
Steel Pipe	Historic Contributing
Flume Headgate	Non-Contributing
Open Flume/Concrete	Historic Contributing
Headgate	Historic Contributing
Forebay/Spillgates	Historic Contributing
Spillway House	Historic Contributing
Tunnel	Historic Contributing
Penstocks	Historic Contributing
Powerhouse	Historic Contributing
Substation	Historic Contributing
Armco Warehouse	Historic Contributing
Copco 1	
Dam	Historic Contributing
Gatehouse 1	Historic Contributing
Gatehouse 2	Historic Contributing
Gate Hoist System/Rails	Historic Contributing
Double Penstock	Historic Contributing
Single Penstock	Historic Contributing
Powerhouse	Historic Contributing
Copco 2	
Dam	Historic Contributing
Water Conveyance Features	Potentially Contributing
Headgate	Historic Contributing
Tunnel Intake	Historic Contributing
Concrete-lined Tunnel	Historic Contributing
Wood Stave Pipeline	Historic Contributing
Concrete Tunnel	Historic Contributing
Steel Penstocks	Historic Contributing
Timber Cribbing	Historic Contributing
Coffer Dam	Historic Contributing
Powerhouse	Historic Contributing
Iron Gate	
Dam	Historic Contributing
Spillway	Historic Contributing
Diversion Tunnel	Historic Contributing
Water Conveyance System	Historic Contributing
Water Way/Trash Racks	Historic Contributing
Pipeline	Historic Contributing
Penstock	Historic Contributing
Powerhouse	Historic Contributing
Dam Fisheries Facilities	Historic Contributing
Holding Tanks	Historic Contributing

Gates (2003) and King (2004) identify the entire length of the Klamath River as a "riverscape," which they identify as a type of cultural or ethnographic landscape, because of the relationship between the Klamath Tribes, Shasta, Karuk, Hoopa, and Yurok and the river and its resources. Gates (2003) and King (2004) recommended the Klamath River as eligible for inclusion on the National Register as a riverscape and/or ethnographic landscape. The Klamath River is certainly sensitive to the Klamath Tribes, Shasta, Karuk, Hoopa, and Yurok and is an integral part of their traditional cultural practices, but its eligibility for inclusion on the National Register as a riverscape and/or ethnographic landscape requires formal review and concurrence by the Oregon and California SHPOs. The riverscape and/or ethnographic landscape reports and eligibility determination have not been submitted to the Oregon and California SHPOs for review and concurrence regarding their eligibility determination.

At least one site is known to have human remains exposed from erosion in the Upper Klamath River area. Actions by a federal agency resulted in the reburial of the exposed remains and temporary stabilization of the river bank. Previous studies, surveys, and federal actions, combined with ethnographic studies, indicates that there is a high probability for the presence of additional sites in unsurveyed areas, as well as, in currently submerged settings.

Based on the previously identified sites and ethnographic literature reviews, sites identified at each reservoir include primarily the historic dams and associated facilities and structures and prehistoric/ethnohistoric villages, fishing locations, and ceremonial sites. At the JC Boyle Reservoir, ten prehistoric sites have been identified along the shoreline. At the Copco Reservoir, eleven prehistoric sites and five ethnographic village sites have been identified along the shoreline and within the reservoir. At Iron Gate Reservoir, twelve prehistoric sites and five ethnographic village sites have been identified along the shoreline and within the reservoir. Additional sites may be inundated and/or covered with sediment. Depending on the selected alternative for this EIS/EIR, further identification efforts would need to be taken to identify these sites.

3.13.4 Environmental Consequences

3.13.4.1 Effects/Impacts Determination Methods

Cultural resources investigations (e.g., records searches and reviews of archaeological, ethnographic, and historic information) resulted in the identification of 681 sites, one historic district, several TCPs, and one potential ethnographic landscape within the APE. Identified sites will be treated as potentially eligible for the National Register and California Registers for the analyses of potential effects/impacts for this EIS/EIR. In addition, certain site types likely to be identified in previously unsurveyed areas, including inundated areas, will be considered potentially eligible for potential effects/impacts analyses.

The cultural resources section of this document considers potential effects/impacts from implementation of the Proposed Action and alternatives on these sites, which include prehistoric and historic sites, buildings/structures, cultural (ethnographic) landscapes, and

TCPs. The findings of effects/impacts to cultural resources within the APE are based on criteria presented in 36 CFR Section 800.5 and in CEQA, as described in 3.13.2 Regulatory Framework. Through consultation (see Chapter 7), DOI has developed measures to avoid, minimize or mitigate adverse effects to historic properties and historical resources, including known effects and those effects for which DOI cannot fully understand at this time. Many of these measures would be offered as binding commitments in the ROD, and will help to coordinate future development through these decisions.

Additionally, due to the nature of the action being proposed, potential effects on all historic properties or historical resources cannot be fully determined prior to approval of either the Proposed Action or an alternative evaluated in this EIS/EIR. The identification and evaluation of certain resources, and the potential effects to those resources, can only be understood and addressed as particular details of how to carry out the selected alternative are developed. To address this uncertainty, DOI through consultation (see Chapter 7), is proposing measures that the designated federal officials must follow as specific details are evaluated through future decisions that are required before the selected alternative in this EIS/EIR can be implemented. These measures, which are identified below, will be incorporated as binding stipulations in the ROD for this EIS/EIR. Further, DOI will also seek to develop additional measures through consultation with the ACHP, the SHPOs, THPOs, Indian tribes, and other interested parties as part of the continuing NEPA process.

Under CEQA, potentially significant or significant impacts to historical resources may be mitigated to a less than significant level. If impacts cannot be mitigated or if implementation of mitigation would not reduce an impact to a less than significant level, the impacts are identified as significant and unavoidable.

3.13.4.2 Significance Criteria

The significance criteria used to assess effects/impacts to cultural resources (e.g., historic properties and historical resources) as a result of implementing the Proposed Action and alternatives include both federal and California state criteria.

Cultural resource effects/impacts would be adverse and/or significant if implementation of the Proposed Action and alternatives result in any of the following:

- Under NHPA Section 106, "an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR Section800.5(a)(1))."
- Under CEQA, a substantial adverse change in the significance of an archaeological resource or an historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired, as defined in PRC Section 21083.2 and CCR 15064.5; or

- Disturbance of any human remains, including those interred outside of formal cemeteries.

3.13.4.3 Effects Determinations

Alternative 1: No Action/No Project Alternative

Under the No Action/No Project Alternative, none of the actions under consideration would be implemented. The Klamath Hydroelectric Project would continue operations under the terms of an annual license until a long term license is finalized. Annual licenses would not include the actions associated with the Klamath Hydroelectric Settlement Agreement (KHSA) and Klamath Basin Restoration Agreement (KBRA).

Under the No Action/No Project Alternative current effects/impacts on historic properties/ historical resources, other cultural resources, and human remains will continue to occur. Under the No Action/No Project Alternative, the Klamath Hydroelectric Project on the Klamath River would continue to operate. The Klamath Hydroelectric Project introduced artificial water fluctuations that have resulted in erosion along the lower terraces. Over the life of the Klamath Hydroelectric Project, cultural resources have been impacted by these changing water levels. Known impacts include exposing cultural materials to the public, sometimes leading to looting and illegal excavation of these sites. These circumstances are known to have exposed human remains at least one site. Actions by a federal agency resulted in the reburial of the exposed remains and temporary stabilization of the river bank. Concerns regarding artificial fluctuating water levels and exposing cultural remains in the APE continue to be a concern of federal agencies and Indian tribes.

There are known ongoing effects/impacts on cultural resources due to operation of the Klamath Hydroelectric Project. **Therefore, the No Action Alternative would result in no change from existing conditions and effects/impacts on historic properties and/or historical resources in the APE.**

Alternative 2: Full Facilities Removal of Four Dams Alternative (the Proposed Action)

Under the Proposed Action, four dams and their associated hydroelectric facilities along the Klamath River would be removed. Keno Dam would be transferred to the DOI, the KBRA would be implemented, and the Yreka water supply pipeline would be installed.

The Proposed Action would result in direct effects/impacts to J.C. Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam, their associated hydroelectric facilities, and on the KHHD, which is considered eligible for inclusion on the National Register and California Register. The Proposed Action would include removal of four dams, their associated hydroelectric facilities, and other facilities along the Klamath River. These facilities contribute to the KHHD, which is considered eligible for inclusion on the National Register and the California Register due to its role in early development of electricity and economy of the southern Oregon and northern California regions. Removal of the four dams and all associated facilities under the Proposed Action would adversely affect each dam's eligibility for inclusion on the National Register and the

California Register and the overall integrity of the KHHD because a large portion of this district would be removed.

Under this action adverse effects, as described in Section 106, to the dams and the KHHD cannot be avoided and will need to be mitigated. Mitigation will likely include thorough documentation of the four dams and their associated facilities to Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscape Survey (HALS) levels or the equivalent. Removal of the dams and facilities may also impact as yet unidentified buried cultural resources, particularly ethnographic villages. Additional efforts to identify and evaluate historic properties/historical resources would be conducted. Possible avoidance and/or minimization of effects/impacts to other currently unidentified historic properties/historical resources would be identified through consultations as appropriate.

Under CEQA, for the purpose of this EIS/EIR, mitigation measures that include HABS/HAER documentation could be implemented for the removal of dams under the Proposed Action, but implementation of mitigation measures would not reduce impacts to historical resources to a less than significant level. **For the purpose of this EIS/EIR, under CEQA, the Proposed Action would be a significant and unavoidable impact to historical resources.**

Under NEPA/CEQA, for the purpose of this EIS/EIR, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be implemented. Impacts to the KHHD would remain significant and unavoidable.

Reservoir drawdown associated with the Proposed Action could affect/impact archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly Indian human remains. The Proposed Action includes a drawdown of the reservoirs at the Four Facilities. The dam removal and reservoir drawdown would result in a reduction of water levels in the existing reservoirs; temporarily increase flows along the Klamath River; and expand the limits of the 100 year floodplain by 1 percent (see Section 3.6, Flood Hydrology, for specific data related to stream flow and flooding data). Ethnographic records identify village sites, including burials, located along the previous riverbanks prior to dam construction and subsequent inundation. The dam removal and reservoir drawdown could affect 32 known sites located along the current shores of the reservoirs, ten ethnographic village sites, an unknown number of sites that may be submerged in the reservoirs and human remains that may be isolated or associated with those sites. Ethnographic records identify village sites, including burials, located along the previous riverbanks prior to dam construction and subsequent inundation. Also, several hundred sites along and near the Klamath River downstream from the dams and reservoirs may be exposed or damaged from temporary increase in flows during reservoir drawdowns.

The riverscape, a potentially eligible or significant cultural landscape, includes villages, hunting, gathering, fishing, and spiritual locations on terraces and benches along the river, as well as the river itself and its natural resources. The overall riverscape/cultural

landscape would likely benefit from dam removal by restoring the river more closely to its original setting and facilitating the practice of important Indian traditional customs, ceremonies, and economic activities. However, sites associated with it could be adversely affected through erosion, exposure, and vandalism. Increased flows along the Klamath River could undercut, erode, or flood sites along or near the banks of the river, affecting elements of the potentially significant cultural landscape.

Under this action adverse effects, as described in Section 106, could occur to historic properties as a result of reservoir drawdowns. These effects will need to be mitigated. Drawdown of the reservoirs and the flushing of sediment will likely expose submerged sites around and under the reservoirs. Additional cultural resources surveys and monitoring of the drawdown zone would be conducted as land is exposed. Avoidance, minimization, and mitigation measures would be identified through consultations as appropriate. A cultural resources management plan is likely to be developed, through consultations, to manage and protect endangered and exposed cultural resources.

Under CEQA, for the purpose of this EIS/EIR implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Installation of the Yreka Water Supply Pipeline could affect/impact archaeological and historic sites that are eligible for inclusion on the National Register or California Register. The existing water supply pipeline for the City of Yreka passes under the Iron Gate Reservoir and will have to be relocated prior to the decommissioning of the reservoir to prevent damage from deconstruction activities or increased water velocities once the reservoir has been drawn down. The pipeline will either be suspended from a pipe bridge across the river near its current location, or rerouted along the underside of the Lakeview Bridge just downstream of Iron Gate Dam. The pipeline itself may be a historic property or historical resource and would need to be evaluated for eligibility. Ground disturbance required for either method of relocating the pipeline could result in the discovery of historic and/or archaeologically significant sites. The construction of footing to support the pipe bridge and the trenching and rerouting of the pipeline to reach Lakeview Bridge could uncover previously unknown sites. **Under this action adverse effects, as described in Section 106, could occur to historic properties as a result of installation of the Yreka water supply pipeline. These effects will need to be mitigated.** Measures to identify historic properties/historical resources and to avoid, minimize, or mitigate and resolve adverse effects would be identified through consultations, as appropriate.

Under CEQA, for the purpose of this EIS/EIR implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Construction activities including use of haul roads and disposal sites for demolition debris under the Proposed Action could affect/impact archaeological and historic sites,

TCPs, and cultural landscapes that are eligible for inclusion on the National Register or California Register. Ground disturbing activities associated with construction activities will likely have both direct and indirect effects/impacts on historic properties/historical resources. The debris from the demolition of the dams and facilities would be hauled to disposal sites. Modifications of the proposed haul roads and use of disposal sites could affect/impact sites (including 17 sites previously identified during earlier survey coverage of the roads and the KHHD) that are located along the haul roads and/or at the disposal sites. **Under this action adverse effects, as described in Section 106, could occur to historic properties as a result of construction of haul roads and disposal sites. These effects will need to be mitigated.** As future plans are developed for construction activities, modifications to haul roads, and identification of actual locations of disposal sites and associated staging/construction, additional identification and evaluation of historic properties/historical resources would be conducted. Measures to avoid, minimize, or mitigate and resolve adverse effects would be identified through consultations, as appropriate.

Under CEQA, for the purpose of this EIS/EIR implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Removal of the recreational facilities after reservoir drawdown may affect archaeological or historic sites that could be eligible for inclusion on the National Register or California Register or human remains. Recreation facilities, such as campgrounds and boat ramps, currently located along the reservoir banks will need to be relocated down slope to be near the new river bed once the reservoir is removed. These facilities are not eligible for the National Register or California Register, and were not known to impact archaeological sites when they were built. Additional ground disturbance from removal of these facilities may affect/impact previously unidentified historic properties/historical resources. **Under this action adverse effects, as described in Section 106, could occur to historic properties as a result of removal and relocation of recreational facilities. These effects will need to be mitigated.** Further identification and evaluation of historic properties/historical resources would be conducted. Measures to avoid, minimize, or mitigate and resolve adverse effects would be identified through consultations, as appropriate.

Under CEQA, for the purpose of this EIS/EIR implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Keno Transfer

The Transfer of Keno Dam to the DOI could have adverse effects to historic properties or historic resources. The KHSA calls for transferring ownership and operation of Keno Dam from PacifiCorp to DOI. Upon transfer of privately owned facilities into federal ownership, cultural resources and historic properties are then subject to federal historic and cultural resources management laws. **Under Section 106 and CEQA, this action would not cause an effect/impact to historic properties or historical resources. The**

transfer would likely be a beneficial effect because the facilities would be subject to federal regulation.

East and West Side Facilities

The decommissioning of the East and West Side Facilities could have adverse effects on historic resources or historic properties. Decommissioning of the East and West Side canals and hydropower facilities of the Link River Dam by PacifiCorp as a part of the KHSA will redirect water flows currently diverted at Link River Dam into the two canals, back in to Link River. Following decommissioning of the facilities there will be no change in outflow from Upper Klamath Lake or inflow into Lake Ewauna. Decommissioning does not typically involve deconstruction of the facilities. Instead, buildings and equipment that are too large to easily remove or are fixed in place are usually fenced to prevent entry. Any deconstruction and removal of facilities would be analyzed in future environmental analyses. **The decommissioning of the East and West Side Facility will have less than significant effects on historical resources or historic properties.**

KBRA

The KBRA has several programs that could result in impacts/effects to cultural and historic resources that are eligible for inclusion on the National Register and/or California Register. These resources include archaeological and historic sites, TCPs, cultural landscapes, and possibly Indian human remains. Specific KBRA programs potentially affecting cultural and historic resources include:

- Phases 1 and 2 Fisheries Restoration Plans
- Fisheries Reintroduction and Management Plan
- Wood River Wetland Restoration Project
- On-Project Plan
- Water Use Retirement Program
- Fish Entrainment Reduction
- Klamath Tribes Interim Fishing Site
- Mazama Forest Project

Implementation of the Phase 1 and 2 Fisheries Restoration Plans, the Fisheries Reintroduction and Management Plan, the Wood River Wetland Restoration Project, the On-Project Plan, the Water Use Retirement Program, and the Fish Entrainment Reduction progam, could result in impacts/effects to archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly Indian human remains. Actions associated with the Fisheries Restoration Plans in the floodplain and river channel include: floodplain rehabilitation, large woody debris replacement, fish passage correction, cattle exclusion (fencing), riparian vegetation planting, mechanical thinning of upland areas to mimic natural forest conditions, fire treatment to mimic natural forest conditions, purchase of conservation easements/land, road decommissioning, gravel augmentation, and treatment of fine sediment sources. The fisheries restoration actions are designed to improve

aquatic and riparian habitat and potential changes in river hydraulics are intended to improve the habitats' ability to support river fisheries. These restoration actions would not occur at the same locations as construction activities for the hydroelectric facility removal. KBRA construction activities would not contribute to potential cultural and historic resource effects of facility removal actions. **Implementation of the KBRA programs listed above include ground disturbing activities that are likely to have a significant impact on cultural and historic resources that are eligible for inclusion on the National Register and/or California Register. Studies will be conducted to identify cultural resources and measures to reduce significant impacts to those resources. Implementation of specific plans and projects associated with Phase 1 and 2 Fisheries Restoration will require future environmental compliance as appropriate.**

Under CEQA/NEPA, for the purpose of this EIS/EIR, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be implemented, but the impact would remain significant and unavoidable.

Establishment of the Klamath Tribes Interim Fishing Site could result in impacts/effects to archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and possibly Indian human remains. Actions associated with the Klamath Tribes Interim Fishing Site include establishment of an interim fishing site for Klamath Tribal members between Iron Gate Dam and Interstate - 5. The location and timing of this project reduces the potential for any negative cultural and historic resource impacts generated by establishment of the Klamath Tribes Interim Fishing Site from contributing to the effects of the hydroelectric facility removal actions. Although negative short-term effects could occur, implementation of construction-related best management practices (BMPs) would occur. **Establishment of the Klamath Tribes Interim Fishing Site is likely to include ground disturbing activities that could have a significant impact on cultural and historic resources that are eligible for inclusion on the National Register. Studies will be conducted to identify cultural resources and measures to reduce significant impacts to those resources. Implementation of specific plans associated with the establishment of the Klamath Tribes Interim Fishing Site will require future environmental compliance as appropriate.**

Under CEQA/NEPA, for the purpose of this EIS/EIR, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be implemented and would reduce any impact of the Klamath Tribes Interim Fishing Site to a less than significant level.

Implementation of the Mazama Forest Project could result in impacts/effects to archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and possibly Indian human remains. Actions associated with the Mazama Forest Project include the purchase and management of 90,000 acres of timberland on former reservation land owned by the Klamath Tribe. The 90,000 acres identified in the Mazama Forest Project are likely to include cultural and historic resources that are eligible for inclusion on the National Register. Forest management actions at the Mazama Forest would not be in the same location as the

hydroelectric facility removal actions and there would be no negative cultural and historic resource impacts generated by these restoration actions that would contribute to the effects of facility removal actions. **While the Klamath Tribes Forest Management Plan has been developed, the specific location of management actions within the Mazama Forest have not been identified. It is assumed however that implementation of this plan is likely to have a significant impact on cultural and historic resources that are eligible for inclusion on the National Register and/or California Register. Studies will be conducted to identify cultural resources and reduce significant impacts to these resources. Implementation of specific plans and projects associated with the Mazama Forest Project will require future environmental compliance as appropriate.**

Under CEQA/NEPA, for the purpose of this EIS/EIR, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be implemented and would reduce any impact of the Mazama Forest Project to a less than significant level.

Finding of Effects Under NHPA Section 106

Under the Proposed Action for NHPA, adverse effects to known historic properties (including the KHHD) cannot be avoided. In addition, adverse effects to as yet unidentified or unevaluated historic properties expected to be identified during future identification efforts may result from this alternative. The adverse effects will need to be minimized or mitigated. Additional consultations and identification and evaluation efforts will be conducted under consultations with ACHP, SHPOs, THPOs, Indian Tribes, and other interested parties, per 36 CFR Part 800. Measures to avoid, minimize, or mitigate and resolve adverse effects, identified through consultations, will likely result in agreement documents per 36 CFR Part 800 for implementation of this alternative. **Under NHPA Section 106, the Proposed Action will have an adverse effect to historic properties.**

Alternative 3: Partial Facilities Removal of Four Dams Alternative

Under the Partial Facilities Removal of Four Dams Alternative, four dams and their associated hydroelectric facilities would be partially removed to provide for volitional fish passage. Keno Dam would be transferred to the DOI, the KBRA would be implemented, and the Yreka water supply pipeline would be installed

The Partial Facilities Removal of Four Dams Alternative would result in direct effects/impacts to J.C. Boyle Dam, Copco 1Dam, Copco 2 Dam, and Iron Gate Dam and on the KHHD considered eligible for inclusion on the National Register and California Register. The Partial Facilities Removal of Four Dams Alternative would include removal of portions of the four dams, their associated hydroelectric facilities, and f other facilities along the Klamath River. These facilities contribute to the KHHD, which is presumed eligible for inclusion on the National Register and the California Register due to its role in early development of electricity and economy of the southern Oregon and northern California regions. Partial removal of the four dams would adversely affect each dam's eligibility and possibly the overall integrity of the KHHD.

Potential effects/impacts to cultural and historic resources under the Partial Facilities Removal of Four Dams Alternative, including draw downs of reservoirs; the Keno Transfer; the East and West Side Facility decommissioning; relocation of the Yreka Water Supply Line; construction activities; removal of recreational facilities; and transfer of Keno Dam would be the same as those identified for the Proposed Action/Full Facilities Removal of Four Dams Alternative.

KBRA

The KBRA has several programs that could result in impacts/effects to cultural and historic resources that are eligible for inclusion on the National Register and/or California Register. These resources include archaeological and historic sites, TCPs, cultural landscapes, and possibly Indian human remains. Specific KBRA programs potentially affecting cultural and historic resources include:

- Phases 1 and 2 Fisheries Restoration Plans
- Mazama Forest Project
- Klamath Tribes Interim Fishing Site
- Fisheries Reintroduction and Management Plan – Phases I and II – Oregon
- Wood River Wetland Restoration Project
- On-Project Plan
- Water Use Retirement Program
- Fish Entrainment Reduction

Potential effects/impacts to cultural and historic resources associated with the Partial Facilities Removal of Four Dams Alternative are the same as identified for the Proposed Action.

Finding of Effects Under NHPA Section 106

Under the Partial Removal of Four Dams Alternative for NHPA, adverse effects to known historic properties (including the KHHD) cannot be avoided. Under this alternative effects would be the same as those identified for the Proposed Action/Full Facilities Removal of Four Dams Alternative.

Alternative 4: Fish Passage at Four Dams Alternative

Under the Fish Passage at Four Dams Alternative operation of the existing dams and hydroelectric facilities would continue along the Klamath River and fish passage facilities would be constructed at the four dams. Keno Dam would not be transferred to DOI and the KBRA would not be implemented.

The Fish Passage at Four Dams Alternative could affect/impact the four dams and the KHHD, other historic properties/historical resources, TCPs, cultural landscapes, or human burials. The Fish Passage at Four Dams Alternative would continue operation of the existing dams and hydroelectric facilities along the Klamath River and could continue to affect historic properties/ historical resources. Construction of fish passages could require modifications to the four dams and/or their associated facilities, resulting in

effects/impacts to the KHHD. Construction activities required for the fish passages may affect/impact as yet unidentified historic properties/historical resources. **Under this action adverse effects, as described in Section 106, to the dams and the KHHD would occur and will need to be mitigated.** Further identification and evaluation of historic properties/historical resources would be conducted. Measures to avoid, minimize, or mitigate and resolve adverse effects would be identified through consultations, as appropriate.

Under CEQA/NEPA, for the purpose of this EIS/EIR this would be a significant impact to historical resources. Implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Finding of Effects Under NHPA Section 106

Under the Fish Passage at Four Dams Alternative for NHPA, adverse effects to known historic properties (including the KHHD) would likely occur. In addition, adverse effects to as yet unidentified or unevaluated properties may result from this alternative. The adverse effects will need to be minimized or mitigated. Additional consultations and identification and evaluation efforts will be conducted under consultations with ACHP, SHPOs, THPOs, Indian Tribes, and other interested parties, per 36 CFR Part 800. Measures to avoid, minimize, or mitigate and resolve adverse effects, identified through consultations, will likely result in agreement documents per 36 CFR Part 800 for implementation of this alternative. **Under NHPA Section 106, the Fish Passages at Four Dams will have an adverse effect to historic properties.**

Alternative 5: Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative

Under the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative, two dams, their associated hydroelectric facilities, and fish hatchery facilities along the Klamath River would be removed and fish passage facilities would be constructed at two dams. Under this alternative, Keno Dam would not be transferred to the DOI and the KBRA would not be implemented.

The Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative would result in direct effects/impacts to Copco 1Dam and Iron Gate Dam and on the KHHD considered eligible for inclusion on the National Register and California Register. The Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative would include removal of two dams, their associated hydroelectric facilities, and other facilities along the Klamath River. Installation of fish passages at JC Boyle Dam and Copco 2 Dam may affect/impact those dams and their associated facilities. These facilities contribute to the KHHD, which is presumed eligible for inclusion on the National Register and the California Register due to its role in early development of electricity and economy of the southern Oregon and northern California regions. The removal of two dams and facilities would adversely affect each dam's eligibility and possibly the overall integrity of the KHHD.

Under this action adverse effects, as described in Section 106, to the dams and the KHHD cannot be avoided and will need to be mitigated. Mitigation will likely include thorough documentation of the four dams and their associated facilities to HABS/HAER/HALS levels or similar. Removal of the dams and facilities and construction of fish passages may also impact as yet unidentified buried cultural resources, particularly ethnographic villages. Additional efforts to identify and evaluate historic properties/historical resources would be conducted. Possible avoidance, minimization, and mitigation measures to other currently unidentified historic properties/historical resources would be identified through consultations as appropriate.

Under CEQA, for the purpose of this EIS/EIR, mitigation measures that include HABS/HAER documentation could be implemented, but implementation of mitigation measures would not reduce impacts to historical resources to a less than significant level. **For the purpose of this EIS/EIR, under CEQA/NEPA, the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative would be a significant and unavoidable impact to historical resources.**

Reservoir drawdown associated with the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative could affect/impact archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly Indian human remains. The Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative includes a drawdown of the reservoirs behind Copco 1 and Iron Gate dams. The dam removal and reservoir drawdown would result in a reduction of water levels in the existing reservoirs and temporarily increase flows along the Klamath River. Ethnographic records identify village sites, including burials, located along the previous riverbanks prior to dam construction and subsequent inundation. The dam removal and reservoir drawdown could affect 23 known sites located along the current shores of the reservoirs, ten ethnographic village sites, an unknown number of sites that may be submerged in the reservoirs and human remains that may be isolated or associated with those sites. Ethnographic records identify village sites, including burials, located along the previous riverbanks prior to dam construction and subsequent inundation. Also, several hundred sites along and near the Klamath River downstream from the dams and reservoirs may be exposed or damaged from temporary increase in flows during reservoir drawdowns.

The riverscape, a potentially eligible or significant cultural landscape, includes villages, hunting, gathering, fishing, and spiritual locations on terraces and benches along the river, as well as the river itself and its natural resources. The overall riverscape/cultural landscape would likely benefit from dam removal by restoring the river more closely to its original setting and facilitating the practice of important Indian traditional customs, ceremonies, and economic activities. However, sites associated with it could be adversely affected through erosion, exposure, and vandalism. Increased flows along the Klamath River could undercut, erode, or flood sites along or near the banks of the river, affecting elements of the potentially significant cultural landscape.

Under this action adverse effects, as described in Section 106, could occur to historic properties as a result of reservoir drawdowns. These effects will need to be mitigated. Drawdown of the reservoirs and the flushing of sediment will likely expose submerged sites around and under the reservoirs. Additional cultural resources surveys and monitoring of the drawdown zone would be conducted as land is exposed. Avoidance, minimization, and mitigation measures would be identified through consultations as appropriate. A cultural resources management plan is likely to be developed, through consultations, to manage and protect endangered and exposed cultural resources.

Under CEQA/NEPA, for the purpose of this EIS/EIR implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to any historical resources to less than significant.

Potential effects/impacts to cultural and historic resources under the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative, including draw downs of reservoirs; construction activities; and removal of recreational facilities would be the same as those identified for the Proposed Action/Full Facilities Removal of Four Dams Alternative.

Finding of Effects Under NHPA Section 106

Under the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative for NHPA, adverse effects to known historic properties (including the KHHD) cannot be avoided. In addition, adverse effects to as yet unidentified or unevaluated properties may result from this alternative. The adverse effects will need to be minimized or mitigated. Additional consultations and identification and evaluation efforts will be conducted under consultations with ACHP, SHPOs, THPOs, Indian Tribes, and other interested parties, per 36 CFR Part 800. Measures to avoid, minimize, or mitigate and resolve adverse effects, identified through consultations, will likely result in agreement documents per 36 CFR Part 800 for implementation of this alternative. **Under NHPA Section 106, the Fish Passage at Two Dams, Remove Copco 1 and Iron Gate Alternative will have an adverse effect to historic properties.**

3.13.4.4 Mitigation Measures

Mitigation Measure by Consequences Summary

Implementation of the Proposed Action and alternatives will each have an adverse effect on historic properties under Section 106 of the NHPA. Mitigation measures CHR-1 to CHR-4 identify actions to avoid, minimize or mitigate adverse effects following the process in 36 CFR Section 800.8(c)(1)(v).

Under CEQA, most of the impacts to historical resources could be mitigated to a less than significant impact for the purpose of this EIS/EIR by implementing all four mitigation measures. However, impacts to the four dams and the KHHD cannot be mitigated to less than a significant and unavoidable impact for the purpose of this EIS/EIR.

Mitigation Measure CHR-1: Update the Klamath Hydroelectric Project Request for Determination of Eligibility (Kramer 2003) to include Iron Gate as a historic property and to identify contributing elements to the KHHD; and

- Continue consultations under Section 106 of the NHPA with ACHP, SHPOs, THPOs, and other interested parties to reach a consensus on the eligibility determination; and
- Enter into an agreement document (Memorandum of Agreement or Programmatic Agreement) under Section 106 of the NHPA with ACHP, SHPOs, THPOs, and other consulting parties for the resolution of adverse effects; and
- Document the four dams to HABS/HAER/HALS standards or equivalent; and
- Identify additional mitigation measures in the agreement document, including a public outreach or education component.

Mitigation Measure CHR-2: Continue consultations under Section 106 of the NHPA with ACHP, SHPOs, THPOs, Indian tribes, and other interested parties to identify and evaluate cultural resources for eligibility for listing on the National Register and/or California Register; and

- Continue identification and evaluation of historic properties/historical resources for unevaluated cultural resources, unsurveyed areas, and inundated zones; and
- Continue consultations under Section 106 of the NHPA with ACHP, SHPOs, THPOs, Indian tribes and other interested parties to identify alternatives to avoid, minimize, or mitigate adverse effects to historic properties; and
- Enter into an agreement document (Memorandum of Agreement or Programmatic Agreement) under Section 106 of the NHPA with ACHP, SHPOs, THPOs, and other consulting parties for the avoidance, minimization, and mitigation of adverse effects, and the resolution of adverse effects (including excavation as appropriate and a public outreach component); and
- Prepare a Monitoring Plan to identify historic properties/historical resources exposed during implementation of the selected alternative; and
- Prepare and implement an Inadvertent Discovery Plan for unanticipated discoveries of historic properties/historical resources and Indian human remains; and
- Prepare and implement a Cultural Resources Management Plan to address the management and protection of historic properties/historical resources and significant cultural resources; and
- Respect and maintain the confidentiality of sensitive information following 36 CFR Section 800.11(c) and the Archaeological Resources Protection Act of 1979 (16 USC 470hh).

Mitigation Measure CHR-3: Continue consultations under Section 106 of the NHPA with ACHP, SHPOs, THPOs, Indian tribes and other interested parties to identify and evaluate TCPs and cultural landscapes for eligibility for listing on the National Register and/or California Register; and

- Follow the steps in CHR-2 for identification and evaluation, alternatives to avoid, minimize, or mitigate, and resolution of adverse effects; and

- Respect and maintain the confidentiality of sensitive information following 36 CFR Section 800.11(c) and the Archaeological Resources Protection Act of 1979 (16 USC Section 470hh).

Mitigation Measure CHR-4:

- Consult with Indian Tribes and other Indian organizations on identification, treatment, disposition, and management of Indian human remains exposed and/or impacted by the selected alternative;
- Prepare and implement a Plan of Action to manage and treat Indian human remains, following NAGPRA on federal and Indian tribal lands and California and Oregon state burial laws on appropriate state lands;
- Prepare and implement an Inadvertent Discovery Plan for unanticipated discoveries of historic properties/historical resources and Indian human remains;
- Consult on discoveries of historic properties/historical resources in association with Indian human remains as identified in Mitigation Measure CHR-2.

Effectiveness of Mitigation in Reducing Effects/Impacts

Under NHPA Section 106, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be effective at addressing adverse effects to historic properties as a result of implementing the Proposed Action or other alternatives. Under CEQA, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would be effective at reducing most impacts to historical resources as a result of implementing the Proposed Action or other alternatives to less than significant. However, the mitigation measures would not be effective at reducing impacts on the four dams and the KHHD that is recommended eligible for inclusion on the California Register. The Proposed Action and other alternatives would have a significant and unavoidable impact on the Klamath River dams and KHHD. Mitigation measures could be implemented for the removal of dams under the Proposed Action, but implementation of the measures would not reduce impacts to these historical resources to less than significant.

Agency Responsible for Mitigation Implementation

The Dam Removal Entity or Hydropower Licensee, and state agencies would be responsible for implementing Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4. It is anticipated that a mix of federal and state agencies would be responsible for implementing the mitigation measures because implementation of the Proposed Action and alternatives requires the involvement of various federal and state permitting, licensing, and funding agencies.

Remaining Significant Impacts

Under CEQA, Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would address most impacts on historical resources associated with the Proposed Action and alternatives. However, the mitigation measures presented in this EIR/EIS would not reduce impacts on the four Klamath River dams and the KHHD that is recommended eligible for inclusion on the California Register to less than significant. Under the Proposed Action and other alternatives impacts to the four Klamath River dams and the KHHD would be significant and unavoidable.

Mitigation Measures Associated with Other Resource Areas

Several other resources areas include mitigation measures to address construction related effects/impacts associated with implementation of the Proposed Action or other alternatives. These mitigation measures include Rec-1 (relocation of recreational facilities at reservoirs); H-2 (flood-proof structures); GW-1 (deepen or replace affected wells); WRWS-1 (modify or screen affected water intakes); PHS-4 (repair damaged roads); PHS-5 (construct water storage tanks for firefighting); TR-6 (assess and improve roads to carry construction loads); and TR-7 (assess and improve bridges to carry construction loads). These mitigation measures could affect/impact historic properties/historical resources, other cultural resources, and Indian human remains. **Under NHPA Section 106 actions associated with implementing mitigation measures associated with other resource areas could cause adverse effects to historic properties. Adverse effects to historic properties that are a result of these mitigation measures can be resolved through implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4. Under CEQA, actions associated with implementing mitigation measures associated with other resource areas could result in significant impacts to historical resources. Implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 would reduce impacts to historical resources as a result of these mitigation measures to less than significant.**

3.13.5 References

Aikens, C.M. and D.L. Jenkins (editors). 1994. "Archaeological Researches in the Northern Great Basin: Fort Rock Archaeology Since Cressman." University of Oregon Anthropological Papers 50. Eugene, Oregon.

Ames, K.M., D.E. Dumond, J.R. Galm, and R. Minor. 1998. "Prehistory of the Southern Plateau." Handbook of North American Indians, Volume 12: Plateau. Edited by Deward E. Walker, Jr., pp. 103-119. W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Balter, Michael. 2008. DNA From Fossil Feces Breaks Clovis Barrier. Science 320:37.

Bancroft, Hubert Howe. 1888. Annals of the California Gold Era.

Barrett, S.A. 1910. The Material Culture of the Klamath Lake and Modoc Indians of Northeastern California and Southern Oregon. University of California Publications in Archaeology and Ethnology, Volume 5, Number 4, pp. 239-292.

Basgall, M.E. and W. R. Hildebrand. 1989. Prehistory of the Sacramento River Canyon, Shasta County, California. Center for Archaeological Research at Davis Publication Number 9. University of California, Davis, California.

Berreman, J.V. 1937. "Tribal Distribution in Oregon." Memoirs of the American Anthropological Association No. 47. American Anthropological Association, Menasha, WI.

Birnbaum, C. 1994. Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes. Preservation Briefs Number 36. U.S. Department of the Interior, National Park Service, Washington D.C.

Bright, W. 1978. "Karok." In the Handbook of North American Indians, Volume 8: California. Edited by R.F. Heizer, pp. 180-189. General editor, W. C. Sturtevant. Smithsonian Institution, Washington, D.C.

Cardno Entrix. 2010. Draft Klamath Secretarial Determination Cultural Resources Report. Prepared for the Bureau of Reclamation, Mid-Pacific Region, Sacramento, California.

Cleland, J.H. (editor). 1997a. Prehistory of the Middle Pit River, Northeastern, California. KEA Environmental, Inc., San Diego and Dames and Moore, Inc., Chico, California. Submitted to Pacific Gas and Electric Company, San Francisco, California.

Cleland, J.H. (editor). 1997b. Cultural Chronology. Chapter 5 in Prehistory of the Middle Pit River, Northeastern, California, edited by J. H. Cleland, pp. 69-79. KEA Environmental, Inc., San Diego and Dames and Moore, Inc., Chico. Submitted to Pacific Gas and Electric Company, San Francisco, California.

Daniels, Brian I. 2003. Preliminary Shasta TCP Study. A draft report prepared for PacifiCorp, Portland, Oregon, by Brian Isaac Daniels from San Bruno, California.

Department of Interior's (DOI), National Park Service (NPS).1995. The Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Washington, D.C.

Deur, D. 2004. Traditional Cultural Properties and Sensitive Resource Study, Klamath Tribes, Klamath Hydroelectric Project FERC Relicensing Documentation. Report prepared for The Klamath Tribes.

Deur, D. 2011. The Klamath Tribes An Ethnographic Assessment of Cultural Resource Impacts. Report prepared for the Klamath Tribes.

Dixon, R.B. 1907. The Shasta. Bulletin of the American Museum of Natural History 17(5):381-498.

Drucker, P. 1936. A World Renewal Ceremony at Panaminik. Varia Anthropologica, University of California Publications in American Archaeology and Ethnology Volume 35, Number 3, pp 23-28.

Fredrickson, D.A. 1973. Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis, California.

Fredrickson, D.A. 1984. The North Coastal Region. In California Archaeology. Edited by Michael J. Moratto, pp. 471-527. Academic Press, Orlando.

Gates, T. 2003. Ethnographic Riverscape: Regulatory Analysis. Draft report prepared for PacifiCorp Hydroelectric Inc., by Yurok Tribe Heritage Preservation Office under contract #P13342 in conjunction with FERC Project No. 2082.

Gavin, Scott. 2003. A Tale of four Pokegamas or Klamath county's First Railroad. Document on file at the US Department of the Interior, Bureau of Land Management, Klamath Falls Resource Area office, Klamath Falls, Oregon.

Gifford. 1939a. "Karok Field Notes". Bancroft Library, University of California, Berkeley; CU 23.1 item 174.

Gifford. 1939b. "Karok Narratives,". Bancroft Library, University of California, Berkeley. Contents: I. Myths and Tales -- II. Formulae -- III. Confessions -- IV. Games.

Gifford. 1940 "Karok Field Notes". Bancroft Library, University of California, Berkeley; CU 23.1 item 175.

Goddard, Pliny Earle. 1903. Life and Culture of the Hupa. University of California Publications in Archaeology and Ethnology, Volume 1, Number 1.

Gunther, E. 1926. "An Analysis of the First Salmon Ceremony." American Anthropologist.

Hildebrandt, W.R., 2007. Northwest California: Ancient Lifeways among Forested Mountains, Flowing Rivers, and Rocky Shores. In California Prehistory pp. 83-98 edited by Terry L. Jones and Kathryn A. Klar. Alta Mira Press, Lanham, Maryland.

Holt, C. 1946. "Shasta Ethnography." University of California Anthropological Records 3(3). Berkley.

Hoover, M., H. Rensch, E. Rensch, and W. Abeloe. 2002. Historic Spots in California. Fifth Edition, revised by Douglas E. Kyle. Stanford University Press. Stanford, California.

King, T.F., 2004. First Salmon: The Klamath Cultural Riverscape and The Klamath River Hydroelectric Project. Report prepared for the Klamath River Intertribal Fish and Water Commission.

Klamath Hydroelectric Project, 2004. Exhibit E Cultural Resources, FERC License Application.

Klamath Tribes. 2003. "Klamath Tribes History." Electronic document, http://www.klamathtribes.org/history.html

Kramer, George. 2003a. Historic Context Statement: Klamath Hydroelectric Project, FERC No. 2082. Prepared for PacifiCorp in Portland, Oregon. June 2003.

Kramer, George. 2003b. Request for Determination of Eligibility: Klamath Hydroelectric Project, FERC No. 2082. Prepared for PacifiCorp in Portland, Oregon. October 2003.

Kroeber, A.L. 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington, D.C. Reprinted in 1976 by Dover Publications, Inc., New York, New York.

Kroeber, A.L. and Samuel A. Barrett. 1960 Fishing Among the Indians of Northwestern California. In: University of California Publications, Anthropological Records Vol. 21, No.1. Berkeley, CA.

Mack, J.M. 1983. "Archaeological Investigations in the Salt Cave Locality: Subsistence Uniformity and Cultural Diversity on the Klamath River, Oregon." University of Oregon Anthropological Papers 29. Eugene.

Mack, J.M. 1991. "Klamath River Canyon Prehistory." Klamath Canyon Prehistory and Ethnology. Edited by Richard Hanes. USDI BLM, Oregon State Office, Cultural Resource Series No. 8. Portland, Oregon.

Moratto, M. J. 1984. California Archaeology. Academic Press, New York, New York.

National Park Service. 1995. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. U.S. Department of the Interior, Washington D.C.

National Park Service. 1996. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscape. U.S. Department of the Interior, Washington D.C.

National Park Service. 2002. National Register Bulletin 15 How to Apply the National Register Criteria for Evaluation. U.S. Department of the Interior, Washington, D.C.

Parker, P.J. and T.F. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. Preservation Briefs Number 38. U.S. Department of the Interior, National Park Service, Washington D.C.

Pilling, A.R. 1978. "Yurok." In the Handbook of North American Indians, Volume 8: California. Edited by R.F. Heizer, pp. 137-154. General editor, W. C. Sturtevant. Smithsonian Institution, Washington, D.C.

Ray, V.F. 1963. Primitive Pragmatists: The Modoc Indians of Northern California. Seattle: University of Washington Press.

Salter, J.F. 2003. A Context Statement Concerning the Effect of the Klamath Hydroelectric Project on Traditional Resources Uses and Cultural Patterns of the Karuk People Within the Klamath River Corridor. Report prepared for PacifiCorp.

Silver, S. 1978. Shasta. In Handbook of North American Indians Volume 8. William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Sloan, K. 2004. Ethnographic Riverscape: Klamath River Yurok Tribe Ethnographic Inventory. Report prepared for the Klamath Hydroelectric Project FERC 2082.

Sloan, K. 2011. Yurok and the Klamath River: Yurok Historical Context and Data for Assessing Current Conditions and the Effects of the proposed Klamath Restoration Project on Yurok Tribal Trust Assets and Yurok Resources of Cultural and Religious Significance. Prepared for the Department of the Interior, Bureau of Indian Affairs.

Spier, L. 1930. Klamath Ethnography. University of California Publications in American Archaeology and Ethnology Volume 30.

Stern, T. 1998. "Klamath and Modoc." In Handbook of North American Indians. W. C. Sturtevant, gen. ed. Vol. 12: Plateau. D. E. Walker, Jr., ed. Washington, DC: Smithsonian Institution.

Swezey, S.L. and R. F. Heizer. 1977. "Ritual Management of Salmonid Fish Resources in California." Journal of California Anthropology 4(1).

Theodoratus, D., M.M. Ashman, H. McCarthy, and D.L. Genetti. 1990. Klamath River Canyon Ethnology Study prepared for the U.S. Bureau of Land Management, Lakeview Oregon.

Voegelin, Erminie. 1942. "Culture Element Distributions, XX: Northeast California." University of California Anthropological Records 7(2):47-252.

Wallace, W.J. 1978. "Hupa, Chilula, and Whilkut." In the Handbook of North American Indians, Volume 8: California. Edited by R.F. Heizer, pp. 164-179. General editor, W. C. Sturtevant. Smithsonian Institution, Washington, D.C.

Waterman, T.T. 1920. Yurok Geography. University of California Publications in American Archaeology and Ethnography Volume 16, Number 5, pp. 177-314.

Waterman, T.T. and A. L. Kroeber. 1934. Yurok Marriages. University of California Publications in American Archaeology and Ethnology 35(1): 1-14. Berkeley.

This page intentionally left blank.