



DEPARTMENT OF THE INTERIOR

Background Technical Report Informing the Secretarial Determination Overview Report

CURRENT EFFECTS OF PACIFICORP DAMS ON INDIAN TRUST RESOURCES AND CULTURAL VALUES

Version 1.1 February 2012

Prepared for:
Department of the Interior

Prepared by:
North State Resources, Inc.

Mission Statement

The mission of the Department of the Interior is to protect and provide access to our nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

Background Technical Report Informing the Secretarial Determination Overview Report

CURRENT EFFECTS OF PACIFICORP DAMS ON INDIAN TRUST RESOURCES AND CULTURAL VALUES

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Abstract/Summary

In 2010, the U.S. Department of the Interior issued a notice of intent to prepare an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) regarding implementation of the Klamath Hydroelectric Settlement Agreement (KHSA) and the Klamath Basin Restoration Agreement (KBRA) for the Sustainability of Public and Trust Resources and Affected Communities, including a Secretarial Determination “regarding whether the removal of four dams owned by PacifiCorp (1) will advance the restoration of the salmonid fisheries of the Klamath basin and (2) is in the public interest, which includes, but is not limited to, consideration of potential impacts on affected local communities and tribes.”¹ This Background Technical Report was prepared to document how the facilities’ current operations have affected Indian trust resources and related cultural values of the tribes and owners and heirs of Public Domain Allotments (PDAs) in the Klamath River basin. The six tribal governments in the study area are the Yurok Tribe, Resighini Rancheria, Hoopa Valley Tribe, Karuk Tribe, Quartz Valley Indian Community, and the Klamath Tribes.

The Cultural/Tribal Sub-team for the Secretarial Determination conducted background research on the six tribal governments and the owners and heirs of PDAs in the Klamath basin, including the history of the establishment of reservations, rancherias, and other entities. Each tribal government, and associated tribal members, was found to have both common and unique cultural and natural resources as well as practices and procedures for their management. Maintained through elaborate social and educational institutions and codified in traditional law, these practices and procedures consist of fishing methods, religious traditions, subsistence, and commercial uses including systems of trade and barter and language and other oral traditions. All of the native people residing in the Klamath River environment were found to have spiritual beliefs and traditional practices that are inseparable from the river and its environment. This report identifies these tribal trust resources and related tribal rights and discusses their cultural value to the people.

As part of this report, the Cultural/Tribal Sub-team documented effects of the facilities, as currently operated, on the trust resources of the tribes. Assessment of the health of the river and lakes has led to the conclusion that fish habitat conditions have degraded since construction of the dams. This has reduced the abundance and health of resident and anadromous fish, most notably salmon and steelhead, as well as sturgeon, suckers, lamprey, and other aquatic species such as clams and mussels. A comparison of diet and traditional practices among the people, both historically and since the construction of the dams, indicates that these diminished resources have, in turn, reduced the physical, emotional, spiritual, and economic health of tribal members living in the Klamath River basin and beyond.

Chapter 1 of this report provides background information on the salmon culture and the effects of the four dams on the physical, emotional, and economic health of the tribal people. Also included are a brief overview of the environmental effects the dams have had on the river and the status of relicensing of the dams. Chapter 2 contains descriptions of terms used in this report, including current operations and conditions, and methods used to research, assess, and compile this report. Chapter 3 presents the history; fish culture; and effects on trust resources and related tribal rights, other

¹ Federal Register/Vol. 75, No. 113/Monday June 14, 2010/Notices, p. 33635.

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resources traditionally used by the tribes, and related cultural values for each of the tribes in the study area, as well as for owners and heirs of PDAs in the Klamath basin. The reader should be aware that each tribe has a unique history and culture; therefore, the trust resources and related tribal rights and cultural values affected by the dams will vary among tribes. For tribes that have no trust resources and no related rights, the effects on other resources traditionally used by the tribes and related cultural values are addressed in Chapter 3 as well. Chapter 4 presents the findings of the Sub-team. Chapter 5 is a combined bibliography and list of references cited in this report. Finally, the appendices contain detailed descriptions of the cultural practices of each of the tribes, as presented by the tribes to the Sub-team, and information on the potentially affected PDAs. Also attached as appendices are copies of the consultation letters sent to the tribes and a sample outreach letter sent to the owners and heirs of PDAs.

Version History File

First sentence in paragraph four on page 1-8 of Version 1.1 February 2012 was changed to “~~Although not all factors related to a compromised river environment can be attributed to the PacifiCorp dams, the dams’ effects certainly contributed to the 2002 fish kill~~” from “Although not all factors related to a compromised river environment can be attributed to the PacifiCorp dams, the dams’ effects certainly contributed to the 2002 fish kill” that was in the June 2011 version of the report.

Last sentence in paragraph one on page 3-45 of Version 1.1 February 2012 was changed to " Removal of Iron Gate Dam will increase the scouring effect and lower the temperature in the upper river primarily during the late summer and fall months, both of which tend to suppress the life cycle of the parasites" from "Removal of Iron Gate Dam will increase the scouring effect and lower the temperature in the upper river, both of which tend to suppress the life cycle of the parasites " that was in the June 2011 version of the report.

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Acronyms and Glossary

ACRONYMS

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
KBRA	Klamath Basin Restoration Agreement
KHSA	Klamath Hydropower Settlement Agreement
KHP	Klamath Hydroelectric Project
Interior	U.S. Department of the Interior
NOAA	National Oceanic and Atmospheric Administration
PDA	Public Domain Allotment
TRD	Trinity River Division
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WHO	World Health Organization

GLOSSARY

anadromous	Term used to describe fish that migrate from salt water to spawn in fresh water.
catostomid	A soft-finned fish of the order Cypriniformes, of the family Catostomidae
dentalia	Of the genus (dentalium) of widely distributed tooth shells
epizootic	An epidemic outbreak of disease in an animal population, often with the implication that it may extend to humans
eulachon	Small, anadromous fish from the eastern Pacific Ocean (commonly called smelt, candlefish, or hooligan)
salmonid	Belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish

Chapter 1 Background

The Klamath River basin ranges from agricultural lands and high deserts in southeastern Oregon, to cattle grazing lands and marshes at the middle elevations, to low-elevation conifer forests as the river nears the Pacific coast. The river begins in a series of lakes and streams and winds its way along the California-Oregon border, passing across several dams and joining with the Shasta, Scott, Salmon, and Trinity rivers along the way. The Klamath River cuts its way through three mountain ranges: the Cascade Range, the Klamath, and the Coast Ranges. Four national forests (Shasta-Trinity, Six Rivers, Klamath, and Winema), as well as Bureau of Land Management (BLM) lands and the Fish and Wildlife Service's (USFWS) Klamath Basin National Wildlife Refuge Complex comprising six refuges (Clear Lake, Tule Lake, Lower Klamath Lake, Bear Valley, Upper Klamath Lake, and Klamath Marsh), create one of the most biologically diverse regions in North America.²

With the natural riches of the lands along the Klamath River, and especially the resources of the river itself, it is not surprising that native communities established themselves in the region. At the time of contact with Euro-Americans in the early 19th century, seven diverse Native American cultural groups counted portions of the Klamath River drainage as central to their ancestral territories. The ancestral territory of the Yurok included the lowest reach of the river and its mouth as well as stretches of the Pacific Coast.³ The Hupa were located primarily on the Trinity River, a main tributary of the Klamath River. The Karuk were most closely associated with the middle reaches of the Klamath River.⁴ The Shasta (whose territory primarily consisted of river systems located at an elevation above 2,500 feet) were represented along the Klamath River by one of the group's internal subgroups, the Wairuhikwaiiruka or Kammatwa. The Modoc and Klamath, as well as some of the Snake (i.e., the Yahooskin band) peoples, lived in the upper reaches of the drainage. Table 1-1 provides a summary of the Klamath basin Native Americans by culture, recognized representative tribal government, and the general location of each tribe in the Klamath basin.

The discovery of gold in California in the 1850s brought hordes of Euro-American miners to the Klamath in search of an easy fortune. With the opening of the lands to outsiders, homesteaders came west looking for a piece of land they could call their own. What they found was a rich environment nourished by a river system and tribal communities occupying and well adapted to the riverine ecosystem. In the upper basin, the fertile soil reclaimed from lakes, accompanied by the controlled availability of water for irrigation, have created ideal conditions for productive agricultural lands that have been tended for over a century.

Land- and water-use disputes soon developed between tribal communities and incoming Euro-Americans. Beginning early in the 20th century, dams were put in place on the upper and mid-Klamath to generate electrical power and to supply water for newly established farmland in the upper basin. The dams extirpated anadromous fish from the upper basin. Later, in the 1950s, more dams were built farther downriver on the Klamath to generate hydropower. Four of those dams, now owned by PacifiCorp, are the subject of this report. Copco Dam No. 1 was completed in 1918 and Copco

² Tennant (May 2010), 5.

³ Federal Energy Regulatory Commission Project Number P-2082-027, 3-554.

⁴ Ibid., 3-554.

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Dam No. 2 in 1925. J. C. Boyle Dam was completed in 1958 and Iron Gate Dam in 1962. Along with the farms and dams came decreased water flows, raised water temperatures, increased susceptibility to excess nutrients that promote algae blooms, and drastically depleted salmon, the tribal communities' most important food, in addition to other fisheries. Partial, but ramifying, ecosystem degradation resulted.

Table 1-1. Klamath Basin Native American Peoples

Klamath Basin Native American Cultures	Recognized Representative Tribal Government	General Location of Tribe in the Klamath Basin
Yurok	Yurok Tribe Resighini Rancheria	Lower Klamath River Lower Klamath River
Hupa	Hoopa Valley Tribe	Lower Trinity River
Karuk	Karuk Tribe Quartz Valley Indian Community	Middle Klamath River Salmon River Scott River
Shasta (Wairuhikwaiiruka/Kammatwa)	Quartz Valley Indian Community	Scott River Shasta River Upper Middle Klamath River
Modoc	Klamath Tribes	Upper Klamath Basin
Klamath	Klamath Tribes	Upper Klamath Basin
Snake (Yahooskin)	Klamath Tribes	Upper Klamath Basin

In short, a large part of the incalculable value of the Klamath River as a resource for human life was taken away from the historic native users of the river and dedicated instead to promotion of agriculture and electrical power. The cost of this conversion was not accounted for but was, instead, externalized and absorbed by the native people.

With so many interests competing for the land, it became apparent as early as 1851 that the federal government needed to step in and negotiate treaties with the tribes. Early California treaties were never ratified by Congress. The Klamath Tribes entered into a treaty providing them a reservation, and other reservations were established through presidential executive orders and related legislation such as the act of April 8, 1864, for the benefit of some Klamath basin tribes. A short time later, the Indian General Allotment Act of 1887 attempted to encourage Native American agriculture by partitioning communally used tribal lands into parcels for individual use. In areas where tribal governments with reservations were not established, the federal government allowed some individual Native Americans to apply for allotments, now referred to as Public Domain Allotments (PDAs). The allotment period and related policies failed to assimilate Native Americans but did result in the loss to Euro-Americans of millions of acres of previously reserved tribal lands. By the 1930s, so many native people had been forced off their ancestral lands that the federal government passed what was commonly known as the Indian Reorganization Act, which stopped the allotment process and revitalized tribal governments.

The six tribal governments in the present study area, listed here from downriver to upriver, include the Yurok Tribe, the Resighini Rancheria, the Hoopa Valley Tribe, the Karuk Tribe, the Quartz

Valley Indian Community, and the Klamath Tribes. Although the language groups and traditional practices sometimes vary among the tribes, all of them derived their cultures, commerce, and subsistence primarily from the river and its aquatic and terrestrial resources. Salmon, steelhead, sturgeon, and other fish, such as suckers, eulachons and lampreys, as well as clams, mussels and other aquatic species—taken with weirs, nets, baskets, harpoons, or spears—occupy, as they always have, a central place in the diets and belief systems of the native people. Fish, particularly salmon, determined settlement patterns and, except where they have been extirpated, have always been the foundation of the daily and seasonal practices of these people.⁵ Although the diverse indigenous peoples of the Klamath have experienced different fates, all retain close connections to the river and its resources.⁶

Figure 1-1 shows the location of the six tribal governments in relation to the Klamath and Trinity rivers and the four PacifiCorp dams.

1.1 The Salmon Culture

The northwest coast of California is considered the southern geographic extent of “The Salmon Culture,” characterized by historic runs of salmon and other fisheries and the presence of indigenous people who have developed elaborate ways of life that are intricately tied to the runs.⁷ Before the dams were in place, the Klamath River had the third most productive salmon run on the West Coast, an asset that native people ritually and effectively managed for thousands of years.⁸ When John Fremont explored the area in 1843, he reported that “the salmon crowd in numbers” along the Klamath River upstream all the way to Klamath Lake, 4,000 feet above sea level.⁹ For thousands of years, salmon and other anadromous fish such as steelhead have been the lifeblood of the Indian tribes along the length of the Klamath River. Rather than the endangered resource talked about today, fish were so plentiful that they formed the backbone of Indian culture. Well managed, the fish were a steady supply of food throughout the seasons, the focus of tribal religious ceremonies, a valuable means of trade for goods from other tribal groups, and the heart of tribal and familial social gatherings. The cycles of many tribal social, religious, and economic activities have been timed to closely coincide with the seasonal and geographic variations in fish runs, particularly the arrival of the first salmon of the annual spring run.¹⁰ A native fishing person revealed the importance of the salmon to the native people of the Northwest and the depth of their spiritual attachment to the fish:

We are the salmon people. The first people taught us that there was a spirit in all things: the plants, the animals, the fish and the birds. We take a little of that spirit from whatever we eat. The first people; the people who were here before us; walked with powerful animal spirits at their elbows. They taught us the ways of the land we did not know, the secrets of survival.¹¹

⁵ Ibid., 3-554.

⁶ Ibid., 3-554.

⁷ Montgomery (2003), 46.

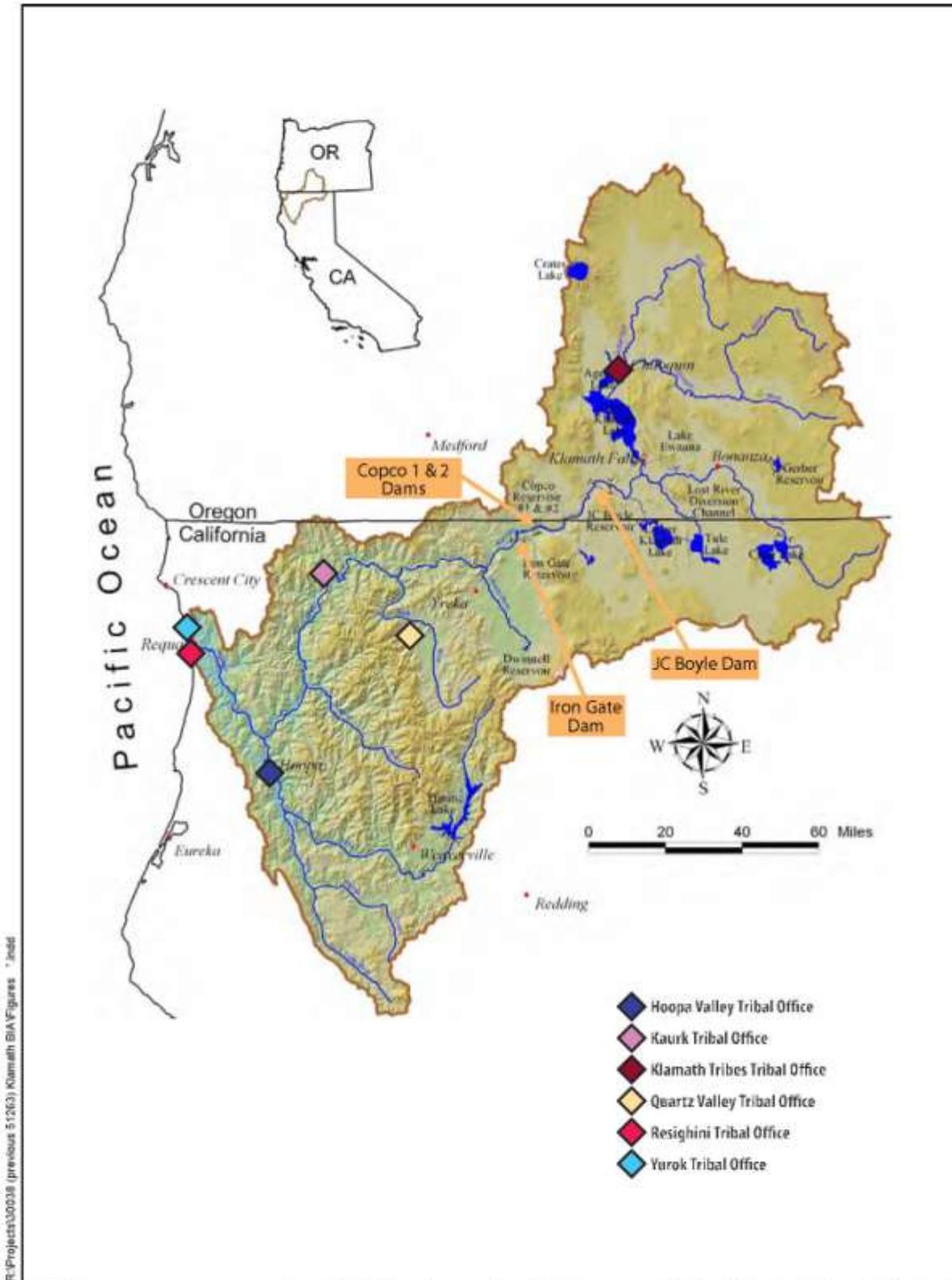
⁸ “Bring the Salmon Home: The Karuk Tribe’s effort to remove Klamath Dams.” Available at: <http://www.karuk.us/karuk2/press/campaigns>.

⁹ Fremont (1887), 483.

¹⁰ Trinity DEIS/EIR (October 1999), 3-214.

¹¹ <http://www.salmonpeople.org>

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Effects of PacificCorp Dams on Indian Trust Resources and Cultural Values in the Klamath River Basin

Figure 1-1
Klamath Basin Tribal Governments, Rivers, and Dams

Because of the dams, the Klamath Tribes have not seen salmon in their sections of the river for nearly a century. Now the tribal taking of salmon, lamprey, and steelhead is tightly regulated the length of the Klamath River to its mouth at the Pacific Ocean. Rights to the resources that were once naturally exercised have become complex legislative processes that pit competing tribes and other interests against each other for the often-sparse fish. With the few fish remaining, young people cannot understand the abundance that the elders remember so vividly, and therefore express less interest in continuing the associated harvesting and ceremonial practices. As these fundamental tribal practices become frayed to the point of breaking, so also does the fabric of an entire way of life become unraveled.

Salmon far exceeds other resources in its importance to the diet and cultures of the tribes who have historically lived in the Klamath River basin. The U.S. Court of Appeals for the Ninth Circuit recognized this importance when it concluded that the fish were “not much less necessary to the existence of the Indians than the atmosphere they breathed.”¹² The abundance of salmon has always been an important measure of tribal well being—where feasting is not simply an exercise in eating, but has deep-rooted connections to the vitality of the Earth and carries a traditional connotation of community health.¹³ In an inextricably linked chain, the health of the tribes is directly tied to the health of the fish, which is tied to the health of the rivers.

1.2 Arrival of the Dams

John C. Boyle, engineer for the Klamath River project, recounted the building of the dams in a book titled *50 Years on the Klamath*. As early as 1918 and 1925, when Copco Dams Nos. 1 and 2, respectively, were built, it was clear even to the engineer of the project that the resident Indians would be forced to sacrifice a great deal to bring a small amount of hydroelectric power to a relatively small number of households. In the firsthand account below, Boyle poignantly—some say cynically—described the land and the displacement of the Indians.

The area surrounding the project was a happy hunting ground for the Indians, plenty of fish in the river and bountiful wildlife in the lava canyons, especially in wintertime. Cats and birds of all kinds native to the country were in abundance on the sunny slopes between the rim rocks.

Indian “Tom” (a Modoc), and Indian “Jake” (a Shasta) did the fishing and most of the hunting. They lived ... on Deer Creek just upstream from the Lennox ranch on public land. Tom was reportedly hiding so he would not have to go to the Oklahoma reservation.

Their stories about the caves on the north slope above the railroad switchback where General Grant supposedly corralled the Indians with his cannons and their stories of abuse by the white man were fascinating and unbelievable.

Most of the other Indians in the neighborhood were mixed bloods, such as the Keatons, Griffiths, Raymonds, Frains, and others.

¹² *Blake v. Arnett*, 663 F.2d 906, 909 (9th Cir. 1981) (quoting *U.S. v. Winans*, 198 U.S. 391, 381 [1905]).

¹³ Gunther (1926).

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Kitty Ward, a full-blood Indian, lived in a tall log cabin which she and her white husband Tim built for a home. It was beautifully located on the lower end of the proposed reservoir beside flowing springs ample to irrigate some of the lands.

The cabin was below the flow line so when time to fill the reservoir came, Kitty was told it was necessary for her to move. She certainly knew how to put the white man in his place. Between sobs and tears, she refused again and again to leave her home saying, “I no move, let water come, I die here.” Tim had been dead for several years, but Andy Marlow, as a ranch foreman and keeper of her wampum, cooperated in getting Kitty to visit in Hornbrook, a visit from which she never returned.¹⁴

As early as 1931, based on research initiated in 1919, John O. Snyder of Stanford University wrote what he termed a “digest of the work accomplished in a salmon investigation conducted under the authority of the Bureau of Commercial Fisheries of the California Division of Fish and Game.” Snyder quoted from an undated paper by R. D. Hume, who reported:

In 1850 in this river during the running season, salmon were so plentiful, according to the reports of the early settlers, that in fording the stream it was with difficulty that they could induce their horses to make the attempt, on account of the River being alive with the finny tribe. At the present time the main run, which were the spring salmon, is practically extinct, not being enough taken to warrant the prosecution of business. The River has remained in a primitive state, with the exception of the influence which mining has had, no salmon of the spring run having been taken except a few by Indians ... and yet the spring run has almost disappeared, and the fall run reduced to very small proportions, the pack never exceeding 6,000 cases, and in 1892 the River produced only 1,047 cases.¹⁵

Although nearly a century has passed since this research was begun, the river dynamics that Snyder discussed are still affecting Klamath River salmon. Snyder claimed that, even during that early period, observations of salmon depletion were ignored; he wrote that some representations of commercial fishing even claimed that salmon runs were “gradually building up.” This is an early example of a recurring tendency of vested interests in the Klamath River to ignore the reality of what was happening to fish stocks to promote their own positions—in this case, the interest is commercial fishing. Snyder described early depletion of Klamath salmon concurrent with the arrival of non-Indian people to the area during the Gold Rush, when large numbers of spawning salmon were taken with spears and other means. Further cementing the fate of the salmon in the Klamath, by 1912, three processing plants with no fishing restrictions had been built in the vicinity of the mouth of the Klamath.

Snyder was unhesitant to extrapolate from the circumstances of his time to what might occur in the river in the future:

The Klamath River and its principal tributaries are fairly free from obstructions below the large dam at Copco. Projects have appeared in the recent past that, if carried out, would have blocked the stream

¹⁴ Boyle (1976).

¹⁵ Snyder (1931), 19.

to most of its migrating fish. Others will come in the future, and eventually the anadromous fish may disappear from the river.¹⁶

1.3 Physical Health Related to Nontraditional Diets

With the loss of naturally occurring resources, especially fish, people often have had no choice but to supplement their diets with government-provided subsidies and store-bought food. But studies have found that supplementing or replacing traditional diets of Indian people is often detrimental to their health, contributing especially to the widespread occurrence of obesity and related diabetes in Indian populations today.¹⁷ U.S. Department of Agriculture (USDA) food banks in particular offer cheap staples that are often highly processed and contain significant amounts of sodium, sucrose, and fat. One study in California found that the foods provided by the food programs varied considerably in their nutritional quality, and healthier foods such as fresh fruits, vegetables, and meats were either completely lacking or in short supply.¹⁸

Pre-historically, Indian tribes suffered from periodic inadequate food supplies and related malnutrition. In times of famine, the Yurok, for example, could petition the Creator at a ceremonial site at the mouth of the river. However, in the past 100 years poor nutrition over the long term has led to diabetes, obesity, and hypertension, with cardiovascular disease now the leading cause of death. Furthermore, the availability of the low-cost foods has created unhealthy eating preferences among younger tribal members, and exercise normally accrued in the tasks of food procurement is no longer essential.

1.4 Mental and Social Health

When a people's identity and cultural practices are closely associated with a species that no longer thrives, a sense of connection and belonging is lost.¹⁹ Young people feel this loss of belonging especially intensely, because they never knew the river their elders knew—a river that was teeming with life and abundance. It is difficult for these young people today to understand the reasons for the seasonal celebrations of the salmon runs. When the water is sometimes so shallow that the boats are in danger of capsizing, the ritual of taking the boats out on the river for the down-river boat ceremonies of the Yurok and Hoopa seem meaningless. Adding insult to injury, the young wonder at the irony of dialing up the federal agencies to request water flow increases in order to perform the Boat Ceremony without capsizing. When tribal celebrations require that the Tribe and visitors feast on salmon and no salmon is to be found in the rivers, it is disheartening to have to make a trip into town to purchase imported fish from a grocery chain store. The results can be depression, alienation, and withdrawal from traditional ways—creating a malaise that lingers among the people subject to these conditions. Other social ills soon replace the occupations of people who would otherwise be busy with their traditional and healthier lifestyles.

¹⁶ *Ibid.*, 50.

¹⁷ Norgaard (2004); Acton et al. (August 1, 2003); California Rural Indian Health Board (2004); Trafzer et al. (2001).

¹⁸ Dillinger et al. (1999), 173.

¹⁹ Norgaard (2004), pp. 45-50.

1.5 Economy

Among the Indians of the Klamath basin, a thriving population of salmon has brought more than subsistence. With the demise of the fish came the need to expand their economies beyond the limits of the tribal lands, and the tribal people found new ways to survive. Traditional fisheries have always had a commercial aspect, in the form of trade and barter. But the new forms of commercial fisheries, which are now closely monitored and restricted, became a new source of income for some of the tribes, particularly the Yurok on the coast. Tribes on the coast as well as inland along the river began to rely on sports fishing and tourism as a means of income. Now, with depletion of the fish populations and erratic runs among those that remain, these industries are becoming less viable.

1.6 Fish Kill of 2002

At least 33,000 adult salmonids died during mid- to late-September 2002 in the lower 36 miles of the river. The September 2002 fish kill on the Klamath River was the first event of its size recorded in the area. Fall-run Chinook salmon were the primary species affected, but Coho salmon, steelhead, sturgeon, and other fish (such as suckers and lampreys) and aquatic species were also lost. (The total fish-kill estimate of 34,056 fish is conservative; California Department of Fish and Game analyses indicate actual losses might have been more than double that number.)²⁰

The primary cause of the fish kill was an outbreak of pathogen-caused disease. However, several unusual conditions contributed to stressful conditions for fish and ultimately led to the outbreak. First, an above-average number of Chinook salmon entered the Klamath River between the last week of August and the first week of September 2002. At the same time, river flow and the volume of water in the area were atypically low, crowding the fish in the river. Fish passage might also have been impeded by shallow water over certain riffles or a lack of cues for fish to migrate upstream. Warm water temperatures, which are common in the dammed Klamath River in September, created ideal conditions for pathogens to infect salmon. The presence of a high density of hosts coupled with warm water temperatures caused a rapid increase of the pathogens *ich* and *columnaris*, resulting in the deaths of massive numbers of adult salmon and steelhead.²¹ As noted by the elders of the Yurok Culture Committee on October 3, 2002: “Never in our time have we, the elders of the Yurok Culture Committee, seen such a mass destruction of our salmon resource.” Despite repeated inquiries, the Yurok Tribal Fisheries Program could find no evidence of such an event recorded in Yurok myth, legend, and stories that have been passed along from generation to generation, even though salmon have formed a pillar of Yurok spirituality, culture, and society. No fisheries management agencies are aware of any historical accounts of large-scale adult Chinook salmon fish kills on the Klamath.²²

²⁰ California Department of Fish and Game (July 2004). III.

²¹ Ibid.

²² Yurok Tribal Fisheries Program (February 2004).

1.7 FERC Relicensing

In February 2006, PacifiCorp filed an application with the Federal Energy Regulatory Commission (FERC) to renew its license to operate the Klamath Hydroelectric Project. At that time, FERC determined that numerous studies should be conducted before considering a renewed license. Those studies indicated, among other things, that water quality was compromised and that fish passage across the dams required improvements. A FERC Environmental Impact Statement (EIS) was drafted in 2006 that suggested ways to mitigate water quality and fish passage, including removal and retirement of the four dams on the Klamath River that are the subject of this report. The EIS did not include provisions to restore annual flows to the upper basin. The proposed mitigations short of dam removal are viewed as inadequate by Klamath basin tribes and some interested parties to the EIS.

1.8 The KHSA and KBRA Agreements, Secretarial Determination, and This Background Technical Report

The Klamath Hydropower Settlement Agreement (KHSA) was signed in February 2010 by multiple parties, including tribes (Yurok Tribe, Karuk Tribe, and Klamath Tribes); water/irrigation districts; federal, state and local agencies; and environmental organizations. The KHSA attempts to avoid through action among the signatory parties the pending FERC relicensing proceeding by establishing a process for potential removal of four dam facilities and interim operation of the facilities until such removal is initiated. The Klamath Basin Restoration Agreement (KBRA), also signed in February 2010 by the same parties as the KHSA (except the federal agencies and PacifiCorp), attempts to resolve longstanding disputes concerning allocation of water for river flows and irrigation, National Wildlife Refuges, and tribal communities with related Indian trust resources and cultural values. In being responsive to the KHSA, which identifies dam removal as an alternative to the FERC relicensing procedures of PacifiCorp dams, the Secretary of the Interior will make a determination by March 2012 whether dam removal:

1. will advance restoration of the salmonid fisheries of the Klamath basin; and
2. is in the public interest, which includes but is not limited to consideration of potential impacts on affected local communities and tribes.²³

This determination will be conducted in tandem with the preparation of an EIR/EIS. This Background Technical Report is intended to assess the effects of current PacifiCorp dam operations on Indian trust resources and cultural values and will be used to inform the Secretarial Determination Overview Report and the related Affected Environment section of the EIS/EIR.

²³ Federal Register/Vol. 75, No. 113/Monday June 14, 2010/Notices, p. 33635.

Chapter 2 Descriptions and Methods

The focus of this evaluation is to identify Indian trust resources and cultural values of tribes residing in the Klamath Basin (the study area) in an effort to assess and characterize current effects of operating four PacifiCorp dams on the Klamath River. Six federally recognized tribal governments exist in the study area: the Yurok Tribe, Resighini Rancheria, Hoopa Valley Tribe, Karuk Tribe, Quartz Valley Indian Community, and the Klamath Tribes. The first section below, titled Descriptions, contains a description of terms used in this document, followed by a description of current operations and current conditions. The methods used to gather the data to compile this report are then described.

2.1 Descriptions

2.1.1 Description of Terms

Indian trust resources consist of certain real property, natural resources, and related rights held in trust by the federal government for the benefit of one or more federally recognized Indian tribes or individual Indians. Trust resources attributed to tribes are called “tribal” trust resources, and trust resources attributed to individual Indians (usually called “allottees”) are called “individual” trust resources. Some tribes have the right to use resources that are transitory or migratory in nature and that move beyond the reach of federal or tribal management (e.g., fish and water). In such cases, it is a tribe’s *right* to use the resource that is the trust resource, not the resource itself. In the case of the Klamath River basin Indian tribes, the federal government has the responsibility to safeguard the fishery to ensure that tribes with fishing rights are able to practice those rights. Water quantity and quality are essential for the success of a safeguarded fishery, with some Klamath River basin tribes also maintaining federally recognized water rights. Tribes of the Klamath River basin also use resources that may not meet the legal definition of trust resources, but which are nonetheless part of their traditional or cultural lifestyle, and which may have independent legal protection. For the purposes of this document, these resources are referred to as other resources traditionally used by tribes. Also for the purpose of this report, cultural values are larger sets of values, unique to the tribal cultures and transmitted from generation to generation, that are placed on resources (cultural and natural) and are so intertwined with the resources that it is impossible to tease them apart. The terms used in this report are described in more detail below.

Indian Trust Resources

Indian trust resources are property or legal interests that the United States has a legal obligation to manage for the benefit of one or more federally recognized Indian tribes or individual Indians. An Indian trust resource has three components: (a) the trustee, (b) the beneficiary, and (c) the trust resource or right. Indian trust resources can include, but are not limited to, water rights, fishing rights, land, and minerals. Beneficiaries of the Indian trust relationship are federally recognized Indian tribes with trust land and individual Indians with trust allotments; the United States is the trustee. Tribal trust resources and rights cannot be sold, leased, or otherwise encumbered without

approval of the United States. Specific duties of the United States as trustee are defined by case law that interprets congressional acts, executive orders, and treaty provisions.

Tribal Rights

The nature and scope of tribal rights in the Klamath River basin are defined by treaties, statutes, executive orders, and other laws specific to the individual Indian tribes in the basin, resulting in unique tribal rights to trust resources for each tribe. Tribal rights relating to migratory trust resources (water and fish) include, but are not necessarily limited to, the ability to access, to use, and to obtain sufficient quantities of such.

Other Resources Traditionally Used by Tribes

Other resources traditionally used by tribes are those that are related to tribal cultural values associated with a tribal way of life that may not meet the definition of a trust resource, but which may or may not be entitled to legal protection under statute, regulation, or other law or regulation. Although the tribes of the Klamath River basin share many cultural values, their histories and practices are not necessarily the same. Thus, each of the six tribes addressed in this study may have its own set of resources that it considers important to the formation and maintenance of its culture but that the United States does not currently regard as a trust resource.

Cultural Values

Cultural values related to a tribal way of life centered on rivers and lakes are composed of myriad values, styles, practices, resources, and items transmitted and evolving through time that together define the unique identities of the Yurok, Hupa, Karuk, Shasta, Klamath, Modoc, and Yahooskin (a band of Snake) cultures that are found in the six federally recognized Klamath River basin tribes. Cultural values more specifically can be described as the unique manner in which tribal people access, take, prepare, administer, consider and otherwise use natural resources in unique tribal ways. To the extent that such resources and related values are diminished by ecosystem degradation, related cultures are also degraded and cultural transmissions become inhibited, which can contribute to the detriment of the mental, spiritual, and physical health of the Indians of the Klamath River basin. For some tribes, these cultural values are linked to trust resources and rights only, but cultural values are also linked to other resources traditionally used by tribes.

Federal Laws

The federal government has a responsibility to ensure that trust resources and other associated rights are properly managed for the benefit of the tribe or individual Indian. But the federal government may have additional responsibilities towards such resources as set out in multiple federal laws and related regulations such as the NEPA, Clean Water Act, National Historic Preservation Act, American Indian Religious Freedom Act, Executive Order No.13007: Indian Sacred Sites and Environmental Justice Executive Order No. 12898. The federal government has an obligation to consult with tribal governments concerning its actions per Executive Order No. 13175 and Secretarial Order No. 3206.

Public Domain Allotments

In 1910, Congress passed the Forest Allotment Act, establishing a procedure by which eligible Indians could apply to receive an allotment of land within the National Forests. Forests were

generally open to settlement from 1906 to 1962 under the Forest Homestead Act of 1906, and the Secretary of Agriculture was instructed to designate appropriate lands for settlement when they were deemed better suited for agriculture or grazing than for forestry. Indians seeking allotments per the Forest Allotment Act were treated as persons seeking homesteads under the Forest Homestead Act. Since that Act was repealed in 1962, no new entry for settlement has been permitted.²⁴

A PDA is somewhat different from tribal trust lands or allotments on reservations in that it is controlled not by a tribal governing body, but by an individual or individuals referred to as owners and heirs. PDAs can be sold or taken out of trust status on request of the owners and heirs. The Bureau of Indian Affairs maintains a trust relationship with owners and heirs of PDAs and acts as the federal land manager for such allotment lands.²⁵

There are 41 PDAs in the Klamath basin, most located in the middle region of the Klamath River. However, only those owners and heirs of PDAs on or near the Klamath River, a total of 26 allotments, were contacted for the purposes of this report. The 26 allotments, totaling 351.05 acres, are held by 357 owners and heirs (a number that is difficult to ascertain because of ongoing probate cases).

2.1.2 Current Operations

The proposed action—removal of the J. C. Boyle Dam, Copco No. 1 Dam, Copco No. 2 Dam, and Iron Gate Dam—is located on the upper Klamath River in Klamath County, Oregon, and Siskiyou County, California. The Klamath River flows 253 miles downstream from its headwaters at Upper Klamath Lake, draining a basin of more than 15,000 square miles before reaching the Pacific Ocean off the California coast. The area for the proposed action is located between River Mile (RM) 224.7 and RM 190.10.

Over the last 100 years, the Klamath River has been managed by various entities for irrigation, fishery and other aquatic species habitat, and recreational and hydroelectric purposes. The most significant changes began in 1905, under the direction of the U.S. Department of the Interior, Bureau of Reclamation for the Klamath Project. The Klamath Project diverted and distributed water for irrigation of agricultural lands, to support water delivery to the Klamath Wildlife refuges, and to control floods. The Klamath Project resulted in the development of two mainstem dams to supply irrigation water. Four additional mainstem dams are used for hydropower.

Most recently, the current operations have been considered a part of the Klamath Hydroelectric FERC Project, owned and operated by PacifiCorp. The FERC Project consists of eight hydroelectric facilities within and in the vicinity of the study area. All four of the facilities proposed for removal are currently managed as part of the FERC Project. Other FERC Project facilities not included in the proposed action are not discussed further in this document.

²⁴ <http://ftp.resource.org/courts.gov/c/F2/945/F2d.1441.88-1088.html>.

²⁵ Ibid.

J. C. Boyle Dam

J. C. Boyle Dam was constructed in 1958 and is owned by PacifiCorp²⁶. J. C. Boyle Reservoir begins at RM 224.7. The dam rises 68 feet high and retains approximately 3,495 acre-feet of total storage capacity and 1,724 acre-feet of active storage capacity.²⁷ The normal maximum and minimum elevations of the reservoir are between 3,793.5 and 3,788 feet, a range of 5.5 feet.²⁸ On average, J. C. Boyle Reservoir levels fluctuate approximately 1 to 2 feet daily, with typical peaking operations reaching approximately 3.5 feet. Water approaching the dam enters the bypassed reach, which bypasses the river for 4.5 miles, or is diverted through a flow conduit to the powerhouse. The J. C. Boyle powerhouse diverts water through one of two turbines, reaching a combined power-generating capacity of 98 megawatts. Distant energy demands (and responding hydroelectric plant operations) can determine the amount of flow in the river. When daily average natural river flows are low, the facility can increase flow to produce power during peak energy demand periods. This management practice is called “peaking,” and the resultant downstream flows are called “peaking flow regimes.” When the J. C. Boyle facility is operated for peaking power, the river surface can be raised about 2.2 feet over a 6-hour period. Flows released from the powerhouse and the bypassed reach enter the peaking reach of the Klamath River 15 miles above Copco Reservoir.

Copco No. 1 Dam and Reservoir

Copco No. 1 Reservoir begins at RM 203.1 and extends downstream to Copco No. 1 Dam.²⁹ The reservoir has a surface area of approximately 1,000 acres and a total storage capacity of approximately 46,867 acre-feet.³⁰ The normal maximum and minimum elevations for the reservoir fluctuate from 2,601.0 to 2,607.5 feet, a range of 6.5 feet.³¹ The daily average fluctuation for the reservoir is about 0.5 foot. PacifiCorp operates Copco No. 1 and No. 2 reservoirs and dams and manages the release of water downstream.³² Water approaching Copco No. 1 Dam is either diverted to Copco No. 1 Powerhouse or released through spillage. Copco No. 1 Powerhouse diverts water through one of two turbines reaching a combined power-generating capacity of 20 megawatts. Waters released through the powerhouse or spillage immediately enter Copco No. 2 Reservoir.

Copco No. 2 Dam and Reservoir

Copco No. 2 Reservoir begins at RM 198.6, directly downstream from Copco No. 1 Dam. Copco No. 2 Reservoir has limited storage capacity, with the ability to retain approximately 73 acre-feet and little to no capacity for active storage.³³ Reservoir levels rarely fluctuate more than several inches.³⁴ Waters released from Copco No. 2 Reservoir are either diverted to Copco No. 2 Powerhouse or the Copco No. 2 bypassed reach. During non-spill periods, all water released from Copco No. 1 Dam is typically diverted out of the river by Copco No. 2 Dam, except for a small amount of seepage. The Copco No. 2 Powerhouse diverts water through two turbines with a combined power-generating

²⁶ Water Education Foundation (2010).

²⁷ Federal Energy Regulatory Commission Project Number P-2082-027.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Water Education Foundation (2010).

³¹ Federal Energy Regulatory Commission Project Number P-2082-027.

³² Ibid.

³³ California North Coast Regional Water Board Basin Plan for the Klamath River.

³⁴ Federal Energy Regulatory Commission Project Number P-2082-027.

capacity of 27 megawatts.³⁵ Waters released from the powerhouse and bypassed reach enter the Klamath River just upstream from Iron Gate reservoir.

Iron Gate Dam and Reservoir

Iron Gate Dam begins at RM 190.1 and forms the southernmost boundary of the project area. PacifiCorp operates and manages the dam and associated reservoir. The dam extends to a height of 194 feet and retains approximately 58,794 acre-feet of total storage capacity and 3,790 acre-feet of active storage capacity. The normal maximum and minimum elevations of the reservoir are between 2,328 and 2,324 feet, a range of 4 feet.³⁶ On average, reservoir levels fluctuate approximately 1.5 feet daily.³⁷ Water approaching the dam is diverted through the Iron Gate Powerhouse or as spillage. The Iron Gate Powerhouse, located at the base of the dam, diverts water through a single turbine with a power-generating capacity of 18 megawatts.³⁸ Waters released from the powerhouse enter the Klamath River and flow unimpeded to the Pacific Ocean, 190 miles downstream.

2.1.3 Current Conditions

Under current conditions, water quality in the mainstem of the Klamath River has been listed as impaired due to the following conditions: organic enrichment, low dissolved oxygen, water temperature impairment, nutrient impairment, and microcystin impairment.³⁹

Water management, particularly hydroelectric generation, has changed the patterns of water flows through the system, affecting the channel geomorphology and spawning and rearing habitat for salmonids. The four facilities block anadromous and native fish passage to and from the upper river and have converted portions of former riverine habitat to reservoir habitat, which has reduced the quality and quantity of salmonid habitat upstream from the dams. The reduction in available habitat, impairment of water quality, changes in channel geomorphology downstream from the dams, water diversions, and factors outside the current operations have led to a significant decrease in salmonid populations in the Klamath basin.⁴⁰ The decline of the cultural traditions of the Klamath basin native people is directly linked to the reduction in salmonid populations.

Anadromous fish such as salmon need cold, clean water that is rich in oxygen, but the shallow reservoirs behind the dams warm water to temperatures that are lethal to salmon and that also reduce the oxygen in the water. The overheated, oxygen-deficient waters are prime conditions for algae to bloom in the reservoirs behind the dams, which currently often occur at levels thousands of times higher than what the World Health Organization says is safe even for recreation. The algae secrete a toxin that is known to cause liver damage and promote tumor growth, and dangerous levels of this toxin have been detected in the tissue of resident fish.

Below the facilities, water conditions are ideal for promoting fish disease by allowing parasites to thrive. The stable flows and warm water on the Klamath, especially between Iron Gate Dam and the

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

³⁹ California North Coast Regional Water Board Basin Plan for the Klamath River.

⁴⁰ National Oceanic and Atmospheric Administration Klamath River Basin 2010 Report to Congress.

Shasta River, are full of the parasites that carry the fish diseases *P. minibocornis* and *C. shasta*.⁴¹ About 80 percent of the juvenile fish in the Klamath become infected and most die from these diseases.⁴² Over time, dam removal would allow natural fluctuations in water flow to flush out the algae and disease-causing parasites and create a more normative river flow and ecosystem operation that allow fish to become distributed once again into the upper reaches of the river rather than crowding at the base of Iron Gate Dam.⁴³

For the tribes of the Klamath basin, salmon, steelhead, sturgeon, and other fish (such as suckers and lampreys), as well as clams, mussels and other aquatic species, represent a significant subsistence food source. Moreover, cultural practices of these tribes, such as rituals celebrating the arrival of the first salmon, center on catching and eating fish. Without the fish, traditional religion and culture become dissociated from everyday life and might eventually disappear completely.

2.2 Methods

The following section describes the methods used to gather the data for this report. Methods are described for background research, assessment of the impacts of operation of the PacifiCorp dams, tribal consultation, and outreach to owners and heirs of PDAs.

2.2.1 Background Research/Major Sources Consulted

North State Resources, Inc. (NSR), conducted background research on Indian trust resources and cultural values in the study area using information provided by cooperating agencies and tribal governments, retrieved via database searches, and gathered from reviews of pertinent literature. Several documents provided the primary sources of background information. The Trinity River Mainstream Fishery Restoration: Draft Environmental Impact Statement/Environmental Impact Report, prepared by the U.S. Fish and Wildlife Service, provided information on the salmon culture and language traditions of the Yurok and Hupa people, who draw their culture and sustenance from the Klamath River as well as the Trinity River. FERC's Final Environmental Impact Statement for Hydropower License: Klamath Hydroelectric Project (FERC Project No. 2082-027), provided an overview of the cultural history of the region. The North Coast Regional Water Quality Control Board's Basin Plan for the Klamath River was relied on for characterizing Klamath mainstem water quality, and the National Oceanic and Atmospheric Administration's (NOAA) Klamath River Basin 2010 Report to Congress was relied on to characterize the general condition of the Klamath River and some agency responses to arrest declining fish populations. The Yurok Tribe Fishery Program's The Klamath River Fish Kill of 2002: Analysis of Contributing Factors provided a synopsis of the historic lower Klamath salmon die-off of 2002, and Kari Norgaard's "The Effects of Altered Diet on the Health of the Karuk People: A Preliminary Report" provided localized information substantiating the larger national trend of loss of traditional foods, increased Native American health-related problems, and the related demise of traditional culture.

⁴¹ California Department of Fish and Game (July 2004).

⁴² Ibid.

⁴³ Klamath Restoration Agreements website: <http://www.klamathrestoration.org/top-10-reasons-to-remove-klamath-dams.html>.

A review of legislation, treaty documents, and reference materials from the UCLA American Indian Studies Center Library at the University of California, Los Angeles, offered details on the formation of the affected tribal governments. A list of Indian trust resources and cultural values potentially occurring in the study area was initially compiled from reviews of historical documents, in particular Volume 8 (covering the Indians of California) of the 1978 *Handbook of North American Indians*, with specific chapters on the Hupa, the Karuk, and the Yurok, and Volume 11: Great Basin provided information relevant to the Klamath Tribes. A report prepared by Lane and Lane and Associates for the Bureau of Indian Affairs in 1981, titled Copco Dams and Fisheries of the Klamath Tribes offered ethnographic research useful for considering effects of the dams on the Indian tribal cultures in the upper Klamath basin. Input from cooperating agencies and tribal governments, including a report provided by the Karuk Tribe on the effects of altered diet on the health of the people, provided comprehensive information about tribal resources and the effects of the dams. The list of trust resources and cultural values was further refined in coordination with the Bureau of Indian Affairs (BIA) and Cultural/Tribal Sub-team members from tribal consultation meetings.

2.2.2 Impact Assessment

The potential for Indian trust resources and cultural values to be affected by the operation of the four PacifiCorp dams was determined by reviewing documents concerning federally recognized trust resources within the study area and tribal rights to these resources as well as other pertinent documents and information, and through analysis of current operations of the four PacifiCorp dams. For the purposes of this evaluation, Indian trust resources include salmon and other fish, instream flows, groundwater, minerals (specifically gravel), and land. Cultural values are described as traditional religious practices, language and oral traditions, preparation and eating of foods in traditional ways, trade and barter as customarily practiced for procurement of needed and desired goods, and other practices that reinforce personal and tribal identity. Indian trust resources and cultural values not expected to occur in the study areas are not further discussed or analyzed in this report.

2.2.3 Tribal Consultation Meetings

On behalf of the U.S. Department of the Interior, the Cultural/Tribal Sub-team conducted government-to-government consultations with the six basin tribes. (See Appendix A for copies of the letters sent to each tribal government.) The consultations occurred predominantly during the period of September 28 to October 4, 2010. Consultation with the Hoopa Valley Tribe occurred on November 8, 2010. NSR facilitated these meetings, which were held at each tribe's reservation, with the exception of the Hoopa Valley Tribe meeting, which took place at the BIA Pacific Regional Office in Sacramento, California. The meetings solicited input from tribal governments on the effects on Indian trust resources, other resources traditionally used by tribes, and cultural values within the study area resulting from the current operation of the four PacifiCorp dams on the Klamath River. Proceedings of these meetings were recorded by a professional recorder, and the information provided was included in this document.

In addition, some of the tribes (Yurok, Hoopa, Karuk, and Klamath Tribes) provided comprehensive background documents describing tribal trust resources, other resources traditionally used by tribes, and related cultural values and discussing how they are affected by the presence of the PacifiCorp

dams on the Klamath River. Appendices B through G provide detailed descriptions of the histories, cultural practices, and other information conveyed by the tribes to the Cultural/Tribal Sub-team.

2.2.4 Outreach to Owners and Heirs of Public Domain Allotments

The Cultural/Tribal Sub-team invited the participation of all known owners and heirs of the 26 PDAs in the study area. Letters were sent to each explaining the pending Secretarial Determination and asking for comments concerning current operations and the effects of the alternatives that will be evaluated in the EIS/EIR on trust resources. Appendix H provides a sample of the letter sent to the owners and heirs of the PDAs.

Chapter 3 Six Tribal Governments in the Klamath Basin

The six federally recognized tribal governments in the Klamath basin—listed here from downriver to upriver—are the Yurok Tribe, the Resighini Rancheria, the Hoopa Valley Indian Tribe, the Karuk Tribe, the Quartz Valley Indian Community, and the Klamath Tribes. This chapter provides specific tribe-by-tribe reviews of tribal history; fish culture; trust resources; and effects of current operations on each tribe’s trust resources, related tribal rights, other resources traditionally used by the tribes, and related cultural values. The reader will note that trust resources, other resources traditionally used by the tribes, and related cultural values vary among tribes. More in-depth reviews, provided by tribal governments, are located in appendices C through G. Regarding specific assertions put forth by the tribes in the exclusive tribal sections (Chapter 3 and appendices C through H), Inclusion of such views in this report does not necessarily imply that the U.S. government endorses those views.

The information contained in this chapter relies in part on historic accounts that might unintentionally suggest that tribes, cultures, and related people exist only as vestiges of the past. An effort has been made to change verb tenses where appropriate to indicate that each of the six tribes, related cultures, and the people participate in traditional cultures that endure into the present.

3.1 Yurok Tribe

“Like my grandson says, ‘Grandma, you’re sixty-two years old. Why don’t you quit fishing?’ Well, might as well shoot me.”

—VIVIAN SIMPSON, YUROK TRIBAL MEMBER⁴⁴

3.1.1 Tribal History

With more than 5,600 members, the Yurok Tribe is the largest tribe in California. The tribe’s ancestral territory covers approximately 350,000 acres and includes approximately 50 miles of Pacific coastline. Today, the Tribe’s reservation, located in Del Norte and Humboldt Counties, California, and encompassing approximately 57,000 acres, consists of a strip of land extending a mile along each side of the Klamath River from just above the confluence of the Klamath and Trinity rivers about 45 miles inland. This reservation configuration came about through a complex series of federal reports and legislative acts.

The Yuroks’ first confirmed visit by outsiders was in 1775 by the Spanish, who came ashore at Trinidad Bay on Trinity Sunday. The Spaniards walked to the top of Trinidad Head (which is considered a sacred site by Yurok, because it is where the Creator provided instructions to Yurok on proper ceremony, including ritual management of the fishery). From the top of Trinidad Head, Spanish explorers claimed all the land north to the 42nd parallel (the current Oregon-California

⁴⁴ In *Oregon Quarterly* (Winter 2001), 27.

border). These lands were later ceded by Mexico to the U.S. in the Treaty of Guadalupe Hidalgo, signed in 1848. After the Spanish left in 1775, the Yurok were visited by American fur traders and trappers, including Jedediah Smith in 1828, who remarked on the abundant wildlife in the area.⁴⁵

In 1851, federal Indian Agent Redick McKee negotiated various treaties with several northern California tribes including the Yurok. Centering around Weitchpec, an upriver Yurok community at the forks of the Trinity and Klamath rivers, the 1851 treaty demarcated a reservation to be established that provided tribal access to the river and ostensibly its fish. Some Hoopa and Karuk leaders also signed this treaty and agreed to move to the new reservation. The treaty was never ratified by Congress, however, and the proposed reservation was never established. Without a reservation for safety and with the promise of gold to be found, hostilities between Indians and Euro-Americans escalated.

The California Land Claims Act of March 3, 1851, in response to the Treaty of Guadalupe Hidalgo, required that those with interest in land claims file the claims to such titles within 2 years before an established Board of Land Commissioners. No tribes or individual Indians filed for such land claims within the 2-year period. After 2 years had passed, a subsequent act of March 3, 1853, declared that “all public lands in California shall be subject to preemption and be offered at public sale with certain specified exceptions and with the general exception, to wit, reserved by competent authority.” The competent authority was intended to be the President of the United States. Although various court cases have contested that the 1853 land act extinguished aboriginal title to the lands of California, prevailing case law suggests that aboriginal title was extinguished. In 1853, the President authorized five military reserves for Indians to protect them from the increasing migrations and settlement of non-Indian homesteaders and miners. The Klamath Reserve was one such military reserve.

In 1855, by executive order (pursuant to a congressional act of March 3, 1853, 10 Stat. 226, 238), President Pierce established the Klamath River Reservation, defined as a strip of land beginning at the Pacific Ocean and extending one mile on each side of the Klamath River for a distance of about 20 miles, an area that was entirely contained within the Yurok’s ancestral lands.⁴⁶ The government’s intention was to eventually move all of the region’s Indians onto this reservation, but only some Yurok and Tolowa were actually moved. Flooding in 1862 forced the closing of the area’s Indian Bureau offices at Waukel Flat and Fort Terwer; without a fort, the military withdrew and these withdrawals contributed to the perception that the reservation had been abandoned. However, the Yurok had continued to occupy the reservation all along.

In 1864, the Hoopa Valley Indian Reservation was created on the Trinity River, and in 1876 President Grant issued an executive order that formally established its boundaries.

A few years later, in 1885, a special agent for the Department of the Interior, in a document titled “Report of Special Agent on Conditions and Needs of Non-Reservation Klamath Indians,” proposed that the Klamath River Reservation and the Hoopa Valley Reservation be joined.⁴⁷ A non-Indian named Hume had attempted to establish a fish cannery at the mouth of the river and had refused to purchase fish from Yurok fishermen. Yurok petitioned the federal government, claiming that Hume

⁴⁵ Chase (1958).

⁴⁶ Yurok Constitution, Article 1.

⁴⁷ Trinity DEIS/EIR (October 1999), 3-207.

could not discriminate against Yurok fishermen within the Klamath Reservation boundaries, and in the ensuing court case it was affirmed that the Klamath Reserve was still a reservation. However, this affirmation was in conflict with another congressional act, The California Indian Reservation Act of April 8, 1864, stipulating that only four reservations be established in California. The affirmation of the Klamath Reserve created the possibility of the existence of five reservations in California. Based on the agent's recommendations, in 1891 President Harrison extended the Hoopa Valley Reservation to the Pacific Ocean, subsuming the connecting strip and the Klamath Reserve and effectively requiring that two culturally distinct tribes occupy the same reservation called the Hoopa Valley Indian Reservation.

As a result of the Indian General Allotment Act of 1887, individual Indians received allotments of tribal land in the former Klamath Reserve and connecting strip portions of the Hoopa Valley Indian Reservation. Eighty-five percent of the remainder of the Yurok portion of the reserve was declared "surplus" and opened to homesteading by non-Indians.

In the early 20th century, the commercial fishery was overtaken by non-Indians, who established numerous canneries in Yurok territory near or at the mouth of the Klamath River. As a result, overharvesting caused a complete closure of the lower Klamath fishery by the California Department of Fish and Game in 1933.⁴⁸

For many years, Yurok and other Indians were prohibited from fishing for subsistence or commercial purposes. As compensation, Yurok Indians were promised jobs building a road that allowed non-Indians to gain access to the middle portions of the reservation for the purpose of recreational fishing. Yurok were also promised jobs as fishing guides. The recreational fishery was restored for non-Indians in subsequent years, but the practice of subsistence and commercial fishing by Yurok people was prohibited and criminalized. Nonetheless, Yurok continued to fish the river as they always had, although the activity was deemed by state regulators as a criminal act rather than as a subsistence right.⁴⁹

In the 1970s, actions taken by the State of California Department of Fish and Game to enforce these policies ignited what is commonly known as the "fish wars" on the Klamath River. During this time, Yurok fishers engaged in acts of civil disobedience known as "fish-ins," which often brought about the battery and arrest of Yuroks participating in these non-aggressive acts. As violence and confrontations escalated, one Yurok fisherman, Raymond Mattz, was arrested and charged by the California Department of Fish and Game. The result was a legal battle that was brought before the U.S. Supreme Court and resulted in the now-famous 1973 ruling that re-affirmed Yurok fishing rights (*Mattz v. Arnett*, 412 U.S. 481).⁵⁰ (See section below, "Yurok Fishing Rights," for a detailed description.)

The Hoopa-Yurok Settlement Act⁵¹ (Public Law 100-580, 102 Stat. 2924), enacted by the U.S. Congress on October 31, 1988, divided the Hoopa Valley Reservation into separate Hoopa and Yurok reservations and allowed the Yurok to govern themselves through the Yurok tribal government.

⁴⁸ Sloan (February 2011), 12.

⁴⁹ Ibid.

⁵⁰ Sloan (February 2011), 13.

⁵¹ Hoopa-Yurok Settlement Act. (October 31, 1988).

According to this act, the resources of each reservation belong to the corresponding tribe. Because the Hoopa portion of the Hoopa Valley Indian Reservation was not as heavily subjected to the loss of land through the ramifications of the allotment and homesteading era and had retained substantial timber, the Yurok were provided a federally allotted subsistence and commercial fishery while the Hoopa maintain a smaller fishery, which includes use for commercial purposes.⁵² The Yurok constitution was adopted November 19, 1993.⁵³

Today the Yurok Tribe, headquartered in Klamath, California, with an upriver office located in Weitchpec, California, employs more than 200 people, boasts one of the most substantial fishery programs on the entire Klamath River, and self-regulates its subsistence and commercial fishery. The tribe actively participates in the in-river and upslope restoration of its ancestral lands and has signed a collaborative management agreement with the Department of the Interior that memorializes the prime role that the Yurok Tribe maintains in managing its resource base.⁵⁴

3.1.2 Yurok Tribe Fish Culture

The Yurok have long practiced their traditional dances and ceremonies along the banks of the Klamath River. Thus, with the deterioration of the river has come degradation of the Yuroks' ceremonial way of life. The lives of the Yurok people have always been intricately tied to the river. Historically, they depended on the river for sustenance, and much of their world was defined in terms of their physical relation to the river. Indeed, the Yurok word for salmon, *nepu i*, translates into English as "that which we eat." Natural and cultural sites, daily and seasonal ceremonial practices, oral traditions, transportation routes, economic resources, social relationships, and the Yurok identity were all drawn from the river.⁵⁵

The Yurok base time and direction on the reliability of the Klamath's flows as much as on the rising and setting of the sun, which can be obscured by the steep terrain, deep forests, and rainy conditions of the Klamath basin. As one Yurok elder said, "Without this river we would not know who we are, where we're from, or where we're going."⁵⁶ Under natural conditions, the rates and sounds of the river's flow tell the Yurok both the season and the time of day. The skill of the Yurok fisherman has always been measured by his ability to navigate the Klamath River in the dark, not by the stars or landmarks, but by correlating the location and swiftness of the current and back eddies of the river with the sounds that are unique to each bend and riffle. Moreover, the Yurok people are so attuned to the river that they have a name for each characteristic of the water's movement. Even when Yuroks are away from the river, they remain acutely aware of their location in relation to it, always measuring direction by the river's flow. For example, it is not uncommon to refer to the burners on a kitchen stove as upriver or downriver, depending on their position.⁵⁷ One Yurok elder said, "The river flows like our blood. It is our veins and arteries."⁵⁸

⁵² <http://www.hoopa-nsn.gov/news/nationalnews.htm>.

⁵³ California Department of Housing and Community Development. California Indian Assistance Program (2004), 165.

⁵⁴ Bryson J., Bureau of Reclamation Counsel, Letter to Scott Williams, Yurok Tribe Attorney. (June 19, 2006). 1BA977AB-BFCA-AFBD-32A390C136681DB0.

⁵⁵ Trinity DEIS/EIR (October 1999), 3-218.

⁵⁶ Susie Long, pers. comm. (October 1996), in Trinity DEIS/EIR, 3-224.

⁵⁷ Trinity DEIS/EIR (October 1999), 3-219.

⁵⁸ Susie Long, pers. comm. (October 1996), in Trinity DEIS/EIR, 3-224.

Fishing Among the Yurok

Many of the Yurok cultural sites on the Klamath and lower Trinity rivers are traditional fishing spots owned by families. Fishing spots are locations where there are deep holes, significant back eddies, and ideal spots to set a net or erect a platform out over the river. Fishing spots can be given, inherited, loaned, leased, and bought and sold, and are central to the Yurok economy. Over time, as the rivers' flows have changed, so have the locations of these cultural sites. Regardless, to this day the Yurok continue to live in some of the village sites that line the Klamath and lower Trinity rivers, where they still practice many of their traditions. These are places where the Yurok have lived, fished, gathered, prayed, and buried their dead for centuries.

The first non-Indian commercial fishery for Klamath River salmon was established in 1876 on the lower Klamath, and the first cannery was opened at Requa in the late 1880s. These non-Indian businesses and related settlement affected the traditional ways of the Yurok, but the Indians adapted by taking advantage of the economic opportunities presented by providing fish to the canneries and working in the plants.⁵⁹ Salmon canning reached a peak in 1912 through 1915, with an estimated 141,000 salmon canned in 1912. Very soon, and with the building of Copco No. 1 in 1918 contributing to smaller runs, the salmon were fished to their limit.⁶⁰

In 1933, under pressure from sport-fishing interests, the State of California banned the use of gill nets on the lower 20 miles of the Klamath, even for subsistence fishing. The State also closed the canneries and banned the sale of river-caught salmon, claiming the decline in fish to be the result of fishing, mining, logging, and farming. However, ocean-fishing activities were allowed to continue, which drew increased commercial and recreational traffic. This was detrimental to the Yuroks and other tribes, who had come to rely on the economic opportunity provided by the fisheries. In defiance of the regulations and in an attempt to assert what they saw as their rights, the Yuroks continued to fish as they were accustomed, resulting in confrontations with the federal government and a series of lawsuits.⁶¹

Finally, in 1977, the lower Klamath was re-opened to gill net subsistence and commercial fishing by Indians. Soon after, a moratorium was imposed on the commercial fishery, which remained in place until 1987. During the period of the moratorium, Indians caught more than 140,000 Klamath-origin Chinook annually.

The moratorium was lifted in 1987 due to new allocation agreements and predictions of an increase in salmon. Since 1990, tribal commercial harvests have been marginal and have not provided a comfortable standard of livelihood as originally envisioned for the Yurok in the Hoopa Yurok Settlement Act. At the same time, subsistence fishing has been severely limited. The decreased harvests have had a significant adverse impact on the Tribe's economies and health.

Trade and Barter

As with all tribes that identify as salmon people, fish have been the Yurok Tribe's most valuable asset and a mainstay of their economy. With fish in abundance, the Yurok could not only feed themselves

⁵⁹ Byron Nelson, pers. comm. (October 1996), in Trinity DEIS/EIR.

⁶⁰ Trinity DEIS/EIR (October 1999), 3-219.

⁶¹ Ibid.

and their families all year long, but the surplus could be used to acquire products from outside their territory.⁶²

The Yurok maintained an intricate system of commerce ultimately measured in dentalia. However, boats, house planks, tools, regalia, rights to resource procurement places, and the resources from such places were interchangeable. Fish was a baseline trading commodity available to any enterprising man wishing to gain upward mobility in a class-based society. A young man who diligently fished and traded up could amass enough wealth to buy a boat, travel to collect all of the necessary items to fashion intricate regalia that could be converted into dentalia, and perhaps one day pay the bride-price of a high-status woman, thereby assuring a better place for his children in the Yurok social network. Hence, fish were the baseline resource, abundant to the industrious and ultimately converted to Yurok money and social standing.

The Yurok traded redwood boats, salmon, and ocean foods and commodities such as seaweed, shellfish, and eulachon fish far inland in exchange for items not found in their own territories. Obsidian from the area of the Shasta and Klamath tribes was one such prized resource needed to conduct the sacred White Deerskin ceremony.

Religious Practices

In early spring, the first salmon to enter the Klamath River, undoubtedly a spring Chinook, was traditionally speared and ritually eaten by Yurok medicine men, traditionally signifying the beginning of the fishing season for the Yurok and all others upriver. The ritual also marked the scheduling of the construction of the fish dam at Cappell, located 33 miles from the river's mouth on the Pacific. The fish dam, last built in 1913, was ceremonially constructed by Yurok men under the supervision of a Yurok medicine man and the event sanctified the release, taking, distribution, and consumption of salmon. All other ceremonies were scheduled only after the fish dam ceremony took place. Salmon are ritually managed to ensure that Yurok people are all provided for, that upriver people are ensured a percentage of the fishery, and that enough fish remain to repopulate the species. Although there still remains a general reverence for salmon, a strong belief prevails that without proper ceremony, the salmon will not return in sufficient numbers. The Yurok have many ceremonies in common with the Hupa and Karuk, such as the Jump Ceremony and the White Deerskin Ceremony, which includes the Boat Dance Ceremony. Ritual bathing in the rivers and creeks is an essential requirement of the ceremonies. The river is central all these ceremonies.⁶³

The Brush Dance, intended as a communal focus around an ailing child, is held in many of the traditional village sites along the Klamath River. The ceremony requires the proper river setting and the availability of river resources. As a Brush Dance unfolds over a four-day period, the participants celebrate the wealth that the riverine environment provides. Baskets made of plant materials collected at the water's edge are used to hold food and ceremonial medicine. Acorns are cooked in the baskets and converted into a nourishing mush using hot rocks gathered from specific river bars. Regalia that adorns the dancers is constructed from the various plant and animal products that the riverine environment provides. Ceremonial bathing in the river and its tributary creeks and listening to the sounds of the water are a requirement for some dance participants. Although today many guests arrive

⁶² Davis, J. T. (1959).

⁶³ Trinity DEIS/EIR (October 1999).

by car, many more arrive by boat, the traditional means of transportation. Ceremonial hosts are expected to feed visitors salmon, and to fail to provide such traditional food is considered by the guest to be an insult.⁶⁴

Just as children coming into the Yurok world learn about the river and its culture, so do the elderly depart from this world via the river. The deceased's last worldly journey is a boat ride upriver. Several rocks amid the rivers are etched with rare petroglyphs that offer instructions from the Creator to the Yurok people. One such message is a warning that when the rivers stop flowing it will mark the end of the Yurok world. Accordingly, some elders have prophesied that the manipulation of flows by damming represents the beginning of the end for the Yurok.⁶⁵

Since the California Gold Rush, Yurok villages have periodically been destroyed and assimilation attempts made by non-Indians. Government policy once forbade the use of traditional languages and outlawed the practice of traditional ceremonies. For several generations, few cultural traditions were being passed on and the Yurok language was slowly fading away. It began to appear as though attempts to eliminate the Yurok cultural traditions would be successful.⁶⁶

Yet members of the Tribe held onto their knowledge and beliefs, as well as practices, which eventually reappeared and are evident today. In the late 1970s and 1980s, cultural revitalization efforts soared in the local area. Tribal elders began to teach young people the old Yurok ways, and traditional ceremonies have once again become part of tribal practices. The Jump Dance returned to the Yurok town of Pecwan in 1984, a War Dance demonstration was held in the late 1980s, and communities came together to support the revival of Brush Dances along the river. In 2000, the White Deerskin Dance was held for the first time in many years at the up-river town of Weitchpec.⁶⁷

Oral Tradition: Revitalization of the Language⁶⁸

The use of the Yurok language dramatically decreased when non-Indians settled in the Yurok territory, and by the early 1980s it was near extinction. When the Yurok Tribe began to operate as a formal tribal government in 1988, they created a language revitalization program. The use of old records helped new language learners, but hearing fluent speakers was the most effective way for young people to acquire the language.⁶⁹

The anthropologist Alfred Kroeber traveled throughout the Yuroks' territory in the early 1900s interviewing Yurok people and documenting the Tribe's riverine way of life. Of the 169 stories that Kroeber presents in his book *Yurok Myths*,⁷⁰ 77 make direct reference to the river. Among those stories, there are tales of the construction of the fish dams, locations and origins of ceremonies held along the river, bad places in the river, where the first salmon was created, what one must do with salmon caught at certain locations, how the river came to flow the way it does, and death passage on the river. It is evident from transcriptions of Yurok stories that rivers are an integral part of their way

⁶⁴ Ibid., 3-220.

⁶⁵ Trinity DEIS/EIR (October 1999), 3-220.

⁶⁶ From Yurok Tribe website: <http://www.yuroktribe.org/culture/culture.htm>.

⁶⁷ Ibid.

⁶⁸ Information in this section from the Yurok Tribe website (<http://www.yuroktribe.org/culture/culture.htm>) unless otherwise indicated.

⁶⁹ Constitution of the Yurok Tribe (October 22, 1993).

⁷⁰ Kroeber (c1976).

of life and a basis of their tradition and culture. These stories are based on and derived from a healthy and vibrant river ecosystem.⁷¹

Yurok Fishing Rights⁷²

The fishing rights on the Klamath River of the Yurok Tribe are well established as a matter of federal law. The Yurok Reservation, created pursuant to an 1855 act of Congress, was established within the Yurok Tribe's ancestral homeland primarily to provide a territory in which the Tribe's fishing-based culture and way of life could thrive and continue to exist. This fact has been recognized repeatedly since the reservation was established—by the departments of the Interior and Commerce, the U.S. Supreme Court, the lower federal courts, and the California courts.⁷³ As Justice Harry Blackmun observed in *Mattz v. Arnett* (412 U.S. 481, 487 [1973]), the original Klamath River Reservation, the precursor to the current Yurok Reservation, “abounded in salmon and other fish” and was in all ways “ideally suited for the Yuroks” (412 U.S. at 487).

The Ninth Circuit Court of Appeals confirmed that the executive orders that created the Yurok Reservation vested the Yurok Tribe with “federally reserved fishing rights.” *Parravano v. Masten*, 70 F.3d 539, 541 (9th Cir. 1995), *cert. denied*, 518 U.S. 1016 (1996). The same court aptly observed that the salmon fishery of the Yurok Tribe is “not much less necessary to the existence of the Indians than the atmosphere they breathed” (*Blake v. Arnett, supra*, at 909). The Solicitor of the Department of the Interior determined that the Yurok and Hoopa Valley tribes are entitled to a sufficient quantity of fish to support a moderate standard of living, or 50 percent of the Klamath fishery harvest in any given year, whichever is less.⁷⁴ The right includes fishing for subsistence, commercial, and ceremonial purposes. As the court in *Parravano* noted, the purpose of the establishment of the Yurok Reservation was to enable the Yurok people to continue their fishing way of life.

Nonetheless, it was not until 1977 that the Department of the Interior re-affirmed the right of Indians of the reservations to sell fish and reopened the lower Klamath to Indian gill-net subsistence and commercial fishing. The Department of the Interior's action was based in large part on the First District Court's decision in *Arnett v. 5 Gill Nets* that effectively overturned state regulation of on-reservation Indian fishing. Shortly thereafter, in August of 1978, the Department of the Interior placed a “Conservation Moratorium” on the Indian commercial fishery (in an effort to satisfy spawner escapement goals in the Klamath River drainage during anticipated low-run years).

In 1977 and early 1978, more than 140 Indian fishers sold salmon harvested from the Klamath River (a figure that includes Trinity River stock). Following implementation of the moratorium, a relatively small number of Indians continued to sell fish, claiming the moratorium infringed on their fishing rights and unfairly and inequitably allocated the rivers' fishery resources between ocean-based and Indian fisheries. This led to several armed confrontations.⁷⁵

⁷¹ Trinity DEIS/EIR (October 1999), 3-221–3-222.

⁷² Information in this section is from Sloan (February 2011), 50–53.

⁷³ See, e.g., *Donnelly v. United States*, 228 U.S. 243, 259 (1913); *Mattz v. Arnett*, 412 U.S. 481, 487 (1973); *Blake v. Arnett*, 663 F.2d 906, 909 (9th Cir. 1981); *Parravano v. Masten*, 70 F.3d 539, 545–46 (9th Cir. 1995), *cert. denied*, 116 S. Ct. 2546 (1996).

⁷⁴ Memorandum from Solicitor to the Secretary of the Interior, No. M-36979, October 4, 1993.

⁷⁵ Sloan (February 2011).

During the 9 years (1978 through 1986) that Indian in-river commercial fishing was restricted for “conservation” purposes, both in-river and off-shore non-Indian fishers landed an average of 140,130 Klamath-origin Chinook annually for commercial and recreational purposes, while the Indians harvested an average of 20,660 Chinook annually.⁷⁶

Once the moratorium was lifted in 1987, the tribes increased their fishing in accordance with stock abundance projections made in that year and the following 2 years (1988 and 1989). More recently, tribal subsistence fishing has been severely limited, and commercial operations mostly non-existent, due to low numbers of fish. This has had a significant impact on the economic situation of the tribes. In 1993, the Department of the Interior concluded that the Pacific Fishery Management Council’s ocean harvest regulations had not met fishery conservation requirements and had thus adversely impacted the tribes’ in-river fisheries. During that same year, the office of the Solicitor of the Interior re-affirmed the fishing rights of the Yurok and Hoopa Valley tribes and fixed the tribes’ share of the harvestable Klamath-Trinity basin salmon fishery at an amount sufficient to support a moderate standard of living, or 50 percent, whichever is less.⁷⁷

Ocean commercial fisherman subsequently sued the U.S. secretaries of Commerce and Interior claiming that the Solicitor’s decision had forced them to reduce their harvest and, thus, that their harvest rights under the Magnuson Fishery Management and Conservation Act had been violated. This suit was settled in 1995, when the U.S. 9th Circuit Court of Appeals ruled in Commerce’s favor, finding that under the Magnuson Act the government can implement regulations that affect coastal fishing if the objective is to meet the purposes of other applicable law, such as the federal government’s trustee obligation to protect tribal fishing rights.

Salmon, steelhead, sturgeon, and lamprey that spawn and migrate up the Klamath River pass through the Yurok Reservation and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far predate the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian reservations on the Trinity and lower Klamath rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through the reservations.⁷⁸ The U.S. has long recognized the right of the Yurok and Hoopa Valley tribes to fish. To protect those rights, the federal government has a responsibility to ensure that sufficient fish are produced and available to meet certain of its trust obligations to the respective tribes that may go beyond safeguarding their right to an appropriate share of the harvest on their reservations.⁷⁹

Today, the reserved fishing right includes the right to harvest quantities of fish that the Indians require to maintain a moderate standard of living. It is a vested property right held in trust by the United States for the benefit of the Indians that has been acknowledged and confirmed by the executive, legislative, and judiciary branches of the federal government in a number of authorities.⁸⁰ These

⁷⁶ Pierce (1990), in Sloan (February 2011); complete citation unavailable.

⁷⁷ Memorandum from the Office of the Solicitor of the U.S. Department of the Interior (October 4, 1993), in Sloan (February 2011).

⁷⁸ Whipple, Cannery (1933), in Sloan (February 2011); complete citation unavailable.

⁷⁹ Sloan (February 2011).

⁸⁰ See, e.g., Opinion of the Solicitor of the Department of the Interior (Opinion M-36979, October 4, 1993); The Central Valley Project Improvement Act, Public Law 102-575 3406 (b) (23); and Parravano v. Babbitt and Brown, 837 F. Supp.

fishing rights cannot be supplanted by state or federal regulation, unless for species conservation purposes such supplantation is deemed by the United States a necessity.

The above-referenced 1993 Solicitor's opinion (Opinion of the Solicitor of the Department of the Interior [Opinion M-36979, October 4, 1993]) (1) reaffirms the historic and legal basis of the reserved fishing rights of the tribes of the Klamath-Trinity region, (2) acknowledges the federal government's cognizance of the importance of fish to these Indians at the time it established reservations on their behalf, (3) fixes the tribes' salmonid fishing rights at that necessary to provide a moderate standard of living or 50 percent of the harvestable surplus of salmonid stocks, whichever is less, (4) recognizes that under the current depleted condition of the fishery, a 50 percent allocation does not adequately meet the tribes' needs, and (5) argues that it is the degree of the Hoopa Valley and Yurok dependence on fisheries at the time of the creation or expansion of their reservations, and not the tribes' specific uses of the fish, that is relevant in determining the tribes' present-day fishing rights.⁸¹

Yurok Tribe Reserved Water Right⁸²

In addition to fish, the Yurok Tribe has a reserved right to water. The concept of reserved rights in general, and Indian reserved water rights specifically, originated just after the start of the 20th century with *Winters v. United States*, 207 U.S. 564 (1908). The ruling in this case, commonly referred to as the *Winters* Doctrine, states that when the federal government established a reservation, it implicitly reserved a quantity of water necessary to fulfill the purposes of said reservation (that the government would not create a reservation, and Indians accept a permanent area for their home that would be useless without sufficient water). Generally, all original documents related to the establishment of reservations—treaty, executive order or statute—indicate, at a minimum, that the purpose of the reservation is to provide a “permanent home” for the tribe(s) in question. Some reservations were established with the general objective that the Indians become “civilized.” In cases where reservations have been created with specific language stating or implying reserved fishing, gathering or other rights, *Winters* has been interpreted to mean that adequate water supplies for these purposes have been reserved (even in addition to more general uses—see *U.S. v. Adair*, 723 F.2d 1410 [9th Cir. 1983]).

The Department of the Interior Solicitor's office and the Courts have continuously reaffirmed these rights with respect to Bureau of Reclamation activities, stating that, “Reclamation is obligated to ensure that project operations not interfere with the Tribe's senior water rights. This is dictated by the doctrine of prior appropriations as well as Reclamation's trust responsibility to protect tribal trust resources” (Solicitor's Opinion, July 25, 1995,). Furthermore, the Solicitor notes that the Secretary of the Interior, “through Reclamation, must operate reclamation projects consistent with vested, fairly implied senior Indian water rights” (Solicitor's Memorandum Jan 9, 1997; (Klamath Water Users Ass'n v. Patterson, 204 F.3d 1206 (9th Cir. 2000); USFWS et al. 2000.

1034 (N.D. Calif. 1993); 861 F. Supp. 914 (N.D. Calif. 1994); affirmed 70 F.3d 539 (9th Cir. 1995); *cert. denied* 1996 WL 79843 116 S.Ct 2546 (June 24, 1996).

⁸¹ Sloan (February 2011).

⁸² Information in this section is from Sloan (February 2011), 53.

3.1.3 Effects on Trust Resources and Related Cultural Values

Effects on Trust Resources

In a government-to-government consultation meeting concerning Yurok trust resources affected by current dam operations held on September 28, 2010, the Yurok Tribe asserted the following as Yurok trust resources: water, fish, land, wildlife, minerals, and timber. However, only effects on fish and water were further discussed in the consultation meeting. The Yurok Tribe’s assertion of trust resources not discussed in the meeting was coupled with the assertion that the United States has a trust responsibility to protect such resources and ensure that such resources are managed for the beneficial use of the Tribe and its membership (see preceding section, “Yurok Fishing Rights” and “Yurok Reserved Water Rights.”). In addition, the federal government has other trust responsibilities to the Yurok in the areas of social welfare, education, and health. The Yurok tribal chairperson, when asked if such trust resources were affected by the current dam operations, emphatically responded, “Yes.” He went on to relate that the Yurok understand that their resources are intricately interconnected to multiple ecosystems.

Table 3-1 lists the effects of current dam operations on the Yurok trust resources, tribal rights to take those resources, and other resources traditionally used by the Yurok Tribe.

Table 3-1. Effects of Current Dam Operations on Yurok Tribe Trust Resources and Rights and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS ¹
Water resources		<ul style="list-style-type: none"> • Altered flows • Altered water temperature regime • Reduced bedload/sediment transfer • Degraded water quality caused by nutrient input, dissolved oxygen, pH, algal toxins and other contaminants
Aquatic resources		<ul style="list-style-type: none"> • Loss of habitat • Less suitable water temperature regime • Slightly reduced bedload transfer • Increased potential for disease/parasites • Reduced population size • Altered run timing
Terrestrial resources		<ul style="list-style-type: none"> • Reduced food availability • Loss of riparian habitat

¹These effects are muted by the time the water reaches the reservation, but more severe effects on upstream reaches affect fish populations used by the Yurok.

Note: Blank cells indicate that the Yurok Tribe has no resources in this category that are affected by this project. Effects on Related Cultural Values

The cultural values affected by the proposed project are related to and contingent on the trust resources described in the preceding section. The effects of the Klamath River dams on cultural values related to trust resources of the Yurok Tribe include emotional and physical conditions such as increased obesity, diabetes, and heart disease due to loss of traditional salmon diet, as well as depression and alienation, sometimes resulting in suicide. Additionally, a loss of opportunity for

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intergenerational transmission of traditional knowledge occurs. These conditions result in tribal members, especially young people, leaving the reservation for opportunity elsewhere.

Limitations in the Yuroks’ access to resources have restricted the practice of some of their most important traditions. Although many ethnographers have worked to characterize these traditions, little has been done to assess the impact on the tribes from their loss. These impacts include freely fishing the once-prolific seasonal salmon runs and participating in the cycle of ceremonies initiated concurrently. The Yurok World Renewal Ceremonies, recently completed at the time of the consultation meeting, were provided as an example of how Yurok understand and pray for the integrity of such ecosystems. Furthermore, in the past, the Yurok were not inclined to leave their territory; now, an inability to meet subsistence needs from the fishery, a perception that the rivers are dirty, and a general malaise have driven younger tribal members to leave the area to find work and community.⁸³

Table 3-2 lists the effects of current dam operations on the Yurok cultural values related to trust resources and tribal rights to take those resources and on other resources traditionally used by the Yurok Tribe.

Table 3-2. Effects of Current Dam Operations on Yurok Tribe Cultural Values Related to Trust Resources and Rights and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS
Water resources (instream flow)		<ul style="list-style-type: none"> • Diminished aesthetics • Algae-clogged fishing nets • Human exposure to toxic water while conducting cultural activities • Diminished opportunity for traditional bathing
Aquatic resources		<ul style="list-style-type: none"> • Diminished livelihood • Loss of traditional salmon diet causes increased heart disease, strokes, diabetes, and obesity among tribal members • Loss of opportunity for inter-generational traditional knowledge transmission • Tribal members leaving reservation • Depression, alienation, and possibly suicide
Terrestrial resources		<ul style="list-style-type: none"> • Diminished plant availability for cultural practices and related benefits • Loss of opportunity for inter-generational traditional knowledge transmission

Note: Blank cells indicate that the Yurok Tribe has no resources in this category that are affected by this project.

Discussion

The damming of the river has resulted in changes in the flows of the water and the resources it offers to the Tribe, along with myriad losses to tradition and culture.⁸⁴ Despite significant degradation of the river ecosystem of the Klamath region through the latter 19th and first half of the 20th centuries, the Yurok persisted in their traditional reliance on the river and its resources. Although it became

⁸³ Ibid., 3-225.

⁸⁴ Information in this section is from Trinity DEIS/EIR (October 1999), 3-224–3-225 unless otherwise indicated..

increasingly difficult, the Tribe continued to practice its ceremonies and religions and gathered vegetation for baskets, food, medicines, and other purposes. As much as possible, Klamath River fish caught by the Yurok tribal membership continued to be an important component of their diets. Thus, many of today's older Yurok grew up with a strong physical connection to the river and a great appreciation for the traditions and ways of life of their ancestors.

However, the presence of the dams on the upper reaches of the Klamath River has brought about changes. Sites of fishing and traditional use have become clogged with debris and algae, and fish populations have continued to decline. Observers report the discouraging fact that when tribal members try to use their traditional fishing nets, they fill with algae that grows because the water temperatures are rising—a sign of an unhealthy river.

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3.2 Resighini Rancheria

“And the high tide backs up two or three miles upriver to here, and then it stops. We are kind of the low point over here. So that is why we have an overflow channel here with a lot of gravel that renews itself during high flows. And that’s a good natural resource for us; but it also eats away through the overflow channel, a lot of our land sloughs off into the overflow channel, because we have no protection here. There’s no rip-rap. And you can watch it slough off and lose 30 feet at a time every year.”

—VICE CHAIRMAN DON VALENZUELA AT GOVERNMENT-TO-GOVERNMENT CONSULTATION MEETING, SEPTEMBER 2010

3.2.1 Tribal History

The Resighini Rancheria, originally thought to consist of 228 acres and later resurveyed in 1974 and determined to be 238.78 acres, is located in Del Norte County, California. It is primarily settled by Yurok Indians affiliated with the Yurok Coast Indian Community.⁸⁵ A population of 36 was reported on rancheria lands in the 2000 U.S. Census.⁸⁶ The Resighini Rancheria is located several miles inland from the mouth of the Klamath River and rests on the southern banks of the river, completely surrounded by the Yurok Reservation.

The land for the Rancheria was purchased from ranch owner Augustus (Gus) Resighini by the Secretary of the Interior in 1938 under the authority of the Indian Reorganization Act. The Secretarial proclamation, deeming the land “reservation,” proclaimed the purchase was to “provide for the protection of the soil, the proper development of the land, and the equitable distribution of benefits from the land.”⁸⁷ The lands, although located mostly in the floodplain of the Klamath River, were productive hay fields and supported a substantial dairy farm. Additional letters between various Indian Agents and the central office of the Secretary justifying the purchase commented on the possibility of Rancheria members continuing to operate the dairy farm, produce hay, grow vegetable gardens, and perhaps receive jobs as fishing guides for the burgeoning recreational fishery that the Klamath was, at that time, known for providing.

The original “Merin” proposal to create the Resighini Rancheria described the “228-acre” tract of land as “agricultural” with conditions that are “ideal for farming or dairying.”⁸⁸ However, the value of the land as agricultural was directly connected to the loss of the traditional fisheries. In past years, commercial and subsistence fishing was a primary means of economic and subsistence support for the Yurok along the Klamath River. However, with the closure and restrictions on tribal fishing, the Yurok lost this means of support, although the “fish wars” and accompanying litigation of the 1970s and 1980s reinstated Yurok fishing rights and the Hoopa-Yurok Settlement Act further confirmed that the Yurok Tribe had fishing rights. They were provided the option to join with the newly organized Yurok, but the Rancheria members largely rejected that option. Instead, the Resighini members have

⁸⁵ Davis, R. B., Letter to Acting Superintendent of Indian Affairs. (July 27, 1973).

⁸⁶ http://en.wikipedia.org/wiki/Resighini_Rancheria.

⁸⁷ Secretarial Proclamation proclaiming the purchased lands a reservation. (October 21, 1939).

⁸⁸ Merin (December 28, 1937).

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supplemented their income from several business opportunities, such as a casino and a café, a campground, a small lumber mill, and a gravel extraction enterprise.

The Merin proposal to form the Rancheria tells a broader story of the government's flawed attempt to make fishing people become farmers. The opportunities for the native people whose traditional means of support and subsistence (in this case, fish) had diminished. The Rancheria members, the document suggested, might find outlets for "craftwork" or get jobs as tourist guides:

The city of Klamath is a tourist and sportsman's town and will furnish a ready market for garden products and Indian craftwork. Also, this tract of land, lying along the Klamath River and close to the town of Klamath, will afford the Indians an opportunity to develop a market for their services as guides for sportsmen and tourists.⁸⁹

However, during the settlement of this land, disastrous flooding periodically occurred, with a 100-year flood washing through in 1964. This was the same place that almost 100 years previously had flooded and washed away the Waukel Flat Indian Agent office, which served the original Klamath Reserve. This natural disaster led to the removal and evacuation of Indian families to other local areas.

A 1974 BIA-funded water study was conducted for the reservation. The study determined that the Resighini Rancheria has water rights senior to other claims after 1939 to the water from the two creeks that traverse the Resighini Rancheria reservation. The study also determined that groundwater wells were in existence in the 1960s. The study recommended improving water infrastructure to provide enough water for agricultural and tourism development.

In 1975, a band of Yurok Indians stood together and formally created a non-traditional form of government with a constitution and bylaws, which were approved and ratified by Indian commissioner Bruce Thompson from the Department of the Interior. In 1979, the Indian people who chose to return began the challenge of rebuilding.⁹⁰

The 1988 Hoopa Yurok Settlement Act provided Rancheria members with the option of merging with the newly organized Yurok Tribe. None selected that option, and the Rancheria remains a separate government distinct from the Yurok Tribe.

Today the Rancheria, employing a dozen people, operates a campground. A once-operational casino and cafe also received flood damage in the 1990s and are no longer used. The tribe also operates a gravel-extraction enterprise along the course of a secondary channel to the Klamath River that runs through Rancheria boundaries. Groundwater wells have been assessed and are slated for improvements that will lead to better water distribution throughout the Rancheria in support of several residences and the campground and for irrigating agricultural lands. The tribe recently purchased off-Rancheria and adjacent fee lands totaling 196 acres. This additional acreage is mostly riparian habitat along the mainstem of the Klamath River and includes the old Waukel Flat Indian Agent site.

⁸⁹ Ibid., 2.

⁹⁰ Resighini Rancheria website: http://resighinirancheria.com/past_index.html.

3.2.2 Resighini Rancheria Fish Culture

The Indians of the Resighini Rancheria are Yurok people and thus share their cultural practices and values with the general culture described for the Yurok Tribe. Resighini tribal members have always participated in the ceremonies.

A diminished fishery affects recreational opportunities as well as opportunities for the Rancheria's tourist guide service.

3.2.3 Effects on Trust Resources, Other Resources Traditionally Used by the Rancheria, and Related Cultural Values

Effects on Trust Resources

In a government-to-government consultation meeting concerning Resighini Rancheria trust resources affected by current dam operations held on September 29, 2010, the Resighini Rancheria asserted the following as Rancheria trust resources: gravel (minerals); water as it relates to groundwater for domestic, agricultural, and recreational (campground) uses; riparian plants; wetlands; fish; land; and wildlife. This assertion was coupled with the assertion that the United States has a trust responsibility to protect such resources and ensure that such resources are managed for the beneficial use of the Tribe and its membership. In addition, the federal government has trust responsibilities to the Rancheria in the areas of social welfare, education, and health. However, the Department of the Interior does not currently recognize a Rancheria right to a salmonid fishery; therefore, fish are not considered a Resighini Rancheria trust resource. Further, the Rancheria does not have a right to instream river water; therefore, instream water is not considered by the federal government to be a Resighini Rancheria trust resource. Nonetheless, the lack of fish in the local economy has effects on general tribal health and cultural well-being. And impaired water, insofar as it contributes to the decline of the instream fishery, also contributes to these effects on cultural values. The Rancheria tribal councilperson, when asked by the Sub-team whether trust resources were affected by the current dam operations, emphatically responded, "Yes." She went on to relate that water quality has diminished, erosion of lands occurs at a higher rate, replenishment of gravel extraction beds has diminished, and fish returns are low. As a tribe that lives alongside the river, their aesthetic quality of life has diminished. The Rancheria people are at risk when they bathe in the river, tourists are less interested in visiting the Klamath River and staying in the campground, and in an area with fewer available fish, tribal members are likely to consume less of the traditional food base. This has led to related impacts to tribal health such as higher rates of obesity, diabetes, heart disease, and stroke.

Table 3-3 lists the effects of current dam operations on the trust resources and rights and on other resources traditionally used by the Resighini Rancheria.

Table 3-3. Effects of Current Dam Operations on Resighini Rancheria Trust Resources and Rights and on Other Resources Traditionally Used by the Rancheria

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE RANCHERIA	EFFECTS
Water resources (groundwater)		<ul style="list-style-type: none"> • Indeterminate groundwater quality
	Water resources (instream)	<ul style="list-style-type: none"> • Altered flows • Altered water temperature regime • Reduced bedload sediment transfer • Degraded water quality caused by nutrient input, dissolved oxygen, pH, algal toxins and other contaminants
	Aquatic resources	<ul style="list-style-type: none"> • Loss of habitat • Less suitable water temperature regime • Reduced bedload transfer • Increased potential for disease/parasites • Reduced population size
Terrestrial resources		<ul style="list-style-type: none"> • Real property: Erosion and flooding • Mineral: Less gravel replenishment
	Terrestrial resources	<ul style="list-style-type: none"> • Reduced food availability • Loss of riparian habitat

Note: Blank cells indicate that the Resighini Rancheria has no resources in this category that are affected by this project.

Effects on Other Resources Traditionally Used by the Rancheria and Related Cultural Values

The cultural values affected by the proposed project are related to and contingent on other resources traditionally used by the rancheria briefly mentioned in the preceding section. Although fish and instream water are not considered trust resources of the Resighini Rancheria, the lack of fish in the local economy has secondary effects on general tribal health and cultural well-being. The effects of the Klamath River dams on the cultural values of the Resighini Rancheria include emotional and physical health effects such as increased obesity, diabetes, heart disease due to loss of the traditional salmon diet. Additionally, the tribal members experience a loss of opportunity for intergenerational transmission of traditional knowledge. These conditions result in tribal members, especially young people, leaving the reservation for opportunity elsewhere.

The Yurok of the Resighini Rancheria bathe in the river and use its water for daily and ritualistic purposes. Because of their reliance on the river for so many aspects of their lives, they are concerned about the quality of its water.⁹¹

The Klamath dams project has effects on water quality and related environmental issues, such as watershed health, riparian habitats, erosion, sediment, turbidity, sources of pollution and temperature changes, algae blooms, low dissolved oxygen, high pH, and un-ionized ammonia. The cumulative effects may result in health problems, not just for the people who live on the Rancheria, but also for the tourists who come to camp in the area every year, as well as the people who use the water for business purposes or who work for those businesses.⁹² Although the Rancheria leadership asserts that

⁹¹ Federal Energy Regulatory Commission Project Number P-2082-027, 87–88.

⁹² Ibid., 31–32.

groundwater quality is adversely affected, this assertion is not substantiated by any studies. A 1975 Resighini Rancheria Water Resources Investigation Report states that samples were not taken of the water in the abandoned well. It also states that coliform was found in a sample taken from a stream running through the Rancheria.⁹³ A second report completed by the Bureau of Reclamation in 2010 to document an Environmental Assessment of the Resighini Rancheria’s Water Resources states: “The Rancheria is in need of an additional source of dependable drinking water to reduce potential health risks associated with their current operation.” Later, the same document states: “Hydrogeologic information is currently not available for water-bearing formation, groundwater level trends, and groundwater storage for the Lower Klamath River Valley groundwater basin.”⁹⁴

Table 3-4 lists the effects of current dam operations on Resighini Rancheria cultural values related to trust resources, tribal rights to take those resources, and on other resources traditionally used by the rancheria.

Table 3-4. Effects of Current Dam Operations on Resighini Rancheria Cultural Values Related to Trust Resources and Rights and to Other Resources Traditionally Used by the Rancheria

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE RANCHERIA	EFFECTS
	Water resources	<ul style="list-style-type: none"> • Diminished aesthetics • Algae-clogged fishing nets • Human exposure to toxic water while conducting cultural activities • Diminished opportunity for traditional bathing
	Aquatic resources	<ul style="list-style-type: none"> • Less traditional salmon diet and increased heart disease, strokes, diabetes, and obesity • Tribal members leaving reservation • Fewer opportunities for transmitting traditional knowledge • Increase in invasive species (Asian clams)
	Terrestrial resources	<ul style="list-style-type: none"> • Diminished plant availability for cultural practices and related benefits • Loss of opportunity for inter-generational traditional knowledge transmission

Note: Blank cells indicate that the Resighini Rancheria has no resources in this category that are affected by this project.

Discussion

The Klamath dams have significantly reduced the ability of tribal members to engage in traditional and contemporary subsistence and religious practices. The availability of and rights to traditional foods and basket-making materials have been affected by the presence of the dams. The dams have altered the natural flows of the river, which has affected the formation of the sand spit in terms of sand buildup and the ability of the river to clear a path through the spit to the ocean. As a result of altered functions, including increased sand build-up coupled with seasonal low flows, the Rancheria has experienced more fall flooding of its lands.

⁹³ Winzler and Kelly Consulting Engineers (1975), 7, 17, 18.

⁹⁴ U.S. Bureau of Reclamation. (2010), 3, 8.

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The Rancheria members have noticed an invasion of clams (identified generally as “Asian clams”) and wonder what that might do to alter the ecosystem. The Rancheria members are not sure whether invasive species can be directly attributed to the dams, but they know that the clams have migrated from upriver to downriver. Although new species are introduced into the ecosystem with unknown consequences to Rancheria members, the Rancheria has also witnessed the demise of traditional species such as the spring run of Chinook and the near extinction of the Klamath population of eulachon. The demise of these populations is generally attributed to poor Klamath River water quality.

3.3 Hoopa Valley Indian Tribe

“Without the Trinity River, the Hupa, and their traditions, would not have developed as they are today.”

—LOIS RISLING, HOOPA TRIBAL MEMBER, APRIL 10, 1997

3.3.1 Tribal History

Located in the northeastern corner of Humboldt County in northern California approximately 45 miles inland from the Pacific Ocean, the Hoopa Valley Indian Reservation encompasses roughly 20 percent of the Hupa aboriginal territory, which extends to the south and east of the current reservation. (Hoopa is used when referring to the name of the Tribe, and Hupa is used when referring to the people, place, or culture.) The reservation, known as “the 12-mile square,” is laid out geometrically with sides approximately 12 miles in length for a total of a little less than 144 square miles. At close to 90,000 acres, the reservation is the largest in California.

The Trinity River bisects the reservation. A small length of the northern border of the reservation includes approximately a 0.3-mile reach of the Klamath River called Saints Rest Bar several miles upriver from Weitchpec, California.

The 2000 U.S. Census counted 2,633 people on the reservation,⁹⁵ and the Tribe listed an enrollment of 2,930 in 2010.⁹⁶

The word *Hupa* is from the Yurok name for the Hoopa Valley. The Hupa called themselves *Natinook-wa*, meaning “people of the place where the trails return.” The Hupa are culturally related to the Yurok and also the Karuk to the north, although the three tribes’ traditional languages are entirely different from one another. In the early 19th century, there were around 1,000 Hupa in and near the Hoopa Valley, with about 600 in the valley proper. Their diet and way of life centered around the seasonal king salmon runs that occur on the Trinity River.⁹⁷

The Hupa remained secluded in their remote valley until near the middle of the 19th century. Fur trappers, passing through on their way to other destinations, were the first outsiders to enter the Hupa country. More sustained contacts came in 1850, following the discovery of gold in the area. Euro-American and Chinese miners prospected in the Hoopa Valley, and several gold-bearing gravel bars were discovered, but these were soon exhausted.⁹⁸

As a few miners took up land and homesteaders slowly drifted in, fears of trouble between the newcomers and the native people led to the establishment of Fort Gaston. Federal troops were stationed there in 1858 to maintain the peace. Rather than being reassuring for the Indians, however,

⁹⁵ Hoopa tribe website, <http://www.hoopa-nsn.gov/government/statistics.htm>.

⁹⁶ California Department of Housing and Community Development. California Indian Assistance Program (2004), 101.

⁹⁷ <http://infodome.sdsu.edu/research/guides/calindians/calinddict1.shtml#hupa>

⁹⁸ Wallace (1978), 175.

the idle soldiers were perceived as a continuing menace, and their presence resulted in a large infusion of Caucasian blood into the native population. The post was eventually abandoned in 1892.⁹⁹

Uninterrupted occupancy of their ancestral lands has been a benefit to the Hupa culture. One result is that the Hupa's proportion of survivors is among the highest in California. This, in combination with the remoteness of the country and the relatively little gold to be found, meant that the Hupa have been able to continue their traditional ways of life to a greater extent than many other Indians. Old customs were replaced so slowly that the people were able to adjust.¹⁰⁰

The boundaries of the Hoopa Valley Indian Reservation were established by executive order of President Grant on June 23, 1876, pursuant to a congressional act of 1864. The reservation was expanded by executive order in 1891 to connect the old Klamath River (Yurok) Reservation with the Hoopa Valley Reservation. From 1891 through 1988 the Hoopa Valley Reservation was composed of the Hoopa Valley "12-mile square," the extension of the reservation along the Klamath River, and the original Klamath River Reservation. Confirmation of the sovereignty by the Hoopa Tribe of the Hoopa Valley Indian Reservation came on October 31, 1988, when President Reagan signed Public Law 100-580, the Hoopa-Yurok Settlement Act, again separating the reservation and retaining the original square reservation for the Hupa.¹⁰¹

The Hoopa Valley Tribe employs hundreds of people and has established a wide array of industries that support numerous business enterprises. Timber extraction, gravel extraction, modular house manufacturing, a hotel, a restaurant, and a small casino provide the lead sources of economic stimulus to the inland valley. The Hoopa Valley Tribe also maintains a modest fishery program.

3.3.2 Hoopa Valley Tribe Fish Culture

The Trinity River is of prime importance to the Hoopa Valley Tribe, because it is the river that runs the greatest distance through the Hoopa Valley Indian Reservation, and the river that Hoopa tribal members interact with the most. However, fish destined for the Trinity must pass through the lower Klamath River and are therefore affected by Klamath River conditions.

The Trinity River is of unique and irreplaceable value to the Hupa. It is a vital natural resource that is the foundation of their social and cultural way of life. At its most basic level, the river has always been a source for food and other necessities of daily Hupa life. The river also provides basket materials, fish net materials, and a means of transportation. Even rocks from the river are used by Hupa people to practice their cultural ways. That every traditional Hupa village was located and built along the Trinity River underscores the vital importance of the river to Hupa culture and traditions. One of these villages, *Me'dilding*, "boat-place," was named for its proximity to the river and its central importance as a boat landing. The Trinity River is traveled during religious ceremonies and in recreational activities; it is integral to the Hupa language and its oral tradition and truly represents the binding force of the community.¹⁰²

⁹⁹ Ibid.

¹⁰⁰ Ibid., 175-176.

¹⁰¹ Hoopa-Yurok Settlement Act. (October 31, 1988).

¹⁰² Trinity DEIS/EIR (October 1999), 3-215.

Hupa use of the river developed over a long period of time, as evidenced by the complexity of their religious ceremonies and practices. Early contact and early ethnographic periods, from 1850 to 1930, indicate that uses of the Trinity River by the Hupa people were directed toward fisheries and religious ceremonies (ceremonies that involve prayers offered by people trained to make medicine), and that such activities were highly integrated.¹⁰³

Fishing

Many natural foods have been available to the Hupa, with salmon and acorns providing the bulk of the native diet. When the salmon thronged the Trinity each spring and when they spawned in its upper reaches in fall, the year's supply of fish was taken by a variety of efficient devices.¹⁰⁴ During the spring run, fishermen, standing on platforms erected over suitable pools and eddies, dipped the salmon out with long-handled nets. Other methods of capturing salmon included fish dams, gill nets set in still pools, and long dragnets hauled by groups of fishermen. Where water conditions permitted, salmon were impaled with bone-pointed harpoons.¹⁰⁵

Quantities of salmon flesh, sliced thin and smoke-dried, are preserved for winter use. The commonest method of cooking fresh salmon is broiling on pointed sticks propped up near the fire, where the flesh took on the flavors of the smoke.¹⁰⁶

Another fish of importance is the steelhead, a sea-running trout that returns to the river to spawn. Sturgeons, valued not only for their mass of flesh but also for the glue obtained from their heads, have been caught in fewer numbers. Lamprey eels, migrating upstream in the spring, have been much relished. Surplus stocks of all three are preserved for future consumption by drying in the smoke of fires. Trout and other varieties of small fish present in the rivers throughout the year are sometimes taken with hook and line.¹⁰⁷

The Fish Dam

Each fall the Hupa built a weir, or fish dam, across the Trinity River. (After many decades without the dam, the Hupa reconstructed it once within the last decade.) The dam was assembled through a cooperative effort of all Hupa men. Its construction began in the summer prior to the fall salmon run (September/October) after the Yurok's ritual establishment of the Cappell fish dam above the mouth of the Klamath River. The dam was built from stakes driven into the river bottom in pairs, crossing near the top, and tethered together. A lattice on the upper side of the dam served to stop the upward migration of salmon. Fish swarming against the obstruction were scooped up by men strategically positioned on small platforms along its top. The weir was constructed communally and placed in alternate years near one of two principal settlements. Hupa men fished the fall salmon run at the dam until the first high water washed out the dam.¹⁰⁸

¹⁰³ Goddard (1903-1904).

¹⁰⁴ Kroeber et al. (1960).

¹⁰⁵ Wallace (1978), 164-165.

¹⁰⁶ *Ibid.*, 165.

¹⁰⁷ *Ibid.*

¹⁰⁸ Trinity DEIS/EIR (October 1999), 3-215-3-216.

Construction of the fish dam provides a good example of the interconnection of the material and economic aspects of Hupa life with the spiritual aspects, how vital the river is to Hupa experience, and how Hupa culture has been adversely affected by declining river health.

Trade and Barter

The Hupa traded chiefly with the coastal Yurok. From them they received their canoes, which their own lack of redwood prevented them from manufacturing, and dried sea foods, especially surf fish, mussels, and salty seaweed. Most of the Hupas' dentalia, which are shells used for money, probably were acquired through the same channel, although the currency must have been passed back and forth from tribe to tribe and village to village for generations. Dentalia are still sometimes used in exclusive native commerce and remain prominent in many of the ceremonies. The goods the Hupa provided in return are less definitely known, but seem to have consisted of acorns and other inland foods and perhaps skins. The Hupa were generally friendly with the inland Yurok and the Karuk, but the goods of these tribes were too similar to those of the Hupa for bartering to be attractive. Sporadic commerce was also conducted with other Indian groups.¹⁰⁹

Religious Practices

Religious beliefs and practices play an important role in everyday life for the Hupa people. An almost endless series of taboos has to be scrupulously observed, daily supplications are made for health and wealth, and preventive acts are performed to ensure luck. In addition, each person is supposed to maintain a devout frame of mind throughout the day, particularly during important group rituals when reverent thoughts by participants and onlookers are considered essential for their success.¹¹⁰

Ceremonies and Rituals

The religion of the Hupa is based on individual effort through ritual cleanliness as well as ceremonies that bring the entire tribe together. The tribes of the region, including the Hoopa, practice the annual World Renewal Ceremonies, which involve songs and dances that have been preserved for generations. The Hoopa and Yurok tribes also practice the White Deerskin Dance. These rituals are associated with the river as well as with medicine—medicine administered to cure sickness, but also roots, herbs, and bark used to promote both physical and spiritual health. The Brush Dance, for example, is a social event as well as a healing ceremony in which certain tribal members dance, sing, make medicine, and pray to bless a particular sick child or infant. Involving men, boys, and young girls, the dance takes place in a specially designated pit. The spectators, seated on benches around the pit, also pray and thereby help in the spiritual treatment of the child.¹¹¹

The Hoopa Valley Indians continue to conduct many of their traditional religious ceremonies, and the cultural significance of the Trinity River is captured in many of these ceremonies. Ancient religious sites on the river, still used in tribal rituals today, were believed to be designated by spiritual deities at a time beyond living memory. Prayers conducted at the dances are directed toward the well-being of everyone, and food, particularly fish, is shared with all who attend.¹¹²

¹⁰⁹ Wallace (1978), 168.

¹¹⁰ Wallace (1978), 174.

¹¹¹ Hoopa Valley Indian Reservation website, <http://www.hoopa-nsn.gov/culture/history.htm>.

¹¹² Trinity DEIS/EIR (October 1999), 3-216.

The greatest divinity for the Hupa people is *Yimantuwingyai*, “the one lost (to us) across (the ocean),” also known as *Yimankyuwinghoiyan*, “old man over across,” who establishes the order and condition of the world and is the leader of the *kihunai*, or ancestors. *Yimantuwingyai* seems to be a combination of the tricky and erotic *Wohpekumeu* and the more heroic *Pulekukwerek* of the Yurok, who is also similar to the Hupa *Yidetuwingyai*, “the one lost downstream.” A myth concerning *Yidetuwingyai* tells of the time when the sun and earth alone existed. From them were born twins, *Yidetuwingyai* and the ground on which men live. This particular cosmogony has not been found among the Yurok or Karuk and may have reached the Hupa through the influence of more southerly tribes.¹¹³

Traditional Dances

The White Deerskin and Jump Dances, the Flower Dance, and the Brush Dance all demonstrate the importance of the river flows to the Hupa people and how vital the rivers are to Hupa familial and tribal material well-being and self-esteem. Unfortunately, the Hupa report that, although these dances and other religious ceremonies have continued in modern times, the decline of the Trinity River’s health has made their practice increasingly difficult for Hupa medicine people, dancers, and others. Thus, the adverse impacts of an unhealthy river extend beyond the fisheries to religious ceremonies, affecting everyone from the very oldest tribal elders to newborn infants and future generations.¹¹⁴

*Hupa White Deerskin Dance and Jump Dance*¹¹⁵

With two major ceremonies celebrating world renewal, the White Deerskin Dance and the Jump Dance, the Hupa honor the Earth and the Creator for providing sustenance and for allowing the continuance of the Tribe. As is much of Hupa culture, both ceremonies are closely tied to the river. In fact, one Hupa name for the White Deerskin dance is *hun’q’ehch’idilye*, “along the river religious dance.” This important ceremony is conducted at village sites and resting places near the Trinity River and involves travel on the river.

The exact timing of the dances depends on the river and its waters. The White Deerskin Dance is held from late August into September. The Jump Dance follows 10 days after the conclusion of the White Deerskin Dance. Both dances are elaborate ceremonies that take place over a period of 10 days. In a ritual gesture, the Hupa offer salmon they have caught at their fishing sites for the ceremony and to share with the participants and attendees.

During the ceremony, the dancers set out from *Ta’k’imilding*, the main Hupa village in the northern part of the valley, and move from one village to the next. First, they go up the Trinity River to the major village in the southern part of the valley. Here they dance on the afternoon of their arrival and again the next morning. Then they go by boat to a place on the river and dance one afternoon and one morning. In the afternoon they board boats that have been decorated for the ceremony.

The Boat Dance is a spectacular segment of the White Deerskin Dance involving dancing and singing while crossing the Trinity River. As the Boat Dance proceeds, the camps follow the dancers from the east side of the river to the west side. In this way, the dance echoes the river’s flows and their

¹¹³ Kroeber (1925), 134.

¹¹⁴ Trinity DEIS/EIR (October 1999), 3-216.

¹¹⁵ Information in this section is from Trinity DEIS/EIR, (October 1999), 3-216–3-217.

connotation of river health. The next day, as the dance continues, the camps move to different sites until the dance concludes.

Another Hupa ceremony, the Jump Dance, also takes place along the river. This dance, with its own dance steps, songs, and regalia, as well as daily feasting, is dedicated to the good of the world. The completion of the Jump Dance signals a blessing for the year to come, with the hope that all people may be satisfied with small quantities and have their needs met. Both the White Deerskin Dance and the Jump Dance depend on a healthy river for fish, basket materials, bathing, and ambiance. The flows of the river are also a central element of these dances as they influence the dancers' ability to travel the river as their ancestors did. The Hupa claim that as the river's flows have declined, so have the Hupa's ability to practice these ceremonies.

*Hupa Brush Dance and Flower Dance*¹¹⁶

The Brush Dance is held for the purpose of curing a sick baby or child. At Brush Dances camps are designated for the downstream Yurok people and for the Karuk people upstream on the Klamath River. Hupa people themselves traditionally bathe in the Trinity River each morning of the dance, and they use baskets made with willows growing along the river in the ceremony. The dance is called the Brush Dance because part of the ceremony requires the participants to fill their quivers with willow brush. (Operations along the Trinity River are thought to have reduced the abundance of willow brush and other basket-making materials vital to this dance.)

The Flower Dance is held at various Hupa towns along the river. The purpose of this dance is to train a girl who has just reached adolescence to lead a good life as an adult woman. The girl for whom the dance is held traditionally bathes at seven sacred places in the river during training in the Flower Dance ceremony.¹¹⁷

Oral Traditions

The Hupa language belongs to the Athabascan family, which relates the Hupa to some of the other tribes in the region and, more remotely, to the Athabascans from the interior of Alaska and northern Canada, as well as to the Navajos and Apaches of the American Southwest. The Hupa, with the Chilula and the Whilkut, formed a close linguistic unit, diverging considerably from the other dialect groups of California Athabascans.¹¹⁸ Although the Hoopa share a similar culture with other tribes in the Klamath basin region, the Tribe has a distinct language.¹¹⁹

The Hupa language reflects the essence of what it is to be Hupa and thus represents an important element in preserving the people's identity. As testament to the importance the Hupa place on their language, the tribal members have continued to pass their language on to successive generations in spite of pressures to stop speaking it. Tribal elders were forbidden to speak their language in school. Today, these same elders are currently teaching this complex indigenous language to Hupa children

¹¹⁶ Information in this section is from the Trinity DEIS/EIR (October 1999) unless otherwise indicated.

¹¹⁷ Bennett (1997), in Trinity DEIS/EIR (October 1999), 3-218.

¹¹⁸ Kroeber (1925), 128.

¹¹⁹ Hoopa tribe website, <http://www.hoopa-nsn.gov/culture/history.htm>.

and others, conveying not only the language but simultaneously the cultural context in which it developed and flourished.¹²⁰

3.3.3 Effects on Trust Resources and Related Cultural Values

Effects on Trust Resources

A government-to-government consultation meeting concerning the effects of current dam operations on Hoopa Valley Indian Tribe trust resources was held on November 8, 2010. The Hoopa Valley Indian Tribe indicated that the Tribal Trust section of the Trinity River Mainstem Fishery Restoration EIS/EIR, prepared in 2000, adequately represented the effects on Hoopa trust resources such as water, fish, and cultural values. Although current operations of the four Klamath dams are more likely to affect resources of the Klamath River, Klamath water quality affects Hoopa trust resources by adversely affecting fish destined for the Trinity River, which must pass through approximately 42 miles of the Klamath River before turning up the Trinity River and through the Hoopa Valley, where Hoopa Tribal members participate in a tribal subsistence, ceremonial, and commercial fishery.

The Hoopa Valley Tribe also provided information suggesting that no mitigation has historically been required for the reduction of miles of salmonid fishery habitat upriver of Copco Dams Nos. 1 and 2 because such mitigation was not required when the dams were completed. When the later dams were constructed, mitigation was required for the loss of fish habitat but only for the several miles between Iron Gate Dam and Copco No. 2 Dam (i.e., the Iron Gate Fish Hatchery was not built to mitigate for the loss of all of the upriver habitat). The hatchery does not manage spring Chinook salmon because these fish were primarily affected by the earlier dams, and only to a lesser extent by the Iron Gate Dam.

Table 3-5 lists the effects of current dam operations on the trust resources, tribal rights to take those resources, and other traditional use resources traditionally used by the Hoopa Valley Indian Tribe.

¹²⁰ Trinity DEIS/EIR (October 1999), 3-221.

Table 3-5. Effects of Current Dam Operations on Hoopa Valley Indian Tribe Trust Resources and Rights and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS
Water resources ¹		<ul style="list-style-type: none"> • Altered flows • Altered water temperature regime • Reduced bedload/sediment transfer • Degraded water quality caused by nutrient input, dissolved oxygen, pH, algal toxins and other contaminants
Aquatic resources ²		<ul style="list-style-type: none"> • Loss of habitat • Less suitable water temperature regime • Reduced bedload transfer • Increased potential for disease/parasites • Reduced population size
Terrestrial resources ³		<ul style="list-style-type: none"> • Reduced food availability • Loss of riparian habitat

¹To the extent that it affects Trinity River–destined fish or any fish taken by Hoopa tribal members in the approximately 1/3 mile of the Klamath River that is within the Hoopa Indian Valley Reservation (see next entry, Fish).

²Applies to Trinity River–destined fish or any fish taken by Hoopa Tribal members in the approximately 1/3 mile of the Klamath River that is within the Hoopa Indian Valley Reservation.

³Terrestrial resources refer to the 1/3 mile of the Klamath River that is within Hoopa Reservation boundaries.

Note: Blank cells indicate that the Hoopa Valley Indian Tribe has no resources in this category that are affected by this project.

Effects on Cultural Values

The effects of the Klamath River dams on the cultural values of the people of the Hoopa Valley Tribe include emotional and physical health effects such as increased obesity, diabetes, heart disease due to loss of the traditional salmon diet, and depression, alienation, and suicide. Additionally, the tribal members experience a loss of opportunity for intergenerational transmission of traditional knowledge. These conditions result in tribal members, especially young people, leaving the reservation for opportunity elsewhere.

Table 3-6 lists the effects of current dam operations on the cultural values of the Hoopa Valley Indian Tribe related to trust resources, tribal rights to take those resources, other resources traditionally used by the tribe, and cultural values related to those resources and rights.

Table 3-6. Effects of Current Dam Operations on Hoopa Valley Indian Tribe Cultural Values Related to Trust Resources and Rights and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS
Water resources		<ul style="list-style-type: none"> • Contributes to the decline of health of those fish in the Klamath River that are destined for the Trinity River
Aquatic resources		<ul style="list-style-type: none"> • Diminished livelihood • Loss of traditional salmon diet causes increased heart disease, strokes, diabetes, and obesity among tribal members • Loss of opportunity for intergenerational traditional knowledge transmission • Tribal members leaving reservation • Depression, alienation, and possibly suicide
Terrestrial resources ¹		<ul style="list-style-type: none"> • Diminished plant availability for cultural practices and related benefits • Loss of opportunity for inter-generational traditional knowledge transmission

¹Terrestrial resources refer to the approximately 1/3 mile of the Klamath River that is within Hoopa Reservation boundaries. Note: Blank cells indicate that the Hoopa Valley Indian Tribe has no resources in this category that are affected by this project.

Discussion

Members of the Hoopa Tribe have offered firsthand accounts of the decline of the river and its effects on the people. Tribal member Jill Sherman stated:

Even when there are salmon in the rivers, tribal nets fill with moss because flows aren't adequate to keep the water cool, a depressing reminder that the rivers are no longer healthy. Watching the rivers deteriorate each year, unable to protect those resources they so cherish, has had a tremendous adverse psychological effect on the region's native peoples.¹²¹

Byron Nelson, a Hupa elder, stated:

Though many Hupa and Yurok still hold to traditional beliefs and engage in certain time-honored practices such as shamanism and basketry, the decline of the rivers' health, the center of their culture and spirituality, has led to a loss of self-esteem, an increase in cynicism, and has greatly hurt the cohesiveness and health of these tribal communities. The rivers are the focalizing element of the society; with their loss, it seems much of the hope has also been lost.¹²²

According to Nelson, cultural stress related to an unhealthy river has resulted in a broad spectrum of social and educational problems, including the disruption of traditional occupations and the loss of opportunities for religious practice and community participation in tribal culture.

¹²¹ Jill Sherman, pers. comm. (September 1996), in Trinity DEIS/EIR, 3-224.

¹²² Byron Nelson, tribal elder, pers. comm. (November 1996), in Trinity DEIS/EIR, 3-224.

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Limitations in the Tribes' access to resources has restricted the practice of some of their most important traditions, including freely fishing the once prolific seasonal salmon runs and participating in the concurrent cycle of ceremonies. Although many ethnographers have tried to characterize these traditions, little has been done to assess the impact of their loss on the tribes.¹²³

For example, younger tribal members are increasingly prone to leave the area. Nelson observed that in the past:

... Hupa and Yurok rarely left their territories. Today, the inability to meet subsistence needs from the fishery, a perception that the rivers are dirty, and a general malaise in our communities has compelled many to seek employment and community elsewhere. Even tribal health has experienced a decline as processed foods have replaced the fish and other natural foods that were once a staple of our diets.¹²⁴

The damming of the river has had wide-ranging effects on the culture of the Hoopa Valley people.¹²⁵ Despite significant degradation of the river ecosystem of the Klamath/Trinity region through the end of the 19th century and the first half of the 20th century, the Hupa persisted in their traditional reliance on the rivers and their resources. Although they found it increasingly difficult, the tribes continued to practice their ceremonies and religions; gathered vegetation for baskets, food, medicines, and other purposes; and met and ate together along the riverbanks. Fish caught by the tribes, as much as possible, continued to be an important component of their diets. Thus, many of today's Hupa people grew up with a strong physical connection to the rivers and great appreciation for the traditions and ways of life of their ancestors.

One reason the tribes were able to maintain some of their traditional relationship to the rivers was that the rivers' flows remained relatively unimpeded. This all changed with the building of the dams. The dams, along with other diversions and impoundments in the Klamath/Trinity basin, have dramatically altered the region's rivers. Fishing and traditional-use sites have become clogged with debris, and declines in fish population have continued.

In the past, federal regulations governing fishing on the Hoopa Valley Indian Reservation have permitted the taking of fish for ceremonial purposes even when the fisheries were closed to harvest—clear evidence that the federal government recognizes that fishing and fish are an integral and indispensable part of the religious and ceremonial life of both tribes. Unfortunately, the poor condition of the fishery in recent times has in some instances forced the Hupa to purchase fish from sources off their reservations to provide for all who attend their ceremonies. Tribal elder Byron Nelson stated:

¹²³ Trinity DEIS/EIR, 3-225.

¹²⁴ Byron Nelson, tribal elder, pers. comm. (November 1996), in Trinity DEIS/EIR, 3-225.

¹²⁵ Unless otherwise indicated, information in this section from Trinity DEIS/EIR, 3-224.

A lack of fish has resulted in the scaling down or even cancellation of ceremonies. The continual practice of ceremonies represents an important means for keeping tribal members who live off the reservations connected to their culture and families. However, without enough salmon, many do not come back; and the planning of ceremonies, once a time to appreciate nature's abundance and of spiritual celebration, often brings significant anxiety to the region's native peoples.¹²⁶

According to a report by the California Department of Fish and Game, the fish kill of 2002 affected all of the tribes along the Klamath River, but the Trinity River in the Hoopa territory was also affected. Although a larger number of Klamath River fall-run Chinook died, a greater proportion of the Trinity River run was affected by the fish kill. The Trinity River runs have accounted for approximately half of the Klamath system totals since 1978, and the Trinity run was at its peak during the height of the fish kill. The effects were more pronounced in the Trinity River than the Klamath River because the fish kill occurred below the confluence of the Trinity and the Klamath, and thus eliminated much of the fishing opportunity on the Trinity River."¹²⁷

The once majestic fish runs of the Trinity River experienced significant declines following the construction of the Central Valley Project's Trinity River Division (TRD) in the early 1960s. The TRD not only eliminated 109 miles of important salmon habitat but also exported to the Sacramento River as much as 90 percent of the water flowing into the Trinity at Lewiston. Congress has enacted legislation directing restoration of fish populations in the Trinity River, including Pub. L. 102-575, § 3406(b)(23), which directs action "to meet federal trust responsibilities to protect the fishery resources of the Hoopa Valley Tribe." A Record of Decision in 2000 governs the Trinity River Restoration Program, but the success of restoration is adversely affected by underfunding and low water flows and fish disease conditions in the portion of the Klamath River through which the Trinity runs must pass.¹²⁸

¹²⁶ Byron Nelson, tribal elder, pers. comm. (November 1996), in Trinity DEIS/EIR, 3-216.

¹²⁷ California Department of Fish and Game (July 2004). III.

¹²⁸ Memorandum from U.S. Department of Interior to Bureau of Reclamation. (July 25, 1995); U.S. Department of the Interior. (December 2000).

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3.4 Karuk Tribe

“We are here to talk about the impacts of these dams ... It’s been told to me by elders that there used to be eight runs of fish, eight specific runs of fish that used to go up at Ishi Pishi Falls. That was before the dams. We would be done fishing by Labor Day. That was our prime. Now the fish don’t even get there until Labor Day.... What are the social and mental impacts of that? We used to have four months of optimal fishing, four months. Now two weeks.”

—RON REED

AT GOVERNMENT-TO-GOVERNMENT MEETING
SEPTEMBER 30, 2010

3.4.1 Tribal History

The origins of the federal government’s relationship with the Karuk Tribe are found in the negotiation of treaties between the United States and the various tribes of California in 1851. These treaties were never ratified by Congress, and the Karuk never vacated their ancestral lands in the remote regions of northern California along the Klamath River.

The Karuk Tribe has been a federally recognized entity since 1979.¹²⁹ The tribe occupies territory inland along the middle section of the Klamath River. The land is characterized by the steeply folded and faulted mountains typical of the lower and middle Klamath basin, where mountains range from 600 to 7,500 feet in elevation and give rise to a dendritic pattern of streams that empty into the Klamath and Salmon Rivers.¹³⁰ In the 2000 U.S. Census, tribal membership was determined to be 2,702.¹³¹ Today, the Karuk are one of the largest tribes in California, with approximately 4,800 members. The Karuk maintain a downriver office in Orleans, Humboldt County; a middle office in Happy Camp, Siskiyou County; and an upriver office in Yreka, Siskiyou County.

The Karuk Constitution is dated April 1985. The tribe’s ancestral territory was about 1.4 million acres; today the Tribe owns 652 acres in trust status. The Karuk Tribe is a Self-Governance Tribe under Indian Self-Determination Act of 1975. The Tribe maintains a robust Natural Resources Department.

The tribe operates three health clinics. Tribal members also work for the U.S. Forest Service. The Karuk Community Development Corporation maintains formal development plans. Important contemporary issues include health care, water rights, proper natural resource management, and land acquisitions.¹³²

3.4.2 Karuk Tribe Fish Culture

The Karuk Tribe has effectively maintained its cultural identity and traditional practices over the years. Tribal members still engage in traditional hunting, gathering, and resource management

¹²⁹ Pritzker (2000), 129.

¹³⁰ Karuk tribe website: <http://www.karuk.us>.

¹³¹ Ibid.

¹³² Pritzker (2000), 129.

activities. This includes preservation and use of the Karuk language, basket weaving, fabrication of regalia, practice of traditional religious ceremonies, and stewardship of natural resources through use of fire and harvest management techniques.

Early ethnographers characterized the Karuk using the simplistic phrase, “a salmon and acorn people,” but in fact the Karuk used the resources of the uplands for seasonal gathering of acorns as well as game, basketry materials, and other resources, and they used these sites for religious purposes rather than for habitation.¹³³ Archaeological excavations of the interior area of northwestern California support this analysis of the ancestral Karuk living in permanently settled villages near the river while continuing to exploit high-country resources, with both site placement and population density dependent on ease of fish procurement.¹³⁴

The fishery and other resources supported more than 100 ancestral Karuk villages along the Klamath and Salmon rivers. Karuks established a long series of villages on favorable beaches, bends, benches, and fishing sites, centering life on the bounty and transportation provided by the rivers. The villages were composed of family houses and sweat lodges that the Karuk built from hand-split and adzed sugar pine or cedar planks. These villages provide the thread joining Indian people from the upper Klamath basin to the coast.

Over thousands of years, the Karuk people honed land management to the level of a fine science. The tribe’s conscious incorporation of ritual, spiritual, and technical elements for the management of vigorous ecosystems resulted in a system of land management and cultural perspectives among the Karuk and the neighboring tribes that enhanced and enriched the diversity of these systems. These culturally basic natural resource management practices are still used by the Karuk and have been articulated in the Tribe’s Eco-cultural Resources Management Plan.¹³⁵

Fishing and Its Importance to the Karuk

The Karuk diet traditionally consisted mostly of salmon, deer, and acorns. Fish, especially salmon, have always been a major food resource and the focus of ceremonies for the Tribe. A variety of species of fish in addition to salmon continue to be available to the Karuk, and they use several methods, both traditional and contemporary, to catch them, according to the type of fish and conditions of the river.

Fishing Rights

Anthropologists Kroeber and Barrett described the Karuk as among a number of tribes who were dependent on fish within a social system of enforced rights:

¹³³ Kroeber (1925).

¹³⁴ Chartkoff et al. (1975), 172-179.

¹³⁵ Karuk Tribe Department of Natural Resources Eco-Cultural Resources Management Plan, Draft (2006).

The best fishing places along the rivers were privately owned, sometimes by single individuals, sometimes jointly by several. In the latter case, a fishing place could be used by each owner in rotation, according to the proportionate share of his ownership. An owner might give someone else permission to fish there on the day or days when his turn would normally come. But no one was permitted to fish or to establish a new fishing place immediately downstream from a recognized fishing place ... most inferior fishing places, and a few excellent ones were not privately owned but were open or public.¹³⁶

The concept of ownership applies strictly to the right to fish and not to ownership of land along the river. Those tribal members who have what are still referred to as “rights” had, as was characteristic of the Karuk, degrees of flexibility in the ownership of those rights. Owners of rights at a particular fishery, for example, might sell those rights in whole or in part, or might give away surplus fish and allow other people to fish at the site of their ownership. These rights, which have the force of law, might be attained by inheritance, as a gift, or as payment for services. Women could own rights even if they did not fish themselves; a man, usually a relative, would often do the fishing at the site.

Species of Fish within Aboriginal Karuk Territory¹³⁷

The Klamath River provides a spawning area for several species of fish that were and continue to be critical to the Karuk Tribe. Karuk list the principal Klamath River fish as follows:

- Spring-run Chinook or king salmon
- Fall-run Chinook salmon
- Out-migrating Chinook smolts
- Coho or silver salmon (also called dog salmon)
- Steelhead
- Trout
- Suckers
- Bullhead
- Sturgeon
- Pacific lamprey

The First Salmon Ceremony was conducted around April. When the fish first breeched the sandbar at the mouth of the Klamath, marking their transition from the Pacific Ocean back to the fresh water of the Klamath River, preparations were made to await their arrival at the upriver extent of *Yutimiin* (lower fish place). As these “springers” made their way upriver, the Karuk marked their arrival at *Ameekyaaraam*, a site below the mouth of the Salmon River. The conclusion of this ceremony triggered the end of the steelhead season and the beginning of the salmon season within *Yutimiin* and at the Wooley Creek fishery (near the mouth of Dead Horse Creek). The springers were followed by the summer and fall Chinook salmon, which are larger than those of the spring run. Fishing in *Katimiin* (Upper Fish Place) historically began as part of the salmon ceremony held at *Inam* during the new moon in July. The conclusion of this ceremony signaled the beginning of the allowable salmon fishing season within *Katimiin*.

¹³⁶ Kroeber et al. (1960), 3.

¹³⁷ Snyder (1931).

Written and oral tradition indicates that, prior to an extended series of impacts on the fishery beginning with the miners who arrived during the Gold Rush, salmon were entering the river in distinguishable waves throughout the year. The waves mounted and then declined with the progress of the run. The major run was traditionally that of the spring salmon. George R. Field, supervisor of the cannery of the Klamath Packers Association at the mouth of the Klamath, described the runs in 1930:

As the run of winter steelheads ceases, about March 30, spring Salmon begin to come. A few enter the Klamath in the later part of February, but the run really starts in March and slackens or almost entirely passes by the last of May. These fish average about 11 pounds in weight and are indistinguishable from those which come later, except that the eggs are always immature. These spring salmon may be caught in the smaller streams fed by melting snow at the headwaters of Salmon River during the month of May.¹³⁸

Spring salmon were said to have “lingered” in the vicinity of spawning beds until they matured and then spawned with the fish of later runs. By 1931, the spring run had declined from being the major run to the point that it was characterized as being of “relatively little economic importance.”¹³⁹

The Klamath steelhead are not salmon but rainbow trout (*Salmo gairdnerii* ssp. *Irideus*), and they appear in the Klamath River in three runs. Like the salmon of the Klamath River, steelhead are normally anadromous; however, they are more adaptable than the salmon and will sometimes remain below the dams upriver when food sources are plentiful. However, unlike the salmon, steelhead do not die when they return from the ocean as mature fish to spawn in the river.

Other Species

Additionally, two species of sturgeon, the white sturgeon, *Acipenser transmontanus*, and the smaller and rarer green sturgeon, *A. medirostris* (*acutirostris*), are anadromous species that migrate as far upriver as Ishi Pishi Falls on the mainstem Klamath. Sturgeon also find habitat in the Salmon River as far upstream as Butler Flat.

Freshwater mussels have cultural significance for the Karuk, and mussel shells are found throughout Karuk tradition. A women’s spoon made of mussel shell is called *sikihnuuk*, and a mussel tool used in traditional basket weaving is an *ishuvar*. Shells have also been used as fishhooks and children’s toys. The *axthahá’iish*, or meat of the mussel, was a part of the traditional Karuk diet. As an indication of importance of the mussels to the Tribe, there are eight surviving Karuk words for mussel (there are 80 for salmon).¹⁴⁰

Karuk ancestral territory is also home to two species of freshwater, non-anadromous suckers: the Klamath coarse-scale sucker, *Catostomus snyderi*, and the Klamath fine-scale sucker, *C. rimiculis*.

¹³⁸ Snyder (1931), 19.

¹³⁹ Ibid.

¹⁴⁰ Tennant (May 2010), 9-10.

Methods of Fishing

The Karuk used a variety of fishing methods, depending on the section of river or stream, the nature of the flow, and the species of fish. In addition to weirs (dams), nets, and basket traps, Hewes¹⁴¹ listed single- and double-pronged toggle harpoons, gorge hooks, double-pointed angle hooks, V-frame dip nets, multi-pronged spears, gaffs, and hoop nets as tools the Karuk used for fishing.

Weirs (ithg'aah)

Karuk weirs, or fish dams, took around two weeks to construct, including preparation of the poles and logs. Once in place, the weir was left until washed away by high water. Weirs offered the advantage of allowing a large supply of salmon to be caught that would feed many families for the entire winter. When a weir was in use, Karuk men did the fishing while women prepared and dried the fish for storage.

According to Karuk tribal member Mary Ike, the Karuk built weirs at six locations over a distance of 25 miles of river, with only one weir being constructed per year, an indication of how labor-intensive the undertaking was.

According to Karuk accounts, weirs were created by one of the immortals as an aspect of creating salmon and preparing the structures and techniques that the humans to come would use in their capture:

When he had made the salmon, this ikhareya made what the Indians use: he made the scaffolding to fish from. He made it of long poles. He bruised grapevines with which to tie the poles and made it all good. He thought, "This they will do when they fish." He laid a plank on the poles to fish from, and on this he put a little stool so that they could sit while they fished. He thought he had made everything. Then after a time he thought, "It is not quite right as I have made it." He put a screen of brush at his fishing place. He concluded, "It is not right like that. It is too far out in the stream. Let it move back a little toward the shore." Then he thought, "It is not right yet. I do not think it will be good if I use brush. I do not want the salmon to go through: I want them to go right where I am fishing with the net. Let me make something flat and even." So he made a weir ("dam") of sticks and tied them together with pounded twigs (into a mat). Then he thought, "Now I think it is good as I have made it. Now when the people grow they will do that. It is a good way I have made it now." So now the people do like that. When they grew they saw what he had made.¹⁴²

Fishing Nets

The aboriginal Karuk used several types of fishing nets. The large lifting nets required platforms and a trigger string called an *uripi*, and an even larger version, called *amvauripa*, could be up to 12 feet wide (Hewes F.N. 1940). Another type of net, the dip net or plunge net (*takika*), is still in use. This form of net is used at Ishi Pishi Falls in Somes Bar, California, the only fishing site officially authorized for aboriginal Karuk fishing. For this type of fishing, the Karuk take the net to a shelf of

¹⁴¹ Hewes (1942), 97-98.

¹⁴² Kroeber et al. (1980), 71-72.

rocks or boulders above the water and plunge it into pools just below the falls, where salmon rest prior to making their way up the falls. Both types of nets were woven of fibers extracted from the leaf of the native iris, *Iris Macrosiphon (apkas)*. Characteristic of the Karuk, this process involved a gender-based division of labor, with women extracting the two fibers found in each leaf using a mussel shell fitted into a leather holder and set on the processor's thumb. In turn, men twisted the fibers into cordage, which was then woven into nets.

Basketry Traps

One technique for fishing high-water creeks in winter involved the use of trough-shaped basketry traps called *pisimvaru*, referring to the bent-up sides of the trap. Larger traps were constructed of split-spruce poles, "each six or seven feet long and set several inches apart" (ibid.). With widely spaced longitudinal poles, these traps captured only the larger species, salmon and steelhead, while smaller, similarly constructed traps were used to take smaller fish such as suckers and trout. These traps were laid with their open end downstream in line with the water flow so that fish swimming upstream passed into the trap from which they could not escape. Once a day, the fish were removed while the trap was left in place. (This fish trap resembles a Karuk bird trap, which the prey enters unimpeded but finds no exit.) Hewes reported that ordinary burden baskets were also sometimes used as scooping fish traps, and Driver included in a list of Karuk fish traps "a half-cylinder type of trap and ... another ... pointed at both ends."¹⁴³

Pacific lamprey (eels or *akraah*) are taken using a variety of techniques including small-meshed nets or gaffs, or by hand with use of a glove for a better grip as the eels work their way over rocks at night in their upriver migration. The eel trap or basket is made of open-weave basketry anchored in place by rocks and lines.

Harpoons and Other Devices and Methods

Harpoons are distinguished from spears by the presence of a detachable head fixed to a fore shaft or directly to a main shaft by a toggle line that holds the speared fish. The line buffers the actions of a fighting fish, much like the springiness of a modern fishing rod allows fish to be played without tearing out the hook. Harpoon styles consist of both double and single toggle points.

Because nets and weirs were efficient in the harvesting of large numbers of salmon, and the ownership of fishing rights was flexible, the harpoon became a secondary harvesting technique. Thus, Karuks used the harpoon to capture steelhead in their spring spawning runs up streams that were too small to allow netting.¹⁴⁴ Similarly, the Indians sometimes took fish with bow and arrow.¹⁴⁵ The fishery at Wooley Creek, however, was solely a harpoon salmon fishery.¹⁴⁶ Hewes reported that the Karuk also sometimes caught sturgeon by means of a noose crafted from twisted grapevine, which they slipped over the fish's tail. They then tied the line to a tree because these huge fish (eight to nine feet long and often more than 200 pounds) were too strong to be held even by two or more men.

¹⁴³ Driver (1939), 313, 379.

¹⁴⁴ Hewes (1940); in Salter (2010).

¹⁴⁵ Driver (1939), 313, 379

¹⁴⁶ Pers. Comm., Bill Tripp, Karuk tribal employee (2010).

Trade and Barter¹⁴⁷

Native American trading networks were extensive and well established prior to the arrival of Europeans in California. Trading networks not only allowed tribes to obtain resources that were relatively scarce in their own territory, but also resulted in alliances and solidarity between tribes. Coastal tribes traded highly valued dentalium shells—which served as currency and could be made into beads—for inland materials such as obsidian and soapstone. Trading networks facilitated the development of increasingly sophisticated and complex social and cultural systems of the various tribes prior to the arrival of Europeans.

Established trading sites in neutral territory allowed for regular and peaceful trading between the different tribes. Trading also furthered development of complex societies made up of richer and poorer families and individuals. Food was an important item of trade, and tribes including the Karuk traded the plant and animal foods of their territory with coastal tribes for fish and objects such as redwood canoes. Native women were regularly married into other tribes to promote alliances. In preparation for this process of marrying out of the tribe, young women were taught the rudiments of other regional languages to make themselves more acceptable and desirable to other tribes. Among the Karuk, many Flower Dance locations also served as a place for the teaching of multiple languages to young women in preparation for their futures as wives living in other tribes.

A number of social mechanisms allowed trading to take place. Trading specialists, for example, traveled from tribe to tribe, and strategically situated trading sites facilitated trading between tribes. Trading also took place within tribes. Among the Karuk there were 10 identifiable family groups, each managing its own area. Each of these management areas had different commodities in varying levels of abundance that could be traded for commodities in other management areas.

As a rule of thumb, the goal was to have two years worth of a given resource in stock to protect against years when that resource might be scarce. Beyond these basic holdings, materials in surplus were suitable objects of trade. Trading of goods such as iris fiber twine in exchange for obsidian or pine nuts was always subject to negotiation, which brought into play an element of compassion in trading relations; in this way, those who were lacking certain materials would not be taken advantage of in the trading process.

Of course, fish was an important item of trade. On the most basic level, certain families are assigned the responsibility to catch fish for the community. Some people in the community catch the fish and others trade for them, and the process creates and solidifies relationships between families in the Tribe. On a broader scale, a tribe that has fish, particularly the desirable salmon, to trade is well positioned to acquire a wide range of goods from outside their own territory.

Religious Practices and Ceremonies

Ceremonies provide insight into the cultural life and underlying values of the Karuk. These ritualistic celebrations also demonstrate the Karuk Tribe's links to other tribes of the river in a shared cultural environment. In one respect, the ceremonies are reenactments of stories involving the *ikxareeyavsa*, or immortal ones. But these ceremonies go beyond symbolism to teach important practical lessons

¹⁴⁷ Information from this section is from Salter (2010).

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about careful management of resources, hard work, and the seasonal lack of resources, despite the most meticulous observations of rituals.

The Karuk are known among Indian tribes of the western states as “The Fix-the-World People” based on the Tribe’s role in the annual *Piky’avish*, or World Renewal Ceremonies. *Piky’avish* starts with the First Salmon Ceremony in early spring and continues throughout late summer into early fall. The scheduling of the dance cycle is determined each year by a ceremonial leader, who also appoints the *fataveenaan* (medicine man or priest) each year. This appointment is both a source of honor and a great deal of work because the *fataveenaan* is required to undergo a lengthy ordeal of fasting, praying, and walking the medicine trails.

The elaborate ceremony called the First Salmon Ceremony marked the passing of the first spring Chinook salmon up the Klamath River. This migrating salmon was allowed to pass all the way up the Klamath River to its spawning ground. Indians believed that the first spring Chinook salmon migrating upstream would leave its scales at each spawning location for the rest of the salmon run to follow.¹⁴⁸ Eating this first migrating salmon of the year was considered taboo; if eaten, it was believed to cause convulsions and death. Permitting this fish to pass safely upstream lifted the taboo and allowed the people to fish for salmon in the river.¹⁴⁹ The dramatic decline in the spring Chinook run has made it impossible for the Klamath basin tribes to conduct the First Salmon Ceremony. “And how do you perform the Spring Salmon Ceremony, how do you perform the First Salmon Ceremony, when the physical act of going out and harvesting that first fish won’t happen?”¹⁵⁰ asks one Karuk.

The Yurok, Karuk, Shasta, and Klamath tribes coordinated various aspects of each tribe’s version of the First Salmon Ceremony with the neighboring tribes’ similar ceremonies. The Chinook, whose importance to the tribes has raised it to the totemic level, historically spawned as far north as the Williamson River, an area that was available as spawning grounds prior to the damming of the Klamath River and the reconstruction of Klamath Lake in its present form. The First Salmon Ceremony is conducted around April when the fish first breach the sandbar at the mouth of the river, marking their transition from the Pacific Ocean back to the fresh water of the Klamath River

The most important of Karuk ceremonies is *Pikyavish*, or literally “fix the world.” Called by different names in by different tribes, many tribes of the Klamath as well as the Pacific Northwest practice a similar ceremony.

In Kroeber and Gifford’s *Karok Myths* (1949), tribal member Georgia Orcutt captured the emotional nature of the *Pikyavish* as follows: “At the beginning of the Pikiavish, it looks like everything down, nobody happy. *Pikyavish* means making the world right. *Fatawanun* [*fataveenan*] fixed it so everything is coming up nice.”¹⁵¹

According to Kroeber and Gifford, the Karuk ceremony has three major aspects:

¹⁴⁸ Roberts (1932), 426-440.

¹⁴⁹ Waterman et al. (1938).

¹⁵⁰ Leaf Hillman; as cited in Norgaard (2004), 35.

¹⁵¹ Kroeber et al. (1949), 8.

The first is a period of usually not more than ten days during which the priest remains much in the sweathouse, fasts, and prays for abundance of food, the elimination of sickness and the stability of the world. He also visits sacred spots; and young men engage in archery contests. The second part is the climax of the ceremony, when the priest keeps an all-night vigil by a sand pile called yuxpit. This vigil is accompanied and followed the next day, by the Deerskin Dance, or its surrogate, an imitation affair employing branches instead of deerskins; at Inam [*Inaam*] and Katamin [*ka'tim'iin*] the War Dance is part of the dance ritual. The third part is the anticlimactic retreat of the priest and other officials.¹⁵²

The ceremonies feature a variety of ritual dances. The Jumping Dance (or Jump Dance) is held in the spring during the first salmon run. The Deerskin Dance is held in the fall in association with the acorn harvest and the second salmon run. It is performed in alternating years with the Medicine Dance, during which other decorated skins including martin and otter are displayed rather than the famous white deerskins. Both dances feature displays of wealth, along with dancing and singing.¹⁵³

Karuk Fishing Myths

According to Karuk myth, fishing weirs were created by one of the immortals. By preparing the structures and practicing the techniques, the immortal would chart a course to show humans how to capture the fish.

When he had made the salmon, this *ikhareya* made what the Indians use: he made the scaffolding to fish from. He made it of long poles. He bruised grapevines with which to tie the poles and made it all good. He thought, "This they will do when they fish." He laid a plank on the poles to fish from, and on this he put a little stool so that they could sit while they fished. He thought he had made everything. Then after a time he thought, "It is not quite right as I have made it." He put a screen of brush at his fishing place. He concluded, "It is not right like that. It is too far out in the stream. Let it move back a little toward the shore." Then he thought, "It is not right yet. I do not think it will be good if I use brush. I do not want the salmon to go through: I want them to go right where I am fishing with the net. Let me make something flat and even." So he made a weir ("dam") of sticks and tied them together with pounded twigs (into a mat). Then he thought, "Now I think it is good as I have made it. Now when the people grow they will do that. It is a good way I have made it now." So now the people do like that. When they grew they saw what he had made.¹⁵⁴

The fishing harpoon appears in one of a series of creation stories that present accounts of the origins of humans, institutions, and tools. In the myth, the Blue Heron Chukchuk (*ch'uukchuuk*) develops the two-pointed harpoon so that even people without rights or nets could still catch fish. According to the myth, Chukchuk took a long stick and fastened two smaller sticks to the end of it. He thought, "I will

¹⁵² Ibid., 6.

¹⁵³ Pritzker (2000), 128.

¹⁵⁴ Kroeber (1925), 1-72.

spear salmon. Let me make that kind. Let me make it so that if a man has no fishing place and he sees salmon he can catch them. If he has no net he will kill them in this way.”¹⁵⁵

Oral Traditions: Language and Stories¹⁵⁶

The marked difference between the Karuk language and affiliated languages of the Hokan linguistic stock indicates how long the Karuk have lived as a people with a common language and cultural identity removed from its place of origin. “The language is not closely or obviously related to any other; its presumed Hokan affiliations are distant. There was no known dialect differentiation.”¹⁵⁷

In the past century, the Karuk language, like the salmon, has moved to the brink of extinction. With the decrease in the number of salmon spawning in the upper Klamath basin, as well as the decrease in the variety of runs of spawning salmon, has come a closely linked decrease in cultural activities and ceremonies relating to the salmon, including the decline in the spoken Karuk language.

Following the arrival of Europeans in North America and prior to their actual physical presence in the Klamath River country, Karuk people were bit by bit forced to change their ways of life because of a combination of disease and various levels of oppression. The Karuk language was so intricately tied to the traditional life that, simultaneously, the Karuks little by little stopped using their traditional language. Moreover, when the Karuk stopped using their language they ceased certain traditional activities, and conversely, when certain traditional activities ceased, the disappearance of the language was accelerated.

Speaking the Karuk language was actively discouraged. In the public schools, Karuk children were punished for uttering even a single word of their traditional language. Decades after the 19th-century practice of forcibly removing children from their homes and placing them in schools where their contact with their families was largely limited to summer vacations, Karuk elders recall being spanked with rulers and having their mouths washed out with lye soap when a public school teacher overheard them speaking the Karuk language. Thus, the Karuk language declined precipitously from the 1930s through the first half of the 20th century.

For more than a decade, the Karuk have worked to recapture and master their traditional language with an acute awareness of the centrality of language in their culture. This resurgent interest in language is seen by the tribal members as a precursor to changes in the cultural environment of the Karuk, including removal of the dams. A widespread awareness of the relationship between language and the environment is apparent in the fact that Karuk leaders in the struggle to remove the dams are also leaders in language restoration.

¹⁵⁵ Ibid., 72.

¹⁵⁶ Information in this section is from Salter (2010).

¹⁵⁷ Bright (1978), 84.

3.4.3 Effects on Trust Resources, Other Resources Traditionally Used by the Tribe, and Related Cultural Values

Effects on Trust Resources

In a government-to-government consultation meeting concerning Karuk Tribe trust resources affected by current dam operations held on September 30, 2010, the Karuk Tribe asserted the following as tribal trust resources: water, fish, mollusks, riparian plants, wetlands, and all other plants and wildlife dependent on a healthy river and playing a role in Karuk ceremonies. This assertion was coupled with the assertion that the United States has a trust responsibility to protect such resources and ensure that such resources are managed for the beneficial use of the Tribe and its membership. In addition, the federal government has responsibilities to the Tribe in the areas of social welfare, education, and health. Finally, the federal government has a responsibility to uphold certain applicable federal laws such as the National Historic Preservation Act and the American Indian Religious Freedom Act. In the consultation meeting, however, only effects to fish and water were discussed in detail. Although the Karuk Tribe maintains a state fishing right,¹⁵⁸ the Department of the Interior does not currently recognize a Karuk Tribe right to a salmonid fishery or instream water rights. Therefore, fish and water are not considered Karuk Tribe trust resources. No trust resources for the Karuk Tribe are germane to this project.

Effects on Other Resources Traditionally Used by the Tribe and Related Cultural Values

Although fish are not recognized as a trust resource of the Karuk Tribe, the lack of fish in the local economy has effects on general tribal health and cultural well-being. The Karuk Tribe, when asked whether such trust resources were affected by the current dam operations, emphatically responded, “Yes.” Those representing the Tribe at the meeting went on to relate that water quality and fish returns have diminished, and, being a tribe that lives alongside the river, their aesthetic quality of life has also diminished. They rarely bathe in the river, and in an area with fewer available fish, tribal members are likely to consume less of the traditional food base and pay less attention to the culturally inherited management traditions of a “Salmon People.” This has led to related impacts to tribal health such as higher rates of obesity, diabetes, heart disease, and stroke and mental diseases such as depression. The tribe has also noticed an increase in invasive species such as bluegill and perch. These fish come from the reservoirs behind the dams.

Since the construction of the dams on the Klamath River, the numbers of a variety of river species have plummeted. Some of these fish had traditionally been a source of food and cultural ceremonies and practices for the Karuk Tribe, as well as a means of trade and income. Not only salmon, but also steelhead, sturgeon, and other fish (such as suckers and lampreys), as well as clams, mussels and other aquatic species, have seen declining populations directly caused by the effects of the dams on water flow and temperature and on the river environment. Moreover, the dams are responsible for an epidemic in diseases that infect and kill many fish.

For the Karuk, one of the most significant impacts of the Klamath dams is the way that the natural process of seasonal warming and cooling trends in the river is altered by the presence of reservoirs. In

¹⁵⁸ Email from Craig Tucker, Karuk tribal employee, February 4, 2011.

effect, the reservoirs create a “thermal lag” in both the spring and the fall. This means that the river warms more slowly in the spring and cools more slowly in the fall. The result of these thermal effects is a delay in timing of runs for the migration of fall Chinook salmon. For Karuk, this translates into a shorter fishing season in the fall. Before construction of Iron Gate Dam, Karuk fishermen report that fishing at Katimiin started in late July. Since construction of Iron Gate Dam, fish don’t typically arrive at Ishi Pishi Falls until early September. In addition to limiting the number of fishing days available in the fall, the opportunity to harvest spring Chinook salmon has been completely lost to the Karuk since construction of Iron Gate Dam.

Water Quality and Disease¹⁵⁹

Water quality plays a very significant role in Karuk tribal culture because culturally relevant aquatic species are adversely affected. Water quality also affects the ability of *Fataveenan*, or World Renewal priests, to conduct ceremonies. *Pikiavish* starts with the Spring Salmon Ceremony in early spring and continues throughout late summer into early fall. Key ceremonial participants bathe multiple times a day in the Klamath River for 10 days in a row. This is the time of year when the blooms of the toxic algae, *Microcystis aeruginosa*, are at their peak.¹⁶⁰

To avoid interfering with cultural and religious ceremonies and practices, the water conditions in the Klamath River must allow for specific species to be present in adequate supplies. This includes species that are consumed by participants such as salmon and lamprey as well as species used in ceremonies such as crayfish and willows. Water conditions must also be safe for what is usually termed “recreational contact” as well as human consumption.

Iron Gate and the other dams in question also negatively affect the Karuk by degrading the health of the river, which results in an increase in certain fish diseases. Scientists at Oregon State University conducted research on fish diseases in an attempt to understand how life cycles of fish diseases such as *Ceratomyxa shasta* and *Parvicapsula minibicornis* play into the decline of fish in the Klamath River. They found that the current epidemic of these diseases on the Klamath is directly related to the presence of the dams and the proliferation of *myxozoid* parasites and the *polychaete* intermediate host.

There are two hosts for this disease: one is the fish and the other is the *polychaete* worm, which is a few millimeters long and thrives in stable environments where it is not exposed to abrasive water conditions such as peak flows and scouring as well as the seasonal and diurnal fluctuations that were present in the natural hydrograph. (*Ceratomyxa* are not present in the tributaries of the river.) The parasite is normally an upper basin and mainstem phenomenon; however, the dams have created favorable conditions for the parasite farther downstream. The dam causes the river to be extremely stable, meaning the water does not scour the surfaces. As a result, all the nutrients in the reservoir pass over the dam and provide a food source for these parasitic worms to thrive in the stable environment below the dam. When fish encounter the dam on their way upstream, some continue up Bogus Creek and a few enter the hatchery, but the majority stop and spawn immediately below the dam, where they become infected.

¹⁵⁹ Information in this section from Salter (2010).

¹⁶⁰ http://www.swrcb.ca.gov/water_issues?programs/bluegreen_algae/index.html.

The worms leave their spores in the water, thereby infecting juvenile fish. The combination of juvenile fish from a hatchery with the wild fish that are forced to spawn below the dam creates perfect conditions for the proliferation of the worms. The worms, in turn, infect the salmon and reduce the run. Furthermore, the reservoirs behind the dams are maturing and problems relating to fish diseases are multiplying. Removal of Iron Gate Dam will increase the scouring effect and lower the temperature in the upper river primarily during the late summer and fall months, both of which tend to suppress the life cycle of the parasites.

*Degraded Water Quality*¹⁶¹

Degraded water quality in the Klamath River basin, including the seasonal presence of algal toxins in the Klamath River and reservoirs, has impaired the ability of the Karuks to use the water for cultural purposes. Known and/or perceived health risks associated with degraded water quality have resulted in the alteration of cultural ceremonies to exclude or limit ingestion of river water. Additionally, known or perceived risk of exposure to degraded water quality conditions during ceremonial bathing and traditional cultural activities such as gathering and preparing basket materials and plants for other purposes has resulted in an impairment of cultural use.

According to Karuk cultural biologist Ron Reed,¹⁶² the World Renewal Ceremony is held on the Klamath River at Clear Creek, Somes Bar, and Orleans during July, August, and September of each year. The medicine man, who leads the ceremony, walks 14 miles through the ridges and hills along the Klamath River and is joined halfway through his journey by children and adults of the Tribe who follow him the rest of the way for good luck. Traditionally, when the medicine man reached the Klamath River at the end of this walk, he drank water from the river to complete the ceremony. This is now not done as often because blooms of *Microcystis aeruginosa* have led to health warnings along the river. However, children are still known to jump in the river and drink the water.¹⁶³

Bathing in the river is an important part of most ceremonies.¹⁶⁴ For example, bathing in the Klamath River and its tributaries is a requirement for participants in the Brush Dance Ceremony.¹⁶⁵

Bathing is also associated with funeral services, subsistence practices, recreational swimming, courtship, and individual hygiene.¹⁶⁶ Bathing associated with funeral rituals occurs year around and includes preparation for burial and purification after burial.¹⁶⁷ The Karuks historically bathed in the Klamath River; however, in more recent years degraded water quality conditions during the summer have forced them to take precautionary steps and avoid contact with the water.¹⁶⁸

Willow roots, wild grape, cottonwood, and willow sticks are collected by Karuk tribal members in the riparian zone of the Klamath River and used to make baskets.¹⁶⁹ Traditional collection of these

¹⁶¹ Information in this section is from Karuk Department of Natural Resources (October 26, 2007) unless otherwise indicated.

¹⁶² Reed 2006, as cited in Salter (2010).

¹⁶³ Ibid.

¹⁶⁴ Curtis (1924).

¹⁶⁵ Sloan (2003), 16.

¹⁶⁶ Reed (2007), as cited in Salter (2010).

¹⁶⁷ Curtis (1924), as cited in Sloan (2003), 28.

¹⁶⁸ Reed 2007, as cited in Salter (2010).

¹⁶⁹ Ibid.

basketry materials often involved wading in the water,¹⁷⁰ and further contact occurs when the material is washed and cleaned in the water.¹⁷¹ Willows are peeled by mouth following cleaning with river water,¹⁷² and plants are collected for food, medicine, materials, and other cultural functions. Gathering plants or plant materials involves wading and contact with the Klamath River. Ingestion of water can occur because plants are often cleaned in the river water and water is consumed with medicinal plants. Given degraded water quality conditions, ingestion of water may pose a potential health risk.¹⁷³

Algae Blooms

Dams degrade water quality by heating the river and hosting algae blooms. These algae blooms are also dangerous for people. In an effort to better understand and describe the water quality problems the dams create, Karuk water quality staff began sampling the reservoirs to learn more about the blue-green algal blooms that occur each summer. What they found could lead to the closure of the reservoirs during the summer.¹⁷⁴

Blue-green algae, or *cyanobacteria*, come in many varieties—some benign, some toxic. What the Tribe discovered is a variety called *Microcystis aeruginosa*, which secretes a potent a liver toxin and a proven tumor promoter called *microcystin*. Although the United States Environmental Protection Agency does not have guidelines for acceptable levels of *microcystin*, the World Health Organization (WHO) does. According to the WHO, algal levels of 100,000 cells/milliliter of water represent a moderate health risk for recreational users. The tribe found sample sites with over 100 million cells/ml—1,000 times greater than the WHO moderate-risk levels.¹⁷⁵

The symptoms of *microcystin* poisoning include skin rash, eye irritation, nausea, vomiting, diarrhea, mouth ulcers, liver damage, kidney damage, and, in extreme cases, liver failure, tumors, and death. Studies suggest that the toxin can accumulate in the flesh of fish; however, the Tribe has not determined whether the toxin is present in Klamath salmon.¹⁷⁶

The Klamath River can get as high as 80 degrees Fahrenheit (25°C) in the summer, when migrating adults and growing juveniles need temperatures below 68 degrees (16.5°C) to survive and grow properly. Elevated temperatures and nutrient levels from agricultural runoff cause massive amounts of algae and other plant life to grow and flourish in the river. This plant life decays at night, using up oxygen that the salmon need to survive, decreasing dissolved oxygen levels to as low as 2-4 mg/l. Fish become stressed when dissolved oxygen levels fall below 5 mg/l. Prolonged stress stops growth, increases susceptibility to disease, and eventually causes death.¹⁷⁷

¹⁷⁰ Sloan (2007).

¹⁷¹ Reed (2007), as cited in Salter (2010).

¹⁷² Reed (2006), as cited in Salter (2010).

¹⁷³ Sloan (2007a); Reed (2007); as cited in Salter (2010).

¹⁷⁴ <http://www.karuk.us/karuk2/press/campaigns>.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid.

¹⁷⁷ Ibid.

Steelhead: A Failure to Migrate

Prior to construction of dams on the Klamath, including Iron Gate Dam, steelhead spawned freely not only in the Klamath and its tributaries, but in Klamath Lake and beyond. An estimated 650 miles of salmon habitat were lost with the placement of the four dams in the Klamath River.¹⁷⁸ This is a significant amount of habitat no longer available for spawning and rearing.

In interviews with Karuk Tribe members, they refer to a pattern of loss of runs of steelhead that were once vigorous, supplying fish even at times of the year when salmon runs were no longer taking place. Furthermore, the steelhead eat juvenile salmon; therefore, without a healthy salmon run, there will not be a healthy steelhead run.

Steelhead can be a resident fish or they can be anadromous. They are an opportunistic species, meaning that if they do not have to migrate to obtain food, they won't. One prevalent theory about the loss of migratory steelhead is that the steelhead produced in the hatchery at Iron Gate are a resident population. From the hatchery, they are released into a nutrient-rich system immediately below Iron Gate dam, where the temperatures are relatively warm but still suitable for steelhead. Below Iron Gate dam, there are no triggers to force them to migrate. They have a stable source of water that doesn't fluctuate in temperature; they have enough food to keep them there; and no other steelhead are coming from downriver to compete with them, increase the densities, and compel them to move. The result is a resident population of non-migratory steelhead.

This lack of migratory steelhead affects the local economy and the well-being of the Karuk. Steelhead fishermen from outside the area used to pay a great deal of money for the privilege of fishing for the Klamath steelhead, bringing money into the local economy to the benefit of the Karuk. In the late 1960s and early 1970s, steelhead fishermen lined the banks of the Klamath River. Today, the numbers of steelhead are so low that the sport is no longer viable.

Lamprey Eels: A Loss of Habitat for the Young

In addition to salmon, lamprey eels are harmed by the dams. Like salmon, lamprey eels are anadromous. Juvenile lamprey, called *ammocoetes*, go through a larval stage that lasts up to 7 years. During the larval stage, they live in fine river sediments such as sand; they do not live in organic sediments such as detrital muck. The *ammocoetes* require oxygen, which is available only in a dynamic river that has sandbars with water moving through. Within the sandbars are layers of organic material where the eels feed, but they need an active turnover of the sand. Near the town of Orleans, for example, the constantly changing sandbars below Orleans Bridge are a favorable habitat for lamprey. Below Iron Gate Dam, however, there is no sand for the young lamprey eels because it becomes trapped in the reservoir behind the dam. As documented by the Karuk Tribe and by the U.S. Fish and Wildlife Service, sediments appropriate for lamprey rearing are absent for 8 miles below Iron Gate Dam.

Karuk tribal members who harvest lamprey eels report an extreme decline in their numbers. The lamprey have traditionally been an important food source for the Karuk and have augmented the salmon in their diet, particularly as salmon has become scarce. Removing the dams will help bring

¹⁷⁸ "Reintroduction of Anadromous Fish to the Upper Klamath Basin: An Evaluation and Conceptual Plan" (March 2006).

back the lamprey populations by restoring the natural sedimentation process that occurred before the dams were built.

Contaminated Mussels

Much less attention has been paid to mussels in the Klamath River than to the spring salmon. However, freshwater mussels have been both an important food source for the Karuk and an essential part of tribal ceremonies. During the early 20th century, mussels were gathered for food and for use in rituals late in the season when the river flows were low. Unfortunately, this is the time of year when the mussels are most contaminated. Even though there are few to be found, people continue to use freshwater mussels as a food source, but their use in ceremonial celebration has been greatly reduced. Historically, women also used the mussel shells for spoons, tools, and jewelry.¹⁷⁹

Other Effects

Health Impacts

The Karuk have been denied traditional food sources such as salmon over the last 150 years, and have increasingly adopted western foods. The decrease in the availability of traditional foods, including salmon, trout, eel, mussels, and sturgeon, is responsible for many diet-related illnesses among Native Americans, including diabetes, obesity, heart disease, tuberculosis, hypertension, kidney problems, and strokes.¹⁸⁰ These conditions result from the lack of proper nutrient content in foods consumed in place of the traditional foods, as well as from the decrease in exercise associated with fishing and gathering food.

The health of many people, including the Karuk, is closely linked to the health of the river. The three largest tribes in California eat fish from the Klamath River, and the declining river system is directly related to the inability of tribal members to continue eating traditional diets. Although early anthropologists described the Klamath River tribes as some of the wealthiest people in California, since contact they have become some of the poorest. Given the economic impoverishment of the region, people generally have little access to alternative healthy foods. One result is that the Klamath corridor has some of the lowest incomes and the highest rates of hunger in California. Local populations have traditionally had much of their food supplied by the Klamath River. This continues to be the case, but with the decline in river health this becomes increasingly difficult. Given the economic impoverishment of the region, there is no general access to healthy alternative foods without subsistence fishing and gathering. As a result, hunger is significantly related to the presence and effects of the dams, and these effects are directly connected to the traditional subsistence economy.

Diabetes and Other Diseases. The estimated diabetes rate for the Karuk Tribe is 21 percent, nearly four times the U.S. average, and the estimated rate of heart disease for the Karuks is 39.6 percent, three times the U.S. average.¹⁸¹ Spring Chinook salmon represented a large volume of healthy food for the Karuk people until the 1960s and 1970s. Diabetes is a recent occurrence in the Karuk population. In the 2005 Karuk Health and Fish Consumption Survey, Karuk families were asked a)

¹⁷⁹ Westover (May 2010), 5.

¹⁸⁰ Norgaard (2004).

¹⁸¹ Ibid.

when did diabetes first appear in your family and b) when did spring salmon stop playing a significant role in your family’s diet. Figures 3-1 and 3-2 show the close association between the disappearance of this food source and the rise of diabetes in Karuk families.

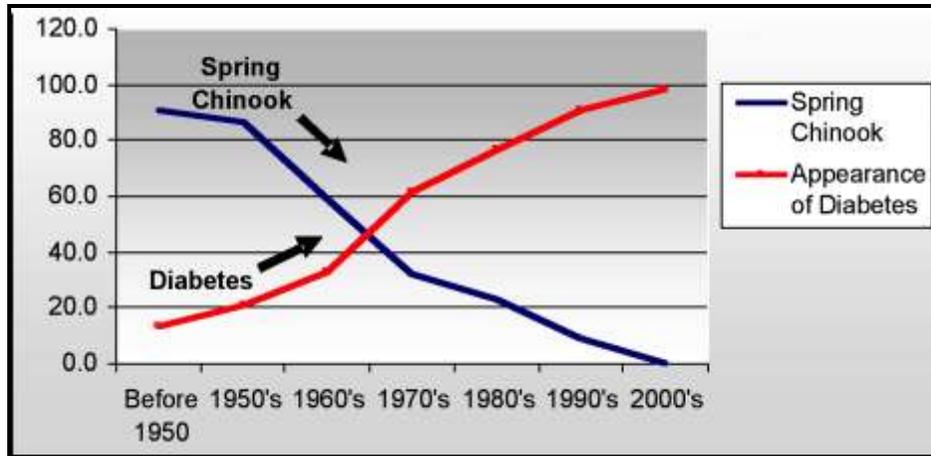


Figure 3-1. Disappearance of Salmon and Rise in Percentages of Families with Diabetes among the Karuk

As shown in Figure 3-1, over 90 percent of reporting families say that before 1950 spring salmon played a significant role in the family diet and less than 15 percent reported occurrence of diabetes. By 2005, no families claimed that spring salmon played a significant role in the family diet and nearly 100 percent reported occurrence of diabetes (Norgaard 2004).

Historically, consumption of fish by the Karuk Tribe was estimated at 450 pounds per person per year, whereas in 2003 the Karuk people consumed fewer than 5 pounds of salmon per person.¹⁸² In 2005, over 80 percent of Karuk households surveyed reported that they were unable to harvest adequate amounts of eel, salmon, or sturgeon to fulfill their family needs¹⁸³ (Figure 3). Furthermore, 40 percent of Karuk households reported that there are fish species that their family historically caught that are no longer harvested.¹⁸⁴

The diet-related diseases that have recently appeared in the Karuk population at such alarming rates are costly from an economic standpoint. The nation spends substantially in health care costs every year on each person who has diabetes.[1] Direct costs include expenses such as doctor visits, medications, hospitalizations, hospice care, and emergency room visits. Applying the best available data on average national expenditures to the number of Karuk tribal members living in the ancestral territory with diabetes in 2004 (394 individuals) yields an annual costs of millions of dollars¹⁸⁵, and these are not the only costs of these conditions.

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

¹⁸⁵ Norgaard (2004).

Current Effects of Implementing the KHSA and KBRA on
Indian Trust Resources and Cultural Values

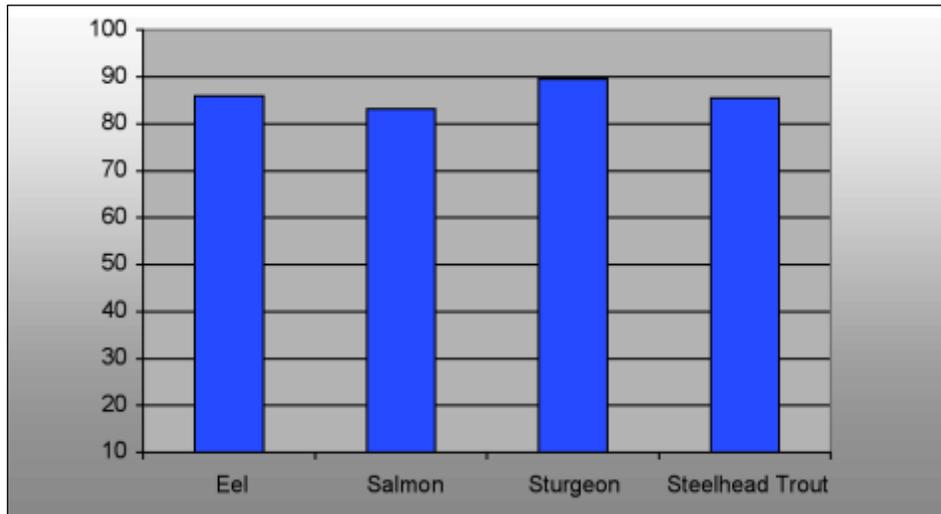


Figure 3-2. Percentage of Karuk Households That Could Not Gather Adequate Supplies of Eel, Salmon, Sturgeon, and Steelhead to Meet Family Needs in 2005

Emotional and Social Health. Difficulty in meeting basic needs can result in overwhelming physical and psychological stress.¹⁸⁶ Traditionally, fishing is done by Karuk men. With the loss of the salmon comes a loss of a man's sense of pride in being able to provide food for his family and tribe. For a tribe that has called itself The People of the Fish, there is an indisputable loss of identity when there are no fish. For a people whose belief system tells them they have a specific role on earth, that they have a predefined relationship with nature that needs to be honored, there is an emptiness when they are unable to fulfill that role. For a tribe whose interactions with other tribes were based on barter and trade of fish, and for families, in which children and elders provided food to each other and outsiders, emptiness and disconnection arise.

Living in a changed world where wildlife is becoming scarce and the rivers polluted, it is sometimes hard for young people to understand the ways of their parents and grandparents. They wonder why the Tribe focuses on ceremonies that revolve around periodic fish runs and ritual eating of salmon when the availability of fish is so erratic. Never having seen it themselves, they don't understand that in the past there could be eight yearly runs of salmon in the Klamath when all they see is one-half of a fall run. Without tradition as an anchor, young people are sometimes drawn to gangs to establish a feeling of belonging, and they are drawn to the cities where they find an abundance of diversion and riches.

Ceremonies surrounding fish and the more everyday activities of fishing, eeling, and gathering food in the forest also create and maintain community ties and provide a sense of identity. Karuk cultural biologist Ron Reed described how the activity of fishing is a forum for passing on both physical qualities, such as balance, and cultural tradition to his sons: "Fishing down at Ishi Pishi Falls you

¹⁸⁶ Ibid., 36.

learn how to gain your balance. You learn the traditional values down there, the taboos and things like that, because it is a sacred fishery and there are certain rules that you abide by.” The activity of fishing provides an opportunity for young boys to spend time with and learn from fathers and older members of the community. Learning to dip net fish also serves as an informal rite of passage as boys begin early with easier tasks and move through a sequence of skills on their way to dipping fish. Another tribal member, Harold Tripp, described how “you start out by packing the dipper’s poles, and then you work your way up to clubbing salmon for the fisherman and packing fish, and then you start dipping, if you can get in there.” Karuk Leaf Hillman stated:

Cultural practices such as feeding any visitor to one’s home and the associated insult (that requires payment to fix) that results from the visitor’s refusal to partake of food are still prevalent today among many Karuk families. These practices remain strong with many Karuk individuals and families, and also permeate traditional and contemporary Karuk gatherings of all types. It is a high order obligation and responsibility of every Karuk ceremonial leader/dance owner to provide food for everyone in attendance, at every meal or whenever they arrive in camp, throughout the duration of the ceremony. These cultural norms are also illustrated by the contemporary practice of the Karuk Tribal Council to feed anyone who is in attendance at every Council meeting. These practices reflect the continuing important role that food plays in Karuk culture and identity. Unfortunately, denied and/or limited access to nearly all traditional Karuk foods means that other nontraditional foods are substituted. Therefore, these cultural practices, in fact, contribute to many of the health problems experienced within our population and are detrimental to the overall well being of Karuk people.¹⁸⁷

Other consequences of the lack of traditional foods on the social structure are equally significant. One outcome of diabetes is early death due to associated conditions (e.g., heart disease and kidney failure). When elders die young, they are not available to pass information and love on to the younger generations.

When people are denied access to traditional food, their group identity and emotional well-being are affected. Both ceremonies and daily activities surrounding food provide meaning and identity that are fundamental to emotional well-being and cultural continuity (Kuhnlein and Chan 2000). Marlene Echohawk, a researcher with Indian Health Services, describes how activities surrounding traditional foods provide “strength in unity of purpose, philosophy and belief systems in that the tribal structure increases the sense of identity from a psychological, emotional and social viewpoint” (1997, 48–60). In her study of access barriers to food items and food preparation for Plains Indians, Betty Cantrell describes how even the preparation of traditional foods is healthy for people both physically and mentally:

¹⁸⁷ Leaf Hillman; in Norgaard (2004), 46.

A great deal of human energy must be expended to dry foods: the fruits, vegetables and berries must be gathered in the wild; the game must be hunted or trapped; the foods must be prepared for drying. All of these activities provide healthy exercise. In addition, it was believed that the emotional state and attitude of the person preparing the food was passed along to those who ate the food. Therefore, the cook tried to maintain a positive attitude before and during food preparation and songs of celebration were sung during food preparation.¹⁸⁸

The ability to gather food from the surrounding ecosystem also reaffirms a sense of place and belonging, and a sense that nature is caring for them. This sense of connectedness is visible in the belief Karuk people hold that the salmon return home to offer themselves as food to the people. The people, in turn, have a responsibility to the fish to sustain the species. Tribal member Harold Tripp recalled that “my grandmother told me that we were responsible to get fish to our people—in order for the fish to survive, we’re supposed to.” The act of eating salmon from the Klamath River affirms sense of place, identity, connection, and community. This orientation draws individuals into relationships of responsibility to care for the fish. Such a world view and set of relationships are in stark contrast to the separate, individualistic modality of the dominant culture in which plants and animals are “resources” and people are expected to watch out for their individual interests. Relationships between Karuk people and plants and animals fulfill profound mental, emotional, and spiritual functions. In the absence of these food species, traditional activities such as dip net-fishing, eeling, or berry picking come to an end.¹⁸⁹

Many native people also believe that health is influenced by the interactions between people and natural elements, because humans originated from and with the assistance of beings of the natural world.¹⁹⁰ Whereas the Western medical model emphasizes disease, Native American cultures traditionally define sickness as imbalance in the physical, spiritual, emotional, and social realms. Within this framework, stress, grief, or anxiety could weaken well-being and make one vulnerable to disease. For example, in Cantrell’s study of the Plains people, many participants cited examples of themselves or others being diagnosed with diabetes during or after a stressful life event. This framework fits with the observations of Western science. Loss and severe reduction in access to traditional food sources affect other indicators of life stress, including, for example, rates of physical conditions such as tuberculosis and ulcers, and evidence of emotional stress such as suicide, depression, and high-school dropout rates. Poor health is also linked to disproportionate unemployment, poverty, and low socioeconomic status.¹⁹¹

Other social issues that might be related to diet and a thriving culture are more subtle. For example, suicide in Native Americans is notable not only for its high rate but also for its pattern among young people (rates are highest for those under 35), compared to the non-Indian U.S. population, where suicide is more common in older age groups. Although there are differences from tribe to tribe, the overall suicide rate for Native Americans is one-and-a-half times the national average. As a solution, researchers note that “renewing interest in traditional Indian identity, values and customs should help

¹⁸⁸ Cantrell (2001), 71; in Norgaard (August 2004), 47-48.

¹⁸⁹ Norgaard (August 2004), 48.

¹⁹⁰ Trafzer and Weiner (2001), viii; in Norgaard (August 2004).

¹⁹¹ Kauffman and Joseph-Fox, (1996); in Norgaard (August 2004), 48-49.

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Native American adolescents achieve a positive balance between the strength of their people and opportunities available in the larger society.”¹⁹²

Kuhnlein and Chan described “multiple socio-cultural values that contribute to mental health and cultural morale.”¹⁹³ For example, difficulty in meeting basic needs results in overwhelming physical and psychological stress. Brooke Olson recounted how “some Native people living a Western lifestyle (e.g., the Dogrib) may experience more stress and more difficulty in adjusting to different life ways, thus making the body less capable of regulating blood sugar levels, a condition that if prolonged can lead to diabetes.”¹⁹⁴

Economic Health. The destruction of the Klamath River fishery has led to both poverty and hunger. Prior to contact with Europeans and the destruction of the fisheries, the Karuk, Hupa, and Yurok tribes were the wealthiest people in what is now known as California. Today they are among the poorest. This dramatic reversal is directly linked to the destruction of the fisheries resource base. Poverty and hunger rates for the Karuk Tribe are among the highest in the state and nation. Median income for Karuk families is \$13,000. The poverty rate for Karuk tribal members in Siskiyou County is 88.4 to 91.9 percent.

The devastation of the resources, especially the fisheries, is also directly linked to the disproportionate unemployment and low socioeconomic status of Karuk people today. For thousands of years before the dams were built—and before mining, trapping of fur-bearing animals and particularly beaver, and overfishing changed the ecosystem of the Klamath River—the Karuk people subsisted off salmon year around.

Table 3-7 lists the effects of current dam operations on the Karuk trust resources, tribal rights to take those resources, and on other resources traditionally used by the Karuk Tribe.

Table 3-7. Effects of Current Dam Operations on Karuk Tribe Trust Resources and Rights and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS
	Water resources	<ul style="list-style-type: none"> • Altered flows • Altered water temperature regime • Reduced bedload/sediment transfer • Degraded water quality caused by nutrient input, dissolved oxygen, pH, algal toxins and other contaminants
	Aquatic resources	<ul style="list-style-type: none"> • Loss of habitat • Less suitable water temperature regime • Reduced bedload transfer • Increased potential for disease/parasites • Reduced population size
	Terrestrial resources	<ul style="list-style-type: none"> • Reduced food availability • Loss of riparian habitat

Note: Blank cells indicate that the Karuk Tribe has no resources in this category that are affected by this project.

¹⁹² Beauvais (2000), 110; in Norgaard (August 2004), 49.

¹⁹³ Kuhnlein et al. (2000), 615.

¹⁹⁴ Brooke Olson (2001), 166; in Norgaard (August 2004), 49.

Table 3-8 lists the effects of the current dam operations on resources traditionally used by the Karuk Tribe and related cultural values.

Table 3-8. Effects of Current Dam Operations on Karuk Tribe Cultural Values and on Other Resources Traditionally Used by the Tribe

TRUST RESOURCE/ RIGHT	RESOURCES TRADITIONALLY USED BY THE TRIBE	EFFECTS
	Water resources	<ul style="list-style-type: none"> • Diminished aesthetics • Human exposure to toxic water while conducting cultural activities • Diminished opportunity for traditional bathing
	Aquatic resources	<ul style="list-style-type: none"> • Loss of traditional salmon diet and increased risk of heart disease, strokes, diabetes, and obesity • Depression, alienation, and possibly suicide • Tribal members leaving ancestral territory • Lost opportunities for transmitting traditional knowledge
	Terrestrial resources	<ul style="list-style-type: none"> • Diminished plant availability for cultural practices and related benefits • Loss of opportunity for inter-generational traditional knowledge transmission

Note: Blank cells indicate that the Karuk Tribe has no resources in this category that are affected by this project.

Discussion

The dams are responsible for a drastic reduction in spawning habitat and many other changes in the river system, such as water quality, water temperature, and flow regimes. All of these changes have created an environment in which it is difficult or impossible for many species to flourish. In addition to environmental effects, the changes in the river caused by the dams secondarily have resulted in diminished physical, mental, and social health. For thousands of years the Indians who depend on the river have been part of a functioning social, economic, and cultural health system that, like the salmon, is dying.

3.5 Quartz Valley Indian Reservation Community

Although the Quartz Valley Tribe is interested in how the EIS/EIR process unfolds, at the date of distribution of this document, the Tribe remained uncommitted to participating in the process.

Historically, most of the Quartz Valley Indian Reservation tribal members are descendants of people of Karuk ancestry, although a few tribal members are also of Shasta ancestry. Therefore, their cultural traditions are similar to those described in the Karuk section of this report.

3.5.1 Tribal History

The Quartz Valley Indian Reservation is a federally recognized tribe representing people of upper Klamath (Karuk) and Shasta Indian ancestry. The Quartz Valley Indian reservation is located in Siskiyou County near the community of Fort Jones. The population is around 126, with a tribal enrollment of about 150.¹⁹⁵ Total reservation size is 174 acres.

Some tribal members are descendants of the same tribal leaders that signed onto the unratified 1851 “Treaty R” negotiated between Indian Agent Redick McKee and Indian inhabitants of Scott Valley and the upper Trinity and Klamath rivers.

Similar to the rationale and the circumstances by which the Resighini Rancheria was established, the reservation was approved June 15, 1939, under the authority of the Indian Reorganization Act (Wheeler-Howard Act) of June 18, 1934.¹⁹⁶ A Tribal Constitution and by-laws were approved on the same day “in order to establish a community organization, to conserve and develop our lands and resources and to promote the welfare of ourselves and our descendants.”¹⁹⁷ The original Quartz Valley Reservation, once near the present-day reservation, was terminated in the 1960s. In 1983, the termination was declared unlawful and the reservation was legally reinstated (Stipulation and Order, *Tillie Hardwick et al. v. United States*, No. C-79-1710-SW [N.D. Cal. 1979]).

The current tribal mission is stated as:

While on earth we must practice stewardship, protection, and enhancement of the air we breathe, the water we drink, the soil that supports us, and the lives we cherish. It is our duty to protect and enhance these resources for the continued prosperity of the Quartz Valley Indian Tribe and our fellow brothers and sisters we share this earth with.¹⁹⁸

In partial fulfillment of the mission statement, the Tribe employs several full-time and part-time positions to operate the Tribal Environmental Protection Agency. Current achievements are creek restoration projects, salmon surveys, establishment of a native garden, and the recent opening of a microbiology lab for testing the Tribe’s groundwater.

¹⁹⁵ San Diego State University, <http://infodome.sdsu.edu/research/guides/calindians/calinddictqs.shtml>.

¹⁹⁶ California Department of Housing and Community Development (2004), 130.

¹⁹⁷ Constitution and by-laws of the Quartz Valley Indian Community.

¹⁹⁸ Quartz Valley Indian Reservation Website: <http://www.qvir.com>.

3.5.2 Effects on Trust Resources, Other Resources Traditionally Used by the Tribe, and Related Cultural Values

Government-to-government consultation was held with the Quartz Valley Indian Community on September 30, 2010. Information concerning the Sub-team's role in assessing current operational affects on trust resources was provided to the tribal leadership. The tribe refrained from making any comments. Therefore, no information is available.

Discussion

Quartz Valley does not have a reserved right to the Klamath River fishery. The tribe is not reliant on Klamath River water, nor does it retain Klamath River reserved water rights. The tribe's land base is not along the Klamath River but on a tributary to the Scott River, which is a tributary to the Klamath. Therefore, there are no primary effects on Quartz Valley trust resources. Although there may be effects on Quartz Valley resources traditionally used by the tribe, health, and cultural values and well-being, these were not asserted in the government-to-government consultation.

3.6 Klamath Tribes

“Ways of perceiving death and respect ... the religious dimension ... the fish was central to our culture and when they took it away it was cultural genocide.”

—LYNN SCHONCHIN, KLAMATH TRIBAL MEMBER

The Klamath Tribes are composed of three historically separate tribes: the Klamath Tribe, the Modoc Tribe, and the Yahooskin band of Snake Indians. The current membership is about 3,700. Although the Tribes have hunting, fishing, gathering, and trapping rights over a large area, the current total land base is approximately 600 acres actually owned by the Tribes. The history of the Klamath Tribes and their land is complex.

For millennia, the Klamath and Modoc people have occupied 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. These closely related tribes were the only populations residing in the upper Klamath basin prior to Euro-American contact. The Yahooskin people principally occupied lands east of the Klamath basin, but often participated in multi-tribal resource harvests, including salmon and steelhead harvests, with Klamath and Modoc people on the Sprague River and other Klamath River tributaries. Archaeological evidence and tribal oral tradition suggest an unusually long period of occupation within the upper Klamath basin, far predating the eruption of Mount Mazama (now Crater Lake) some 7,700 years ago.¹⁹⁹

By the 1820s, Euro-American fur trappers working for the Hudson’s Bay and North West companies were making initial forays into southwestern Oregon and northern California, initiating the first direct cross-cultural contacts for the Klamath, Modoc, and Yahooskin. During this same period, the Klamath and Modoc expanded their ties to the vast tribal trade networks centered on the Columbia River. Acquiring guns and horses, the Klamaths and Modocs engaged in much expanded raiding of their neighbors (particularly the Achumawi and Shasta of northern California) for goods and for slaves, bringing the Klamath and Modoc more regularly, and in larger numbers, into the middle and lower Klamath basin. Despite the violence between the Euro-Americans and Indians that spread through the Pacific Northwest and northern California from the 1840s through the 1860s, the Klamath Tribes remained relatively buffered from areas of Euro-American occupation, and their affluence and influence arguably grew throughout the region into the mid-19th century.²⁰⁰

Still, American influence was expanding rapidly, and the United States government was eager to negotiate with the Klamath and Modoc tribes to open the majority of their lands for settlement and to contain the strategic threats of these relatively large and powerful tribes. Hence, taking part in a treaty council near modern-day Fort Klamath, the Klamath, Modoc, and Yahooskin tribes signed the Klamath Tribes Treaty of 1864 on October 14 (16 Stat. 707), ceding more than 22 million acres of their traditional territories to the United States. These ceded lands included much of south-central Oregon as well as portions of north-central California. Based on the language of this treaty, from that point on the three signatory populations—Klamath, Modoc, and Yahooskin—were together called the Klamath Tribes.

¹⁹⁹ Deur (2008, 2004); Gatschet (1890); Sampson (1985); Spier, (1930).

²⁰⁰ Davis, (1974); Gatschet (1890) 19-27; Spier, (1930).

Reserved from the Tribes' land cessions was roughly 2.2 million acres of their ancestral lands—the Klamath Indian Reservation, the largest reservation in the state of Oregon. Their reservation was within the lands of the Klamath Tribe. The Tribes also reserved the rights to hunt, fish, and gather plants in perpetuity. Resisting relocation to the Klamath Reservation at the conclusion of this treaty, a number of Modocs soon chose to return to their homeland under the guidance of Modoc chief Kintpuash, called by the non-Indians Captain Jack. U.S. authorities sought to round up these Modocs and conflicts quickly escalated, culminating in the Modoc War of 1872–1873; after a long and successful standoff in the lava beds of northern California, the Modoc were captured, their leaders hanged, and some portion of the combatants sent to Oklahoma. Today, a relatively small population of Modoc still lives in Oklahoma as part of the federally recognized Modoc Tribe of Oklahoma, while the majority of the Modoc descendants are enrolled with the Klamath Tribes.²⁰¹

In its first decades, the Klamath Reservation was resurveyed multiple times, while federal agents disposed of portions of the reservation lands incrementally under a variety of authorities (some legitimate and some demonstrably fraudulent). For 20 years the Klamath lived on their reservation under the terms of the 1864 treaty. In 1887 Congress passed the General Allotment Act, which fundamentally changed the nature of land ownership on the Klamath Reservation. Under the allotment system, approximately 25 percent of the original Klamath Reservation passed from tribal to individual Indian ownership. Over time, many of these individual allotments passed into the hands of non-Indians.²⁰²

Early in its history, the government wanted to build a military road across the reservation. The government granted a private land company a checkerboard of land sections for this purpose. Later it was decided not to build the road. An act of Congress dated June 21, 1906, authorized the Secretary of the Interior to exchange unallotted lands in the reservation for the lands earlier conveyed. On August 22, 1906, an agreement between the Secretary of the Interior and the land company re-conveyed the checkerboard acres to the United States, and in return the government conveyed 87,000 acres of unallotted lands to the company. The Klamath Tribe claimed the transfer was made without fair compensation. The federal courts stated that the obligation of the United States to make good on the Tribes' loss was a moral one, because the government's dealings with Indian tribes are not subject to judicial review (*United States v. Klamath and Modoc Tribes*, 304 U.S. 119, 58 S.Ct. 799, 82 L.Ed. 1219 (1938)).²⁰³

By the early 20th century, the reservation had been reduced to about 1.1 million acres, or roughly half the size specified by the treaty. The arrival of the railroad in 1911 allowed for the rapid integration of the Klamath Reservation into the larger national economy, bringing a rapid increase in timber harvesting and cattle ranching on the reservation. A growing number of tribal members moved to the railroad and mill town of Chiloquin from elsewhere on the reservation, and the Tribe entered a period of prosperity that set it apart from most other American Indian tribes of the region. With rigorous federal efforts to encourage the Klamath Tribes of the reservation to participate in modern economic activities, most families continued to participate in a mixed economy. Primarily, they engaged in wage labor while seasonally continuing to harvest staple fish, game, and plant materials, both on- and off-reservation. Although often hidden from the view of Indian agents, traditional ceremonial

²⁰¹ Ray (1963); Stern (1998).

²⁰² http://users.sisqtel.net/armstrng/Indupper_klamath.htm.

²⁰³ *Ibid.*

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activities continued among certain Klamath Tribes families. In this context, by most oral accounts, the construction of the Copco Dam in 1917 and the resulting loss of anadromous fish had disastrous effects on the Klamath Tribes. For example, the influenza pandemic of 1918–1921 brought disproportionately high mortality to the reservation community, which a number of tribal members attribute to the concurrent and abrupt dietary shift away from anadromous fish to recently introduced and mostly carbohydrate foods.²⁰⁴

By the mid-20th century, intensified federal efforts at cultural assimilation served to compound the social and economic changes introduced to the Klamath Tribes by reservation life. In 1954, as part of a nationwide effort to assimilate American Indian tribes into the cultural and economic mainstream, the federal government chose the Klamath Tribes for the experiment of “termination” by the Klamath Termination Act (25 USC §564, et seq.). The Klamath Tribes were chosen in part because of their self-sufficiency, enabled by the timber, grazing, and other values of their reservation lands. In a brutal irony, termination involved taking from the Tribes the lands that enabled their self-sufficiency.

Termination ended the Klamath Tribes’ status as a federally recognized tribe, dissolved the federally recognized tribal government, and nullified most federal fiduciary responsibilities to the tribal community. It did not, however, dissolve the Tribes’ own government and social organization nor, of course, did it convert Indians into non-Indians in any way other than in the most technical and legal terms. The social, economic, and cultural implications of termination were both significant and complex and are generally viewed as dire by Klamath Tribes members. Reservation employment and benefits disappeared, and access to traditional lands and resources quickly eroded. Control over irrigation water supporting tribal farms diminished as well, as agency infrastructure was privatized and fell into non-Indian control. Under this act, tribal members were encouraged to give up their interest in tribal property in return for cash. A large majority of the Tribe chose to do this. A provision of this act continued the Indians’ right to fish on the former reservation land.²⁰⁵ Cash payments for liquidated tribal assets were distributed irregularly within the tribal community, and those lands retained by tribal members were often lost to taxes and acquired by non-Indians. Once a model of economic self-sufficiency, the former members of the Klamath Tribes now had poverty levels that were three times those of their non-Indian neighbors.²⁰⁶

The United States divided the reservation into large timber tracts, intending to sell them to private timber companies. However, for various reasons, only one such tract was actually sold, and the government found it impossible to dispose of the others. So in 1961, the United States itself purchased large forested portions of the former Klamath Reservation. This forestland became part of the Winema National Forest under the jurisdiction of the United States Forest Service. Some of the reservation lands also became the Klamath Marsh National Wildlife Refuge. The balance of the reservation was placed in a private trust for the “remaining” tribal members who had opted to retain an interest in the tribal lands. In 1973, these remaining Indian lands were also condemned and purchased by the government and added to the Winema National Forest.²⁰⁷

²⁰⁴ Deur (2004); Stern (1965).

²⁰⁵ http://users.sisqtel.net/armstrng/Indupper_klamath.htm.

²⁰⁶ Deur (2008); Hood (1972).

²⁰⁷ <http://www.fws.gov/klamathbasinrefuges/history.html>.

Over the next three decades, tribal members and their families continued to reside principally on the former reservation. Despite the loss of tribal lands, most continued to practice traditional subsistence harvests of game, plants, and fish (other than salmon and steelhead), especially within the former reservation boundaries.

Today the Klamath Tribes have re-acquired about 600 acres of their former reservation. The United States holds title to approximately 70 percent of the former reservation lands. The balance of the reservation is in private Indian and non-Indian ownership, either through allotment or sale of reservation lands at the time of termination.²⁰⁸

Almost immediately after implementation of the termination policy, the United States reversed course and began a process of reinstating tribal governments that were previously terminated. At the same time, witnessing the corrosive impacts of this social experiment on the Tribes, certain individuals and families within the Tribes began to organize with the aim of restoring tribal status. On August 26, 1986, they were successful: the Klamath Tribes officially regained federal recognition under the Klamath Restoration Act (25 USC §566, et seq.). They were not restored to ownership of their former reservation, however, and tribal efforts to regain a land base have continued without interruption since that time. Through relentless efforts, the Tribes are now acquiring lands in the former reservation whenever and wherever they can and placing them in federal trust. Significantly for the present discussion, restoration did not restore to the Tribes the fisheries lost due to the Klamath River dams. The externalized costs of the dams proved immune to either termination or restoration.

Today, the Tribes are experiencing a cultural and economic revival, as poverty levels decline and tribal members take a growing interest in preserving their cultural traditions, including traditional subsistence practices and related ceremonies.²⁰⁹ The Tribes employ hundreds of people in an elaborate tribal government that provides a wide array of services to the membership. The Tribes maintain active natural and cultural resources departments.

3.6.1 Klamath Tribes Fish Culture

The information about the Klamath Tribes in this section comes from the Sprague River Dam Reconnaissance Ethnographic Study conducted by Klamath Tribes Consultants, February 2003, 2010, Dr. Douglas Deur, Principal Investigator; a document titled “3.6 Tribal Trust Resources—Rough Draft,” by Dr. Douglas Deur, provided by the Klamath Tribes to Dr. Thomas Gates on October 4, 2010; and a document entitled “Klamath River Secretarial Determination EIS,” by Dr. Douglas Deur, dated September 2010 and provided to Dr. Thomas Gates on October 4, 2010.

The federal courts have confirmed that the Klamath Tribes’ hunting, fishing, gathering, trapping, and water rights survived Termination. These resources, especially fish, have played a central role in the physical, social, and spiritual well-being of the Klamath people for millennia.

Although the tribes relied heavily on upland game (e.g., deer, elk, and pronghorn antelope) and plant foods (e.g., yampah, wild plum, and many other fruits and berries), riverine and especially marsh resources were of equal importance. Salmon, steelhead, and multiple species of sucker, trout, eel,

²⁰⁸ http://users.sisqtel.net/armstrng/Indupper_klamath.htm.

²⁰⁹ Deur (2007); Haynal (1994).

lamprey, and other fish were dietary staples, and marsh and riparian plants—such as the yellow pond lily, tule, cattail, and willow—provided staple foods and the materials for essential tools and crafts. The Klamath, Modoc, and Yahooskin traditionally recognized all of the plants and animals of their traditional territory as possessing their own spiritual powers; tribal members took active steps—from ceremonial activities to active management techniques—to maintain respectful relationships with the species on which they most depended, ensuring that the species would return abundantly in future years. These ritual activities were an essential part of the ceremonial tradition of the historical Klamath and Modoc, and they have continued to some degree, with added Christian and secular influences, into the modern day.²¹⁰

Geography, Salmon and Steelhead Fishing, and Early Settlement

The Klamath River basin from Link River to Iron Gate Dam once had an almost continuous geographical distribution of traditional sites and activities. Resource procurement areas, ceremonial sites, and burials surrounded the major population centers.

The confluence of Spencer Creek and the Klamath River was a particularly important salmon and steelhead fishing site for the Modoc Tribe. The site also afforded fishing opportunities that were rare below the Link River because of a natural shallows that obstructed the salmon and steelhead during low-water years until levels began to rise from springtime snowmelt. Salmon and steelhead were speared there in large numbers. In the 19th century, Modocs still gathered there and “pulled salmon out with pitchforks” just below this shallows.²¹¹ Captain Jack, leader of the Modocs during the Modoc War, was said to have fished the Klamath Canyon extensively and most commonly fished Spencer Creek. Following the Modoc War, some Modoc families maintained ties to the area. Indian women who were married to white men, however, were not forced onto the Klamath Reservation at the end of the war, and these multi-ethnic marriages provided many tribal families with a remaining foothold in the Klamath River corridor.

Klamath Canyon, particularly the zone from Spencer Creek downstream, was a major historic center of settlement, salmon and steelhead procurement, and trade for the Klamath and Modoc Indians. Settlements were found at almost every site where a major stream entered the river along this reach. During salmon and steelhead fishing time, Klamaths, Shastas, and Modocs occupied separate groups of structures within larger, multi-tribal communities. Tribal members uniformly and emphatically have asserted that this area was used for “more than just a food supply.” Although the freshness of fish from sites downriver from the upper Klamath basin drew Modocs and Klamaths downstream into the canyon, these same fish eventually worked their way into the upper basin. For this reason, some Klamaths and Modocs did not have to go to the canyon to fish. Instead, the communities along the Klamath Canyon floor were important centers of social, ceremonial, economic, and political activity timed to coincide with the peak salmon and steelhead harvest.

²¹⁰ Deur (2009); Gatschet (1890); Ray (1963); Spier (1930).

²¹¹ Index to Klamath Tribes consultants' initials as used in Deur (2003): AW—Adrian Witcraft; CC—Robert “Clinkers” Cole; DH—Dino Herrera; LS—Lynn Schonchin; OK—Orin “Buzz” Kirk; PW—Harold “Plummy” Wright; SM—Newton “Skip” Moore.

Fishing Sites and Technologies

Salmon and steelhead were numerous throughout much of the Klamath Tribes' traditional territory. The fish were commonly said to arrive in runs so large that "it looked like you could walk across their backs," and they were packed so tightly in shallow river channels that they could be speared with ease. Klamath men used spears to catch fish. The distribution of fish to others in the community was an important social activity. Historically, the Klamath Tribes fished not only for salmon and steelhead but also mullet, trout, sturgeon, eels, and lamprey. Lampreys were harvested in large numbers during salmon and steelhead season, often being gigged or speared.

During the 19th and early 20th centuries, it was common knowledge that the large numbers of salmon and steelhead thrashing in the Sprague, Williamson, Link, and Wood river basins would "spook the horses" and people understood not to ride close to the rivers during salmon and steelhead runs to avoid being thrown. Because salmon and steelhead were abundant and relatively ubiquitous, the location of fishing stations reflected the geographical distribution of factors not wholly contingent on fish distribution: naturally available shallows where fish could be easily speared, natural barriers that caused the fish to become "bunched up," nearby settlements and secondary resources, springs and spawning grounds, and a host of other factors all influenced the distribution of salmon and steelhead fishing in the Klamath and Modoc territories.²¹²

Most large-scale fishing within the upper Klamath basin was timed to coincide with salmon and steelhead runs, but all species were taken at these times and places. Salmon and mullet appeared at roughly the same times and at the same places. Trout also appeared with these fish to consume the spawn of both species. Together, these fish provided a tremendous, if intermittent, food resource for the Klamath and Modoc people.

Finding the Fish

Detailed environmental knowledge once guided Klamath and Modoc peoples' movements to and between salmon and steelhead fishing sites, and some of this knowledge persists today. People knew which fishing stations and which riffles would provide the right conditions for salmon and steelhead fishing based on the level of the water in front of their home village. Experienced Klamath fishermen still possess the knowledge of how water levels near their home relate to the exposure or submersion of riffles as well as general fishing conditions at trout-fishing sites within the upper basin. The first arrival of salmon and steelhead in the Klamath Canyon was known to coincide with certain environmental events, which people could detect prior to departure for the canyon—the extent of snowmelt, or the appearance of certain birds or insects, for example. This knowledge has been undermined by the loss of salmon and steelhead and environmental changes in the upper basin but fragments remain today.

Salmon- and steelhead-fishing sites were usually accompanied by settlements or seasonal encampments. Many of the largest Klamath and Modoc winter villages were close to large salmon- and steelhead-fishing stations. The Indians said, "where the fish were, we were." Springtime salmon and steelhead fishing marked the end of the lean winter months, and the proximity of winter villages to salmon and steelhead fishing sites ensured that the fish would be detected and thus available from

²¹² See also Virginia Butler et al., 2010, "The Use of Archaeological Fish Remains to Establish Pre-Development Salmonid Biogeography in the Upper Klamath Basin. Final Report," unpublished report.

the onset of each year's spring. Although late spring and summer involved other subsistence activities far from these villages, the fall Chinook salmon run was said to draw people back to many of these villages. The success of fall fishing had major implications for communities' food supplies when alternative resources were limited, and a poor fall salmon run indicated a potentially difficult winter ahead. Salmon thus occupied a crucial position within the seasonal round, with salmon runs marking both the beginning and the end of annual resource procurement.

Taking the Fish

Salmon and steelhead were taken at traditional fishing stations using a wide range of technologies. Most commonly salmon and steelhead were speared using double-pronged toggle harpoons or spears with detachable single-pronged heads. Most harpoon points were made of bone or wood. Wooden points in particular were hardened through a special process that included heating the points over fires. In the 19th century, Klamath Tribes members began to use steel spear points on this traditional tackle.

Spear fishermen were stationed at certain riffles and in shallow stream reaches. At the beginning of each year, men were said to "fix a spot" on the bank for fishing by arranging rocks and other objects to provide a solid footing. In some cases, wooden or stone scaffolding was built atop rocks lining these riffles to provide a footing for fishing. Night fishing by torchlight or campfire was commonplace, the light drawing fish in addition to providing illumination.

Stone dams and willow weirs were often constructed to channel salmon and steelhead into well-defined chutes where they could be speared with ease. Willow weirs were sometimes built to be portable, so that they could be easily moved and reassembled at different fishing stations as the salmon and steelhead runs moved upstream. In certain locations, salmon and steelhead were easily frightened out of spearing range by human movement, and "blinds" were sometimes constructed to conceal spear fishermen until the last possible moment.

In other cases, spear fishing was done by canoe. One tribe member, for example, reports that when his mother was a girl around the turn of the century, she rode in a canoe with a pitch torch while her brother speared for salmon. She "did this all the time" with her family in the lakes of the upper Klamath basin.

Gill nets were also used, particularly in lakeshore environments. These nets were typically woven from plant materials including nettle or willow. Lakeshore salmon and steelhead netting often involved fixed nets with stone sinkers, which are commonplace in lakeshore archaeological sites throughout much of Klamath and Modoc country. These gill nets were sometimes fixed in place with sinkers and nets strung between canoes. Pit lamps were used at night to draw fish into nets, and this was sometimes done by canoe as well. Gatschet reported that fish poisons or fish-killing charms were sometimes placed in nets.²¹³

Other technologies for taking salmon and steelhead included double-pointed angle hooks and gorges, principally for steelhead. Dip nets were used in riffles, and portable willow basket traps were suitable for narrow channels. Bows and arrows were used by some families, although this was not a

²¹³ Gatschet (1890), 150.

widespread practice. Women, children, or young men often jumped in the water and splashed to flush salmon and steelhead toward traps and spear fishermen, a practice that contemporary consultants recalled using to catch trout in recent decades. Women and children also traditionally lined the banks while men fished, participating in the filleting and drying of fish. Many of the traditional fishing techniques are still used today.

Ice fishing was reportedly commonplace when freezing temperatures coincided with early spring or late fall salmon and steelhead runs. Fishermen cut holes into the ice for this purpose, and they built small structures alongside these holes for housing. More typically, however, Klamath and Modoc men fished at the outlets of springs, which would melt holes in the ice at certain times due to their consistently moderate water temperatures. Men used both spears and dip nets fixed on long handles to fish these ice holes.

Salmon- and steelhead-fishing tackle was adapted over the course of the 19th and early 20th centuries in response to new materials and technologies. Beginning in the late 19th century, many men began to fish with gaffs, made of large metal hooks attached to long poles of native wood. The poles were roughly 10 feet long, and the hooks attached at the end of these poles were metal semicircles of roughly 3 to 4 inches diameter, with a barb on their outer tip. Tribal members caught fish by swinging this gaff below or beside a fish and jerking the pole upward. The salmon and steelhead were typically thick enough that gaffs worked well. Another common type of modified fishing tackle involved the adaptation of the traditional toggle harpoon with a detachable point. Three triple hooks were tied to a 2-foot-long metal shaft, which was itself secured on one end of a pole. Each triple hook was attached to the pole with a length of dense cord. Men would swing the poles through, under the fish. In the process, fish became snagged on treble hooks, which—as with the traditional toggle harpoon—would then detach but remain connected to the pole by their cords, allowing the fish to “fight” without shaking loose from the hook or damaging the pole. Oil lamps were sometimes used in place of torches for nighttime fishing. A few tribal members gradually adopted the fishing rod and line, but this technique was generally considered too slow and unpredictable for subsistence fishing. Despite these adaptations of pre-contact fishing technologies, many tribal members preferred to use time-honored methods, particularly spear fishing.

Some salmon were said to be so large during Chinook salmon runs that, during the 19th and early 20th centuries, horses were regularly brought in to assist in pulling ashore these fish, and for a brief time horses became an integral part of Klamath Tribes’ salmon and steelhead fishing traditions. Some tribal members used large triple hooks, tied to horse saddles with tough cords, to “snag” salmon and steelhead and pull them ashore. Similarly, cords attached to traditional detachable spearheads were tied onto horse saddles instead of being tied onto the spear shaft.

Social, Dietary, Economic, and Historical Significance of Anadromous Fish

Ethnographic and historical studies of Klamath and Modoc tribes have consistently identified fish, including salmon and steelhead, as a staple food since the beginnings of the written record dating from the 1820s.²¹⁴ There is agreement that “they were one of the main food sources, those big salmon.” (WE) When interviewed by Gatschet, Klamath and Modoc tribe members reported the

²¹⁴ Elliot (1910), 210.

extensive use of salmon (*itchíalash*) and salmon discolored by age (*vuíg*)²¹⁵ and the use of “purple salmon” (*etchmû’na* or *dii-atcmû’na*),²¹⁶ which were 3 to 4 feet long and ascended the Klamath River into the lakes region in November.

Salmon and steelhead arrived in varying conditions in the upper Klamath basin, with some discolored and emaciated by their long journey and others still relatively fresh. Salmon and steelhead of varying conditions were consumed traditionally. The fresher salmon and steelhead were preferred, but the fish were taken even after they had finished spawning. Salmon were said to be large historically, especially the Chinook salmon, and Klamath Tribes’ members tell stories about boys who had been pulled into the water after spearing salmon and had to be retrieved by adults. Indeed, this factor appears to have placed limits on the participation of young boys in the spearing of salmon, and youths were typically relegated to supporting tasks during the salmon harvest.

Social Factors of Salmon Rituals and Ceremonies

Multi-village and multi-tribal gatherings centering on the salmon and steelhead harvest were important social and ceremonial events. The movement of the tribes associated with the salmon and steelhead runs shaped much of Klamath and Modoc social life: “Early spring finds them leaving for favorable fishing stations where there are successive fish runs,” one local reported.²¹⁷ Salmon and steelhead fishing at certain productive fishing stations, such as those on the Klamath Canyon, Link River, and Beatty Springs, were “where you met the person you were going to marry.” Gambling contests, races, and group dances were facilitated by these large gatherings of families from different villages. Dried salmon and steelhead were used in trade, particularly with interior populations such as Paiutes and interior Pit River bands, providing the Klamath and Modoc with access to trade goods from these interior locations. Mobility and social diversity of the population participating in the salmon and steelhead harvest fostered multi-tribal gatherings, even at sites quite distant from salmon and steelhead fishing stations. For example, Tule Lake villages, including those at the Lava Beds, served as a stopover point for Modocs, Paiutes, and other tribes traveling to and from the Klamath Canyon to catch or barter for salmon and steelhead.

Salmon and steelhead were also typically shared within the community, with tribal members catching surplus salmon and steelhead to feed the elderly, children, and those with disabilities who were unable to participate in the harvest. This practice is mentioned as ongoing, but it also appears in classic ethnographic studies of the Klamath Tribes.²¹⁸ This redistribution of the catch cemented social bonds within and between communities, in addition to ensuring food security in the community as a whole. These practices are still a source of pride among many tribal members today. Young people still share the catch of other fish species, especially trout and mullet, in the traditional manner. “You always give away fish to the elders ... you always give away the first deer you kill ... our grandparents taught us that and young people still need to listen to that,” a tribe member said. Young men who go on salmon fishing trips outside of the upper Klamath basin also redistribute modest quantities of salmon among tribal members, and such salmon is highly prized. Young people “always drop by to drop off fish” after these long-distance fishing trips, said one tribal member. Access to

²¹⁵ Gatschet (1890).

²¹⁶ *Ibid.*, 30.

²¹⁷ Spier (1930), 10.

²¹⁸ See, e.g., Gatschet (1890), 136; Barker (1963a), 135.

fishing sites and fishing gear is viewed as essential to a family's security; some tribal members mentioned that they have inherited fishing gear from their elders, which is understood as a sign of one's obligation to continue fishing for the extended family in the elder's absence.

Fish Processing

Klamath Tribes members tell stories of how the smolts "all flushed down to the ocean" every year. Consultants' recollections suggest the use of juvenile salmonids as "starvation food" from late fall through spring, and some documentary accounts of "minnows" being caught and eaten may allude to this practice.²¹⁹ Salmon and steelhead eggs may have also been eaten, but consultants did not believe that this was a widespread practice in the early 20th century.

Salmon and steelhead, as with other large fish, were typically cut into "butterfly" fillets, made by splitting the flesh down the back of the fish and leaving the belly section intact between the flesh from either side of the fish. These fillets were placed on wooden drying racks or scaffolds that were constructed alongside the fishing site and adjacent settlements. Such racks were widespread prior to the loss of salmon and steelhead, lining fishing stations and sitting next to homes and settlements. Small-scale fisheries sometimes made use of "fish drying rocks," areas of large rocks where filleted fish were spread out to dry in the sun. A portion of each year's catch was smoked using mahogany and other local woods. Dried salmon and steelhead were often pulverized to make *kamalsh*, an esteemed staple in the Klamath and Modoc diet. Salmon *kamalsh* could be eaten dry but was typically soaked in water until it was reconstituted and then cooked before eating.

Many of these fish-processing techniques were used to process salmon and steelhead until the construction of the Copco Dam, and tribal members still use these methods to process trout and mullet. *Kamalsh* made from trout or salmon and mullet from outside the upper Klamath basin is still an important part of the Klamath Tribes diet, even if the reduction in fish populations through much of the basin has rendered its importance more symbolic than nutritious. Beginning in the late 19th century, some tribal members also began to preserve salmon and steelhead with salt, or in cans or jars; salmon obtained from elsewhere is now commonly processed in pressure cookers.

Fish in the Diets of the Klamath Tribes

Estimates vary as to the historical importance of salmonid fish in the diets of Klamath and Modoc tribal members. Some tribal members say that trout and mullet were historically more predictable than salmon runs, but others dispute this claim, possibly reflecting historical differences between different tribal communities within the upper Klamath basin.

Affidavits compiled in the early 1940s suggest that between one-half and one-sixth of the aboriginal diet consisted of salmonid fish. Rates of salmon and steelhead consumption likely varied over time and between individual communities and households, but a review of both written accounts and contemporary oral histories suggests that salmonid fish were consumed in large quantities by most Klamaths and many Modocs as a dietary staple.

Salmon and steelhead were essential to the ecology of the Klamath basin, with salmon and steelhead carcasses in particular providing food for many species of animals and nutrients that facilitate the

²¹⁹ Fremont (1845, 1887).

health of marsh plant communities. “When the salmon leave, everything else falls apart.” “A lot of other fish started to disappear as soon as the salmon were gone.” “Trout fed on the salmon spawn... once the salmon were gone, they went after the sucker spawn more ... and then there weren’t as many trout and suckers.”

Some consultants also reported that their ancestors used to manage fish populations. Staple fish—salmon, steelhead, trout, and mullet—were harvested according to a rule that “you should never take more than you needed...you take what you need, then quit” and this rule still guides the actions of many tribal members today. Chub and other species were known to eat salmon and trout eggs; increases in chub populations corresponded with subsequent decreases in salmon and trout populations. For this reason, when fish populations were thought to be out of balance, men sometimes intentionally caught large numbers of chub and simply tossed them onto the banks to be eaten by birds and other creatures. This practice is said to have continued into the 20th century.

Salmon in Klamath Religion and Worldview

Salmon also played an important ceremonial and religious role within the Klamath and Modoc worlds. Consultants recalled a number of creation stories that related to salmon fishing and salmon fishing sites, and most of the large salmon and steelhead fishing dams were historically viewed as the handiwork of the Creator, Gmukampc. Gatschet notes that “the special creation of [Gmukampc] was man, and whatsoever stands in direct connection with his existence, welfare, and customs, as fishing places....”²²⁰ Gatschet further notes that events within Klamath oral tradition were sometimes said to center around *tsiäls-hä’mi*, “salmon time” within the Klamath seasonal round.²²¹

Ceremonial regulation and intervention in the runs of salmon were widespread historically, as is typical of staple food resources of variable annual availability.

The shaman is called on to exercise his art when the weather is unpropitious and the food supply is in danger. If the ice stays late in the spring so they cannot fish, they go to the shaman to get him to make it rain. If it rains but no fish come, they ask him again to bring the fish. The first catch is always divided so that everyone has something to relieve his hunger. ... Should the fish disappear from the mouth of the Williamson River, for example, an old man will ask a shaman to discuss the cause.²²²

It is commonly understood by Klamath Tribes members that salmon possess a spirit and that this spirit must be respected and honored to ensure the fishes’ return. Salmon fishing, like trout and mullet fishing, was said to be guided by certain protocols, which ritually acknowledged the spirited and sentient qualities of these fish. A number of potentially offensive behaviors were strictly enforced before and during the salmon harvest. The unused portions of fish carcasses were put back in the water “so that they will come back” in following years. A number of tribal members spoke of First Salmon Ceremonies conducted at the beginning of each year’s run to ritually distribute salmon flesh and honor the salmon. Ceremonies were said to last two or three days, and involved large salmon feasts celebrating the return of the salmon and the end of winter hunger. The region-wide demise of salmon, some consultants suggest, reflects the disrespect with which non-Indians have interfered in

²²⁰ Gatschet (1890), 104.

²²¹ *Ibid.*, 16.

²²² Spier (1930), 120.

the lives of salmonid fish. The causes of the contemporary “salmon crisis,” in their view, are as much cosmological as biological.

Such ritual activity continues in limited form today, with Klamath Tribes members attempting to ritually ensure the return or resuscitation of salmon, steelhead, mullet, and other important but imperiled species. Ritual efforts to influence water levels and water quality for the benefit of fish are also conducted by contemporary tribal members.

A number of rituals have been traditionally practiced by the Klamaths. Many of these rituals relate to ensuring that the fish return each year. For example, a Klamath Tribes member who has lost a spouse or a child is reportedly barred from fishing or even crossing a river for fear the fish will flee. For a year, the mourner is not allowed to eat fish because it is believed it will sicken him. After one year, he must twice cleanse himself in a special sweat lodge before he can resume his occupation. Another belief is that if a fish is caught with difficulty, for instance if it is speared through the ice, its gall must be thrown back into the water; otherwise, other fish will avoid that area. This practice is called *notowa'able a'mbotot*, “to throw back into the water.” The Klamath also practice a ritual over the first suckers. The first sucker is roasted and allowed to burn to ashes. Those that follow must not be taken home but roasted there; otherwise, no more will come. If the rite is observed, it is believed, suckers will be plentiful.”²²³

Trade and Barter in the Klamath Tribes

In 1873, when John Fremont was exploring the Klamath Lake region, he reported: “If we should not find game enough to live upon, we can employ the Indians to get supplies of salmon and other fish.”²²⁴ Anthropologist Leslie Spier observed that “fish were consumed, sold, bartered, fresh or were cut open, cleaned, and then allowed to dry on poles or racks.”²²⁵

The communities along the Klamath canyon were also vital centers of trade, both within and between tribes. The canyon served as the primary route of movement through the Cascade Range for most area tribes, and the Klamath and Modoc peoples exchanged products from the interior, such as obsidian and dried deer meat, with the Shastas, Karuks, and other downriver tribes for maritime goods acquired by these tribes from the Yurok and other downriver people. A wide range of trade goods were said to be obtainable in the Klamath Canyon villages that could not be found anywhere else. A number of Klamath Tribes members recall that the downriver tribes brought exotic cryptocrystalline rocks to these villages to trade for salmon and obsidian; cores and debitage from these exotic rocks are said to line the banks of Lake Ewauna near the Link River confluence and are still visible when the earth is excavated in this part of Klamath Falls.²²⁶ Tribal groups with salmon fishing rights along the Klamath Canyon traded dried salmon with tribal groups visiting from areas with little or no salmon, such as Paiute and interior Achumawi communities. Trade, consultants indicated, was “not only economic, but a social exchange.” Families and communities often participated in trade even when there were no particular economic incentives, to cement social bonds, mediate disputes, or to maintain economic alliances that might, at some future time, prove valuable.

²²³ Lane and Lane (December 1981), 75.

²²⁴ Fremont (1887), 484.

²²⁵ Spier (1930).

²²⁶ Spier (1930), 38.

Current Effects of Implementing the KHSA and KBRA on Indian Trust Resources and Cultural Values

Most Klamath fishing was for personal use or for trade. Spier writes as follows:

Trade is probably of no great consequence within the tribe although it figures intertribally. Contacts were few and frequently unfriendly until after the coming of the whites. The exception is the neighboring Modoc groups; others are too distant. Winters are too severe for travel and trade, but summers find the Warm Springs people in residence with the Klamath. These similarly set out for Warm Springs and the Dalles when the grass begins to grow,²²⁷

There was some trade among people within the Klamath basin. The Modoc, who originally had less access to salmon, sometimes obtained them from the Klamath in trade.²²⁸ Such trade among Indian groups continued into the historical period. Klamath tribal members ... tell of taking wagonloads of (dried?) salmon up to Huckleberry Mountain in August in the early 20th century. There, tribal members encountered Indians from other places and the salmon was traded for other products.²²⁹

When Euro-Americans entered the Klamath basin, they purchased salmon and other fish from the Klamath basin peoples. Ogden obtained fish during his visit in 1826.²³⁰ By the end of the 19th century, members of the Klamath Tribe, while continuing to catch salmon for family consumption and for trade to other Indians, were also selling salmon to local settlers.^{231 232} This was commercial fishing on a small scale. The market was limited because the purchasers were local people. There was no fish processing plant in or near the upper Klamath basin.²³³

During the 19th century, dried salmon became an important trade good with explorers and Applegate Trail emigrants, and it provided some tribal members with their first access to Euro-American goods and their first point of entry into the cash economy.¹⁸ Some consultants mentioned their relatives of the late 19th century also using salmon to barter for introduced foods such as garden vegetables and baked goods. Conversely, some Klamath Tribes members who were compelled to pursue occupations that created scheduling conflicts with salmon fishing used vegetables from their gardens to barter for salmon during this period.

Elaborate, long-distance barter economies emerged in the 1910s and 1920s to offset the loss of salmonid fish from the diet. Tribal members began to accumulate surpluses of dried and jerked deer meat to barter for salmon. At this time, when mullet was still abundant, Klamath Tribes members were able to barter *kamalsh* made from these fish for salmon. Deer hides, wocas seeds, farm produce, and other locally available resources were mentioned as other important barter items in this trade. Although the quantities of salmon obtainable through this practice were considerably less than the quantities of salmon consumed within the traditional diet, salmon maintained a high culinary ranking and its continued use was seen as symbolically significant.

²²⁷ Ibid., 41; in Lane and Lane (1981), 91.

²²⁸ Ray (1963), 192.

²²⁹ Pers. comm., October 19, 1981; in Lane and Lane (1981).

²³⁰ Fremont (1877), 484, 486; in Lane and Lane (1981), 91.

²³¹ Lane and Lane (1981), 92.

²³² Ibid.

²³³ Lane and Lane (1981), 92.

Using pre-existing kin and trade networks, Klamath Tribes members were able to identify individuals on the lower Klamath River and in the Columbia basin who were willing to trade salmon for these products. Numerous consultants described trips that they or their families had taken in recent decades to Yurok country, Smith River, or The Dalles to acquire truckloads of salmon in exchange for cash or bartered goods. Particularly at Celilo Falls, the Klamath Tribes continued to participate in both subsistence and social activities until the elimination of this Columbia River fishery. Some consultants recall attending, or heard of their parents or grandparents attending, large social gatherings at Celilo during the fishing season, when they participated in the salmon harvest as well as horse races, gambling, and group social and ceremonial activity. Trips taken to the Pendleton Roundup and other major rodeos sometimes provided the opportunity for a detour to Celilo Falls for salmon. The Indian Shaker Church was also mentioned as providing enduring, region-wide social connections that facilitated continued if limited access to salmon into the late 20th century, especially on the lower Klamath River.

Occasionally, friends or family from downriver tribes, living in such places as Yreka and Klamath, transported a load of salmon to the Klamath basin for barter. Warm Springs was also occasionally visited for this purpose, and Warm Springs families with Klamath ties were said to sometimes provide a few salmon to their kin who had no fish.

Exchange rates varied, but there are indications that in recent decades on the lower Klamath River 10 mullet could be exchanged for a single salmon. A number of other goods were sometimes used in barter: six salmon could be obtained for a large deer, and unspecified quantities of huckleberries, epos, wocas, and pine nuts were sometimes used to acquire salmon on the lower Klamath River. While such barter arrangements allowed continued access to salmon, with its dietary and cultural importance, these arrangements required dramatically more labor per unit of salmon than had been the case prior to the elimination of upper Klamath basin salmon fishing. Cultural incentives for barter clearly eclipsed simple dietary and economic incentives. As such, salmon increasingly became a symbolically charged food for “special occasions” rather than a dietary staple, reflecting both enduring and pronounced cultural importance coupled with a dramatic decrease in food availability. Though this partially offset the dietary impacts of the loss of salmon for some families, these journeys were widely seen as a great hardship. Many families simply decided that they could not afford the time or fuel to make this journey and had to accept a diet without salmon. This practice of long-distance barter for salmon continues in attenuated form today.

Oral Traditions

Klamath Tribes oral traditions, including the “Gmukampc tears down the fish dam” story, are said to impart teachings that still guide tribal members in their navigation of moral or ethical dilemmas. These stories are tied to particular landscape features that are prominent in the vicinity of traditional salmon fishing sites. In some cases, certain landscape features of religious significance distant from salmon fishing sites also possess ceremonial associations with salmon fishing, including places mentioned by Gatschet²³⁴ where beings from before human time had been said to have been turned to stone while en route to fishing sites.²³⁵

²³⁴ Gatschet (1890), 131.

²³⁵ Spier (1930), 20.

Consultants recall oral traditions associated with certain “natural” stone landmarks along this reach, referred to by some tribal members as “stone people.” These oral teachings relate to salmon fishing and impart lessons from Gmukampc, the Creator, regarding fundamental moral and ethical principles. One principal tale tied to this area was recounted by some consultants, as they felt that it had some bearing on the Klamath Hydroelectric Project:²³⁶

“The people who lived there [below the Chiloquin forks] had a big fish dam. They got greedy and kept building it higher, catching all the fish until no fish could get past them...the people upstream couldn’t catch anything and were starving. They said the Creator got angry...and he asked the animals to help him tear down the dam...After the dam was gone, the people were all turned into rocks...they got punished. People fishing there could always see those rocks...it reminded them.”²³⁷

One didactic function of Klamath oral traditions is the focus on the ethics of resource distribution. Despite considerable disturbance in this area associated with 20th century development, anthropomorphic rock features, related to these oral traditions, can still be clearly seen in portions of this reach. In this area, Gatschet (1890: 149) also noted the presence of *K'tái-Tupákshi* (“standing rock”),²³⁸

a rock about ten feet high and fourteen feet in width, situated fifty yards from the junction of the Sprague and Williamson Rivers. Indian pictures are visible on its surface, and the rock is called “K'múkamtch's chair,” because this deity had, according to the myth, constructed a fish-trap of willow branches there, and was watching on this rock for the preservation of this structure. West of *K'tái-Tupákshi* is an obstruction in the Williamson River, serving as a fish-trap to the Indians.²³⁹

Fishing Elsewhere in Response to Decline of Ancestral Fishery

Klamath Tribes consultants identified a number of coping strategies that were employed to accommodate the abrupt loss of salmon and steelhead from their homeland's waters. Less prized fish, including certain species of trout and mullet, suddenly became central in the diet and were fished in unprecedented quantities. Consultants also discussed the intensification of deer hunting and the exploitation of other terrestrial resources.

Several consultants spoke of the intensification of salmon and steelhead harvests in the upper Rogue River as part of the annual ascent to Huckleberry Mountain to offset some of these losses in the 1910s and 1920s. Families claimed specific riffles in the Prospect area, and gathered there each year to spear fish and dry them on adjacent scaffolds. Although salmon and steelhead were historically fished in these areas as part of the huckleberry harvest prior to the elimination of salmon and steelhead from the upper Klamath basin, trips to the Rogue basin solely for salmon and steelhead fishing became commonplace following this development. People returned with entire wagon or carloads full of dried salmon and steelhead caught in the Rogue River during this period. By the 1930s, however, upper Rogue fishing was also in rapid decline due to the enforcement of recreational fishing regulations and

²³⁶ Ibid., 55.

²³⁷ Ibid., 55.

²³⁸ Ibid., 55.

²³⁹ Gatschet (1890), 149.

general declines in salmon and steelhead numbers on that river. A number of consultants reported conflicts with Oregon Department of Fish and Wildlife wardens, United States Forest Service rangers, or state and county police when their families attempted to catch their usual quantities of salmon and steelhead for subsistence purposes. By mid-century, the Prospect Dam submerged most of the fishing sites and settlement sites that were traditionally used by Klamath Tribes members in this area. A similar fishery, believed to be of lesser importance, briefly flourished on the upper Deschutes River near Gilchrist and Tumalo Falls.

Tribal members report fishing for a modest population of “landlocked salmon” that were trapped in the upper Klamath basin upstream from the Copco Dam for a short period of time, but that these populations soon disappeared. Tribal members reportedly fished for these landlocked salmon at traditional fishing stations in the 1920s and 1930s. Following that period, accounts of landlocked salmon become quite rare, though rumors of occasional, accidental catches of “fish that looked like salmon” were reported as late as the 1970s by tribal members.

3.6.2 Effects on Trust Resources and Related Cultural Values

Effects on Trust Resources

A government-to-government consultation meeting concerning the effects of current dam operations on Klamath Tribes trust resources was held on October 4, 2010. A variety of trust resources of the Klamath Tribes have been affected by current dam operations. However, the meeting focused on the Tribes’ fish resources and the water conditions that contribute to the health of the fishery.

Among the anadromous fish the Tribes have used as staple foods are fall and spring Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), Pacific lamprey (*Lampetra tridentata*), and possibly coho (*O. kisutch*) and sockeye salmon (*O. nerka*). These fish entered the Klamath Reservation along the drainages of the Sprague, Williamson, and Wood rivers and were also found in the open waters of Upper Klamath Lake.²⁴⁰ Although the exact quantities of fish consumed are difficult to establish, sources consistently have depicted anadromous salmonids as staple foods, the focus of extended multifamily fishing operations often lasting weeks or months, and “an important source of wealth and stability” to the Klamath Indians prior to the construction of Copco No. 1 Dam in 1917.²⁴¹ Historically, Klamath Tribes members have depended on a variety of resident fish species, primarily the resident rainbow trout (*Oncorhynchus mykiss*), *c’waam* or Lost River sucker (*Deltistes luxatus*), and *koptu* or shortnose sucker (*Chasmistes brevirostris*), as well as cutthroat trout (*Oncorhynchus clarkii*), Klamath smallscale sucker (*Catostomus rimiculus*), Klamath largescale sucker (*Catostomus snyderi*), Pit-Klamath brook lamprey (*Lampetra lethophaga*), blue chub (*Gila coerulea*), tui chub (*Gila bicolor*), and speckled dace (*Rhinichthys osculus*), among others. Table 3-9 lists the fish resources of the Klamath Tribes by tribal name, common name, and scientific name.

²⁴⁰ Hamilton et al. (2005); Lane and Lane (1981).

²⁴¹ Howe (1968), 228.

Table 3-9. Some Principal Staple Fish Species of the Klamath Tribes

Klamath Name	Common English Name	Scientific Name
c'iyaaal's	Spring and fall Chinook salmon Coho salmon (possible) Sockeye salmon (possible)	<i>Oncorhynchus tshawytscha</i> <i>O. kisutch</i> <i>O. nerka</i>
meYas	Steelhead	<i>Oncorhynchus mykiss</i>
c'waam	Lost River sucker	<i>Deltistes luxatus</i>
Koptu	Shortnose sucker	<i>Chasmistes brevirostris</i>
	Klamath smallscale sucker	<i>Catostomus rimiculus</i>
	Klamath largescale sucker	<i>Catostomus snyderi</i>
	Cutthroat trout	<i>Oncorhynchus clarkii</i>
	Rainbow trout	<i>Oncorhynchus mykiss</i>
	Pacific lamprey	<i>Lampetra tridentata</i>
	Pit-Klamath brook lamprey	<i>Lampetra lethophaga</i>
	Speckled dace	<i>Rhinichthys osculus</i>
	Tui chub	<i>Gila bicolor</i>
	Blue chub	<i>Gila coerulea</i>

No fewer than 10 traditional cultural properties in the upper Klamath basin have been documented as possessing eligibility for listing on the National Register of Historic Places based largely on salmonid procurement at these locations and the cultural and historical importance of the fish to the Tribes prior to construction of Copco No. 1 Dam.²⁴² The construction of Copco No. 1 Dam, completed in 1917, blocked anadromous fish runs into the upper Klamath basin and abruptly extinguished Klamath Tribes' access to anadromous fish. Two other major fisheries, resident salmonids ("trout") and catostomids, were left for use by the Klamath Tribes after the demise of these anadromous fisheries. The catostomid fishery consisted primarily of *c'waam* (Lost River sucker) and *koptu* (shortnose sucker) until the Tribes closed their fishery in 1986 to protect it in the face of severe population declines. This move by the Tribes in turn prompted the federal government to list these fish as endangered in 1988 under the Endangered Species Act. As the only surviving tribal fishery, resident salmonids today represent a resource to tribal members that merits protection.

Beyond the salmonid and other anadromous fish populations, water quality and quantities in the Klamath River and its tributaries are implicated in the current dam operations. Water conditions, in turn, affect the ability of anadromous fish species to survive. As noted previously, the Klamath Tribes retain a right to instream water quantities in off-reservation locations at levels that are sufficient to support fishing and other harvest rights on former reservation lands, as affirmed in the 9th Circuit Court of Appeals' decision in *United States v. Adair*, 723 F.2d 1394.²⁴³ A number of ritual traditions of the Klamath Tribes depend on access to clean water from natural sources, which is used in ritual purification of people, places, and objects, as well as in rituals associated with drought abatement and

²⁴² Deur, (2004).

²⁴³ 9th Cir. (1984)

other environmentally restorative activities. Although tribal members sometimes acquire water for these purposes from the Klamath River canyon area, the Klamath River is widely viewed as being of compromised quality for these ritual uses, in part due to the effects of the dams on water temperature, algae development, and other variables of water quality.

Table 3-10 lists the effects of the current dam operations on the trust resources, tribal rights to take those resources, and other resources traditionally used by the Klamath Tribes.

Table 3-10. Effects of Current Dam Operations on Klamath Tribes Trust Resources and Rights and on Other Resources Traditionally Used by the Tribes

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBES	EFFECTS
Water resources		<ul style="list-style-type: none"> • Poor flow management (e.g., peaking regimes, flow pulses, flow homogenization, aquatic ecosystem functionality) • Altered water temperature regime • Reduced bedload sediment transfer • Degraded water quality caused by nutrient input, dissolved oxygen, pH, algal toxins and other contaminants
Aquatic resources		<ul style="list-style-type: none"> • Loss of habitat • Less suitable water temperature regime • Reduced bedload transfer • Increased potential for disease/parasites • Reduced population size
Terrestrial resources		<ul style="list-style-type: none"> • Reduced food availability • Loss of riparian habitat

Note: Blank cells indicate that the Klamath Tribes have no resources in this category that are affected by this project.

Effects on Related Cultural Values

The current operations of the dams have had a range of secondary effects on the Klamath Tribes. Among these effects are the decline of fish and wildlife other than anadromous fish, the loss of cultural and social practices based on the abundance of salmon and steelhead, diminished economic opportunity, and negative health effects resulting from dietary changes that became necessary when traditional sources of food were less reliably available.

Tribal oral tradition suggests that the timing of catostomid and trout population declines followed the extirpation of anadromous salmonids, reflecting partial dependence of these resident fish on marine protein from salmonid sources.²⁴⁴ In recent interviews, numerous tribal members noted that the once-abundant numbers of these other culturally significant species have diminished, attributing this change in part to the absence of anadromous fish within the upper Klamath basin. Recent studies have confirmed that no fewer than 137 other wildlife species depend on salmon and steelhead consumption for some portion of their life cycle, drawing sustenance from smolts, adult salmon and steelhead or their carcasses—either directly through consumption or indirectly through the consumption of species that rely on salmon and steelhead.²⁴⁵ Subsistence fish and wildlife species affected by the absence of

²⁴⁴ Deur (2004); Lane and Lane (1981).

²⁴⁵ Cederholm et al. (2000).

salmon and steelhead include black bear, mule deer, and a large number of waterfowl species, in addition to the resident trout and catostomid populations mentioned above.²⁴⁶ Several salmon and steelhead–dependent wildlife species are of traditional cultural significance to Klamath Tribes members beyond their subsistence value, including but not limited to the Bald and Golden eagles, coyote, cougar, American marten, weasel, bobcat, red and gray foxes, northern river otter, various bat species, raven, crow, red-tailed hawk, blue jay, and a variety of songbirds. Once culturally significant, extirpated species such as grizzly bear, wolf, and condor were dependent on salmonids during some portion of their life cycle.

Many of these non-salmon species and ecologically linked plants are significant for the cultural and economic well-being of the tribes. Klamath Tribes Indians traditionally used pelts, feathers, and other body parts from some of these animals in ceremonial regalia, traditional crafts, and for other purposes. In a few cases, tribal members relied on the sale of pelts from some of these species for supplemental income. In ethnographic interviews, tribal members referred to a number of culturally preferred riparian and marsh plant species that are said to have declined in population in the last century. Foremost among these is the yellow pond lily (*Nuphar polysepalum*), a source of edible seeds that has served as one of the most important staple plant foods of the Klamath Tribes. This decline may correlate with declines in the fish population of the upper Klamath basin and may reflect the reduction in nutrient loading to marsh plant procurement areas.²⁴⁷

Prior to the extirpation of anadromous salmonids from the upper Klamath basin, salmon and steelhead—together with catostomids and trout—were the focus of a complex of cultural traditions, including distinctive fish-harvesting and -processing technologies; traditional ecological knowledge relating to fish habitats and behavior; and ritual traditions centering significantly on the maintenance of harvestable fish populations through ceremonial displays of respect for the fish, the Creator, and other spiritual forces said to influence the fishes’ return. Through such practices, the Tribe has always played an active role in the stewardship of anadromous fish resources, and many contemporary tribal members perceive this role as a cultural right and responsibility.

Social Factors

In social and family practices of the Klamath Tribes, the absence of the fish has compromised the transmission from generation to generation of knowledge relating to the fish and their procurement. The importance of salmon procurement is further reflected in the Tribes’ languages, place names, songs, stories, and the moral teachings provided to children.²⁴⁸ Large gatherings associated with the fish harvest once served as a venue for economic exchanges, reunion with kin from other communities, and the forging and maintenance of intercommunity ties within the larger Klamath Tribes population. The demise of the fish populations has precluded these important social and cultural functions.

Riparian Resources

Although the Klamath Tribes have the most direct interest in resources upstream from the four hydroelectric dams, the current operations have affected the Klamath Tribes’ resource interests in the

²⁴⁶ Cederholm et al. (2000); Lane and Lane (1981).

²⁴⁷ Deur (2004).

²⁴⁸ Deur (2004); Barker (1963a, 1963b); Spier (1930); Gatschet (1890).

footprint of the dams and impoundments, as well as downstream from the dams in lands ceded to the Klamath Tribes. In the Klamath River corridor, for example, procurement activities historically focused on riparian resources. Plants, animals, soil, and rocks are all of concern to Klamath Tribes members, both economically and environmentally. The Indians commonly gathered riparian vegetation, including but not limited to willows (*Salix spp.*) for basketry and drying racks; tree species such as cottonwood (*Populus spp.*) for firewood; sedges (*Carex spp.*), rushes (*Juncus spp.*), cattails (*Typha latifolia*), and tule (*Schoenoplectus acutus*) for basketry mats and bedding; and a variety of berries and medicinal plants uniquely concentrated in the riparian corridor. Game in the riparian corridor, such as white- and black-tail deer, rabbit, groundhog, and birds, were also taken. Various forms of evidence suggest that these gathering activities were concentrated in relatively recent alluvial deposits consisting of gravel bars and fresh deposits of silt, loam, and sand-sized particles. At these sites, culturally prized early-successional vegetation was abundant and desirable; for example, roots used in basketry were unusually long, straight, and easy to dig. Additionally, tribal members gathered rocks for use as cooking stones along the riparian corridor, especially basalt cobbles and other dense, nonporous stones.

Effects on Human Health

Because salmon and steelhead were the first dietary staple to be lost to the tribes, their depletion was said to have initiated some of the most dramatic dietary shifts in the Klamath Tribes. For a time, this fostered increased consumption of deer and mullet, which some tribal members believe resulted in localized overuse of these resources when taken in combination with poor fish and game management by the State of Oregon. For some, the loss of the salmon and steelhead was the instigating event for a dietary transition that led to the ultimate dependence of the Klamath Tribes on the purchase of processed foods and the use of supplementary commodity foods.

Tribal members attributed a number of historical health problems to the loss of salmon and steelhead. A 1920s tuberculosis epidemic was said to have been worsened by the rapid impoverishment of the diet in preceding years. Recent Indian Health Service studies endorsed by the Klamath Tribes concluded that a host of physical ailments plaguing Klamath Tribes members have been linked to the demise of the aboriginal diet. Diabetes, hypertension, obesity, and related cardiovascular ailments are particularly widespread, reflecting dramatic changes in food consumption and procurement patterns. A number of tribal member consultants expressed the view that the loss of salmon and steelhead was among the most significant components of this dietary shift.

Tribal Trust Lands

The current operations have also had measurable consequences on the condition of lands held in trust status by the Klamath Tribes. In response to the loss of the Klamath Reservation as a result of the 1954 Klamath Termination Act and the absence of provisions for the reservation's return in the 1986 Klamath Restoration Act, the Klamath Tribes have been actively acquiring lands within the boundaries of the former reservation and placing them in trust status. Existing and pending trust lands include properties that are transected by waters formerly containing populations of anadromous fish. These trust lands are affected by the same environmental variables that apply to the entire upper Klamath basin.

Table 3-11 lists the effects of the current dam operations on the cultural values related to the resources, tribal rights to take those resources, and other resources traditionally used by the Klamath Tribes.

Table 3-11. Effects of Current Dam Operations on Klamath Tribes Cultural Values Related to Trust Resources and Rights and on Other Resources Traditionally Used by the Tribes

TRUST RESOURCE/ RIGHT	OTHER RESOURCES TRADITIONALLY USED BY THE TRIBES	EFFECTS
Water resources		<ul style="list-style-type: none"> • Diminished aesthetics • Algae-clogged fishing nets • Human exposure to toxic water while conducting cultural activities • Diminished opportunity for traditional bathing
Aquatic resources		<ul style="list-style-type: none"> • Lost opportunities for transmitting traditional knowledge • Extirpation of treaty-protected anadromous fish • Reduced populations of remaining fish species
Terrestrial resources		<ul style="list-style-type: none"> • Diminished plant availability for cultural practices and related benefits • Loss of opportunity for inter-generational traditional knowledge transmission

Note: Blank cells indicate that the Klamath Tribes have no resources in this category that are affected by this project.

Discussion

Arguably, salmon and steelhead have not been sighted in the areas above the dams in about 100 years. However, in 1907, before the dams went into service, an anthropologist wrote, “Fish were abundant in the lakes, salmon and salmon trout being especially esteemed by the Indians”²⁴⁹ Other firsthand observations confirm the presence of salmon before the dams. In the 1940s, in preparation for a lawsuit against Copco for blocking the anadromous fish runs, Bureau of Indian Affairs Superintendent B. G. Courtright interviewed 50 older members of the Klamath Tribe and non-Indian settlers in the area about salmon in the Klamath basin.²⁵⁰ These unpublished affidavits unanimously claim there were salmon in fisheries as far above Klamath Lake as the Sprague and Williamson rivers, Upper Klamath Lake, and Spencer Creek. Anthropologist Leslie Spier reported on salmon in the Klamath basin: “They ascend all the rivers leading from Klamath Lake ... going as far up Sprague river as Yainax, but are stopped by the falls below the outlet of Klamath marsh.”²⁵¹ A tribal elder in the 1940s claimed that he had observed salmon as far up the Sprague River as Bly.²⁵²

By all accounts, salmon and steelhead continue to be symbolically and culturally important to members of the Klamath Tribes. Moreover, tribal members insist that traditional salmon and steelhead fishing stations are still being used today, whether for subsistence purposes, ceremonial

²⁴⁹ Barrett, 1910, 243.

²⁵⁰ B.G. Courtright. “Memorandum—Salmon on the Klamath.” Klamath Agency Oregon, January 16, 1941. Also Letters to K.R.L. Simmons dated August 13, 1941; June 24, 1942; and January 29, 1943; Courtright was superintendent and Simmons was an attorney with the Bureau of Indian Affairs. Reported in Lane & Lane Associates, pp. 57-63.

²⁵¹ Spier (1930), 148.

²⁵² Lane and Lane (1981), 54.

activities, historical memorialization, or instruction of children on tribal history and culture. Resources that were once harvested secondarily to the salmon and steelhead harvest have now become the focus of subsistence activity at these stations, and tribal members still use certain historic campsites at these stations during subsistence, social, and ceremonial activities. Tribal members continue to participate in ritual activities “to bring back the salmon,” while the Klamath Tribes government continues to explore legal and administrative options to achieve the same goal.²⁵³

3.7 Description of Public Domain Allotments in the Klamath Basin

The BIA conducted outreach with owners and heirs of 26 Public Domain Allotments (PDAs) on or near the Klamath River. Of 222 letters and related information sent out, 30 packets were returned to the BIA Regional Office because the addressee was deceased and the interest of the deceased was currently in the BIA probate process. Twenty-four packet recipients returned postcards. No owners or heirs indicated that they consider the dams to have adversely affected their PDA. Eight postcard respondents requested follow-up phone calls. Dr. Thomas Gates made these calls on February 14, 2011. All owners and heirs contacted were Karuk Tribe members and all categorically voiced support for the Karuk Tribe concerning the Tribe’s involvement with the process currently under way to consider dam removal. Two postcard respondents requested follow-up by email. One email address provided was no longer valid. The other email respondent asked whether face-to-face meetings were anticipated that could be attended. Dr. Gates responded by email stating that no such meetings were anticipated but that further communication by email or phone was possible to better understand the owner or heir’s questions or concerns, or to receive other comments. At the time this report was completed, that person had not responded back to Dr. Gates.

No effects to PDAs were noted as a result of PDA owner and heir outreach as conducted and described above.

²⁵³ Ibid.

Chapter 4 Findings

Based on the review provided in this report and summarized in this section, the Cultural/Tribal Sub-team finds that the current operation of the dams adversely affects tribal trust resources and by extension the native cultures that depend on these resources. Such effects have occurred historically and continue to occur.

Strong social, cultural, and economic ties have bound together the tribes of the Klamath basin—ties based in large part on a shared reliance on the region’s rivers and associated resources, particularly salmon. This reliance extends well beyond subsistence and commerce to the cultural and social fabric of the tribes, as evidenced by their traditional, ceremonial, and spiritual ways of life that focus and center on the rivers and the fish, wildlife, and vegetation they support. For Indians of the Klamath region, the interaction and identification with the natural environment so defines their cultures, lifestyles, and spiritual beliefs that its degradation has had a profoundly devastating impact.

Klamath salmon and steelhead, famous around the world, are trending toward extinction. It is hard to say how many spring Chinook Salmon were in the river before mining operations decimated spawning tributaries, but today they are a shadow of their former selves. Half a million is the number once believed to be in the river, and today there are fewer than 1,000 in of all the tributaries of the Klamath above the Trinity, which is probably one five hundredth of their former abundance.²⁵⁴ In the years 1989 to 1992, the population was at critically low levels. If these gene resources for spring Chinook are lost—if these building blocks are lost—then they're lost forever.²⁵⁵

Current operations of the four dam facilities under consideration for dam removal significantly contribute to compromised water quality, loss of habitat for anadromous and other aquatic species, and altered riverine ecosystem functions. These contributing factors have led to the decline of the anadromous fishery and other inter-related aquatic populations important to the continuance of an indigenous Native American riverine way of life. The decline of the anadromous fishery is directly and indirectly linked to the decline and diaspora of the “Salmon People” of the Klamath River basin. The decline and diaspora are manifested particularly in physical illness, mental illness, the loss of traditional knowledge, and social conflict among Native peoples and between Native peoples and non-natives also residing in the Klamath basin (Figure 4-1).

4.1 Trust Resources

In general, trust resources germane to the proposed action are water and fish. Water can be further subdivided by quality and quantity and as stream flows and groundwater. Anadromous fish include Chinook, coho, steelhead, sturgeon, eulachon, and lamprey eels. In addition to anadromous fish, there are also non-anadromous fish such as suckers. Some of the anadromous fish can be further divided into populations and even further divided into “runs,” or “resident” schools. In addition to water and fish, a host of ancillary riparian plant and riverine animal populations are considered by tribes to be

²⁵⁴ Federal Energy Regulatory Commission, December 16 (2004), 52.

²⁵⁵ *Ibid.*, 53.

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Insert Figure 4-1

Figure 4-1. Effects of Dams on Rivers, Fish, and Salmon People

trust resources, although at a certain level some of these ancillary resources fail to be considered as assets in a monetary sense nor is there a United States sanctioned “tribal right” to these ancillary resources; however, they clearly are assets in a functioning ecosystem. Further trust resources for the purpose of this study are minerals, more specifically sand and gravel. Finally, land, and more specifically agricultural land, is a trust resource.

4.2 Federal Laws

The federal government has a responsibility to ensure that wise management of trust resources is conducted in ways that are beneficial to tribal governments and that such management is conducted in ways that adhere to federal laws and related regulations and policies. The federal government has an obligation to ensure that, in making such wise decisions, government-to-government consultations are conducted.

4.3 Cultural Values

Native Americans attach cultural values to resources whether deemed to be of trust status or other resources traditionally used by the tribes, often to the extent that the two (resources and culture) cannot be teased apart. These values manifest as styles, practices, resources, and items, which when passed from generation to generation as traditional knowledge, comprise the identities of native culture. Negative effects on trust resources and other resources traditionally used by the tribes also negatively affect related cultural values.

4.4 Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The Environmental Protection Agency (EPA) has this goal for all communities and persons across the nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.²⁵⁶

Executive Order 12898, signed by President Clinton in 1994 and entitled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” specifically identifies at Section 4-4 the particular risk to populations that rely on subsistence fish and wildlife that may put such populations at higher risk to exposure to pollutants from both accessing and consuming subsistence foods. Implementing strategies identify Native Americans as vulnerable minority populations that require focused environmental justice attention.

Klamath basin tribes have established that their communities along the Klamath River routinely use the river for recreation, transportation, hunting and gathering, fishing, and religion. These activities expose the Klamath basin tribal communities to additional health hazards. Because, as this report demonstrates, any diminishment or avoidance of these hazardous activities has a direct correlation with the decline of Klamath River cultural traditions, avoidance is not a fair or optimal solution,

²⁵⁶ EPA website: <http://www.epa.gov/oecaerth/environmentaljustice/>. Accessed March 8, 2011,

recommendation, or option to place on Native Americans interested in pursuing traditional hunting, fishing, and gathering.

Although this document provides ample information for forming opinions concerning environmental justice and the undue environmental burden that is placed on those whose sustenance, longevity, and identity are connected to the Klamath River, this document does not provide an environmental justice analysis. The reader is directed to the background technical reports produced by the Socio-economic Sub-team and the NEPA Compliance Sub-team.

4.5 Effects of Current Operations on Trust Resources and Cultural Values

Although other historic and current factors, such as mining, timber extraction, agricultural production, and cattle grazing, affect the environmental integrity of the Klamath basin, the current operations of the four dams also have a profound negative effect on the trust resources of the Klamath basin tribes and their cultural values.

Mining activities in the Klamath basin have significantly decreased over the last several decades. Timber extraction in the basin has slowly become controlled by better regulations at the federal and state levels to the point where timber extraction is now better characterized as forest management; however, timber harvesting continues to affect trust resources and cultural values. Although grazing and agricultural practices continue in the upper basin and may still adversely affect trust resources, the effects of dams on trust resources and related cultural values are enormous.

There is a direct cause-and-effect link between current dam operations and water quality. This linkage is established in the Basin Plan for the Klamath River,²⁵⁷ prepared by the North Coast Regional Water Quality Control Board. The FERC EIS acknowledges this linkage. Furthermore, the FERC EIS identified the need for volitional fish passage across the dams and indicated that additional habitat may be made available to the fishery should such costly dam improvements be undertaken. The testimony of the Klamath basin tribes repeatedly speaks to the adverse effects that altered water flows manipulated by the dams for purposes largely related to hydroelectric generation have had on the responses of migrating and spawning fish, which cue their behaviors from river flow and pulsation. Riparian plant species, evolved to thrive in the ebb and flow of a dynamic and pulsating river, no longer respond in predictable ways.

A way of life that has depended on the Klamath riverine environment becomes less effective in predicting and responding to what nature delivers. In a culturally imbued world with diminishing resources, those resources that remain are stressed by further changes. The presence of new invasive species previously unknown to native people interferes with the continued passing down of culture from generation to generation, a process that has historically created a meaningful sense of place and connection to homeland. And in the broader sense, as cultural identity erodes, negative social traits such as alienation and withdrawal increase.

²⁵⁷ North Coast Regional Water Quality Control Board (2011).

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