

RECLAMATION

Managing Water in the West

Resighini Rancheria Tribe Sociocultural/Socioeconomics Effects Analysis Technical Report

**For the Secretarial Determination on Whether to Remove
Four Dams on the Klamath River in California and Oregon**



**U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado**

September 2011

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Acronyms and Abbreviations

ADA	American Diabetes Association
AHA	American Heart Association
BIA	Bureau of Indian Affairs
CDC	Center for Disease Control
CEQA	California Environmental Quality Act
DHA	docosahexaenoic acid
DOI	U.S. Department of the Interior
EIS/EIR	environmental impact statement/environmental impact report
EPA	eicosapentaenoic acid
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
HHS	Health and Human Services
IGD	Iron Gate Dam
IHS	Indian Health Service
KBRA	Klamath Basin Restoration Agreement
KHP	Klamath Hydroelectric Project
KHSA	Klamath Hydroelectric Settlement Agreement
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
UB	Upper Basin
UKB	Upper Klamath Basin
UKL	Upper Klamath Lake
UKR	Upper Klamath River
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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1.1 INTRODUCTION

After years of negotiations, on February 18, 2010, Klamath Basin stakeholders agreed that removing four hydroelectric dams on the Klamath River, restoring habitat, and reintroducing salmon in the Upper Klamath Basin would be the best method for managing Basin water, fish, and other resources to resolve ongoing water supply and quality problems, drought issues, fish kills, and other multiple-use challenges. Two agreements were drafted; the Klamath Hydroelectric Settlement Agreement (KHSA) and Klamath Basin Restoration Agreement (KBRA).¹

Implementation of the KHSA would remove Iron Gate, J.C. Boyle, Copco 1 and Copco 2 hydroelectric dams that prevent coho salmon, Chinook salmon, steelhead, and Pacific lamprey anadromous species from migrating through the lower Klamath River and above Iron Gate Dam to Upper Klamath Basin habitat. The KBRA specifies salmon, steelhead, and lamprey reintroduction and habitat improvement programs in the Upper Klamath Basin that are expected to benefit all native fisheries in the entire Klamath River and some ocean fisheries. The KBRA benefits would occur in large part through water management agreements that would provide more reliable water supplies for irrigation in agricultural communities and fish habitat in the National Wildlife Refuges. Although the KHSA and KBRA are separate agreements, the success of each agreement depends on mutual implementation which is the assumption throughout this technical report. The agreements specify that actions would occur during the next 50 years, with dam removal beginning in 2020, and most KBRA actions beginning in 2012, provided approval is granted to proceed from the Secretary of the Interior since implementation must be determined to be in the public interest.

This technical report is supporting socioeconomic documentation focused on the Resighini Rancheria Tribe that will be used to assist the Secretary of the Interior in making a determination whether to proceed with implementing the KHSA and KBRA. There are similar individual socioeconomic technical reports for other Basin Tribes, including the Klamath Tribes, Karuk Tribe, Yurok Tribe, and Hoopa Valley Tribe. The tribal technical reports will be used as supporting documentation for the *Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information*, and the *Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Report (EIS/EIR)*, August 2011, that evaluated impacts of KHSA and KBRA.

¹ Signatories in the KHSA and KBRA included the States of California and Oregon, the Klamath Tribes, Karuk Tribe, Yurok Tribe, and representatives of more than 50 organizations, including counties, irrigators, conservation and fishing groups, and others.

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Methodology primarily included issue identification from meetings with the Resighini Rancheria Tribe, materials provided by the Tribe, information from the FERC record, and other sources listed in the bibliography. Members of the Economics Subteam attended meetings with the Yurok Tribe concerning potential trust resource, socioeconomic, and contemporary cultural impacts on the following dates: August 31, 2010 (socioeconomics only) and January 25, 2011 (trust resources government to government). Year 2000 (and 2010 when available) Bureau of the Census data was analyzed for most of the economic and demographic conclusions. Information from the FERC Record was consulted as well as other background documents, reports, and books.

This document is divided into two main sections; affected environment and environmental consequences.

2.1 AFFECTED ENVIRONMENT

The first part of this section discusses Resighini Rancheria Tribal history, followed by the present conditions portion organized by the following indicators: Fisheries, economic conditions (primarily income and employment), and health. Tribal trust resources are analyzed in two reports: *Current Effects of PacifiCorp Dams on Indian Trust Resources and Cultural Values: Background Technical Report Informing the Secretarial Determination Overview Report*, (BIA, June 2011a), and *Current Effects of PacifiCorp Dams on Indian Trust Resources and Cultural Values*; and *Potential Effects of Implementing the KHSA and KBRA on Indian Trust Resources and Cultural Values* (June 2011)² (BIA, June 2011b). Trust resource aspects are mentioned in this report when applicable.

The Resighini Rancheria Tribe is a federally recognized Tribe comprised of Yurok people in California with about 130 members. The Resighini Rancheria is in a reservation within a reservation because it is surrounded by the Yurok Indian Reservation.

Potentially affected Resighini Rancheria trust resources include Rancheria reserved ground water rights, mineral rights (gravel), and real property (as land sloughs off with unnatural hydrograph); although the Resighini have no reserved fishing rights, socioeconomic and health effects are relevant:

“...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

² Prepared for BIA by North State Resources, Inc.

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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. 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.” (BIA, June 2011a, pp. 3-17 to 3-18).

The Resighini Rancheria consists of roughly 239 acres next to the Klamath River in the outskirts of the town of Klamath. The Resighini Rancheria is located within a small portion of the total Yurok aboriginal lands or ancestral territory (figures 2-1.1 and 2-1.2).

Concerning the affected environment and socioeconomic conditions, the Yurok Tribe described the ancestral territory (which includes the Resighini Rancheria) as economically disadvantaged with problems of food insecurity. The Yurok Tribe believes that it, Resighini, and other Klamath Basin Tribes have endured disproportionate socioeconomic costs of the KHP:

“For the Yurok Tribe, the affected environment is the Tribe’s ancestral territory as well as those areas within the external boundaries of the YIR...The economic conditions on the Reservations in the downstream subregion are significantly worse compared to those in the downstream counties; likewise, Tribes suffer significantly greater poverty and food insecurity than the surrounding non-Indian communities in the downstream subregion. Thus, economically disadvantaged Native American communities have born the disproportionate socioeconomic costs of the Project resulting in the decline of the fishery and the decline or loss of numerous traditional cultural species resulting from altered riparian conditions caused by the Klamath Hydroelectric Project dams and current conditions.” (Sloan, February 2011, pp. 83-84).

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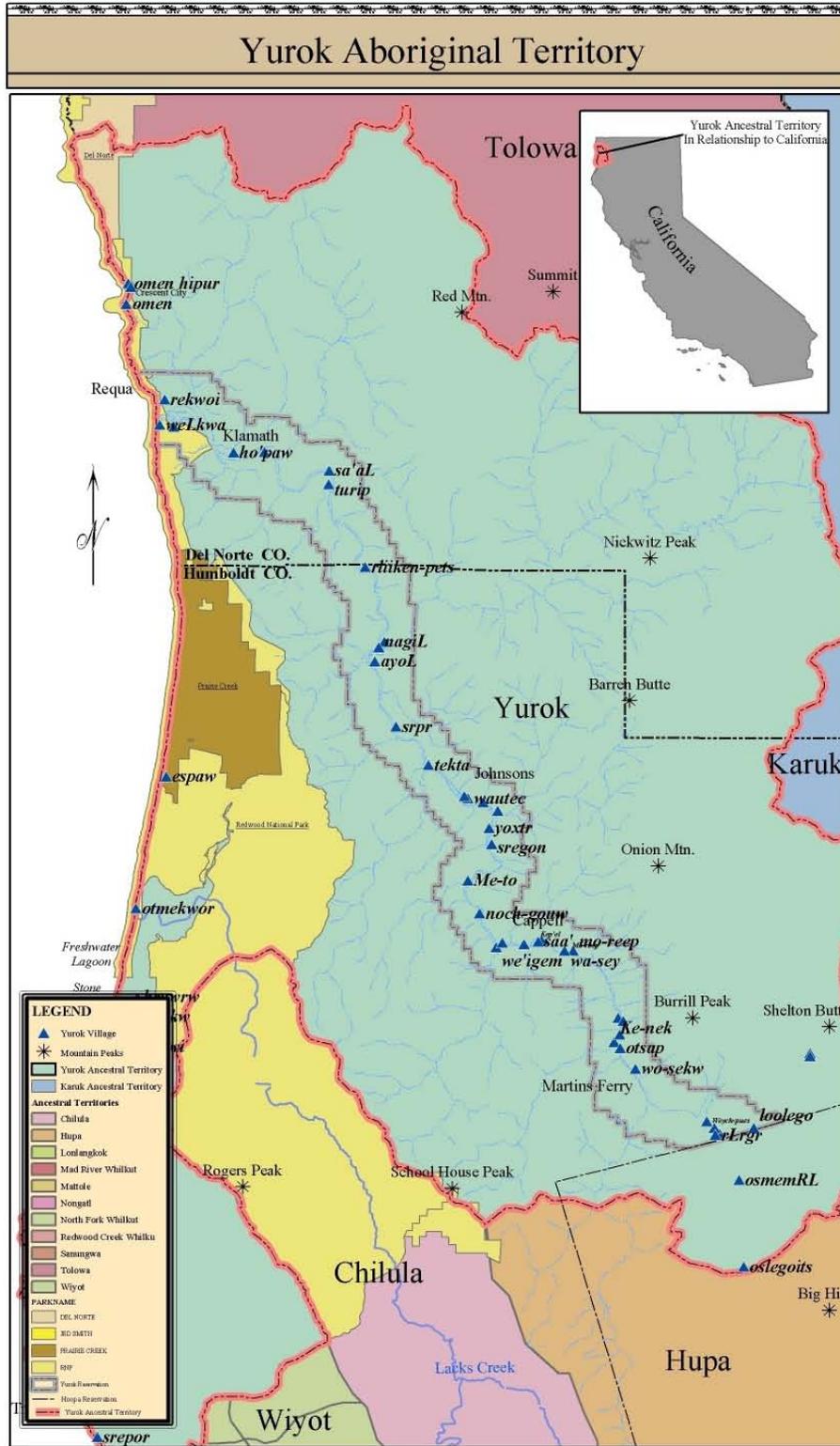


Figure 2.1-1.—Yurok Tribal depiction of its ancestral territory. (Map is from Sloan, February 2011, p. 6).

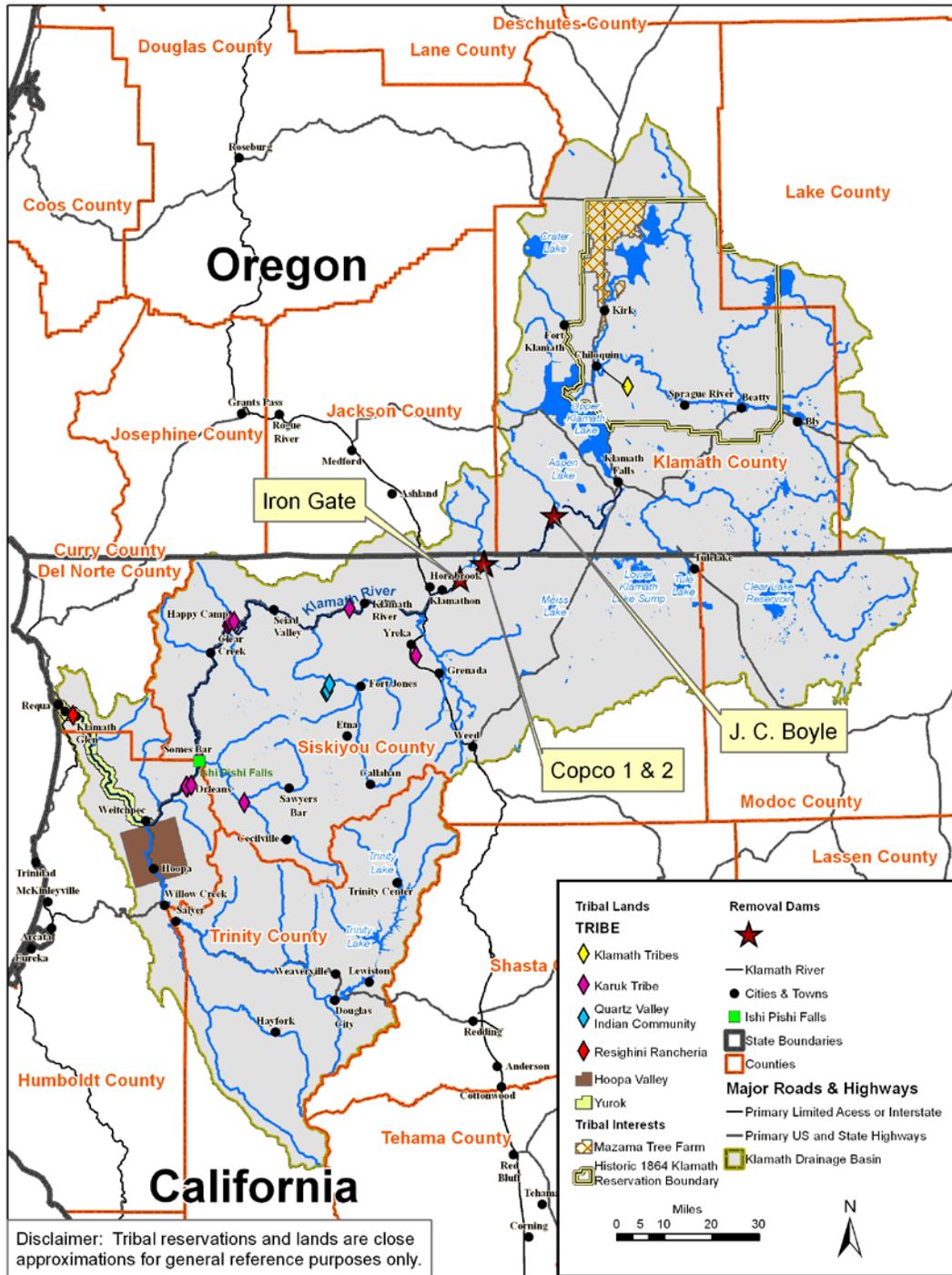


Figure 2.1-2.—Present day Tribal lands.

Indeed, unemployment rates are about two to four times higher for the Resighini Rancheria than for non-Indians in the area, County, and State; per capita income was the lowest of all areas for which comparisons were made which has meant that a subsistence lifestyle is an important need. Declining anadromous fish stocks since construction of Copco 1 were exacerbated by construction of Iron Gate Dam in 1962 when populations declined further, particularly spring-run Chinook, and water quality became noticeably worse.

The Resighini people still consider themselves to be a fishing people and continue associated cultural practices and values:

“Like our ancestors, we continue to encourage members to practice traditional Yurok customs, traditions and religious beliefs. The passing on of tribal knowledge and family history from the old to the very young is very important. Some of our Tribal members are recognized as gatherers of basket materials such as willow roots, ferns, hazel sticks, of food such as acorns, berries and Indian tea...[and] makers of ceremonial dresses and dance regalia, or fishermen of salmon, sturgeon and eels. With that in mind some loan their items with pride to the local dance ceremonies of their regalia and give salmon and acorns to people they believe are in need of them.” (Resighini Rancheria, undated).

2.1.1 Yurok and Resighini Rancheria Tribal History

History explains current socioeconomic, sociocultural, and related conditions for any population, as is the case for the Resighini. Federal and California State Indian policies, development, and settlement drastically reduced Yurok aboriginal or ancestral lands from the area shown in figure 2.1-1 to roughly 5,700 acres for the Yurok Indian Reservation and about 239 acres on the Resighini Rancheria today.³ Additionally, subsistence fishing has diminished largely as a result of the dams, and because of unfortunate historical events, Resighini Rancheria Yuroks do not have reserved fishing rights (BIA, June 2011a and June 2011b).

Klamath Basin Tribes are located in the southernmost area of the northwestern ‘salmon culture’ that stretches north to Alaska, along with its trade network. The Yurok were historically known as the Pohlik-la, Ner-er-er, Petch-ik-lah and Klamath River Indians. The Yurok describe their past as extending thousands of years prior to non-indigenous contact with about 72 ancestral village sites, and Yurok people continue to live on about 44 village sites along the Klamath and Lower Trinity Rivers today. Other village sites are located along part of the coastline south of the Klamath River estuary in present-day Del Norte and

³ Acreage estimate from BIA, 2011a.

Humboldt Counties in northwestern California.

The Yurok thrived as a salmon culture with supplemental hunting and gathering in their aboriginal territory until Euro-American contact. A general timeline of major events and milestones are summarized in attachment 1. The Spanish were the first explorers to Yurok territory as early as the 1500s, according to the Tribal accounts, and many more in the early 1700s, followed by fur trappers and traders in the early 1800s. Gold-seekers and miners surged into the area around 1850 and had a negative effect on the Yurok Tribe, as did the associated Federal military actions and State Indian policies, followed shortly by settlers and ranchers. Conflicts with Euroamericans, then large-volume salmon canneries, KHP dams, other development, and a State ban on Yurok fishing for decades made maintaining a traditional lifestyle and their salmon culture challenging (BIA, June 2011a; Heizer, et. al., 1978). As a result of corruption, confusion, and neglect when treaties were written, the Yurok Tribe ultimately was forced to engage in court battles to affirm legal and open use of their federally recognized rights to fish which placed it at a significant disadvantage from the 1930s to the 1970s, and Resighini still currently does not have reserved subsistence fishing rights. The Rancheria went through termination of Federal recognition in the late 1960s and early 1970s which was another major social, cultural, and economic disruption.

This section discusses the most relevant aspects of Yurok and Resighini history up to the present, including over-arching socioeconomic and sociocultural changes in salmon cultural practices and traditional food uses that were central through Yurok aboriginal times, reservation era, Copco Dam construction, pre-Yurok Government/Iron Gate Dam, and Tribal Federal recognition period.

2.1.1.1 Aboriginal Period (Pre-1850 Conditions)

The Yurok word for fish indicated their vital importance for survival:

“...the Yurok word ‘*ne po y*’, “that which is eaten.” ‘*Ne po y*’ denotes more than ‘fish’, but also includes connotations of Yurok reverence for a creature that provides sustenance to a people and way of life. Thus, *ne po y* reflects the Yurok reverence for a creature of the river and an explicit recognition that it sustains their people and way of life.” (Sloan, February 2011, p. 38).

The Yurok people lived in many small villages in three major regions that they still refer to in present times in their ancestral lands that shared a common culture, but did not necessarily view themselves as a single tribe; the upper region of the Klamath River (the Petch-ik-lah people), lower region of the Klamath River (Pohlik-la people), and the coast (Nr’r’nr people). The three groups have come to be known as the Yurok, which is the Karuk name meaning ‘downriver.’ (Sloan,

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February 2011, p. 7).

Yurok Tribal members and others have described Yurok existence and the importance of the Klamath River fishery and cultural, social, and economic roles it played:

“The Yurok Tribe, its history, culture, identity, spirituality and economic survival have always relied upon the Klamath River. The dependence and interdependence of the Yurok on the River and its resources cannot be overstated. It has always been and remains the central feature in Yurok life, ceremony and traditions. Reliance on the Klamath River fishery is not simply for economics, but most importantly for subsistence and cultural survival. Prior to the arrival of non-Indians into the region, the Yurok Tribe was considered one of the most prosperous and wealthy tribes in the area. This wealth was a result of an abundant year-round fishery that provided the basis for the entire Klamath River tribal economic system. Fish were traded and sold to neighboring tribes for a range of resources used in daily and ceremonial life. Abundant food provided by the year-round fishery allowed for the development of a highly developed social and economic system that was reinforced through a highly structured ceremonial and cultural cycle that still persists today.” (Sloan, February 2011, p. 3).

2.1.1.1.1 *Aboriginal/Ancestral Territory*

Yurok ancestral territory included about 54 known villages along the Klamath River and additional villages along about 90 miles of the coast line, as depicted by Sloan in figure 2.1-1 (Sloan, February 2011, p. 6). The Yurok believe they were created in their ancestral lands.(Sturtevant, et. al., 1978).

2.1.1.1.2 *Socioeconomic Aspects*

Socioeconomically, the River provided the Yurok with many runs of fish, particularly salmon, and riparian vegetation for basketry and other cultural uses and as traditional food sources. The Yurok had an economy with currencies and were part of a regional trade network.

As with other Tribes in the Northwest Culture, the Yurok placed a high value on wealth and had a complex, stratified social structure an economy replete with several forms of currency, primarily dentalia, with prices and fees for most activities and goods in its society (Pilling, et al., 1978; Sloan, February 2011). For example, there were (and still are) family rights to fishing spots, and if the ‘laws’ were not honored, payment would be required, governed by rules or laws.

Resource management has been of great importance to the Yurok people as it ensured continuance of everything they relied upon. The Yurok used a wide

range of resource management techniques, many of which are retained today, including such fishing-specific management methods as weirs, scaffolds, platforms, and associated ceremonies:

“Because of the rivers' importance, one of the Tribe's highest priorities is to protect and preserve the resources of the rivers, and in particular, to restore the anadromous fish runs to levels that can sustain Yurok people. When the original Klamath Reservation was established in 1855, the rivers were filled with abundant stocks of salmon, steelhead, eulachon, lamprey, and green sturgeon. Today, the abundance of fish in the Klamath River and its tributaries are only a small fraction of their historic levels. Many species of fish have gone extinct, many other species, such as fall Chinook, are in serious trouble.” (Sloan, February 2011, p. 4).

2.1.1.1.2.1 Fishery Species, Runs, and Fishing Methods

The Klamath River has been the lifeline for salmon, a Yurok staple:

“Salmon, or nepū'i, meaning “that which is eaten” is one of the primary food sources for the Yurok, the other being acorns. Salmon is obtained during the annual runs by erecting a fish weir across the river, which provides salmon for people in surrounding villages. One location where fish weirs are erected include near the village of Kepel.” (Sloan, February 2011, p. 8).

An abundance of shellfish, salmon, sturgeon, eel, candlefish (or eulachon), surf fish, deer, elk, sea lion, and acorns allowed sedentary living and fish were caught using various methods. Salmon and lamprey were dried and lamprey were prized for their grease (Pilling, 1978, p. 137):

“Fish were taken with dip nets, seines, set gill nets, and harpoons. The dip net, or lifting net, was let down from a scaffold built out over the water, nearly always at an eddy or back water. Here the fishermen sat on a block or small stool, holding the bone button of the string which closed the entrance to the cone-shaped net stretched out in the current. This net was hung from the bottom of a long A-shaped frame with a bottom crossbar. The whole was hauled out as soon as a pull on the cord had enclosed a salmon, which was then hit on the head with a club. A single night's operation sometimes produced a hundred salmon. At other times, a man would sit for half a day without netting one. Lampreys were much prized by the Yurok for their grease. They, as well as sturgeon, were taken in the same manner, but with a net of a different mesh. Both salmon and lampreys were split for drying. Most of the fish were smoked and packed in old baskets as strips or slabs. Surf fish were sundried whole and hung from poles in rows. A long net was sometimes set for sturgeon....The salmon harpoon had a slender shaft, sometimes in excess

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of 20 feet in length.” (N.P.S., accessed February 2011, pp. 8-9).

“Landing, lifting, flat, and cylindrical nets are used to take a variety of fish. Trap baskets are used to catch eels. Mesh size was determined by the size of fish taken. Some nets were equipped with trigger mechanisms that trapped incoming fish. River & ocean going boats, nets hooks, lines, rope, sinkers, bait, harpoons, clubs fishing baskets and carrying baskets are just some of the technological adaptations employed by the Yurok to assist in the taking of fish.” (Sloan, February 2011, p. 39).

Spring Chinook was a vital run of fish, as early anthropologists observed:

“The particular importance of Spring Chinook salmon for tribes in the region is noted by early anthropologists (e.g., Gunther 1926; Rostland 1959). Swezey and Heizer note that, ‘Those native populations to whom anadromous fish were either the most important or a major staple in the food economy almost exclusively inhabited river drainages in which the spring salmon run occurred... With the exception of the coastal streams south of the Klamath, it appears that the most important and productive fishing areas in native California were those which could rely upon an assured and abundant early spring run of king salmon (1993, 304-305).’ (Norgaard, November 2005, p. 32).

2.1.1.1.2.2 *Redistribution and Trade*

Despite social stratification and the emphasis on wealth, Yurok culture placed a high value on sharing as a social responsibility:

“As the fishers in their village, it was important for the eelers to give away most of their harvest to other community members, especially elders. “ (Lewis, 2009, p. 20).

Trade in the region was an important cultural, social, and economic activity for which the Yurok and regional tribes used currencies:

“The extensive trade network in the Northwest culture was well established prior to Euroamerican contact, and allowed for alliances among tribes and supported socioeconomic societal structures as well as an exchange of goods. One of the primary indicators of trade and exchange both on the River, and up the coast, was the importance of shell money, or dentalia in Yurok society. Yurok men would often have a special tattoo on their forearm for the sole purpose of measuring lengths of dentalium. These shells are indicative of wide trade and exchange because they originated offshore of Vancouver Island. The use of dentalia as currency on the Klamath River beyond Yurok territory indicates the trade networks along the river were quite extensive (Davis 1963:7). Other common trade goods exchanged between Yurok and their upriver neighbors, the Karuk and the Shasta included obsidian,

coastal shells such as Olivella, clam, mussel and abalone, tobacco seeds, juniper beads, white deerskins, woodpecker scalps, sugar pine nuts, elk antler, baskets, redwood canoes, acorns, salt, and seaweed (Davis 1963:49-50).” (Sloan, February 2011, pp. 38, 42).

Although most people today consider aboriginal plant use, including basketry, to be primarily cultural, it was (and remain to a large extent) as much economic in nature because they were necessities for daily life and were among goods, like salmon, that could be traded. Basketry, bow and arrow making, and many other food and cultural uses of lower Klamath River plants were and still are vital to Yurok people, and remain important today. For example, it is known that after a flood, willow-root basket materials are best gathered in a straight narrow section of the river where a flood’s raging waters have scoured the roots:

“The river is also lined with numerous gathering areas associated with plants adapted to flow levels of the river. Various plants are used as food and material to make ceremonial regalia, baskets, cloths, houses, boats, nets, and other everyday household utensils. For example it is well known that a specific type of willow root is best gathered in long narrow stretches of the river where the rivers scouring effect exposes the material sought. There are also places along the river where weavers traditionally meet to avoid the hot summer sun and weave together. A wide variety of plants, for food, materials, and medicines were gathered along the riparian zone of the Klamath. Numerous species of berries grew along the banks of the River. Plants and roots used for basketry were collected along the River and along tributaries. Plants used for medicines and ceremonies grew along the riparian zone and were gathered for specific purposes by medicine women and ceremonialists (Curtis 1924). Resource areas used for gathering plants for food and materials were often owned by families or individuals. Driftwood along the river, root-gathering areas, seed gathering areas, tobacco plots were resources that were owned by families and individuals (Pilling 1978:147)... According to Mead, Yurok used over 13 species of plants in basketry, both in the construction and design of a basket. Four plants were used as dyes for basket materials (Mead 1971:64). Mead further identifies six different stems, and kinds of roots, and one type of leaf used in Yurok basketry (Mead 1971:66). Many of these roots and stems were gathered within the floodplain of the River, along the shore or from the exposed banks.” (Sloan, February 2011, pp. 35-41).

2.1.1.1.3 Sociocultural Aspects

Yurok culture has always had the Klamath River the central element:

“Practically every function of the Yurok way of life is associated to the river: The origination of fish, proper methods for taking fish, how the river is to flow, death passage ceremonies, locations for fish dams and

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ceremonies all reflect the bond between the river and the Yurok people. It is essential that the river be maintained at a level that provides relevance to the young Yurok mind that hears these stories...[For example] Several stories with translated titles such as, “Origin of Death” and “Death and Purification,” indicate the location of eighteen rocks along the Klamath River which are central to the death purification ceremony of the *Woge*. Specifically, when the Yurok transport a corpse along the River they must speak to the *Woge* spirits that live in these rocks.” (Sloan, February 2011, pp. 30-33).

Klamath Basin tribes have held ceremonies for centuries around the timing of two runs of Chinook salmon: Spring and fall run. The World Renewal, or Deerskin Ceremony with first salmon ceremonies as components celebrated the return of Spring Chinook salmon that were performed in coordination with the upriver Karuk Tribe. Celebration of the spring-run salmon was important for Yurok people and their culture, but it also played a critical role in fisheries management by ensuring that sufficient numbers of spawning spring-run Chinook salmon made it up the River to spawn. Ceremonies surrounding arrival of the salmon were conducted around April when the Spring Chinook first appeared at the mouth of the Klamath. The Jump Dance Ceremony was held to support and heal ailing children. The Cappell Dam was of most importance because it signified the beginning of the dance cycle and First Salmon Ceremony. Yurok ceremony and fishing locations occurred in particular villages along the Klamath River and coast:

“Although there were villages all along the river and coast, a village of great importance would have several other villages in close proximity in a concentrated area. An example of this is at the confluence of the Klamath and Trinity Rivers where there were three villages, which in the 1850s had a population of about 200 (Bearss, 1969:1). The largest of these three villages was We’itspus, meaning “confluence.” This village was of extreme importance because it held a World Renewal Ceremony, also known as the White Deerskin Dance. This is one of several important ceremonial dances in the Yurok religion because its purpose is to renew or maintain the health of the world. The location of the village of We’itspus is on the north bank of the Klamath River and directly across from We’itspus, on the other side of the river was the village of Rlrgr. Similarly in the middle course of the river is the village of Pecwan, located just downstream of Pecwan Creek from where the creek flows into the Klamath River. This is a village of great importance and wealth because Pecwan was a location for another major ceremony, the Jump Dance, which continues to be performed there today. The other villages in close proximity to Pecwan moving downstream on the northern bank are Qo’tep, Woxtek, and Woxhker. The final example of a concentration of villages is at the mouth of the Klamath River. On the northern slope of the hill ascending above the mouth is the largest Yurok settlement of Re’kwoi. In 1852, Re’kwoi had 116 residents and is another location for a Jump Dance (Bearss 1969:2). Just across the river

on the southern side is the village of Welkwa. This village is the site of the annual Salmon Ceremony, which is performed to remove the effect of the taboo on the run of spring salmon (Waterman 1920:228).” (Sloan, February 2011, p. 8).

An early anthropologist, Kroeber, documented the importance of salmon and the Klamath River to Yurok culture, in their religious beliefs, and fishing methods and observances:

“The anthropologist Alfred Kroeber traveled throughout the Yurok’s territory in the early 1900’s interviewing Yurok people and documenting the tribe’s way of life. Of the 169 stories which Mr. Kroeber presents in his book Yurok Myths (Kroeber 1978), 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. Much of Yurok knowledge and belief about the river and its resources are held in their stories.]...as recorded by Kroeber (1978), tells of how the reverence for fish and creator provided the Yurok not only with abundance of salmon, a place for salmon and people to inhabit (the River), that explains the proper etiquette and moral responsibilities of salmon and people. The story *The Salmon and Koowetsik* depicts the [reason for and] location of where the first salmon originated (Kroeber 1978).” (Sloan, February 2011, pp. 29-31).

The First Salmon Ceremony occurred in early spring which signaled the beginning of the fishing season and construction of the fish dam at Cappell:

“The Cappell Dam was of utmost importance because it signified the beginning of the dance cycle [and Spring Chinook run]. Many stories center around the fish dam and the importance of proper ceremony and medicine in its construction and the taking of fish.” (Sloan, February 2011, p. 32).

“In the early Spring, the first salmon to enter the Klamath River was speared and ritually eaten by medicine men. This event traditionally signified the beginning of the fishing season for the Yurok. The ritual also marked the scheduling of the construction of the fish dam at Cappell located thirty-three miles from the river’s mouth on the Pacific. The fish dam was constructed in conjunction with ceremony and sanctified the taking, distribution and consumption of salmon. Salmon are ritually managed to assure that the Yurok people are all provided for, that up-river people are assured a percentage of the fishery and that enough fish are allowed to re-populate the species. While there still remains a general reverence for salmon, without proper ceremony a strong belief prevails that the salmon will not return in sufficient numbers. All other

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ceremonies were scheduled after the fish dam construction ceremony took place. The Yurok have many ceremonies in common with the Hupa such as the Jump ceremony and the White Deerskin ceremony. An integrated part of the White Deerskin Ceremony is the Boat Dance Ceremony. The River is central to all these ceremonies.” (Sloan, February 2011, p. 45).

2.1.1.1.4 Aboriginal Diet

The Yurok diet consisted primarily of game animals, acorns, most surf and Klamath River species, particularly salmon, and included edible riverine plants.

Norgaard’s research found that salmon consumption was estimated to be about 1.2 pounds per day per person and comprised about half of the Karuk diet, and the same assumption is made for the Yurok people for the purposes of this analysis as an estimate:

“Salmon is estimated to have made up to close to 50% of the energy and total protein in the pre-contact diet of the Karuk (Hewes 1973).” (p. 2).
“It has been estimated that the Karuk people historically consumed about 450 pounds of salmon per person per year or 1.2 pounds per day.” (Norgaard, November 2005, p. 13).

Yurok Tribal research indicated that salmon and other species fisheries were abundant and assumed to be consumed in large amounts on average, and were managed efficiently to assure continued abundance:

“Despite variations in the size of the semi-annual runs, in times past, the tribes could typically procure enough salmon for their people. The abundance of fish once supported by the region’s rivers is well documented, with stories that recount the challenge of fording the Trinity, and even Klamath River, because the salmon runs were so thick. It is estimated that prior to non-Indian settlement along California’s North Coast, the region’s Indians consumed over 2 million pounds of salmon annually from runs which are believed to have exceeded ½ a million fish (EIS Indian Fishing Regulations, 1985). Fishing by the Hupa and Yurok had one of the highest yield-to-effort ratios (i.e. was the most efficient) of any subsistence undertaking in all of North America (Swezey & Heizer, 1977). This was due not only to the abundance of fish, but the various fishing techniques developed by both tribes (USFWS et al 2000)... The continual bounty of salmon (as well as steelhead, sturgeon, lamprey and other fish species) available to the region’s tribes prior to European settlement, has not been attributed to sparse human population or poor fishing technology, but management. These cultures have always recognized the potential humans have for damaging ecosystems.” (Sloan, February 2011, p. 54).

Today's elders recall traditional foods that their grandparents taught them and their parents about, including those to be kept on hand as important rations, and with knowledge of the higher nutritional value, they urge Yuroks of today to continue the practices:

“Traditional foods like smoked salmon, seaweed and swamp tea make great safety provisions because they have a high nutritional value and keep well. Raymond Mattz, Yurok elder. (Yurok Tribe, March 2011).

Prior to the KHP and other development, salmon and steelhead began their runs at the estuary and up the Klamath River in consistent, predictable species-distinguishable pulses throughout the year, and quotes below show that this occurred, but the spring-run was already being affected—about 13 years after construction of Copco Dam:

“The major run was that of the spring salmon. Snyder quotes from G.R. Field: ‘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 (Snyder, p.19). Spring salmon are said to have lingered in the vicinity of spawning beds until they mature and then spawn with the fish of later runs. They were also known as “silvers” due to their bright colors that gradually become indistinguishable from the coloration of other migrations in the period prior to spawning, having matured in the vicinity of the spawning beds.’ By the time of Snyder’s writing in 1931, the spring run had declined from being the major run to the point that he characterizes it as being of “relatively little economic importance” (Salter, 2003, pp. 13-14)

Initial lamprey runs for the season occurred before and during initial salmon season, around February, and was an abundant, important nutritional food, particularly for the elderly; lamprey also meant food security. It remains nutritionally important today, especially for elders.(Lewis, 2009, p. 19).

2.1.1.2 Reservation Period (About 1850 – 1910)

Between about 1850 and 1910, the Yurok people were engaged in, or recovering as best they could from war with Euroamericans, disease, and outside pressures to assimilate into mainstream society. The aboriginal Yurok population was estimated at 2,500 in 1770, which dropped to about 700 by the end of this period due to conflicts with non-Indians and disease (Kroeber, 1925, p. 888) (Heizer, 1978, pp. 701-704) (Greacen, May 1997). By the end of this period, mining became less profitable and miners declined in numbers, but canneries were established near the mouth of the Klamath River and the Yurok opposed non-Indians taking salmon.

Western education in the form of boarding schools was imposed on Yurok children beginning in the late 1850s at Fort Terwer and Wauk-ell until the 1860s when the Fort and Agency were washed away in a large flood. Yurok children, sent to live at the Hoopa Valley Reservation, continued to be taught by missionaries who often abused Yurok children when they spoke Yurok and attempted to practice cultural and ceremonial traditions. In the late 1800s, children were sent to boarding schools in Chemawa in Oregon and Sherman Institute in Riverside, California. Use of the Yurok language decreased dramatically by the early 1900s (less than 40 years) when it was near extinction. It took another 70 years for the Yurok people to bring back their language (Yurok Tribe, 2007, pp. 9-11).

“Today, many elders look back on this period in time as a horrifying experience because they lost their connection to their families, and their culture. Over time the use of boarding schools declined and day schools were established on the Yurok Reservation....The fact that they were at day schools did not eliminate the constant pressure to forget their language and culture...Eventually, Indian children were granted permission to enroll in public schools. Although they were granted access, many faced harsh prejudice and stereotypes. These hardships plagued Indian students for generations, and are major factors in the decline of the Yurok language and traditional ways. The younger generations of Yurok who survived these eras became strong advocates (as elders) for cultural revitalization. The Tribe continues to increase the number of language classes taught on and off the Reservation, at local schools for young learners and at community classes.” (Yurok Tribe, 2007, pp. 9-11).

In terms of selecting land for area tribes, the Yurok Tribe emphasized an example when the importance of salmon and the river was recognized in history:

“The United States’ original recognition of the central importance of rivers and fish to the Indian people of the Klamath-Trinity region is exemplified by the very shape and location of the lands first set aside for their reservations. The Secretary of Interior’s own instructions at the time

were, ‘to select these reservations from such tracts of land adapted as to soil, climate, water privileges, and timber, to the comfortable and permanent accommodation of the Indians.’ In 1855, Indian Agent S. Whipple’s, when speaking of the Yurok, noted that ‘The river is abundantly supplied with Salmon. A fine large fish quite easily taken by the Indians and which is very properly regarded by the Indian as his staff of life.’” (Sloan, February 2011, p. 10).

2.1.1.2.1 Treaties

It was between 1851 and 1852 that 18 treaties were negotiated with various California tribes, including the Karuk, Hoopa, and Yurok, for the purpose of avoiding further conflicts and that promised over 7 million acres of land which angered non-native Californians to the extent that the treaties were never ratified:

“The treaty-making venture of 1851-1852 carried out by McKee, Wozencraft, and Barbour was intended to reduce the Indian-White confrontation on the California frontier, [primarily]..either in the gold-mining regions...or along the main lines of communication. The treaty commissioners were unable to do more than promise the Indians they made treaties with that the government would soon establish a reservation where they would be fed [and] protected...promises that were never honored...Much of this wantonly destroyed humanity and a great deal more of native culture would have survived if the California Indians had been protected on the reserves stipulated in the 18 treaties. But with the failure of the U.S. Senate to ratify the very treaties that they had authorized, the California Indians...were helpless (Heizer and Almquist 1971:23-64, 120-137). In the history of California Indians no other single event (that is ‘nonevent’) had a more rapid destructive effect on their population and culture than the about-face that the Senate made between authorizing President Fillmore on September 30, 1850, to make treaties and its failure on July 8, 1852, to ratify those treaties.” (Heizer, et al, 1978, p. 704).

Although there has been a great deal of confusion about which tribe was party to which treaty pertaining to various geographic areas, of the 18 treaties, the Yurok were parties to an 1851 Treaty with the Poh-lik-lah or Lower Klamath, Etc., (also known as Treaty Q) signed between the U.S. Government and Klamath River Indians under the direction of McKee (attachment 2).

2.1.1.2.2 Executive Orders (EO)

Although the 18 treaties were not ratified, issues concerning non-Indian and Indian conflicts and welfare remained, so in 1853 and 1855, Congress authorized the President to set aside seven ‘military reservations’ for all California Indians with the intention of providing them houses and a means of livelihood through farming and raising cattle (Heizer, et.al., 1978).

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One of the seven ‘military’ reservations was the Klamath River Reservation (not to be confused with the Klamath Reservation in Oregon) created in 1855 (attachment 2). It was a strip of territory that began at the Pacific Ocean and extended one mile in width on each side of the Klamath River for a distance of about 20 miles. The Klamath River Reservation was created from a small portion of Yurok aboriginal territory, however it was the intent of the Federal Government to move regional Indians to the Reservation. Ultimately only some Yurok and Tolowa were actually moved, and the forced relocation of Yurok families was described by the Tribe as traumatic (Yurok Tribe, 2007; Heizer, et al., p. 704; DOI, BIA, June 2011a).

The Yurok Tribe’s historical perspective emphasizes the acknowledgement at the time of the vital importance of the Klamath River, its fisheries, and surrounding vegetation to the Tribe:

[In a letter] “...to the Commissioner of Indian Affairs by Special Agent Whipple, the first Indian Agent on the Klamath River Reserve. [he] clearly describes several aspects of Yurok land use and their relationship to the River. In recommending the reservation boundaries extend five miles away from the River, Whipple recognized the Yurok use of the entire watershed associated with the River. He also describes the Lower Klamath as the best salmon fishing grounds in northern California. Whipple describes large alluvial terraces along the floodplain of the River that were used to gather a wide variety of plants, roots, and berries for food and supplies (Whipple 1855).” (Sloan, February 2011, p. 10).

In 1864, the Hoopa Valley Reservation was established for the Hoopa Valley Tribe, the Karuk Tribe, and some others. It was a 12 mile square bisected by 15 miles of the Klamath River. A June 23, 1876 EO formally defined the Hoopa Valley Reservation borders (attachment 2).

An October 16, 1891 E.O. was signed by the President that ‘extended’ the Hoopa Valley Reservation. As a result of the 1864 Act, the 1876 E.O. and the 1891 E.O. laws, the Yurok Tribe lived with the Hoopa Valley Tribe on what was considered the Hoopa Reservation until 1988 when the Hoopa-Yurok Settlement Act designated the separate ‘strip’ as the Yurok Reservation (attachment 2). However, throughout all land control changes, Yurok people continued to predominantly occupy ‘the strip,’ as opposed to Hoopa Tribal members, but non-Indians gained much of the land that displaced some Yuroks.

2.1.1.2.3 Socioeconomic Conditions

The General Allotment Act of 1887 (and Act of 1892) declared all unallotted land to be public land available for homesteading, (Tiller, 2005; Yurok Tribe, 2007). The Yurok Tribe described the consequences of losing their lands, which included paying taxes and the incursion of timber interests that led to the checkerboard

pattern of ownership that has remained largely unchanged up to the present:

“This act [1887] authorized any unallotted lands to be put out to public domain for sale or settled in accordance with the existing federal laws...Of the estimated 55,000 acres of Yurok Reservation land, less than 30,000 acres were allotted to Indian people living on the Reservation. The majority of the remaining acres were turned over to public domain. In the following years, Indian land ownership consistently declined. As lands were taken out of allotment and placed into fee patent, Indian people struggled with the burden of paying taxes and maintaining their family home sites. In some instances allotments were exchanged for employment opportunities, while other lands were outright swindled by settlers. The allotment era ended in 1934 with the passage of the Indian Reorganization Act. By this time...many of the lands had already been removed from Indian control and held privately by timber interests.” (Yurok Tribe, 2007, p. 14).

Another description of the authority and processes for land transfers and purchases that led to the loss of Indian land within the reservation:

“On June 25, 1892, President Harrison signed a bill passed by Congress to open the reservation for non-Indian settlement. The bill declared all surplus lands open to settlers, “reserving to the Indians only such land as they require for village purposes” (McBeth, 1950:48; Bearss, 1969). The process of assigning Indian allotments within the reservation took two years. After decades of conflict, the Klamath Indian Reservation was legally opened up for non-Indian settlement on May 21, 1894 for homesteading (McBeth 1950:48; Bearss 1969). As a result, many Yurok people were displaced from their traditional villages along the Klamath River. Many Yurok relocated to the Hoopa Valley Indian Reservation and continue to live there today.” (Sloan, February 2011, p. 12).

In 1879, the military attempted to remove settlers and end illegal fishing, but without success. A cannery was developed at the mouth of the Klamath River that began harvesting salmon that the Yurok and other tribes relied upon (Greacen, May 1997; Most, 2006). Yurok fishermen worked in a Requa cannery in the 1890s which signaled a partial shift for some Yurok from an entirely subsistence lifestyle to a wage based economy (Greacen, May 1997). Sloan described the Yurok role and view of non-Indian commercial fisheries and canneries:

“The first non-Indian commercial fishery for Klamath and Trinity chinook was established in 1876 on the lower Klamath River. The first cannery was started at Requa in the late 1880's. While non-Indian settlement and commercial fishing in the region began to erode the Yurok's ability to live in their traditional ways, they adapted as best as they could to the new economic opportunities that were created (Bearss 1969). The canneries themselves were not owned by the tribes; however,

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all of the fish reaching the canneries was being supplied by Indians since they were the only ones permitted access to the in-river fishery.” (Sloan, February 2011).

2.1.1.3 Copco Dams Period (About 1911 – 1937)

As natural resources became less available, a subsistence lifestyle gradually became more difficult:

“By 1916 when Lucy Thompson wrote *To the American Indian, Reminiscences of a Yurok Woman*, the cultural landscape was covered by the white man’s frame houses, clothes, economy and regulation (Lang, 1991). In the 1930s, forest practices prohibited traditional Yurok land management techniques...as a result, availability of edible bulbs, wild sunflower, nuts, and other plants declined....All Indian commercial fishing, including subsistence gill-netting was banned in 1934.” (Greacen, May 1997, pp. 17-18).

By the time of Snyder’s writing in 1931, the spring run had declined from being a major run to the point that he characterized it as being of “relatively little economic importance,” and timing of runs appears to have shifted:

“The spring migration has now lost its economic importance and seems to have almost entirely disappeared. It was formerly connected at its waning period with the summer run. The fish of the spring run enter the river during its flood height of very cold water, and pass up stream under the same conditions, while the summer migration starts as the winter and spring floods subside, most of its fishes passing upstream during a minimum flow of water... (Snyder, p.23). (p. 13).” (Salter, 2003).

Although it is difficult to point precisely to the time when the spring-run Chinook stock was sufficiently low that first salmon religious practices and ceremonies would have no longer been feasible for the Yurok people, purportedly the last ceremony was held at the mouth of the Klamath in the 1860s, presumably due to the extreme cultural and socioeconomic upheaval brought about by land ceded and conflicts with settlers and the military. Even if the Tribe had wanted to revive the First Salmon Ceremony sometime following the 1860s, it would have been challenging or impossible since a non-Indian commercial fishery opened at the mouth of the Klamath as early as 1876, and by 1933 the Lower Klamath fishery was closed by the California Department of Fish and Game as a result of over fishing by recreational fisheries and canneries.

The First Salmon Ceremony was important for social, resource management, cultural, and subsistence reasons, and many members of the Yurok Tribe continued the ceremony with the Karuk:

“[There was] continuity between the culture of the Yurok and coming up here [Karuk area] to the First Salmon Ceremonies and communication between the tribes to assure that the fish would be healthy.” (Salter, 2003).

In terms of salmon canneries, Sloan described it as peaking around 1912, Indians were employed in the canneries, and stocks were fished to the limits:

“The peak of salmon canning on the Klamath took place in 1912 - 1915. In 1912 it is estimated that 141,000 salmon were canned. Local Indians were not only employed to harvest the fish but also performed most of the work at the canneries. With little regulation or coordination of in-River and particularly, ocean fishing activities, the Klamath and Trinity River stocks were fished to the limit during the first several decades of the 20th century.” (Sloan, February 2011).

By 1933, low fish stocks prompted fishery restrictions and cannery closures:

“In 1933, the State of California, opting to halt the precipitous decline of both rivers’ fisheries as a result of fishing, mining, logging, and farming, banned the use of gill-nets on the lower 20 miles of the Klamath (even for subsistence fishing), closed the canneries and prohibited the sale of river-caught salmon. This had severe implications for the tribes, as they were increasingly dependent on the economic opportunities provided by their fishery resources.” (Sloan, February 2011).

Klamath River Indians were banned from commercial fishing and gill-netting. Contemporary Yurok elders recall the 1930s as a time when most Yurok people who had not moved away to cities (or who were off at war) had to continue a subsistence lifestyle to survive, in part due to the Depression, and as a result, much of their fishing traditions remained, including sharing the catch with others in need; although they had to fish in fear of being caught. Despite the continuation of fishing, traditional annual and biannual ceremonies and dances temporarily ceased by the late 1930s (Most, 2006, p.96; Yurok Tribe, 2007, p. 18-19, 20). Another reason cultural practices ceased during the first part of the 1900s was that a large percentage of Yurok men (and some women) served in World Wars I and/or II (Yurok Tribe, March 2011).

2.1.1.4 Creation of the Rancheria and Effects of Iron Gate Dam (About 1938 – 1974)

In 1938, land was purchased for ‘landless Indians’ of Humboldt and Del Norte Counties, and some Yurok families began residing on the Rancheria and soon the Yurok Coast Indian Community of the Resighini Rancheria (the former name of the Tribe) was proclaimed an Indian Reservation. The land for the Rancheria was

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purchased from ranch owner Augustus (Gus) Resighini by the Secretary of the Interior in 1938 under the authority of the IRA. The purchase was primarily to acculturate the group of Yuroks by encouraging them to farm, and although the lands were located mostly in the floodplain of the Klamath River, were productive hay fields and supported a substantial dairy farm. The original “Merin” proposal to create the Resighini Rancheria described the 228 acre tract as agricultural with conditions that were ideal for farming and raising cattle (BIA, June 2011a, pp. 3-16).

During the early part of this period, Indians were still not allowed to fish by the State, and the timber industry was one of the few major employment sectors for Yurok people:

“...the forest industry accounted for more than 90 percent of the products extracted from or made in Del Norte County during the prosperous postwar years, when housing developments were rising across the country.” (Most, 2006, p.103).

Concerning the treaties of the 1850s, despite the views of many that the 18 unratified treaties were not legally binding, California Indians were allowed, under H.R. 491, to sue the Federal Government for compensation promised by the 18 unratified treaties, and the suit was settled in 1944 in their favor. However, much of the compensation went towards attorney fees, was so widely distributed that individual amounts in most cases were of little consequence, and many who should have received compensation could not be located (Stewart, et. al., 1978, pp. 705-709).

In 1958, Congress passed the California Rancheria Termination Act, Public Law 85-671 (72 Stat. 619). The Act called for the distribution of all (approximately 43) rancherias’ lands, including those of the Resighini Rancheria, and assets to individual tribe members, and in the process the right to certain Federal programs and their lands no longer had the protection of federal status. As a result of the Act, Resighini was involved in the termination process during the 1970s. The government was required to improve or construct all roads serving the rancherias, to install or rehabilitate irrigation, sanitation, and domestic water systems, and to exchange land held in trust for the rancheria. All Indians who received a portion of the assets were ineligible to receive any more federal services rendered to them based on their status as Indians. In 1957–58, a State Senate Interim Committee investigation revealed that little had been done to prepare the lands (i.e., infrastructure) for termination. In 1964, an amendment to the California Rancheria Termination Act (78 Stat. 390) was enacted that terminated additional rancheria lands. By 1970, President Richard Nixon declared the California Rancheria Termination Act a failure and Congress declared it unlawful.

A 1974 BIA 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.

2.1.1.4.1 Subsistence Fisheries, Hydrograph, and Water Quality Changes

It was primarily during this time period (Iron Gate Dam was constructed in 1962) that Yurok, Resighini, and Karuk people noticed significant changes that respondents have documented; the numbers of fish in the River declined, water quality declined, the timing of water releases changed. The changes were particularly apparent for upriver Karuk Tribal members as many described change in aesthetic qualities, including hydrograph changes that stranded fry and ammocoetes. As another example, Lewis found that many Tribal members who had been away from the area and returned after Iron Gate Dam was built noticed a decline in water quality:

“Many people who left the area for a period, upon returning, noticed a dramatic change in the river, noting stagnant, slower flows, strong odors, dirtier water, more moss and algae, and higher temperatures. Those who used to swim in the main-stem river refuse to now because of the decline in water quality.” (Lewis, 2009, p. 25).

2.1.1.4.2 Socioeconomic Conditions

The Trinity River Act of 1955 allowed construction of the Trinity River Dam on the Klamath River’s largest tributary which affected fish stocks. By 1958, revenues from unallotted trust timberlands in the Hoopa Square were dispersed in per capita payments only to Hoopa Tribal members, which was later determined to be an unfair process for distributing proceeds for the Yurok Tribe, decided in a series of Jessie Short cases. The first Jessie Short case was filed in 1963 on behalf of 16 Yuroks which grew to 3,222 plaintiffs years later. In *Jessie Short et al. v. The United States* (1973), the court ruled that Yurok land was an extension of the Hoopa Valley Reservation which meant that Yurok Tribal members were entitled to equal rights to income from timber sales on allotted trust lands.

With the fishing closures and restrictions on tribal fishing, the Yurok essentially lost this means of support, although the “fish wars” and accompanying litigation of the 1970s and 1980s ultimately reaffirmed Yurok fishing rights.

2.1.1.4.3 Sociocultural Conditions

As in the experience of most regional tribes, Yurok knowledge and beliefs survived destruction of their villages, relocation and/or loss of traditional lands, boarding schools, assimilation policies, and banning of ceremonies, albeit barely. Resighini Rancheria members have joined and continue to participate in the Yurok Tribal member and other regional tribal ceremonies, including the Jump Dance, World Renewal Ceremony, Brush Dance, and others:

“The late 1970s and 80s were a time when the revitalization effort soared in the local areas. The Jump Dance returned to Pek-won in 1984, a War Dance demonstration was held in the late 1980s, and communities came together to support the revitalization of Brush Dances along the river and the coast. In the year 2000, the White Deerskin Dance was held again at the village of Weych-pues....With the help of many elders (who have since passed on)...Young people who were eager to learn Yurok traditions did so and...Yurok traditional ceremonies have continued. (Yurok Tribe, 2007, p. 12).

An author that analyzed Klamath Basin history offered reasons why many tribes, including the Yurok, experienced a cultural revival during the 1970s:

“Relocation legislation brought Indians from reservations across the country into cities, including Oakland and Los Angeles...living in poverty and relying on each other...[and] exposed to mass media as never before and inspired by the Civil Rights movement, many Indians rejected pressures to assimilate...such events as the fish-ins in Puget Sound and the occupation of Alcatraz.... (Most, p. 162).

Other reasons included the feeling of loss by a generation that had been sent to boarding schools. In the early 1970s, there was a major revival of basketmaking, and vestiges of Yurok peyerk (a high status individual or medicine men and women) (Sturtevant, et. al., 1978, p. 150). The Jump Dance was reinitiated in Pek-won in 1984 (Yurok, 2007, p. 12).

2.1.1.4.4 Traditional Diet

Upriver, for the Karuk Tribe, Norgaard found that the loss of Spring Chinook, the most important run of fish for the Karuk people, accounts for much of the drastic decline in fish consumption for people in their early 30s; they recall seeing and eating a lot of Spring Chinook as children and now essentially no one catches them or eats them (Norgaard, November 2005, p. 33). Other accounts based on research of Karuk and Yurok fishermen described the ample supplies of lamprey around the same time period compared to those of today:

“Just over 45 years ago, the lampreys were still so thick that crews were sent in to unclog the creeks because they had no flows. Up and down the

river, tales are told of a biomass so great that lampreys were poisoned in those creeks, as well as the dams where they were caught up in the turbines... The elders have no recollection of ever going eeling and not catching lampreys. ..The baskets were so heavy with lampreys that they had to position the boat and pull the basket up at an angle.” (Lewis, p. 19).

2.1.1.5 Self Governance and Self Determination (1975 – Present)

The Resighini Rancheria gained Federal recognition of its new government in 1975, organized under the authority of the Indian Reorganization Act (IRA) of 1934. The Resighini tribe has been actively seeking opportunities to increase the land base and has been in the process of acquiring additional land along the Rancheria’s borders.

The October 31, 1988 Hoopa-Yurok Settlement Act (P.L. 100-580,102 Stat. 2924) divided the Hoopa Valley Reservation into a Yurok Reservation portion and the Hoopa Reservation area and required the Yurok to form a tribal government. The 1988 Hoopa Yurok Settlement Act provided Resighini Rancheria members with the option of merging with the newly organized Yurok Tribe. None selected that option, and the Rancheria remained a separate government and reservation distinct from the Yurok Tribe.

Although the Yurok Tribe was allowed to resume fishing in 1987, stocks began declining rapidly. Increasingly over the decades, the Yurok Tribe’s tribal subsistence fishing has been severely limited, and commercial operations mostly non-existent due to low numbers of fish; a significant impact on the economic situation of the Yurok Tribe that applies somewhat more indirectly to the Resighini. (Sloan, February 2011, pp. 51-52).

Despite Federal recognition and cultural revitalization, the Yurok continued to see fisheries declines, and in some of the species considered most resilient. Lewis (2009) found that all Karuk and Yurok fishermen he interviewed noticed that Pacific lamprey populations began to decline rapidly in the 1960s:

“One...[tribal member] recalled that the last time he had seen a full smokehouse was more than 45 years ago. Nowadays, most smokehouses are smaller and hold only about 100 lampreys, but even that size is difficult to fill in a whole season....Participants remember that in the 1980s, an eeler was lucky to catch 50 - 100 lampreys, which was considered a lot. By the 1990s, they were lucky to harvest any.” (Lewis, 2009, p. 20).

The Yurok cultural revival continued and the biannual White Deerskin Dance was reinitiated at Weych-pues in 2000. Another sign of cultural revitalization has been the resurgence of learning and using the Yurok Language, which in many ways is synonymous with culture:

“There is a strong interest from our ceremonial people to start using more Yurok words and phrases during dance time. Specifically because our language contains the Yurok worldview,’ Canez said...’You can’t have culture, without language.’ It was predicted that the Yurok Language would be extinct by 2010. However, the number of speakers of the Yurok language has grown like wildfire over the past five years largely due to the hard work of the Yurok Tribe’s Education Department and the Yurok Elder Wisdom Preservation Project and the many teachers in our community. Yurok is taught at many of the local high schools and elementary schools as well as the Tribe’s Head Start and Early Head Start. There are also community language classes taught in the evenings in Humboldt and Del Norte Counties.” (Yurok Tribe, January 2011).

2.1.2 Present Conditions

“Klamath River fish are irreplaceable to the Yurok Tribe’s culture, religion and economy. From time immemorial, Yurok people have depended on the Klamath River. The River is central to Yurok society by providing food, transportation, commercial trade, and numerous other activities essential to Yurok life. Throughout history and today, the identity of the Yurok people has been intricately woven into natural environment including the Klamath Basin watershed. Tribal religious and ceremonial practices focus on the health of the world; the Klamath River and its fisheries are a priority. The Yurok Tribe’s obligation to protect the fishery has always been understood by Yurok people.” (Sloan, February 2011, p. 3).

Politically, Federal recognition after Termination and organization of a formal Resighini Tribal Government since 1975 have been a step forward from an economic, social, and cultural standpoint. Despite gains, the Tribe remains at a disadvantage primarily from losing ancestral territories, termination of Federal recognition and later reinstatement, the inability to legally exercise fishing rights for much of its recent history, ever-declining anadromous fish populations and runs, and worsening water quality that has contributed to declines in nearly all aquatic species directly or indirectly used for subsistence and cultural purposes. Poverty and unemployment rates remain high and per capita incomes low. Although the Yurok people have experienced a cultural revival and was able to reinstate most ceremonies, the Tribe has not been able to reinitiate the First Salmon Ceremony at the correct time of year because there is no spring-run Chinook salmon. Furthermore, declining fisheries have contributed to higher diabetes, heart disease, obesity, mortality, and disability rates.

Yurok lands and services are particularly spread out in the remote stretch of about 30 miles around Weitchpec southward along the River with very limited basic services, including telecommunications and electricity. As an example of an injustice of the KHP, a sizeable portion of the Yurok Tribal members' households do not have electric utility service and instead rely on generators.⁴ However, since it is assumed that either leaving hydroelectric dams or removing them (No Action or Action Alternative) would not affect the current lack of adequate electric service, the issue was not analyzed in this report.

Resighini Tribal headquarters and two other offices are located in the town of Klamath. Yurok language classes are held each week at Yurok Tribal administrative offices, which is another expression of the desire of the Yurok people to retain Yurok culture to the extent possible. The Resighini Rancheria is a Self Governance Tribe. Tribal government consists of a five member business council that serves as the governing body that includes a tribal manager, secretary, accountant, and a researcher (Tiller, 2005, p. 460; DOI, BIA, June 2011a).

2.1.2.1 Fisheries

“When the original Klamath Reservation was established in 1855, the rivers were filled with abundant stocks of salmon, steelhead, eulachon, lamprey, and green sturgeon. Today, the abundance of fish in the Klamath River and its tributaries are only a small fraction of their historic levels. Many species of fish have gone extinct, many other species, such as fall Chinook, are in serious trouble. Nonetheless, anadromous fish continue to form the core of the Yurok Tribal fishery. stainable manner and has a long standing record of resource protection.” (Sloan, February 2011, p. 4).

The KHP has reduced fish populations directly by blocking migration. The four dams cause poor water quality (including temperatures and hydrograph) that also contribute to low fish populations and human health warnings, and is aesthetically unappealing (often described as ‘pea soup’).

The Yurok Tribe summarized some of the most important socioeconomic issues and analysis relative to the hydroelectric dams and the health of the river in comments to FERC in 2007, excerpt below, and in 2010 comments:

“Loss of an abundant and reliable subsistence harvest compounds the extremely high levels of food insecurity experienced within these Yurok communities.” (Yurok Tribe, November 28, 2006). [and] “Historically, Yurok People were able to harvest fish from the Klamath River all year-round. People harvested fall Chinook and Coho salmon during the late

⁴ Since the Rancheria is small with little housing, most tribal members must live off the Rancheria, and many live on the Yurok Indian Reservation.

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summer/fall; steelhead, lamprey and candle fish during the winter and spring Chinook, sturgeon and lamprey during the spring and summer. The decline in these and other river species means that the Yurok People can no longer sustain themselves from the river on a year-round basis. In any community where 80% of the people lack basic food security this loss is ruinous. For the Yurok People who are recovering from more than one hundred years of cultural genocide the loss is catastrophic.” (Sloan, February 2011, p. 95).

2.1.2.1.1 Socioeconomic Conditions

2.1.2.1.1.1 Fishing Methods, Locations, and Species

“[development generally, including the hydroelectric dams]...resulted in extirpation of numerous runs and species of culturally significant anadromous and riverine species that were relied upon by Yurok and other tribes. Today, Candlefish [or eulachon] (once an important subsistence food) no longer exist in the Klamath River. Coho Salmon and Green Sturgeon are on the Endangered Species list. Pacific Lamprey have experienced dramatic decreases and Chinook Salmon have declined to such numbers that only a short commercial fishing season can be practiced for the fall run, and all other runs have diminished to the extent that they are no longer viable for economic harvest.” (Sloan, February 2011, p. 5).

In terms of the importance of salmon, Sloan highlighted case law and historical facts that include the statement that the fisheries have been vitally important to Yurok social, religious, and economic well-being:

“The Supreme Court in *U.S. v. Winans*, 198 U.S. 371, 381 (1905) recognized the primary importance of salmon to these tribes when they concluded that access to the fisheries was “not much less necessary to the existence of the Indians than the atmosphere they breathed” (Kroeber, 1960). 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 a traditional connotation of community health (Gunther, 1926). The timing and cycle of many tribal societal, religious and economic activities were made to closely coincide with the seasonal and geographic variations in fish runs, particularly the arrival of the first salmon (USFWS et al 2000).” (Sloan, February 2011, pp. 53-54).

There are not enough fish to distribute and trade. The Yurok people relied, and to the extent possible, still rely primarily on the following species and would like all of them to be available in sufficient numbers for trade and subsistence in the future: Spring- and fall-run Chinook Salmon, coho salmon, steelhead trout, sturgeon, candlefish (or eulachon), Pacific lamprey eel, and other native species.

The Yurok also collected, and still collect to the extent possible, freshwater mussels or clams for consumption and for other cultural uses.

In terms of quantities of salmon, steelhead, sturgeon, and other species available in the lower Klamath River, the Yurok Tribe has had to reduce or eliminate fishing seasons in most years due to low fish populations and/or concerns about low stocks. For example, in Spring 2011, the Tribe closed the spring Chinook and green sturgeon fisheries for three days per week during the season, in addition to some other measures, out of concerns about poor habitat conditions. Yurok people equate the reduction or elimination of fish abundance and poor water quality to denied access to a subsistence lifestyle, culture and religion.

2.1.2.1.1.2 Quality of Fisheries: Water Quality, Hydrograph, and Channel Habitat

The Resighini Rancheria directed comments in a January 18, 2005 and March 26, 2006 memo to FERC with an analysis of water quality impacts from the dams concerning coverage of issues the Tribe considered to be inadequate in the FERC draft environmental impact statement for hydropower relicensing (FERC Project No. 2082-027) (the January memo is in attachment 3a). In the January memo, Resighini stated concerns about how the KHP contributes to the low survival of juvenile anadromous fish, nutrient spiraling, and occurrence of *Aphanizoemenon flos aquae*. Resighini described a more comprehensive description of the water quality problems in the March 26, 2006 memo.

The descriptions of the effects of the dams described by Yurok and Karuk Tribal members in survey interviews and comments to FERC are supported by water quality and recreation analysis conclusions in the *Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Report* water quality analysis, and as reviewed by the BIA (June 2011b). (DOI, August 2011). Additionally, a copy of one of the health advisories is in attachment 3b. Poor water quality and the altered hydrograph were found to have adversely affected fisheries (BIA, 2011a and 2011b).

The Yurok and Karuk Tribe described toxic algae problems and impacts that included the need for tribes and others to post health advisories which would cause an almost complete cessation of Yurok subsistence and commercial fishing with devastating consequences:

“The failure to use this information [Kann 2006, Kann and Corum 2006] may explain the DEIS’ failure to recognize the potential seriousness of the *Microcystis* problem in the Klamath River downstream of Iron Gate Dam all the way to the estuary, and the role of KHP structures and operations in the basinwide distribution and abundance of *Microcystis*....densities [of microcystis cells] frequently exceeded 10,000 cells/mL with several measurements exceeding

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40,000 cells/mL...the level currently adopted by the State of Oregon, Humboldt County Health Department and the Yurok and Karuk Tribes for public health advisories....the highest Microcystis cell counts in 2005 were detected in mid-September, during the critical period of salmon migration and high cultural and recreation use of the river. While monitoring and warning notices would restrain fishermen from fishing during periods when toxic algae advisories were in place, the coincident timing of these advisories would likely result in the loss of all or most of the fishing season. While this might simply be an annoyance to a recreational fisherman, it would be devastating to the tribal subsistence and commercial fisheries. Monitoring obviously fails to prevent migrating salmon from entering the river and does nothing to reduce their exposure to high toxin concentrations. The Yurok Tribe (Fetcho, 2006) has detected microcystin in the livers of adult steelhead in the lower Klamath River. Monitoring alone is clearly an inadequate response...attendant consequences for human health and fish health [should be analyzed]. By providing ideal habitat for, and producing algal blooms, Iron Gate and Copco Reservoirs have dramatically increased the amount of Microcystis in the lower Klamath River.” (Yurok Tribe, 2006, pp. 14-16).

“Over the years, the river got smaller and smaller. The color has gradually gotten darker. At first, (60’s, 70’s, 80’s) the Klamath only looked unhealthy at the end of summer. Now the River always looks too dark in color and low. At the end of summer now, the Klamath looks dark, low, slow, dirty, slimy and too unhealthy to get into or eat anything coming from it. We used to be able to tell which salmon were not from the mouth, because they would sometimes have a muddy taste. Now I don’t eat any salmon that aren’t from the mouth for fear of eating toxins and diseased fish.’ (Yurok Tribal Member Survey Respondent 2006)”
‘If something is not done to improve the river water temp – there will be no fish. As a people we are still dancing, without the fish there will be no ceremonies. Without the ceremonies we will be NO MORE. Something is going to have to be done about the dams on the Klamath and Trinity Rivers. Especially the Klamath River. Fish will not travel in hot water – the old holes where fish could find cool water, have filled in giving the fish no place to go – but belly up. I heard Calvin Rube speak before the Senate Committee 45 years ago. He said that we (younger generation) would see fish kills, because of the water temp., which would also cause algae to grow – making river unhealthy.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 70).

During low water years or when too little water comes from Iron Gate, the river lacks enough force to reach the ocean and smolts (juvenile salmon) may get stranded waiting for high tides to breach the barrier of sand before going to the ocean – mature salmon returning from the ocean to spawn need tidal surges to carry them to the river (Most, 2006).

Similarly, upstream, Karuk Tribal members have described current conditions as

they relate to historic conditions for water quality, fluctuations, and how the changes have affected River habitat--all changes that have adversely impacted fish populations. Effects of hydroelectric operations, 'ramping' cause what some Karuk people referred to as 'invisible fish kills.' Karuk Tribal Fisheries crews have found large ammocoete kills when rescuing stranded fish from pools. A Karuk fisherman provided a similar explanation of adverse ramping effects on lamprey (Lewis, 2009, p. 25). Lewis' research found that beginning in the 1990s there were essentially no lamprey compared to conditions prior to around the 1960s.

2.1.2.1.2 Fisheries and Sociocultural Conditions

“Our people come together from many villages to perform ceremonial construction of our fish dams, *Lohg-en*. Our traditional ceremonies -- the Deerskin Dance, Doctor Dance, Jump Dance, Brush Dance, Kick Dance, Flower Dance and others -- have always drawn hundreds, and sometimes thousands, of Yuroks and members of neighboring tribes together for renewal, healing, and prayer.” (Sloan, February 2011, p. 25).

“Traditional food is at the very heart of culture continuity...[and its absence] leads to further social disruption. When elders die young they are not available to pass information...on to the youngest generations. Denied access to traditional foods must be understood in the broader context of cultural genocide,” (Norgaard, November 2005, p. 68).

Sociocultural impacts of the KHP include direct effects of dams blocking passage as well as water quality impacts that have served to reduce or eliminate species critical for ceremonies. Most traditional ceremonies surrounding salmon and the Klamath River are still practiced today. The First Salmon Ceremony marks the arrival of the spring-run Chinook which cannot be practiced traditionally since the spring-run Chinook Salmon have essentially disappeared. The timing of the First Salmon Ceremony has had to be modified and declining fish stocks, particularly the Spring Chinook run, has impacted the Tribes' ability to pass fishing on as a religious and cultural value to future generations. Health concerns and health effects from contact with the water during ceremonies are discussed in the Health section.

The Klamath River is integral to Yurok culture and the water supply, hydrograph, and quality affect Yurok religious ceremonies and other cultural activities that are described further by the Tribe in attachment 3c, which includes, among other uses, drinking, cooking, and ceremonial bathing in River water.

The importance of the Klamath River, and therefore the health of the River, to Yurok subsistence needs, identity, and culture was described by the Tribe:

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“At its most basic level, the River has always been a source for food and other necessities of daily life. The River also provides basket materials, fish net materials, and a means of transportation. Even rocks from the river are used by Yurok people...The Yurok River is traveled during religious ceremonies and in recreational activities, it is integral to the Yurok language and its oral tradition and truly represents the binding force of their community...Residency, natural and cultural resource sites, ceremonial practices, oral history, transportation routes, economic and sociological resources, indeed the Yurok identity, are all intricately woven into the ecosystems of the Klamath and Trinity Rivers.” (Sloan, 2011, p. 55).

Despite challenges in continuing Yurok culture, the Yurok language has been revitalized in modern times with Tribally-sponsored classes, and the language manifests the central, vital importance of the River and salmon:

Language analysis can show the long-term values and emphasis of a people. For example while there is no specific name word for the Klamath River, the word for ‘river’ is *la yoh*, and translates as “to run” in reference to liquids. Another word for river, *?ume?wo* is in reference to the fish dams that are placed across the river. The English word ‘salmon’, denoting several types of anadromous fish does not readily translate into the Yurok word ‘*ne po y*’, “that which is eaten.” ‘*Ne po y*’ denotes more than ‘fish’, but also includes connotations of Yurok reverence for a creature that provides sustenance to a people and way of life. Thus, *ne po y* reflects the Yurok reverence for a creature of the river and an explicit recognition that it sustains their people and way of life. Yurok places are sometimes named after the way the river moves in a particular stretch.” (Sloan, February 2011).

The trend cultural revitalization that primarily began in the 1970s of bringing back traditional ceremonies and expanding and strengthening their traditional lifestyle continues today and often requires immersion in the river:

“Yurok culture has recently had a resurgence of the traditional stick games, a ceremonial sport that combines aspects of wrestling and lacrosse. The playing fields are constructed on sandy beaches along the river during the summer months and often in conjunction with the Brush dance ceremony. Aspects of all Yurok ceremonies require interaction and even immersion in the River and require high water quality to be practiced with integrity and also the health and wellbeing of ceremonial practitioners.” (Sloan, February 2011, p. 43).

Ceremonies remain vitally important to current generations as a way of coping with the disconnect between their traditional past and the present. Low or non-existent fisheries limit the transfer of cultural, traditional knowledge from generation to generation:

“Providing for your elders is a demonstration of respect and a primary responsibility for a Yurok or Karuk person; yet the older people say that they hardly receive lampreys anymore because no one has any to bring them. One elder only received six lampreys last year while another had not had any in the past 15 years [a Karuk elder].” (Lewis, 2009, pp. 20-21).

2.1.2.1.3 Social Conditions

Klamath Basin Tribes have experienced a diminished ability to practice a traditional lifestyle, particularly fishing for subsistence as a result of the hydroelectric dams and other development, resulting in a loss of cultural identity (but not of cultural values), social trauma, and ‘cultural genocide’ (Yurok Tribe, January 2011). Yurok people believe that the solution is restoration of the river, fisheries, and water quality that would strengthen their traditions and social conditions.

The significance of the loss of Tribal identity associated with resources no longer available and resulting social conditions from the loss were described further in the DOI report that also cited Norgaard:

“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 [Norgaard, Chapter 5, 2005]. Young people feel this loss of belonging especially intensely...When tribal celebrations require that the tribe and visitors feast on salmon and no salmon is to be found... 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...creating a malaise that lingers among the people subject to these conditions.” (DOI, June 2011a, pp. 1-7).

Social disruption resulting from the loss of most of Resighini aboriginal territory and an impeded ability to fish for subsistence, termination, along with associated cultural disruption has led, in most cases, to symptoms of social trauma that has left a legacy over generations that most Indians and Tribes across the nation continue to struggle with today. This syndrome has been described by social workers Brave Heart and DeBruyn as an ‘Indian holocaust’ and has resulted in symptoms of social dysfunction. (Brave Heart and DeBruyn 1998, p. 60).” (Norgaard, 2005, p. 65).

As Norgaard described, there has been a diminishment of social and cultural relationships between generations as a result of historical events and declining salmon stocks and changes fish-run timing, which have contributed to some signs of social dysfunction. In terms of holding on to cultural traditions, there were

generations of Yurok people who have had to risk, and may still have to risk violations and imprisonment to fish and continue forms of a traditional lifestyle in their aboriginal territory.

Direct and indirect mortality rates caused by social and cultural disruption (and more recently also the lack of healthy foods) compound cultural challenges by taking elders (the Tribes' 'intellectual capital'), away too soon as they are the primary means through which social and cultural lifestyles and values are transmitted to following generations.

2.1.2.1.4 Fisheries and Traditional Diet

Declines in all fisheries species (not only salmon and steelhead), including lamprey and others have had a negative effect on Resighini health and water quality has had an indirect effect of limiting consumption of traditional foods as many people are afraid of consuming aquatic species from the River because of bioaccumulation concerns.

Richard Myers, Yurok Tribal Council Member, described the importance of salmon to Yurok subsistence needs, a view shared by Resighini Yuroks as well:

“It’s the number one food source, you can put it on the table, and it’s something that comes right from the River. You don’t have to go to Safeway to get it or nowhere else. It’s a gift from the Creator. We share it with our people.”

The reduction in Chinook salmon and other fisheries stocks have impacted fish and lamprey consumption. In addition, fresh produce and other grocery supplies are generally scarce and expensive in the area:

“‘We are in a food desert.’ The closest grocery store to Klamath is more than an hour round-trip, not including shopping time. More than 90 percent of the vegetables and fruits have to be shipped in from out of the region, making prices higher and quality lower. There is also an extremely high rate of diabetes in the area...’” (Yurok Tribe, March 2011, p. 3).

In a 2006 Tribal health survey, Tribal elders described the importance of salmon and other species, as well as other important River-edible and basket-making plants. (Sloan, February 2011, p.56).

Yurok people believe eels are high in protein and healthy fat and are a wintertime subsistence food:

“Eels are high in protein and healthy fat, and were historically and are still today, a wintertime subsistence food for Yurok people. Eels are traditionally smoked or cooked in an open-pit barbecue.” (Yurok Tribe, January 2011).

To the Yurok, sturgeon is another important nutritional food source with associated cultural purposes:

“Kah-Kah (sturgeon), which can grow nearly ten feet, is an important food source for Yurok people. The boneless, firm meat is packed with protein and contains beneficial fats. However, Yuroks have known for millennia that sturgeon eggs or roe is where the most nutritional benefits can be found. For instance, eating a fifth of a pound will give more than the recommended daily intake of the muscle building vitamin b-12, more than half your daily need of bone builder vitamin D and more than a third of riboflavin, which staves off illness. It contains an enormous amount of important minerals...Sturgeon roe also has some of the highest quality protein...” “The fish also has other uses. The spinal cord can be made into a soup that is tasty and have a medicinal value. The sturgeon’s bladder can be chewed into a paste, which makes a strong adhesive... typically used for attaching arrow heat tips and the sharp part of a traditional eel hook. One of the ways Yurok honor the fish is to weave the design on its flanks onto baskets and caps.” (Yurok Tribe, March 2011).

2.1.2.2 Economic Conditions

Following the gold rush, the economy of the region shifted from a mining to fisheries-based economy with a large timber industry that peaked in the mid-1900s, declined in the 1970s and 1980s and remained slow in the early 1990s (Most, 2006, p. 181). Once the Yurok people lost most of their aboriginal territory, many members were forced to rely on employment in canneries and then the timber industry.

Although the Tribe lost most of its ancestral land, continues to struggle for fishing rights, and was terminated as a Federally recognized tribe, and is small with a limited land base, it has begun the relatively recent process of re-establishing its own economy. Largely because historical challenges described in the Tribal History section of this document, it is estimated that from 30 to 50 percent of the Resighini people are in poverty. About 70 percent of the Yurok Reservation has no access to basic telephone or electricity services, especially along the River in the Weitchpec and Pecwan Districts which includes some of Resighini and members who live off the Rancheria. According to the Yurok Tribe, poverty rates average as high as 80 percent on the Reservation, particularly in the Weitchpec and Pecwan Districts, which are along the River in the upper portion of the Reservation. (Yurok Tribe, accessed November 2010).

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In order to address the economic needs of its membership, the Tribe owns RR Tobacco's Smoke Shop. Fishing is allowed on the Rancheria. Resighini also owns Chere Campground and RV Park near the River on the Rancheria, and a mini-mart and gas station, boat dock, and tackle shop have been contemplated for about ten years. The Tribe has a small casino and café that have been closed for several years due to flooding in the 1990s, and the tribe also had a smoke house for salmon before it was flooded. The tribe 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, the campground, and 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 (Tiller, 2005, p. 460-461; BIA, June 2011a, p. 3-16).

2.1.2.2.1 Unemployment, Income, and Poverty Rates

The Resighini Rancheria Government has a staff of about twelve and has several small businesses, described above, that provide some employment and the Yurok Tribe is one of the largest employers in the area. Historically, other large employment sectors over the past century were canneries, agriculture, fishing and tourism/recreation, and timber industries, all of which have gradually declined, resulting in relatively high unemployment rates (Tiller, 2005).

A 2005 BIA labor force report showed 111 enrolled Tribal members which increased to 130 by 2010, with about 89 Indians on or near the Yurok Reservation eligible for BIA services, and of them, about 60 percent were unemployed (BIA, 2005)⁵. Only 36 people were counted in the 2000 Census for the Resighini Rancheria and since there is essentially no housing on the Rancheria, most Tribal members live off the Rancheria (table 2.1-1). Census 2000 data for the Resighini Rancheria showed a high (relative to other Census area percentages, including the Yurok Indian Reservation) unemployment rate of 20 percent and the lowest per capita income.

The sample size was too small for the Census Bureau to calculate poverty rates or publish numbers for the American Indian alone category. When sample sizes are too small, the Census does not report numbers for confidentiality reasons.

⁵ 2010 enrollment figure from Resighini Rancheria tribal government during consultation meetings.

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Table 2.1-1.—Census 2000 unemployment, income, and poverty

Geographic areas	Census unemployment (%)	BIA unemployment (%)	Median household income	Per capita income	Poverty status (%)	Poverty – families, female householder, no husband, children under 5 (%)	Poverty – families, female householder, no husband, children under 18 (%)
Resighini Rancheria	20	60	41,250	6,925	*	*	*
Yurok Reservation	12.9	--	20,592	10,881	32.8	73.1	66.7
Indian	17.2	74	15,500	6,839	39.7	41.7	50.0
Del Norte County	4.9	--	29,642	14,573	20.2	71.4	52.7
Indian	7.7	--	21,369	9,638	25.8	62.5	55.3
Klamath CCD	7.6	--	31,953	17,739	14.5	46.2	56.1
Indian	14.8	--	24,444	9,182	11.6	22.2	18.2
Klamath CDP	9.0	--	29,231	13,660	15.2	46.2	37.9
Indian	18.0	--	26,250	8,161	14.0	22.2	18.2
Crescent City CCD	4.5	--	29,268	14,157	20.7	74.9	52.6
Indian	3.1	--	19,750	10,019	32.0	72.4	69.2
Humboldt County	5.26	--	31,226	17,203	19.5	61.0	44.6
Indian	12.0	--	25,281	11,532	31.0	64.0	54.5
Trinity-Klamath CCD	9.4	--	24,297	12,979	27.8	59.4	59.1
Indian	14.8	--	21,360	9,407	36.9	64.8	60.1
California	4.3	--	47,493	22,711	14.2	44.0	32.5
Indian	6.8	--	36,547	15,226	21.9	52.6	42.9

Notes: American Indian and Alaska Native Census data is “Indian alone” as opposed to Indians alone or in combination with other races since that is the only option for Census sample data. BIA figure is for 2005, and for further information, including definitions, see attachment 4. CDP is a city/town, and CCD is a larger area around a CDP. Sources: Census Bureau DP-3 Profile of Selected Economic Characteristics

¹ Based on 2005 BIA data, not 2000 Census data.

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Consequently, there were no year 2000 (or 2009 estimates) figures for poverty status; however, using Yurok Reservation rates as a gage, percentages were higher than surrounding areas. Although median household incomes were high, per capita incomes were the lowest in the entire area. Therefore, it is reasonable to assume poverty rates are at least (and likely higher) double that of such surrounding areas as Crescent City, the counties, the State, and even the Klamath County Subdivision (Klamath CCD). Year 2005 to 2009 and/or 2009 Census estimates are not available since non-decennial census years are samples, not 100 percent counts, which meant that the sample size was too small to be statistically valid and for confidentiality reasons were not reported.

The Yurok Tribe underscored high unemployment rates for Lower Klamath River area tribes compared to county rates:

“Employment data for 2001 from the BIA⁶ indicate that the unemployment rate is 75% for Yurok and 40% for Hoopa Tribal Members. Comparable data for the downstream three counties in 2001 are much lower; Humboldt and Del Norte and Curry County Oregon having 6%, 8.1% and 6.9% unemployment respectively.⁷ Likewise, there is significant disparity in the median per capita income between the downstream Reservations and the counties in the downstream subregion.” (Sloan, February 2011, pp. 86-87).

Concerning high poverty and unemployment rates, a subsistence fishing-income connection was analyzed by Norgaard for the Karuk Tribe, which is applicable to this analysis, and was found to have a high value:

“Cost replacement analysis conducted in the Spring of 2005 puts the cost of purchasing salmon at over \$4,000 per [Karuk] tribal member per year (Stercho, 2005).” (Norgaard, 2005, p. 59).

In terms of a gage for possible food insecurity rates, year 2000 Census poverty rates for the Yurok Reservation were 33 percent (40 percent for the Indian only population), and the Yurok Tribe estimated a food insecurity rate in the entire area at almost three times the rate of the counties in 2002 and had been increasing (Sloan, February 2011, p. 93).

2.1.2.2.2 Employment by Occupation

Although the small sample size of only 36 people in the 2000 census is not particularly representative of the broader Resighini population or membership off-reservation, about half appear to be employed in the Tribe with other large proportions in forestry, fisheries, and farming, and services (table 2.1-2).

⁶ Unemployment figures for Tribes (not reservation) BIA 2001 F. Doka Jr. pers. com.

⁷ 2001 Unemployment figures for counties Bureau of Labor Statistics .<http://www.bls.gov/lau/#tables>

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Table 2.1-2.—Census 2000 percentages of workforce by occupation

Geographic areas	Management	Services	Sales and office...	Farming, fishing, and forestry	Construction, extraction...	Production, transportation...
Resighini Rancheria	0.0	25.0	56.3	18.8	0.0	0.0
Yurok Reservation	27.6	21.8	14.1	12.6	13.2	10.7
Indian	36.8	16.7	13.2	9.6	7.9	15.8
Del Norte County	24.3	31.5	21.7	4.3	8.8	9.4
Indian	33.7	16.8	23.2	9.5	7.4	9.5
Klamath CCD	30.0	25.5	25.0	6.4	7.8	5.3
Indian	33.7	16.8	23.2	9.5	7.4	9.5
Klamath CDP	26.6	23.3	15.2	10.5	14.3	9.7
Indian	38.5	18.5	9.2	9.2	10.8	13.8
Crescent CCD	23.8	32.9	21.6	3.3	8.7	9.7
Indian	23.2	42.1	12.1	0.0	12.5	10.0
Humboldt County	31.5	19.6	24.9	2.6	8.8	12.6
Indian	26.0	24.3	23.3	5.2	7.9	13.3
Trinity-Klamath CCD	35.0	20.1	19.6	4.3	12.1	8.9
Indian	32.8	19.3	22.3	7.0	11.2	7.5
California	36.0	14.8	26.8	1.3	8.4	12.7
Indian	28.3	18.2	27.1	1.4	10.9	14.1

Notes: Full category titles: Management, professional, and related occupations; service occupations; sales and office occupations; farming, fishing, and forestry occupations; construction, extraction, and maintenance occupations; production, transportation, and material moving occupations. For more information, including definitions, see attachment 4.

In comparison, on the Yurok Reservation, most were employed in management occupations at about 27.6 percent, and about 12.6 percent were employed in fisheries, forestry (and presumably little farming) occupations, which was about three times higher than the county percentages. The next highest percentage employed in fisheries, forestry, and farming was 10.5 percent in the town of Klamath, in large part because about half or more of it is on the YIR. Tiller reported that “almost half of the people [on the YIR] (47 percent) are government workers,” with the remainder employed in the private sector or self employed (Tiller, 2005, p. 507).

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Table 2.1-3.—1990, 2000, and 2010 Census population

Geographic areas	1990	2000	1990 - 2000 Change (%)	2010	2000 - 2010 Change (%)
Resighini Rancheria	51	36	-42	31	-16
Yurok Reservation	1,343	1,103	-21.8	1,238	10.9
Indian	494	499	1.0	637	21.7
Percent	36.8	45.2		51.5	
American Indian Alone or in Combination with Other Races	na	538	na	712	24.4
Percent	na	48.8		57.5	
Del Norte County	23,460	27,507	14.7	28,610	3.9
Indian	1,494	1770	15.6	2,244	21.1
Percent	6.4	6.4		7.8	
Klamath CCD	1,411	1,203	-17.3	na	na
Indian	286	348	17.8	na	na
Percent	20.3	28.9		na	
Klamath CDP	827	651	-27.0	779	16.4
Indian	176	223	21.1	325	31.4
Percent	21.3	34.3		41.7	
Crescent City CCD	19,366	22,531	14.0	na	na
Indian	993	1,192	16.7	na	na
Percent	5.1	5.3		na	
Humboldt County	119,118	126,518	5.8	134,623	6.0
Indian	6,568	7,241	9.3	7,726	6.3
Percent	5.5	5.7		5.7	
Trinity-Klamath CCD	4,885	5,437	10.2	na	na
Indian	2,314	2,835	18.4	na	na
Percent	47.4	52.1		na	
California	29,760,021	33,871,648	12.1	37,253,956	9.1
Indian	242,164	333,346	27.4	362,801	8.1
Percent	0.8	1.0		1.0	

Sources: Reservation data from table 2. Race and Hispanic Origin 1990. Social and Economic Characteristics.

Sources: Reservation data from table 2. Race and Hispanic Origin 1990. Social and Economic Characteristics.

Table DP-1 General Population and Housing Characteristics 1990.

Table DP-1 Profile of General Demographic Characteristics: 2000.

Table QT-PL Race, Hispanic or Latino, Age, and Housing Occupancy: 2010 Census Redistricting Data Summary File. Table P2 Hispanic or Latino, and Not Hispanic or Latino by Race 2010 Census Redistricting Data. Table GCT-PL1 Race and Hispanic or Latino - State -- County Subdivision 2010 Census Redistricting Data Summary File.

2.1.2.2.3 Demographics

Around 1770, it was estimated that there were about 2,500 Yurok people, a number that declined to about 700 by 1910 as a result of Euroamerican conflicts, diseases, and related factors (Kroeber, 1925, p. 883). It appears that Resighini had 40 residents in 1951 (Sturtevant and Stewart, 1978, p. 709). In 2010, the Census counted 31 people on the Rancheria, which was a decrease of about 16 percent from the 2000 Census count of 36 people as shown in table 2.1-3. The population declined by about 40 percent from 1990 to 2000, and the Yurok Tribe showed a similar pattern. Housing on the Rancheria is limited which means that most Tribal members must live off the Rancheria (table 2.1-1).

The Yurok Tribe explained much of the reason for the gap between the Reservation population counted in the 2010 (and previous) Census and the higher enrollment number as Tribal members needing to leave the area for employment and better income (Sloan, February 2011, p. 91). The explanation for the similar pattern seems to apply to the Resighini as well.

2.1.2.2.3.1 Race and Ethnicity

In each decennial census, nearly all of the small number of Resighini residents are American Indian as shown in table 2.1-4. However, for comparison purposes, in 2010 the Indian population comprised nearly 60 percent of the total population on the Yurok Indian Reservation, an increase from roughly half in the year 2000. Otherwise, the largest proportion of Indians was in the Trinity-Klamath CCD at over 55 percent (2000 census); however, it is also comprised Hupa and Karuk. The town of Klamath (Klamath CDP) had the next highest percentage of Indian population at about half in 2010. Since Klamath CDP comprises most of the population for Klamath CCD, it was the next highest proportion of Indian population (based on 2000 Census).⁸

2.1.2.2.3.2 Median Age and Population Growth

The Indian population median age in 2000 was 19 years of age on the Rancheria which was generally half the median age of the surrounding area (shown in table 2.1-5). The difference may be due to a high birth rate, high migration rates, a high mortality rate in older age groups, or some combination. Tribal members often must leave for education and job opportunities, and in this case it would often be a matter of blocks or miles and not necessarily far off cities.

⁸ Percentages calculated were based on the primary race category “alone or in combination with one or more other races,” which is one option in the Bureau of Census data possibilities in its race and ethnicity data for years 2000 and 2010.

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Table 2.1-4.—Census 2000 and 2010 race and ethnicity percentages of total population

		Non-Hispanic					Hispanic
	Total population	White (%)	African American (%)	American Indian (%)	Asian and Pacific Isl. (%)	Other races (%)	Hispanic or Latino (%)
Resighini Rancheria							
2010	31	12.5	0.0	83.9	3.2	0.0	3.2
2000	36	0.0	0.0	100	0.0	0.0	38.9
Yurok Reservation							
2010	1,238	46.9	0.5	57.5	1.2	1.1	12.0
2000	1,103	50	0	45.7	2.9	1	5.3
Del Norte County							
2010	28,610	77.9	3.9	10.9	4.5	7.6	17.8
2000	27,507	81.8	5	9.1	3.4	1	14
Klamath CCD							
2010	na	na	na	na	na	na	na
2000	1,203	65.8	2.4	30	1.2	0	9.4
Klamath CDP							
2010	779	56.6	0.4	48.9	1.5	1.2	11.6
2000	651	61.1	0	36.2	1.8	1	5.9
Crescent CCD							
2010	na	na	na	na	na	na	na
2000	22,531	81.7	6	7.9	3.8	0.6	14.1
Humboldt County							
2010	134,623	86.6	2.0	8.9	3.9	4.5	9.8
2000	126,518	88.8	1.4	8.3	2.7	3.5	6.5
Trinity-Klamath CCD							
2010	na	na	na	na	na	na	na
2000	5,437	45.5	0.7	55.3	1.5	1.7	4.7
California							
2010	37,253,956	61.6	7.2	1.9	15.7	18.9	37.6
2000	33,871,648	63.4	7.4	1.9	13.0	19.4	32.4

Source: Census tables P1 and P10. Each race category includes that race alone or in combination with other races, and for more information and definitions, see attachment 4. CCD data in California for 2010 was not yet available.

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Table 2.1-5.—Census 2000 median age

Geographic areas	Total population median age			Indian population median age		
	Total	Male	Female	Total	Male	Female
Resighini Rancheria	19.0	23.0	15.5	na	na	na
Yurok Reservation	40.1	39.6	40.4	32.4	27.6	34.5
Del Norte County	36.4	35.1	38.6	26.3	25.4	27.8
Klamath CCD	39.6	38.3	41.8	30.3	27.3	32.2
Klamath CDP	41.3	40.5	43.1	23.5	21.0	33.5
Crescent City CCD	35.5	34.3	37.5	24.8	24.6	25.5
Humboldt County	36.3	35.0	37.6	26.5	25.0	28.0
Trinity-Klamath CCD	35.5	35.8	35.3	24.7	22.9	26.1
California	33.3	32.2	34.4	29.3	28.5	30.1

Source: 2000 Census, tables PCT4. Note: na is not applicable since in race and ethnicity 100 percent reported being American Indian alone or in combination with other races so the figures are the same.

The Tribe has grown fairly rapidly as shown by the increases in Tribal enrollment figures—111 in 2005 to 130 about 5 years later, therefore the assumption would be that much of the growth is occurring off-Reservation, most often within or near the ancestral territory, particularly since Resighini is surrounded by the Yurok Reservation.

2.1.2.2.4 Barter System

Concerning the ancient and contemporary regional barter system, salmon has remained an important socioeconomic factor for Resighini Tribal members since they do not have fishing rights, barter with their neighbors critical.

During a meeting with the Yurok Tribe, a member described the economic importance of the substitution income provided by trade and, in the example he provided, it helps with such large expenses as purchasing school clothes for children. Over time, salmon has increased in value as supplies continue to decline:

“Indians have been catching salmon for trade with other tribes since time immemorial.⁹ Trade enabled them to acquire food, raw materials, and manufactured goods....Food preservation methods were developed which allowed fish to be stored throughout the year and transported over great distances. It was tribal custom to take fish for food and commerce efficiently and without damaging the continued existence of the species. Today still, salmon continues to represent an important economic resource for the Klamath River tribes (USFWS, et al., 2000).” (Sloan,

⁹ U.S. v. McCovey reaffirmed Yurok Fisherman’s rights to sell fish off the reservation.

February 2011, p. 55).

Norgaard described how the barter system and subsistence fishing elevated the Karuk people economically, which also applies to the Yurok:

“Although salmon was not bought and sold as part of a cash economy, the presence of this food meant that people didn’t need to spend money buying other foods at the grocery store or be forced to rely on government commodities, as is now the case.” (Norgaard, November 2005, p. 60).

2.1.2.2.5 Redistribution

Redistribution of wealth, in this case, of fish to Tribal members and families, particularly dependent portions of the population, remains an important socioeconomic activity that is an expression of socioeconomic cultural values; however, low fish populations limit the ability of Tribal members to continue this practice.

2.1.2.2.6 Land Base and Uses

The Yurok ancestral territory includes the Pacific Coast for a distance north and south of the estuary and up the lower Klamath River. However, the area was reduced for the Reservation in a series of steps described in the Tribal History section of this document. By about 1887, the General Allotment Act made all unallotted lands public for homesteading, and essentially all Yurok land was declared public and much of it was later privately held by timber interests.

The Resighini Rancheria is located in a floodplain and a high tide comes in about every four years. The Tribally owned and operated campground is a constant flooding concern and water quality concerns and aesthetics also impact operations as tourists are less interested in visiting and staying at the campground with water quality problems. A Tribal gravel operation is on the River in the Rancheria and it is supplied during high tide or floods. It is a joint venture that generates royalties, other funds, and employment opportunities.

2.1.2.3 Health

Health effects include impacts of the KHP on fish populations and availability, and water quality problems which have caused direct and indirect health effects. The connection between higher diabetes, heart disease, obesity, and mortality rates and diminishing quantities of traditional foods, particularly salmon was documented for the Karuk Tribe in a November 2005 report by Norgaard in *Effects of Altered Diet on the Health of the Karuk People*. Indications from

Yurok Tribe and other factors show that the Resighini has had a similar experience. Additionally, water quality problems have caused a drop in consumption of traditional aquatic foods, especially around the periods when health advisories have been posted.(BIA, June 2011a,p. 3-17).

Resighini health services are provided by United Indian Health Service, Elk Valley Clinic in Crescent City and Klamath Health Center in Klamath. (Tiller, 2005, p. 461). The Rancheria partners with other agencies to provide other services, including Inter-Tribal Council of California for domestic violence assistance, Northern Development Council of California for home heating, California Tribal Partnership (TANF) for family welfare assistance, and others.

The Yurok people, including Resighini, have experienced an increase in obesity, diabetes and heart disease rates that coincided with the declining availability of traditional foods, particularly salmon, and that has resulted in higher disability and mortality rates, some of which was documented in a survey by the *Tribe Healthy River, Healthy People, Traditional Foods Survey*, (Sloan, February 2011).¹⁰ The extreme poverty and remoteness of much of the Yurok Reservation, including Resighini, has created the need for Tribal members to rely heavily on USDA commodity foods that are connected with poor nutrition and associated health problems:

“...estimates of food insecurity correlate well with the results of the survey regarding food assistance programs. Survey results indicate that 31% of the 305 respondents who answered the survey questions regarding food security receive some form of food assistance on a regular basis (compared to 57% classified as food insecure above), with the majority of aide going to respondents living within the Ancestral Territory... This document uses respondents’ reports of participation in the federal food assistance programs (Food Stamps, WIC and Commodity Supplemental Foods Program) as a surrogate variable for low income status since eligibility is directly linked to income (130%-185% of the federal poverty level). Because all individuals who are eligible for food assistance do not apply, the numbers used here undoubtedly underestimate the number of low income households within our pool of respondents. Harrison *et al.* (2002) report that, of income eligible persons in California who report hunger, less than 20% of adults participate in the Food Stamp Program and only 66% of hungry, eligible, pregnant women participate in WIC.” (Sloan, February 2011, p. 94).

The decline in salmon availability and other traditional foods have contributed to high diabetes rates, and perhaps other diseases (as Norgaard found when

¹⁰ In 2006 the Yurok Tribe circulated a survey to determine the impact of the deteriorating health of the Klamath River on the health and wellbeing of Tribal Members. The *Survey* collected data on access to traditional resources, economic status, medical conditions and the influence of water quality on Tribal Members health and wellbeing.(Sloan, February 2011, p. 90-91).

analyzing the Karuk disease rates and change from a traditional diet to one that included more processed foods):

Dependence on food assistance and lack of traditional foods have been implicated in the development of a range of medical conditions.^{11 12} Preliminary results from the *Healthy River, Healthy People, Traditional Foods Survey* suggest that similar patterns may exist within the Yurok Tribe. For example, the prevalence of diabetes among survey respondents 65 years and older is significantly greater among those who receive food assistance than those who do not.... In contrast, the prevalence of obesity, hypertension and heart disease and other related disorders show no significant differences between those who receive food assistance and those who do not. The prevalence of diabetes among American Indians and Alaska Natives is 2.3 times greater than that of non-Hispanic Whites and as of 2002, diabetes prevalence for American Indian and Alaska Natives as a whole was 15.3%.” (Sloan, February 2011, pp. 95-96).

In addition to the decline in salmon and other fisheries, health concerns and impacts have resulted from poor Klamath River water quality, and include basketry-material gathering and use or processing of materials that occur in or near the Klamath River. A critical part of Yurok Tribal ceremonies involve drinking River water and bathing in the Klamath River which poses important health concerns. There have been serious health advisory warnings upstream at Iron Gate Dam and Copco Reservoirs (attachment 3b), discussed at the end of this 2.1.2.3 Health section.

2.1.2.3.1 Traditional Foods

Norgaard and the Northwest Portland Area Indian Health Board documented and described a tremendous shift in the Indian diet for the Karuk Tribe and other salmon-based tribes in the Portland area from one of traditional foods (hunting, fishing, and gathering) to an increased reliance on purchased food and Federal food program commodities which have been notorious for providing limited choices of foods with a large amount of bad fats and long shelf-lives (i.e., white flour, cheese, canned high fat meats, etc.) (Northwest Portland Area Indian Health Board, accessed August 2010).

The decline in the availability of traditional foods, primarily salmon, other fish, eels, other traditional foods, and extreme poverty shifted the Yurok diet beginning as early as the 1930s with dams and over fishing, which accelerated in the 1970s

¹¹ Dillinger, Teresa L. et al. 1999. Feast or famine? Supplemental food programs and their impacts on two American Indian communities in California. *Intl. J. Food Sci and Nutr.* 50:173-187.

¹² Norgaard K. 2005. The Effects of altered diet on the health of the Karuk People. A Report prepared for the Karuk Tribe of California

with construction of IGD, resulting in higher obesity, diabetes, and heart disease rates. Research on the Karuk Tribe experience, which applies to a large extent to the Yurok, Norgaard found that as traditional food consumption has declined, the time and energy spent finding, securing, processing, and physically transporting traditional foods has contributed to a more sedentary lifestyle that contributes to diabetes, heart disease, and obesity (Norgaard, November 2005).

2.1.2.3.2 Trust Responsibility and Health Care

In terms of trust responsibility, the Federal Government is required to provide health services to Federally recognized Tribes by the trust doctrine (Cherokee Nation v. Georgia, 1831) and the Indian Health Care Improvement Act, (P.L. 94-437), as reauthorized March 2010, to ensure health care parity and a standard of living for Indians comparable to non-Indian society (attachments 5a and 5b).

2.1.2.3.3 Mortality Rates

Mortality rates increase from higher diabetes and heart disease rates. American Indians are twice as likely as Caucasian adults to have diabetes. If current trends continue, one in three Americans will develop diabetes in their lifetime and will lose, on average, 10 to 15 years of life. Diabetes was the sixth leading cause of death nationally in 2006 and overall, the risk of death among people with diabetes is about twice that of non-diabetics, (CDC, accessed September 2010).

In terms of prevention and treatment, recent studies show that lifestyle (including diet) changes can prevent or delay the onset of type II diabetes among people at high risk. For example, prediabetics can reduce the rate of onset type II diabetes by 58 percent by losing 5-7 percent of their weight and exercising at least about 2 hours per week, (CDC, accessed September 2010).

2.1.2.3.4 Heart Disease

Heart disease is the leading cause of death and morbidity for American Indians, as well as the general population. Several medical conditions and lifestyle choices put people at a higher risk for heart disease, including: high cholesterol (high 'bad' fats and low 'good' fats, like omega 3 fatty acids found in salmon), high blood pressure, diabetes, overweight/obesity, poor diet, and three other factors. Five of the eight factors either are diet-related or are closely tied to diet. The American Heart Association (AHA) recommends eating fish at least twice a week (every day for those with heart disease), particularly fatty fish like salmon which are high in two kinds of omega-3 fatty acids: eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which have demonstrated benefits for reducing heart disease. Omega 3 fatty acids have been found to help with other such diseases as diabetes (Norgaard, 2005) (American Heart Association, accessed

September 2010). Spring Chinook salmon were particularly important:

“Of the many fish species...the Spring Chinook salmon have historically been the most important...Spring Chinook had the highest volume of fish, a reliable run, higher fat content, was in the best physical condition, tasted better, and came in the Spring, a critical time for food...The particular importance of Spring Chinook salmon for tribes in the region is noted by early anthropologists (e.g., Gunther 1926, Rostland 1959).” (Norgaard, November 2005, p. 32).

2.1.2.3.5 Diabetes

Diabetes is a major contributor to morbidity and is the fourth leading cause of death among all American Indians. According to an analysis of Karuk Tribal medical records, which is assumed to be similar for Yurok people, diabetes rates are about 21 percent (nearly four times the national average), and 70 percent of Tribal members over age 60 reported having diabetes (Norgaard, 2005, pp. 39-40).

In terms of prevention and treatment, recent studies show that lifestyle changes can prevent or delay the onset of type II diabetes among people at high risk. For example, prediabetics can reduce the rate of onset type II diabetes by 58 percent by losing 5-7 percent of their weight and exercising at least about 2 hours per week, (CDC, accessed September 2010).

In addition, from a socioeconomic standpoint Norgaard found that diabetes is costly in several respects:

“Diabetes is a costly disease not only in terms of medical care costs but also in terms of human costs. Of patients with Type II diabetes, 20 percent develop kidney disease, 45 percent develop cardiovascular related diseases and 50 percent suffer from hypertension. And the rates for these conditions are even higher for American Indian people (Joe and Young, 1993, p. 3).” (Norgaard, 2005, p. 39).

The Norgaard report also noted that nerve damage resulting from high blood glucose levels often leads to amputations and/or infections, and that the CDC reported additional such complications as blindness, disability, decreased quality of life and premature death that affect Indians disproportionately (Norgaard, 2005, p. 39, 47).

2.1.2.3.6 Obesity

Obesity is strongly related to altered diet and is frequently a cause of the increase in the incidence of diabetes (Norgaard, November 2005, p. 44). Nutrition is an important factor in obesity, and being overweight is a leading contributor to heart disease and the most prevalent form of diabetes, type II. Relatively small weight

losses are associated with large decreases in risks associated with developing and managing heart disease and diabetes (American Heart Association, September 2010).

A study of California childhood obesity found that some racial groups had declining rates of obesity, but for American Indian girls, obesity rates increased while rates for their male counterparts saw no change to a modest decline. Because of the serious health consequences and increasing rates of obesity, childhood weight data will be collected by IHS for 2010 reports on Indian Country health. Traditional foods require physical activity and are low calorie and more specifically, a daily portion of fish is recommended by the American Heart Association for people with heart disease, and at least two to three times per week as a preventative measure.

Obesity is the leading contributor to the onset of type II diabetes, and rates for children have been increasing. In “Disparities in Peaks, Plateaus, and Declines in Prevalence of High BMI Among Adolescents,” it was found that there was a decline in obesity prevalence for California’s Caucasian and Asian youth since 2005, but a continuation of increases for American Indian girls and remained about the same for American Indian boys (only the top percentile group had a decline). Data was analyzed from 2001 to 2008. The trends may indicate greater disparities over time, particularly for the severely obese.

2.1.2.3.7 Diet and Nutrition

The Present Conditions section of this document discussed the quantities of salmon historically consumed (about 1.5 pounds per person per day) by Karuk Tribal members and the relatively low levels of today. This section discusses details of the nutritional value of fish, especially salmon, the link with diseases, and the USDA Commodity Food Program.

2.1.2.3.7.1 Omega-3 Fatty Acids and Fish

A daily portion of fish is recommended by the American Heart Association (AHA) for people with heart disease, and at least two to three times per week as a preventative measure, primarily for the omega 3 fatty acids which are highest in wild salmon, (AHA Web site accessed November 2010). Norgaard researched and described some of the omega 3 benefits:

“Omega-3 fatty acids have been linked with a number of significant health benefits including reduced risk of heart attacks, strokes and Alzheimer, prevention of osteoporosis, a diabetic treatment, improved mental health and improved brain development in infants...A number of studies indicate beneficial effects of omega-3 fatty acids on various forms of depression...(Bruinsma 2000, Hibbeln 1998).“ (Norgaard,

2005, pp. 50-51).

Norgaard listed the potential health benefits of omega-3 fatty acids: Improved brain development in infants and mental health for all ages; reduced risk of stroke, heart attack, and Alzheimer's disease; reduction of triglyceride levels; and possible diabetic treatment, prevention of osteoporosis (Norgaard, November 2005, p. 50).

2.1.2.3.7.2 Shift from Traditional to Western Diet and Disease

Assuming the Yurok people experience conditions similar to their upstream neighbors, Norgaard's report analyzed Karuk Tribal survey results in which members stated that overweight, diabetes, and heart disease were relatively new and coincided with the shift from a traditional to a Western diet. For example, 66 percent of Karuk members surveyed reported that diabetes appeared in their families for the first time since 1970, which is when salmon runs declined significantly in the lower Klamath River reach. More specifically, Norgaard found that the correlation was strongest with the disappearance of spring Chinook salmon. Norgaard listed numerous studies in which a Western diet was introduced to American Indian Tribes and other native groups and within a month or so, they began to experience diabetes, and in some cases, heart disease as well (Norgaard, 2005, p. 51-53), and a primary example has been the U.S. Department of Agriculture's (USDA) commodity food program.

2.1.2.3.7.3 USDA Commodity Food Program

The commodity food program distributes food to Indian reservations, and has been comprised mainly of high sugar/simple carbohydrates, low fiber, highly processed foods that are often high in 'bad' fats. Commodity food programs appear to be linked to obesity among Indians:

“Significant concern has been expressed about commodity foods distributed to Indian people as a cause of obesity (USDA Food and Nutrition Service 1991) since the use of this program is high among Indian populations. Other studies have discussed the poor availability of high fiber, low fat foods in commodity food programs and called for change in these programs (Burhansstipanov and Dresser, 1994).”
(Norgaard, 2005, p. 46).

2.1.2.3.8 Social Conditions: Food Insecurity, Poverty, Stress, and Health Implications

In addition to the high degree of trauma and stress from losing some of their culture, land, federal status for several decades, fish, barter economy, high disease and mortality rates, and many important associated factors, Yurok Tribal members have the added stress of meeting basic needs. Previous sections of this document discussed high poverty rates that indicate many families are food insecure and/or have difficulty in meeting other basic needs. Norgaard's research and observations for the Karuk Tribe revealed the social and psychological stress associated with food insecurity when she stated that: "Difficulty in meeting basic needs results in overwhelming physical and psychological stress," which can directly and indirectly compound existing health conditions (Norgaard, 2005, p. 57).

2.1.2.3.9 Health Care Costs

This section discusses higher health care costs nationwide resulting from heart disease, diabetes, and obesity.

2.1.2.3.9.1 Heart Disease Costs

In 2010, heart disease will cost the United States \$316.4 billion, and includes the cost of health care services, medications, and lost productivity. Since 1998, the CDC has funded state health departments' efforts to reduce the number of people with heart disease and stroke. Health departments in 41 states and the District of Columbia currently receive funding. The program stresses policy and education to promote heart-healthy and stroke-free living and working conditions (CDC, accessed September 2010).

Large amounts of Federal funding are allocated for direct services to Tribes for diabetes and heart disease, and for research and education programs specific to American Indians designed to reduce the high rates of heart disease and diabetes. Direct costs of the top diseases and causes of death have been monetized for the general population and are included in this section. In terms of indirect costs, there are numerous Federal programs that are researching these problems and educational programs expressing the benefits of a traditional diet, or of the need to eat foods that happen to be part of a traditional diet such as that of the Klamath Tribes. For example, the CDC's Native Diabetes Wellness Program (NDWP) has recognized the need and importance of trying to influence diet choices to curb the diabetes epidemic by using culturally sensitive information and education of Indian children.

2.1.2.3.9.2 Diabetes Costs

The prevalence of diabetes continued to grow with the total reaching 17.5 million by 2007. Medical costs for people diagnosed with diabetes are about 2.3 times higher than the rest of the population. Total costs (direct and indirect) of diabetes was estimated to be \$174 billion, with direct medical costs at about \$116 billion and indirect costs (disability, work loss, premature death) at \$58 billion nationwide (2007 dollars). Hospital inpatient care was the largest percentage of costs at about half, medication and supplies were about 12 percent, prescriptions 11 percent, and physician office visits about 9 percent. In terms of direct medical costs, annual excess expenditures for the diabetic population was found to be \$3,808 for people under 45 years old, \$5,094 for people ages 45-64, and \$9,713 for people over age 65. The report noted that “the actual national burden of diabetes is likely to exceed the \$174 billion estimate because it omits the social cost of intangibles such as pain and suffering, care provided by nonpaid caregivers, excess medical costs for health care expenditure categories such as health care system administrative costs, over-the-counter medications, clinician training programs, and research and infrastructure development.” (ADA, “Economic Costs of Diabetes in the U.S. in 2007,” CDC, accessed October 2010).

2.1.2.3.9.3 Obesity Costs

Recently, the national estimated cost of obesity totaled about \$147 billion (2008 dollars) (Finkelstein, E.A., et al., 2009). Researchers investigated the average annual increase in medical spending associated with obesity, and found it to be 37.4 percent, or about \$732 more per patient (2002 dollars) (Finkelstein, Fiebelkorn, and Wang, 2003). Research results were similar in a 2002 study that found obese adults annually incur about \$395, or 36 percent higher medical expenditures than normal-weight adults under age 65 (Sturm, March/April 2002).

2.1.2.3.10 Water Quality Concerns

There have been health warnings about water quality problems in Iron Gate and Copco reservoirs which concern and affect Tribal members downstream for fishing, ceremonies, swimming, gathering basketry materials, and engaging in other uses of the Klamath River by Tribal members.

Water quality concerns affect or potentially affect Yurok and Resighini health in several ways:

- Direct contact with the River water for ceremonies, fishing, swimming, gathering basketry or other materials, and similar activities.
- Consumption of contaminated fish species.

- Avoidance or reduced reliance on traditional foods as a result of concerns about contaminated fisheries. Impacts of not having access to (or in this case, avoiding) sufficient amounts of fish, lamprey, and shellfish were discussed in the first part of this Health section.

The Resighini outlined water quality concerns in several memo documents to FERC; one is attachment 3a and another, dated March 23, 2006, is more comprehensive, and the Yurok Tribe sent similar comments to FERC on March 28, 2006. The Yurok Tribe views the water quality problems in the Klamath River as one largely of environmental justice, proposed that Basin Tribes work with the State Water Resources Control Board on an “Environmental Justice Pilot Project,” and identified beneficial uses common to Basin Tribes that are adversely affected in five overall areas: Ceremonial uses (12 categories); activities (11 categories), basketry (four categories), jewelry (one category), and subsistence (8 categories), including pathways of exposure for each (attachment 3c) (Sloan, February 2011, pp. 57-69):

“Beneficial uses...include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. An essential part of a water quality control plan is an assessment of the beneficial uses, which are to be designated and protected...Beneficial uses...of particular importance to Klamath Basin Tribes include but are not limited to: Native American Culture, uses of water that support the cultural and/or traditional rights of indigenous people such as subsistence fishing and shellfish gathering, basket weaving and jewelry material collection, navigation to traditional ceremonial locations, and ceremonial uses. Subsistence Fishing, uses of water that support subsistence fishing.” (Sloan, February 2011, p. 58).

It is important to note that the Yurok Tribe’s Environmental Program is sampling frequently to enable it to better inform Yuroks of potential health threats. (Yurok Tribe, 2011).

The Yurok Tribe *Healthy River, Healthy People, Traditional Foods Survey* included statements from respondents indicating that poor water quality has had a detrimental effect on various activities, and not only during the 2005 cyanobacterial bloom, but various times from about 2000 to 2005 (Sloan, February 2011, p. 105). The categories of River water uses that were most curtailed included fishing, bathing, drinking, and recreational uses. The same pattern and similar degrees of change were found for the proportion of respondents who changed their use of the Klamath River in 2005 in response to the Microcystin Public Health Notice for the Klamath River (Sloan, February 2011, p. 105); Sloan’s report described the issue as one of denied access to the

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River and salmon, resulting in denied access to spiritual and cultural resources. (Sloan, February 2011, p. 104).

2.1.2.3.10.1 Direct Klamath River Water Contact/Consumption

Ceremonies and ceremonial leaders are adversely affected by the need to commune directly with the Klamath River water, a problem also described by the Yurok and Karuk Tribes. Upriver, Karuk Tribal members described instances of open sores becoming infected when swimming in the River. (Salter, 2003). As with the Karuk and Yurok Tribes, Resighini tribal members are concerned that Iron Gate and Copco Reservoirs are responsible for the high levels of cyanobacteria, which produce microcystin toxins (blue-green algae, or *Microcystis Aeruginosa*), that lead to massive blooms downriver (Resighini Rancheria, March 23, 2006). The Karuk Tribal analysis showed that the blue green algae and toxins supplied by the reservoirs "...persisted and occasionally re-grew down river, and was detected in the Klamath River estuary (Kann 2006).” The Karuk, Yurok, and Resighini Tribes have had similar experiences with toxic algae effects and stated that the hydroelectric dams and reservoirs create taste and odor compounds in the Klamath River that adversely impact recreational and subsistence fisheries (Karuk Tribe, December 1, 2006; Yurok Tribe, March 28, 2006; Resighini Rancheria, March 23, 2006).

The Yurok Tribe stated that they practice ceremonial bathing and the importance of aesthetics for ceremonial uses--ceremonies involving Resighini members:

Ceremonial bathing in the River and its tributary creeks is a requirement for some of the participants. Ceremonialists also prepare themselves by listening to the River’s sounds.” (Sloan, February 2011, p. 45).

Recreation analyses for the *Klamath Facilities Removal EIS/EIR* (and SDOR) described present conditions as they relate to recreation and human health and additional information, including a copy of the health advisory notice that was posted at the reservoirs (attachment 3b):

“In recent years, water quality problems related to the existence of blue-green algae within Copco and Iron Gate reservoirs have necessitated the issuance of health advisories. These advisories recommend avoiding ingestion of or contact with water containing visible algae blooms, avoiding use of water for cooking or washing dishes, and limiting or avoiding consumption of fish from these reservoirs. The advisories also suggest that children and pets are at greatest risk. Recreational exposure to toxic blue-green algae can cause eye irritation, allergic skin rash, mouth ulcer, vomiting, diarrhea, cold and flu-like symptoms, tingling, headaches, numbness and shaking. Liver failure, nerve damage and death have occurred in rare situations where large amounts of contaminated water were directly ingested (U. S. EPA, et al. 2009). To

date, health advisories have not been issued for J. C. Boyle reservoir. This may be because this reservoir is relatively small and water flushes through rapidly.” (DOI, August 2011 [February draft pp. 3.20-3.21]).

Water quality impacts on recreation were analyzed in the *Klamath Facilities Removal EIS/EIR*:

“In response to the [PacifiCorp recreation visitor] survey question “Has water quality ever affected your visit to the Klamath River area?” approximately two-thirds of recreational users of the subject reservoirs had negative perceptions of water quality, commenting on its color, turbidity, and odor. The source of visitor concerns was primarily the brown, foamy water in free-flowing reaches and regular, extensive algae blooms that occur throughout the reservoirs. Visitors reported that the algae produces bad odors, fouls fishing lines, and reduces the area available for fishing, swimming, and wading (FERC 2007).” (DOI, August 2011 [February draft pp. 3.20-3.21]).

In another section of the analysis, public health effects were described that extend to the lower Klamath River:

“As discussed in Section 3.2, Water Quality, concentrations of chlorophyll-a and *Microcystis aeruginosa* have exceeded World Health Organization guidelines for protection from adverse effects in recent years, in both Copco 2 and Iron Gate reservoirs, as well as reaches of the Klamath River downstream of Iron Gate Dam. In 2005 and 2008, the NCRWQCB, Karuk Tribe, USEPA and other local, state, and federal agencies issued a warning to residents and recreational users of the river to use caution when near these algal blooms due to possible health effects of exposure to *Microcystis aeruginosa* and its microcystin toxin. Effects range from mild, non-life threatening skin conditions to permanent organ impairment and death, depending upon exposure time and intensity (FERC 2007). As identified in comments received during the scoping period for this EIS/EIR, these water quality issues and public health warnings have resulted in reduced recreational activity in affected river segments.” (Ibid).

Another analysis of water quality described present conditions in the *Klamath Facilities Removal EIS/EIR* stated that the middle and lower reaches of the Klamath River are listed as impaired by the State of California for a number of factors:

“The entire middle and lower reaches of the Klamath River, beginning at state line (RM 208.7) and moving downstream, are listed as impaired

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under California's Section 303(d) list for temperature, dissolved oxygen, and nutrients (State Water Resources Control Board [SWRCB] 2010a. Potential sources of impairment include hydroelectric operations, upstream impoundment, and flow regulation, among others (SWRCB 2010)." (DOI, August 2011 [April 11, 2011 draft, pp. 3.2-7]).

As another example of Klamath River vegetation practical (i.e., basketry) and ceremonial uses, the Yurok Tribe produces high quality bows and arrows used for hunting and in ceremonies, a tradition that continues today. Making the bow requires gathering equisetum or horsetail found in the wetland areas on the Klamath River and tributaries (Yurok Tribe, Yurok News, February 2011).

2.1.2.3.10.2 Aquatic Plant, Fish/Shellfish Species, and Water Consumption

The Yurok Tribe has concerns about the safety of consuming fish and other species from the Klamath River. Basketry materials, edible plants, medicinal plants, and other uses have been a concern in terms of water quality for consumption and processing (Sloan, February 2011, p. 45).

Tissue advisories and shellfish consumption advisories for toxins in aquatic life due to high blue-green algae bloom toxin levels were issued for areas in the hydroelectric reach, including Iron Gate dam, from about 2007 to 2008, they purportedly did not affect aquatic life in the River reach below Iron Gate Dam and were limited to the reservoirs:

"In 2007, a particularly extreme MSAE bloom prompted a Yurok Tribe health advisory along multiple affected reaches in the Klamath River (Kann 2007a–2007d); 85 percent of fish and mussel tissue samples collected during July through September 2007 in the Klamath River, including Iron Gate and Copco 1 Reservoirs, exhibited microcystin bioaccumulation (Kann 2008). Results indicated that all of the WHO total daily intake guideline values were exceeded, including several observations of values exceeding acute total daily intake thresholds (Kann 2008). In a retrospective letter to PacifiCorp (August 6, 2008), the California OEHHA stated that they "would have recommended against consuming mussels from the affected section of the Klamath River, and yellow perch from Iron Gate and Copco Reservoirs, because their average concentrations exceeded 26 nanograms per gram (ng/g)," which is the OEHHA upper bound of advisory tissue levels fish or shellfish consumption (for a single serving per week based on 8 ounces uncooked fish)" (p. 3.2-37). "...results clearly illustrate that the majority of exceedences to all guidelines and thresholds occurred in the reservoirs in the Hydroelectric Reach (as compared with downstream riverine sites)..." (DOI, August 2011 [April 2011 draft, pp. 3.2-38]).

[And]

“Although concentrations of both MSAE and microcystin toxin in the Klamath River downstream of the Hydroelectric Reach are lower relative to the reservoirs (Section 3.2.3.1 and Figure 3.2-33), WHO guidelines for exposure to microcystin (i.e., < 4 µg/L) have been exceeded downstream of Iron Gate Dam on numerous occasions (Kann 2004, Kann and Corum 2009, Kann and Corum 2010), including a particularly intense late-summer/early-fall MSAE bloom in September 2007 from Iron Gate Dam (RM 190.1) to the mouth of the Klamath River (RM 0.0). Health Advisories were posted along this reach of the Klamath River (Iron Gate Dam to Shasta River in 2009 and 2010, due to elevated microcystis cell counts and/or microcystin concentrations in river water.” (DOI, August 2011 [April 2011 draft, pp. 3.2-66]).

The Water Quality chapter of the internal working draft, *Klamath Facilities Removal EIS/EIR* stated that aluminum concentrations potentially exceeded the USEPA concentration for freshwater aquatic life:

“Aluminum concentrations (26.30–280.0 µg/L) potentially exceeded the USEPA continuous concentration for freshwater aquatic life protection (87 µg/L) on 23 of 59 site visits (39 percent exceedance rate), exceeded the USEPA secondary MCL for drinking water (50 µg/L) on 37 site visits (63 percent exceedance rate), and exceeded the California Department of Health Services secondary MCL for drinking water (200 µg/L) on five site visits (8 percent exceedance rate) (NCRWQCB 2008).” (DOI, August 2011, [internal draft pp. 3.2-68]).

Other analyses concerning contaminants in fish tissue and potential human exposure were conducted and mercury was found to be above recommended levels in Iron Gate Reservoir, particularly for subsistence fishers, or those who eat fish more often than the average:

“Separate assessments of contaminants in fish tissue for the Hydroelectric Reach have been undertaken by SWAMP and PacifiCorp. SWAMP data include sport fish tissue samples collected during 2007 and 2008 to evaluate accumulated contaminants in nearly 300 lakes statewide. Sport fish were sampled to provide information on potential human exposure to selected contaminants and to represent the higher aquatic trophic levels (i.e., the top of the aquatic food web). In the Hydroelectric Reach, fish tissue samples were collected in Copco 1 and Iron Gate Reservoirs and analyzed for total mercury, selenium, and PCBs (Iron Gate Reservoir only) (Davis et al. 2010). SWAMP data for Iron Gate and Copco reservoirs (Table 3.2-6) indicate mercury tissue concentrations above the USEPA criterion of 300 ng/g methylmercury in fish tissue to protect the health of consumers of noncommercial freshwater fish; and greater than the OEHHA public health guideline levels advisory tissue level (Klasing and Brodberg 2008) for consumption for 3 and 2 servings per week (70 and 150 ng/g wet weight, respectively) and the fish contaminant goal (220 ng/g wet weight).

Measured selenium concentrations were 3–4 orders of magnitude lower than OEHHA thresholds of concern (2,500–15,000 ng/g wet weight) and PCB concentrations were below the lowest OEHHA threshold (i.e., fish contaminant goal of 3.6 ng/g wet weight) (Davis et al. 2010). (p. 3.2-42 to 3.2-42). “...measured fish tissue levels of total mercury (2.3–2.5 ng/g) in samples from Copco 1 and Iron Gate Reservoirs as compared to the wildlife screening level of 2.27 ng/g (Table 3.2-7), and measured fish tissue levels of arsenic (<0.3 ug/g) that PacifiCorp indicated may equal or exceed the toxicity screening level **for subsistence fishers** (0.147 ug/g) in samples of largemouth bass from J.C. Boyle, Copco 1, and Iron Gate Reservoirs“(DOI, April 2011, pp. 3.2-42).

A study is underway to evaluate the potential for chemicals in sediment and elutriate samples to bioaccumulate in aquatic species at concentrations above screening levels for human health. The chemical investigation includes invertebrates (Asian clams, *Corbiucla*, and Black worms, *Lumbriculus variegatus*), which have been exposed to reservoir-derived sediments in a laboratory setting, and fish (yellow perch and bullhead), which were collected from the reservoirs during late September 2010.” (DOI, internal draft April 2011, pp. 3.2-44).

3.1 ENVIRONMENTAL CONSEQUENCES

This section compares the No Action Alternative, or existing conditions projected into the future (dams in) and Action Alternative that includes implementation of the KHSA and KBRA.¹³ A comparison of impacts between the two alternatives is summarized in table 3.1-1.

In terms of the action alternative, execution of the KHSA would remove Iron Gate, J.C. Boyle, Copco 1 and Copco 2 hydroelectric dams that prevent coho salmon, Chinook salmon, steelhead, and Pacific lamprey anadromous species from migrating above Iron Gate Dam to Upper Klamath Basin habitat.

The goals of the KBRA are to restore and maintain ecological functionality and connectivity of historic fish habitats and re-establish and maintain naturally sustainable fish populations, including harvest opportunities. The KBRA Fisheries Program will, among other actions, provide for reintroduction of anadromous species above the current site of Iron Gate Dam, including tributaries to Upper Klamath Lake. It would emphasize strategies and actions to restore and maintain a properly functioning Upper Klamath Lake and River processes and conditions, while also striving to maintain or enhance economic stability of adjacent landowners. In addition, it would prioritize habitat restoration and

¹³ The two agreements have language specifying their interdependence as a condition of execution.

monitoring actions to ensure the greatest return on expenditures. Both agreements include measures that would improve water quality, particularly the KHSA dam removal which would greatly reduce toxic algae accumulation in the four reservoirs, especially Iron Gate and the Copco dams. Under implementation, an increase in the amount and availability of fish is expected to restore much of the cultural, social, economic, and health deterioration of the past.

3.1.1 No Action: Potential Impacts without the KHSA and KBRA

Implementation of the KHSA and KBRA is expected to result in stable or increases in species. Expert panel, biological subgroup draft Synthesis report, draft EIS/EIR, and BIA report information (June 2011a and b) were used for drawing conclusions about potential impacts to species.¹⁴

3.1.1.1 Fisheries

“The Ach (the People) are river people. Have been since time began. If the river dies, we are no more. Without salmon in the river, I don’t believe our culture can survive.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 7).

[Concerning the 2002 fish kill] “Never in our time have we, the elders of the Yurok Culture Committee, seen such a mass destruction of our salmon resource.’ (October 2, 2002).” (Sloan, February 2011, p. 14).

“As a kid there were abundant salmon because you could see the salmon thick in the river from the bridges. You had to row your boat out to rocks that you can walk out to now....In my lifetime I have watched the salmon, sturgeon, and eels become depleted. Salmon, eels, and sturgeon were our main food. We ate one of the three daily. We only ate meat on payday. The rest of the week we ate fish. Now we get fish only occasionally. This year we have not had any fish. My children may not have any salmon in the future.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 99).

According to the biological subgroup report the Klamath Basin was once the third-largest producer of salmon in the United States (Institute for Fisheries Resources 2006) that produced large runs of steelhead, Chinook salmon, coho salmon, green sturgeon, eucelone, coastal cutthroat trout, and Pacific lamprey (Hamilton, et al., 2010, p. 11).

¹⁴ Hamilton, et al. November 23, 2010, Synthesis of the effects to fish species of two management scenarios for the Secretarial Determination on removal of the lower four dams on the Klamath River, Final Draft

Table 3.1-1.—Resighini Rancheria impacts summary table

Indicators	No Action	Dam Removal
KHSA and KBRA		
Fisheries	Continuation of declining anadromous fish populations available for fishing and barter. Increasingly limited opportunities to practice a traditional lifestyle ceremonies that center on a salmon culture and require a healthy river. Continuation of unnatural hydrograph that contributes to algae toxins, higher summer water temperatures, and other water quality conditions that adversely affect fisheries, health of the river, and traditional uses.	Additional quantities of anadromous fish, especially salmon, available for fishing and barter beginning around 2020 to 2060. Greater opportunities to continue practicing a traditional lifestyle and ceremonies that center on a salmon culture and require a healthy river. Over the long run, a more natural hydrograph would improve algae toxins, water temperatures, and other water quality conditions that adversely affect fisheries, health of the river, and traditional uses.
Employment and Income	Limited opportunities to improve high poverty, unemployment, and low median income conditions with additional fishing and barter. Limited potential for improved social conditions related to high unemployment and poverty. Water quality problems would likely continue to limit the Tribe’s ability to develop recreation/tourism.	Opportunity for tribal members to improve high poverty, unemployment, and low median income conditions with additional fishing and barter between about 2020 and 2060. Potential to improve high unemployment, poverty, and per capita income conditions directly or indirectly from dam deconstruction around 2020. Potential for improved social conditions related to poverty. Water quality improvements would enhance opportunities to retain and/or expand existing tourism businesses as well as in developing planned recreation/tourism.

Table 3.1-1.—Resighini Rancheria impacts summary table

Indicators	No Action	Dam Removal
Health	Limited opportunity to alleviate high diabetes, heart disease, and obesity rate trends with associated high costs, disability, and mortality rates. Continued reliance on commodity/processed foods. Some degree of poor water quality conditions and hydrograph are expected to continue with potential associated health concerns and negative effects on cultural practices and lifestyle.	From about 2020 to 2060, potential for reduced diabetes, heart disease, and obesity rate trends and associated high costs, disability rates, and mortality rates. Reduced reliance on commodity foods and other processed foods. Improved water quality and hydrograph would reduce or eliminate associated health concerns and have a positive effect on cultural practices and lifestyle.

Historically, most species were used for subsistence as early observers and elder Tribal members have recounted, and the Tribe depends on these species presently if they are available, and if not available, the Tribe would like them to become available again or exist in greater abundance: Spring- and fall-run Chinook Salmon, coho salmon, steelhead, Pacific lamprey, trout, green sturgeon and eulachon (Sloan, February 2011; DOI, BIA, June 2011a). Spring- and fall-run Chinook are central components of multiple ceremonies that include the World Renewal Ceremony (also known as the White Deerskin Ceremony) and building a dam in the spring in which the First Salmon Ceremony is a vital component; most of which can no longer be practiced or in some cases have been moved back to the fall for lack of a spring Chinook run. Lamprey is another important species, as are sturgeon, and have important nutrients, particularly for the elders. Other traditional food species include fresh water clam or mussel and candlefish or eulachon. (BIA, March 2011). Some riparian vegetation is also used as subsistence foods or medicine.

Table 3.1-2 summarizes projected current conditions (no action) without KHSA and KBRA actions. The variety and plentitude of fish species in the lower Klamath River was a large part of the Tribe's seasonal round, food security, and culture that has gradually declined over passing decades beginning with Copco 1 Dam, but especially since IGD was constructed around 1962. Yurok Tribal members described the changes they have experienced in subsistence fishing with the dams, particularly IGD over several generations:

“The construction of dams on the Klamath and the Trinity Rivers had a big impact on the River and its annual flow. Walt stated that a significant decline in fish population was evident after the construction of the dams (Walt McCovey Jr., 2003,” [Yurok Tribal elder]. (Sloan, February 2011, p. 123).

Under No Action, or conditions without the KHSA and KBRA, one of the most important species to the Tribe, spring run Chinook would continue to be essentially unavailable and others are in danger of going below harvest levels or would continue to be unavailable or potentially unsafe due to water quality problems — all of which have significant economic, social, cultural, and trust responsibility impacts, as described by the Tribe:¹⁵

¹⁵ The Federal Government has a trust responsibility to support the health, economic, and social welfare of federally recognized tribes. For additional trust information, see the trust section of the Klamath Settlement EIS/EIR and BIA, June 2011a, June 2011b.

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Table 3.1-2.—Summary of No Action Alternative conditions by species

Coho salmon (threatened)	Significant impact on essential fish habitat and continuation of downward trend.
Spring Chinook salmon	Significant impact on essential fish habitat and continuation of low levels, possibly become extinct.
Fall Chinook salmon	Significant impact on essential fish habitat and continuation of downward trend.
Pacific lamprey	Trends range from little change in current low levels to a decline.
Steelhead trout	Some uncertainty, but likely decline.
Sturgeon (ESA-listed)	Population expected to remain at low levels.
Candlefish or Eulachon (listed as threatened under the ESA in March 2010)	Remain essentially absent with chance of slight improvement.
Longfin Smelt	Since smelt occur in the estuary and a great deal of mixing occurs, water quality problems are expected to be relatively insignificant.
Crayfish	No change.
Mussels or Freshwater Clams	No change.
Riparian vegetation used for food, ceremonial, and subsistence purposes	No change—poor hydrograph (affecting quantity and quality of plants) and water quality/bioaccumulation concerns would persist.

Sources: See attachment 6.

“Historically, Yurok People were able to harvest fish from the Klamath River all year-round. People harvested fall Chinook and Coho salmon during the late summer/fall; steelhead, lamprey and candle fish during the winter and spring Chinook, sturgeon and lamprey during the spring and summer. The decline in these and other river species means that the Yurok People can no longer sustain themselves from the river on a year-round basis. In any community where 80% of the people lack basic food security this loss is ruinous. For the Yurok People who are recovering from more than one hundred years of cultural genocide the loss is catastrophic. Any assessment of the impact of the current conditions on the Yurok Tribe, the federal government’s trust responsibility and any impacts of current conditions on tribal trust resources must consider these facts.” (Sloan, February 2011, p. 95).

3.1.1.1 Fisheries

Spring run Chinook salmon would continue to be essentially absent and could become extinct, and fall-run Chinook salmon populations would continue to decline. Spring Chinook are particularly important because they come relatively early in the seasonal round and are highest in fat content, similar to Pacific Lamprey, and like other Klamath Basin Tribes, salmon is estimated to traditionally comprise up to about half of the Yurok diet. (Norgaard, 2005).

Fall run Chinook, and possibly Pacific Lamprey and steelhead, would continue a downward trend and the Yurok Tribe has documented the fact that these primary remaining sources of high quality subsistence foods do not meet the needs of the current Yurok population whether on the Yurok Indian Reservation or ancestral territory.

In addition to adverse Chinook salmon impacts, coho salmon is expected to remain threatened and continue declining. Pacific Lamprey are important to Yurok people, as discussed in the Historic and Present Conditions Sections, and projected trends range from essentially no change from current low levels to declines. Steelhead trout were, and remain another important fishery that is likely to decline under No Action. Green sturgeon, another traditional subsistence species, is expected to remain at low levels. Eulachon stocks are projected to remain essentially absent or improve slightly given existing water quality restoration efforts. Yurok people have been concerned about impacts to mussels in terms of water quality impacts, health, and consumption. The *Klamath Facilities Removal EIS/EIR* stated that there would be short- to mid-term impacts with long term benefits for such species as crayfish and mussels.

Overall economic, social, cultural, and health resource impacts of having insufficient fish runs and stocks available for traditional uses would continue past trends. The Yurok Tribe had a subsistence lifestyle that was sharply affected beginning in the late 1960s and 1970s when IGD exacerbated hydrograph and water quality problems along the River. The hydrograph became increasingly unnatural, stranding fry and changing the River channel that compromised fish and vegetation habitat along the River banks. Water temperatures have risen, contributing to fish runs shifting later into the season that resulted in more fish disease and mortality. Additionally, the proliferation of blue algae toxins cultured by the hydroelectric reservoirs has contributed to declining fish populations and interferes with recreation fishing. Existing water quality trends would be expected to continue to some extent (DOI, August 2011 [EIS/EIR water quality; Biological Subteam report]).

One Tribal elder described the changes in salmon, eel, and sturgeon populations and the hydrograph that he has seen which are trends expected to continue:

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“As a kid there were abundant salmon because you could see the salmon thick in the river from the bridges. You had to row your boat out to rocks that you can walk out to now. Before I went to Vietnam in 1967 the River was high; when I came back after the Dam was built the water had dropped. In my lifetime I have watched the salmon, sturgeon, and eels become depleted. Salmon, eels, and sturgeon were our main food. We ate one of the three daily. We only ate meat on payday. The rest of the week we ate fish. Now we get fish only occasionally. This year we have not had any fish. My children may not have any salmon in the future.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 111).

During the same time period, the Yurok Tribe experienced a cultural revitalization that has gained momentum up to the present. Declining (or potentially disappearing) spring and fall run Chinook could, at some point in the project period, make practicing Yurok religious ceremonies more difficult or essentially impossible. The Resighini Rancheria’s social, cultural and economic gains would be expected to slow, stall, and possibly decline as remaining key fish species continue to decline or are lost forever

Yurok religious and ceremonial practices and way of life could be in jeopardy if present trends continue as Yurok people focus on the health of the River and its fish and aquatic species which comprise most of the Yurok world:

“Klamath River fish are irreplaceable to the Yurok Tribe’s culture, religion and economy. From time immemorial, Yurok people have depended on the Klamath River and all of its streams and tributaries. The River is central to Yurok society by providing food, transportation, commercial trade, and numerous other activities essential to Yurok life. Throughout history and today, the identity of the Yurok people has been intricately woven into natural environment including the Klamath Basin watershed. Tribal religious and ceremonial practices focus on the health of the world; the Klamath River and its fisheries are a priority. The Yurok Tribe’s obligation to protect the fishery has always been understood by Yurok people.” (Sloan, February 2011, p. 118). [and] “‘When we do our Jump Dance we are praying for these things to return to abundance state. The Yurok people cannot survive without fish, acorns, language, and ceremonies.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 111).

The Yurok cultural revitalization would be hindered by an unnatural hydrograph that affects the growth and supplies of vegetation for cultural uses:

“Willows, alders, ferns and other cultural plants used for basketry and medicines were traditionally harvested along the river bar where the materials were considered to be of highest quality for use. Decreased flows have impaired and adversely impacted many traditional gathering areas due to low flows, less scouring, and build up of gravel and cobbles

along the Lower Klamath. Traditional users still access these areas for these plants and materials, but the availability of suitable materials has declined since the dams were constructed.” (Sloan, February 2011, p. 44).

Yurok religious practices and world view are adversely impacted by an unhealthy river caused largely by an unnatural hydrograph and poor aesthetics from water quality problems resulting from the hydroelectric dams:

“The Brush Dance held in many of the traditional village sites along the Klamath River, requires the proper scenic river qualities and the availability of river resources. As a brush dance unfolds over a four day period it attests to 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, cooked in the baskets, are converted into a nourishing mush that is rendered by placing special hot rocks gathered off of specific river bars into the acorn flour and water placed in the baskets. Regalia that adorns the dancers are constructed out of the various plant and animal products that the riverine environment provides. Ceremonial bathing in the River and its tributary creeks is a requirement for some Dance participants. Ceremonialists also prepare themselves by listening to the River’s sounds. While many guests today arrive by car, many more arrive by the traditional transportation method: boats.

[concerning death] “Just as children coming into the Yurok world are introduced in various ways to the rivers and the culture that surrounds their people’s riverine way of life, so do the elderly depart from this world via the river and its features. Rocks located in the Klamath and Trinity Rivers and at their edges are seen as spirit people who guide Yurok knowledge concerning proper burial procedures. The deceased’s last worldly journey is a boat ride up-river. At each of eighteen rocks from the mouth up to Slate Creek and up the Trinity, various burial rites and proscriptions are observed to assure the best departure for the deceased as well as those that remain in this world. There are several rocks in the mid-section of the rivers that contain rare petroglyphs giving instructions from the Creator to the Yurok people. One such instruction is a warning that when the rivers stop flowing it will mark the end of the Yurok world. Accordingly, some elders have prophesized that the manipulation of flows by damming represents the beginning of the end for the Yurok.” (Sloan, February 2011).

The trust responsibility of the U.S. Government to provide protection to the overall health, social, economic, and welfare of the Resighini Rancheria would continue to be weak under the No Action Alternative as described in BIA trust analysis (June 2011a; June 2011b. A BIA analysis summarized trust and non-trust resource impacts to the Rancheria from the dams concerning hydrology, water temperature, suspended and bedload sediment, nutrients, dissolved oxygen,

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pH, algal toxins and chlorophylls, inorganic and organic contaminants, and aquatic resources (p 3-18 to 3-24).

No action would mean a continuation of an impaired sense of Tribal identity and social trauma that began about 150 years ago with loss of their traditional territory and again about 40 years ago when fish runs began a dramatic decline, particularly spring-run Chinook, and diabetes, heart disease, and associated disability and mortality rates rose dramatically. Water quality began declining and water fluctuations were often frequent and dramatic which served to diminish other River-based traditional uses. With reduced fish populations, an unnatural hydrograph, and related factors that threaten tribal cultures, Norgaard and others describe the consequence as ‘cultural genocide.’

Social values and methods for achieving economic well-being have been transmitted to successive generations by teaching and practicing concepts of redistribution of wealth (fish) to extended family and dependent populations within the community, which would continue to be adversely impacted, particularly for the children, because what is largely unavailable cannot be used or redistributed (and an unnatural hydrograph interferes with ceremonies as well):

“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 [Norgaard, Chapter 5, 2005]. Young people feel this loss of belonging especially intensely...When tribal celebrations require that the tribe and visitors feast on salmon and no salmon is to be found... it is disheartening to have to make a trip into town to purchase imported fish from a grocery chain store [or consider substituting other species]. The results can be depression, alienation, and withdrawal... creating a malaise that lingers among the people subject to these conditions.”
(BIA, June 2011a, pp 1-7).

Adverse cultural and social impacts would include problems stemming from the continuation of impaired Tribal and cultural identity. The Yurok have many ceremonies in common with the Karuk and Hoopa, such as the Jump Ceremony, White Deerskin or World Renewal Ceremony (which includes the Boat Dance Ceremony). Ritual bathing in the River is a necessary component for them all. The World Renewal Ceremony (or White Deerskin Ceremony) with the First Salmon Ceremony as a crucial initial component, would not have the potential of being reinstated in the Spring with the first salmon run as had traditionally been done for centuries.

The regional barter system that was a thriving economy prior to European contact would continue to be adversely affected as Resighini tribal members would continue to have insufficient salmon supplies to trade.

3.1.1.2 Employment and Income

Reduced varieties and populations of fish for fishing and barter to supplement low incomes, improve poverty levels and to boost the Tribal economy overall would remain unchanged for a growing Tribal population. Fishing has been considered an essential component of a family's security which would continue to be threatened under no action and has considerable social and health implications as food insecurity is stressful (Norgaard, 2005).

The Resighini Rancheria and surrounding areas where many Tribal members live are projected to continue to have high unemployment and poverty rates and low incomes compared with surrounding non-Indian populations and the counties and the State. Resighini Rancheria unemployment was about two to three times that of most surrounding areas, the counties, and State, per capita income was about half that of the surrounding area and the County, and even less compared to the State. The Yurok Tribe has noted that the social, cultural, and economic disparities created by the KHP are disproportionate impacts, and therefore are also considered environmental justice issues that apply in many ways to the Resighini as well:

“The Yurok Tribe has not even received the benefit of electricity generated from the Project, yet the Project has severely impacted the reservation economy, which relied upon the River primarily for food, and less as a commercial and recreational fishery. The lack of ability to make a living wage on the YIR has led to a Yurok diaspora, or displacement into surrounding areas or further in search of economic stability, yet Yurok who leave often return or wish to return to live on the reservation, if only they could make a living.” (Sloan, February 2011, p. 109).

Low fish stocks and poor water quality threaten opportunities for improving high unemployment and low income levels with such ventures as the tourism and recreation businesses currently operated and others proposed by the Rancheria. Health advisories, odor, and other aesthetic problems deter people from returning to the campground owned and operated by the Tribe.(BIA, June 2011b, p. 2-5). The main industry in the region has been timber-based which remains weak, and Tribal members tend to be at a disadvantage in terms of education, training, and discrimination for other relatively few area jobs. Potential for improved social conditions related to poverty is limited. For these reasons, the development and growth of Tribal education, job training, and employment programs has been important.

Tribal economic development, encouraged by the Federal policy of self governance, would continue to be constrained by the lack of abundant resources (i.e., timber, fish, clean water, etc.), and limited amounts of land owned by the Tribe, including a lack of sufficient funds for business development. Poor water quality conditions may continue to make investments in local recreation/tourism,

to the extent that the Tribe would consider optimal, unlikely since River-based recreation has been declining in large part because of health advisories (one example includes attachment 3b, but there have been newspaper articles and other advisories).

3.1.1.3 Health

“‘The River is the lifeline of the tribe. It needs to be clean and full so the salmon can come back and nourish the people. The salmon is like the miner’s “canary” – if it is sick or dying it is a sign that our people are sick and dying too. If it is abundant and thriving – so are the people. It is the responsibility of the tribe and other government agencies to ensure this life line is healthy and abundant for the future generation.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 110).

A no action scenario would mean a continuation in trends of increasing diabetes, heart disease, and related disease with high mortality rates. The relatively heavy reliance on commodity foods would continue. Higher disease rates are correlated with higher costs to the Tribe and Federal Government are inconsistent with the intent of the Federal trust responsibility for Federally recognized tribes in providing social, economic, and health well being. Poor water quality creates health concerns and problems, and contributes to traditional food-avoidance.

Trends, documented by Norgaard, began with a shift from a traditional diet resulting largely from declining salmon populations that accelerated during the 1970s when the spring run Chinook essentially disappeared. Changes were described as dramatic and correlated with the appearance of diabetes and other disease rate (Norgaard, 2005). The decline in traditional food available in the Yurok and Resighini diets has had adverse effects as it was largely replaced by USDA commodity foods which are highly processed, high sugar and fat foods that many tribes have had to rely on to help feed their people given high unemployment and poverty rates. Norgaard found that omega-3 fatty acids, abundant in salmon (especially spring Chinook), have been linked with a number of significant health benefits, including:¹⁶

“...reduced risk of heart attacks, strokes and Alzheimer, prevention of osteoporosis, a diabetic treatment, improved mental health and improved brain development in infants...[and] beneficial effects ...on various forms of depression...(Bruinsma 2000; Hibbeln 1998).” (Norgaard, 2005, pp. 50-51).

The diet shift resulted in high heart disease, diabetes, and obesity rates with

¹⁶ The American Heart Association recommends consuming fish, especially salmon, at least two to three times a week as a preventative measure for heart disease and obesity.

associated high direct and indirect social and monetary costs and higher mortality rates. Tribal health problems are compounded by food insecurity and other poverty-related stress. Diabetes in particular tends to have a higher rate of complications that result in disability. High disease rates and associated social and cultural costs would include a continuation of high rates of premature disabilities and death in older age groups that limit ‘intellectual capital;’ the ability of elders to pass along Tribal culture and social structure to younger generations. Health costs associated with diabetes and obesity could continue with a no action scenario.

Water quality problems create potential health impacts or avoidance which is problematic for ceremonies, edible and medicinal plants, basketry, and other traditional uses. Although existing efforts are expected to improve water quality (full implementation of Oregon and California TMDLs) eventually (decades), the extent is not clear, and algal blooms would likely still be present, especially Iron Gate Dam:

“Continued impoundment of water at the Four Facilities would continue to support growth conditions for toxin-producing nuisance algal species such as MSAE, resulting in high seasonal concentrations of cyanotoxins (e.g., microcystin) and chlorophyll-a transported into the lower Klamath River downstream of Iron Gate Dam...” (DOI, August 2011 [Internal draft, April 11, 2011 p. 3.2-109]).

Recreation water contact health advisories are likely to continue during mid to late summer months for microcystis aeruginosa, or blue-green algae toxins. Water quality would continue to be a health concern in the River for Tribal members’ contact with the water for ceremonial bathing, traditional fishing, medicinal, edible, and other plant gathering/processing uses as well as direct and indirect ingestion. Yurok people (including children) would likely continue to risk adverse health consequences from direct River contact for such ceremonial uses as bathing in the River (traditionally included drinking the water), fishing, and gathering plants as traditional foods, for ceremonial and regalia purposes, and basketry materials.¹⁷

“All four [Jump Dance, White Deerskin Dance, Brush Dance, and Boat Dance], and ceremonies must be conducted in close proximity to the River and the cultural and ceremonial significance of these Ceremonies are linked directly to the River and include practices within the Ceremony that require direct exposure to the River, including bathing and drinking of River water. The First Salmon ceremony and the Cappell Fish Dam are currently not practiced but there is interest within

¹⁷ The Brush Dance is a community gathering to support an ailing child, and is still held in many of the traditional village sites along the River, and requires a pristine River for the setting and resources. Often people still arrive/depart by boat on the River (DOI, BIA, June 2011, pp. 3-6).

the ceremonial community in restoring all Yurok Ceremonies. The Yurok ritual of taking the deceased up river to the death purification rocks is still practiced for those Yurok buried in the traditional fashion. Yurok culture has recently had a resurgence of the traditional stick games, a ceremonial sport that combines aspects of wrestling and lacrosse. The playing fields are constructed on sandy beaches along the river during the summer months and often in conjunction with the Brush dance ceremony. Aspects of all Yurok ceremonies require interaction and even immersion in the River and require high water quality to be practiced with integrity and also the health and wellbeing of ceremonial practitioners.” (Sloan, February 2011, p. 43).

Additionally, water quality concerns would continue to affect gathering and consumption of edible plants, shellfish (primarily mussels), and fish. Processing basketry, fish, and other traditional foods and cultural materials would continue to be a human health concern. Algae would continue to interfere with fishing success. Fear of water quality-related warnings and poor aesthetics of River water have compounded the diminishment of a traditional diet that contributes to high disease rates. Concerning potential bioaccumulation and health impacts, it should be noted that a study supporting the Secretarial Determination is underway to evaluate the potential for chemicals in sediment and elutriate samples to bioaccumulate in aquatic species at concentrations above screening levels for human health.(DOI, August 2011, [April, 2011, pp. 3.2-44]).

3.1.2 Action Alternative: Potential Impacts of the KHSA and KBRA

Overall, if the KHSA and KBRA were implemented, conditions measured by the indicators; fisheries, employment and income, and health are projected to improve, as described in the following sections and summarized in table 3.1-1.

Impacts would be positive for all species in the long run (after 2021), which is a significant improvement since the Tribe places a high value on the return of conditions closer to the historic, healthy, diverse ecosystem the lower Klamath River and Estuary once were. For this reason, any resurgence in the spring run Chinook in the lower Klamath River reach that has not occurred since about the 1930s is perceived as a significant benefit regardless of whether all fisheries would be at harvestable levels. The Resighini view themselves as a fishing culture despite all the obstacles of the past and present, and as such, and would like all species available again. Therefore, it is assumed that more fishing opportunities would lead to the practice of a traditional lifestyle on a greater scale than is currently taking place which would strengthen social ties and economic stability. Additionally, it is important to note that although this analysis focuses mainly on anadromous and recreation fisheries, the fact that the Action Alternative would mean preservation of other species and some that are projected

to possibly become extinct under No Action is critically important to the Resighini.

The variety and plentitude of fish species in the Basin was a large part of the Tribes' seasonal round and food security that has gradually declined over passing decades, beginning with construction of Copco 1 and 2, and particularly IGD in 1962. Historically, most native lower Klamath River species were used for subsistence, however the Yurok people depended heavily on spring and fall run Chinook, steelhead, eulachon, sturgeon, and lamprey. Table 3.1-3 summarizes impacts by species and additional detail is in attachment 6.

3.1.2.1 KHSA and KBRA

“The River is the lifeline of the Indian people. We depend on the fish, depend on eels, sturgeon. In his lifetime, as an Indian person, going to school, come out to our freedom. River is medicine...[a person] can feel lousy...and go out on the River and come back feeling good. Gives strength, knowing this is mine; this is where I live, where I'm born. This is where my roots are.’ (Yurok Elder Walt McCovey Jr., 2003).”
(Sloan, February 2011, p. 43).

Dam removal would benefit fisheries, and with them, ceremonies, socioeconomic conditions, and health status.

The trust responsibility of the U.S. Government to protect groundwater rights, land and mineral rights (gravel operations), in addition to the overall health, social, economic, and welfare of the Rancheria would be strengthened, as described by the Tribe and BIA trust analysis (June 2011a; June 2011b), and Present Conditions and No Action sections of this document.

In addition to fish passage benefits for the anadromous species, water quality would improve more rapidly and probably to a greater extent than under no action which would benefit aquatic species.

The Yurok Tribal *Healthy River, Healthy People, Traditional Foods Survey* found that passing a traditional lifestyle on to the next generation depends on the ability to have children participate in traditional activities, which in turn requires a healthy river for sufficient fisheries, aquatic species, and plants:

“Preliminary analyses of survey data indicate that a greater proportion of individuals who participate in traditional activities as children are more likely to continue those activities as adults. A similar pattern exists when those who live within the Ancestral Territory are compared to those who live elsewhere. In 2006, respondents who lived within the Ancestral Territory participated in traditional activities in significantly greater

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numbers than Tribal Members who lived elsewhere Territory.” (Sloan, February 2011, p. 103). [and]

‘I am trying to teach my children how to fish on the River and have been very disappointed with the numbers of fish available. I do believe that a lot of traditional foods are being lost and becoming unavailable. Beach fishing is almost impossible to gather surf fish, clams and others. Gathering herbs for teas is becoming a lost art. There is very little if any big game available for food which could provide a lot for the people. Salmon is really the only thing we have left and it is hurting.’ (Yurok Tribal Member Survey Respondent 2006).” (Sloan, February 2011, p. 71).

Dam removal would begin in 2020, and there would be adverse short term impacts to Klamath River species below Iron Gate Dam resulting from the release of sediment that has accumulated for decades in the four reservoirs that would impair water quality downstream. However, within about five years or less of dam removal, populations of spring- and fall-run Chinook, steelhead, lamprey, sturgeon, eucelone, and other species are expected to improve, in large part because of additional habitat and improved water quality.

The Yurok Tribe and Resighini Rancheria would like to be able to reinitiate the First Salmon Ceremony at the proper time of year with Spring-run Chinook and have enough salmon to celebrate its other ceremonies with corresponding religious and cultural views. The low fish stocks and unnatural hydrograph also affect Yurok participation in Karuk and Hoopa ceremonies as well:

“There was a constant struggle to keep the world balanced upon the water. ‘Knowing that this would be so, before they left the *wo’gey* [Creator] instructed certain people in what to do to put the world back in balance when the weight of human violations grew too great for it.’ (Buckley 2002:214). These instructions are the world renewal ceremonies that are held between villages on ceremonial grounds of Yurok, Karuk and Hupa alike. It is a common culture and a common ceremonial cycle that connect the people along the River in the past, present and future (Buckley 2002). Traditional Yurok Ceremonies included the First Salmon Ceremony, The Cappell Fish Dam Ceremony, the Brush Dance Ceremony, the White Deerskin and Boat Dance Ceremonies, and the Jump Dance Ceremony. Of these Ceremonies the Brush Dance Ceremony, the White Deerskin and Boat Dance Ceremonies, and the Jump Dance Ceremony are still practiced today. There is growing interest within the tribal community to restore all traditional Yurok ceremonies as part of cultural revival and cultural restoration efforts undertaken to heal the spiritual, social and psychological trauma experienced during the past 160 years.” (Sloan, February 2011, p. 44).

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Table 3.1-3.—Summary of action alternative conditions by species

Coho salmon (threatened)	Below IGD, significant negative short term impacts and long term effect range from marginal to beneficial. UB, uncertain whether they would reoccupy the area.
Spring Chinook salmon	Below IGD, negative short run impacts (about 2020) due to dam removal sediment, positive long run effects (roughly 2021-2060). UB, Spring Chinook would be reoccupy, possibly substantial increase, but not to historic levels.
Fall Chinook salmon	Negative short run impacts (around 2020) due to dam removal sediment, especially in the lower Klamath. Positive long run effects (about 2021-2060). Fall Chinook would reoccupy the UB, possibly substantial increase, particularly helpful in years when production is low.
Pacific lamprey	Below IGD, short run, 2012-2020 no change and around 2020-2025/30 decline due to dam removal sediment. Long run (about 2025/30 -2060), population would increase up to 10%. Potential to occupy UB, but uncertain.
Steelhead trout	Below IGD, some short term adverse sediment impacts (approximately 2020-2026), and long term increased numbers, possibly substantial. UB, reestablish and increase, possibly substantial.
Green Sturgeon (threatened)	Some negative short term effects are possible for the green sturgeon, beneficial in the long term.
Candlefish or Eulachon (listed as threatened under the ESA in March 2010)	Since species is essentially absent in California, there would be minimal impacts, but area would experience minimal short term adverse dam removal sediment impacts, beneficial in the long term.
Longfin Smelt	Short term minimal adverse effects, long term benefit, possibly substantial.
Crayfish	Short term minimal adverse effects, long term benefit, possibly substantial.
Mussels or Freshwater Clams	Short- to mid-term significant impacts with long term benefits.
Riparian vegetation used for food, ceremonial purposes (includes regalia), basketry, and bow and arrow materials.	Abundance is expected to increase in the long run.

Sources: See attachment 6.

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Positive impacts to fisheries from dam removal would include:

- Culturally, the First Salmon Ceremony would have the potential of being reinstated at the proper time of the year with the first run of salmon, spring Chinook, would again become available in sufficient numbers to hold the Ceremony, and possibly eventual harvest. The Jump Dance, Boat Dance, White Deerskin Dance and Brush Dance Ceremonies and associated cultural values and social interactions (i.e., community celebrations) that revolve around salmon and community gatherings would be strengthened.
- Rancheria social and economic gains and cultural revitalization could be supported through more abundant levels of spring and fall run Chinook and improved harvest levels of fall-run Chinook, steelhead, lamprey, and most other fish species traditionally used.
- The regional barter system could be revitalized since Tribal members would likely have sufficient salmon supplies for trade/barter for game or other food and goods with other tribes.
- A traditional lifestyle, social values, and methods for achieving economic well-being could continue to be transmitted to successive generations by teaching and practicing concepts of survival through fishing.
- Additional opportunities for elders to teach youth how to catch salmon, lamprey, steelhead, sturgeon, and other species, and be socially responsible by giving away a portion of their catch, usually to elders.
- Youth could continue to learn to catch salmon, steelhead, lamprey, and other species for elders and others. Tribal identity would improve and there would likely be a greater sense of what it means to be Yurok and Resighini for youth and other Tribal members that would lead to some degree of improvement in overall socioeconomic conditions.
- Water quality would improve more rapidly than under no action which would benefit aquatic species.

Water quality improvements, particularly in toxic algae levels, MSAE, would minimize the incidence of fish disease and mortality, leading to increased abundance, easing concerns related to human health fish consumption and contact with water, and no longer interfering with fishing success when algae accumulates on fishing lines:

“A healthy river is required for a healthy Tribe, as articulated by multiple respondents in the Yurok Tribe’s 2006 Healthy River, Healthy People

Traditional Foods Survey (Yurok Tribe Environmental Program 2006). Water quality issues on the Klamath River, including toxic algal blooms, have severely impacted many Yurok activities on and around the River, with many respondents indicating they stayed away from the River the summers of 2005-2010 out of concerns over public health warnings on recurring annual toxic algal blooms within the watershed... Gathering of basketry plants and medicine plants is done along the shores, requiring one to wade in the river while following the shoreline. Similarly fishing, accessing fishing places, gillnetting, and dipnetting expose fishers to splashing water and frequent immersion. Eeling is done from the shoreline near areas of high, splashing water and rapid currents. In all cases the possibility and frequency of exposure to River water is extremely high. As a result, ... Tribal members remain very concerned about the toxic algae and other persistent toxins that may be entering the watershed from upstream sources. Degrading water quality not only has a disproportionate adverse impact on downstream tribes and tribal trust resources, but also on cultural activities. The River plays a central role in Yurok ceremonial life and as such water quality and quantity have a direct and significant impact on Yurok ceremonial and religious practices. (Sloan, February 2011, p. 46).

A more natural hydrograph would decrease or eliminate the stranding of fry and ammocoetes, improve the timing of runs so that they align more closely to traditional seasons and natural timing for Tribal ceremonies, and fish runs would be expected to last longer resulting in greater fishing opportunities.

3.1.2.1.2 *Employment and Income*

“Historically, Yurok People were able to harvest fish from the Klamath River all year-round. People harvested fall Chinook and Coho salmon during the late summer/fall; steelhead, lamprey and candle fish during the winter and spring Chinook, sturgeon and lamprey during the spring and summer. The decline in these and other river species means that the Yurok People can no longer sustain themselves from the river on a year-round basis. In any community where 80% of the people lack basic food security this loss is ruinous. For the Yurok People who are recovering from more than one hundred years of cultural genocide the loss is catastrophic.” (Sloan, February 2011, p. 95).

Beginning around 2021, dam deconstruction could directly and/or indirectly improve employment and incomes. Increases in fishery populations, particularly salmon and steelhead have the potential to:

- Possibly improve income, poverty, and food insecurity problems since there would be more aquatic species for subsistence uses and salmon for barter, as well as sufficient salmon and steelhead abundance for

recreation/tourism fishing and related Rancheria-based business development.

- Enable the Resighini to practice the value of redistributing wealth (fish) to extended family and dependent populations, primarily elders.
- Water quality improvements, together with improved fish populations, could increase recreation and tourism opportunities (i.e., tribal fishing guides, maintain operation of the RV part and campground, additional recreation development, indirect effects, and others) and related individual and/or tribal endeavors, already planned by the Rancheria that were described in the Present Conditions section, which would have the potential to increase employment and income above no action levels.

3.1.2.1.3 Health

There would be an increase in salmon, particularly spring-run Chinook, which is considered one of the best foods for preventing heart disease (spring-run is higher in fat), and ranks high in the same regard for diabetes and obesity. Pacific Lamprey populations are expected to increase, and is considered to be particularly nutritious for elders (BIA, June 2011a; Lewis, 2009). In short, all species are projected to remain stable or increase in the long run.

Using the Karuk Tribe as an example of Yurok conditions overall, in Norgaard's report (2005), Karuk Tribal members stated that diabetes and heart disease were relatively new and coincided with the shift from a traditional to a Western diet. For example, 66 percent of Karuk members surveyed reported that diabetes appeared in their families for the first time around 1970, which is when salmon runs declined significantly in the lower Klamath River reach. More specifically, Norgaard found that the correlation was strongest with the disappearance of Spring Chinook salmon:

“Spring Chinook was the most important source of salmon in the Karuk diet in terms of both volume and nutritional quality...self-reported information about when consumption of Spring Chinook salmon stopped or became an insignificant food source and when diabetes first appeared in Karuk families shows almost a perfect match, with the rise in diabetes following the loss of Spring Chinook in the diet.” (Norgaard, 2005, p. 39-53).

Resighini Rancheria members appear to suffer disproportionately high rates of diabetes, and positive effects of increased salmon, other fish species, and lamprey populations available for consumption would be reduced rates of some of the highest incidences of disease. Improvements would likely be greatest for the elderly population since, proportionately, they tend to be more consistently

supplied with salmon and lamprey when available and have higher rates of disease compare to the rest of the Tribal population. Anticipated health improvements would include:

- A potential reduction in reliance on USDA commodity foods and other processed foods.
- Possibility of lower diabetes rates and associated costs
- Potentially reduced heart disease rates and associated costs.
- Potential for lower disability rates especially associated with diabetes, but also those that arise from heart disease and all associated costs.
- Less interrelated compounding effects between these diseases and associated costs.
- A reduction in mortality rates, particularly for elders and associated social and cultural costs and a lower likelihood for premature disabilities and death to limit the process of elders passing along Tribal culture and social structure to younger generations.
- Reduced occurrence of other illnesses, including depression, Alzheimer's, and osteoporosis (Norgaard, 2005, p. 50-51).
- Improved health conditions, reinforcing "...the federal trust responsibility to uphold treaty responsibilities for health care to Indians..." (IHS Fact Sheets, accessed September 2010)(attachments 5a and 5b).
- Fewer health problems that result from food-insecurity and associated poverty-related stress.

Klamath River water quality improvements would ease health concerns for ceremonial uses, fishing, recreation, and many other uses as described by the Yurok Tribe:

“The Klamath River has always been the central feature of Yurok identity, cultural, spiritual and economic life. Integral to that relationship is water quality. Traditional Yurok ceremonial activities require high water quality due to ritual practices requiring immersion and even ingestion of Klamath River water. A healthy river is required for a healthy Tribe, as articulated by multiple respondents in the Yurok Tribe's 2006 Healthy River, Healthy People Traditional Foods Survey (Yurok Tribe Environmental Program 2006). Water quality issues on the Klamath River, including toxic algal blooms, have severely impacted

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many Yurok activities on and around the River, with many respondents indicating they stayed away from the River the summers of 2005-2010 out of concerns over public health warnings on recurring annual toxic algal blooms within the watershed. Water from the River is central to many traditional Yurok activities and ceremonies. Gathering of basketry plants and medicine plants is done along the shores, requiring one to wade in the river while following the shoreline. Similarly fishing, accessing fishing places, gillnetting, and dipnetting expose fishers to splashing water and frequent immersion. Eeling is done from the shoreline near areas of high, splashing water and rapid currents. In all cases the possibility and frequency of exposure to River water is extremely high. As a result, Native American people who utilize the River for harvesting or gathering resources have a higher risk of exposure to any toxins in the water than many other users of the same watershed. Tribal members remain very concerned about the toxic algae and other persistent toxins that may be entering the watershed from upstream sources. Degrading water quality not only has a disproportionate adverse impact on downstream tribes and tribal trust resources, but also on cultural activities. The River plays a central role in Yurok ceremonial life and as such water quality and quantity have a direct and significant impact on Yurok ceremonial and religious practices.” (Sloan, February 2011, p. 46).

Reduced levels of toxic algae (*microcystis aeruginosa*) would minimize human health concerns about skin contact with the water, particularly for children and pets which are at a greater risk:

“Dam removal is expected to result in long-term improvements in water quality, notably decreased prevalence of *microcystin* (see Section 3.2, Water Quality). As discussed in Section 3.2, Water Quality and 3.20.3.2 above, *microcystin* has been associated with public health risks for recreational bathing waters and health warnings issued in 2005 and 2008 by the USEPA and other agencies warned recreation visitors to use caution due to potential health effects. In addition, about two-thirds of recreation visitors to the subject reservoirs had negative perceptions of water quality, stating concerns of bad odors and algae blooms, which restrict areas available for fishing, swimming and wading. These adverse effects related to water quality negatively influenced the quality of the recreational experience for visitors and also resulted in safety risks to the recreational visitors. Because existing conditions for water-contact-based recreational activities are considered adverse due to water quality, improved water quality conditions would result in long-term beneficial impacts.” (DOI, August [recreation, February 2011, pp. 3.20-38 to 39]).

In the short term, dam removal has a slight potential for human exposure through fish consumption, although the extent could not be adequately assessed, and toxicity issues for human exposure will be covered in a forthcoming document.

A recreation analysis found that riparian vegetation would benefit which, overall, would be expected to benefit Tribal use and consumption of traditional plant foods:

“Removal of the PacifiCorp dams would result in improved riparian vegetation downstream of Iron Gate Dam due to sediment deposition and scour. Improved riparian vegetation would increase the presence and scenic variety of the vegetation within the WSR. This would likely moderately increase overall scenic riparian vegetation conditions over those present at the California WSR’s 1981 date of designation and result in long-term positive impacts.” (DOI, August 2011, [EIS/EIR, February 2011, pp. 3.20-47 to 3.20-48]).

The Yurok explained cultural and religious uses of the water that illustrate why water quality and health of the river is critical for cultural and consumptive uses (attachment 3c):

“Many of the items made and used in Yurok Ceremonies come from the River environment. Baskets made of plant materials collected at the water’s edge are used to hold food and ceremonial medicine. Acorns, cooked in the baskets, are converted to a nourishing mush that is rendered by placing several hot rocks (cooking rocks), gathered off of specific river bars, into the acorn flour and water that is placed into the baskets. Regalia that adorn the ceremonialists is constructed out of various plant and animal products that the riverine environment provides. Ceremonial bathing in the River and its tributary creeks is a requirement for some of the participants. Ceremonialists also prepare themselves by listening to the River’s sounds.” (Sloan, February 2011, p. 44).

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Attachments

- 1 The Resighini Rancheria Tribe Historical Timeline
- 2 Treaties (unratified) and Executive Orders. Klamath River Reservation and Hoopa Valley Reservation Depictions
- 3a Resighini Rancheria Environmental Protection Authority Memo
- 3b Health Advisory
- 3c Yurok Tribe (Sloan, February 2011) Water Quality Excerpts
- 4a Bureau of the Census Maps
- 4b Bureau of the Census Definitions
- 4c Bureau of Indian Affairs Labor Force Report Definitions
- 5a Indian Health Care Improvement Act Made Permanent by Health Care Reform Legislation
- 5b 90 Stat. 1400 1976
- 6 Resighini Rancheria and Aquatic Species Impacts

Attachment 1

The Resighini Rancheria Tribe Historical Timeline

Attachment 1

Resighini Rancheria Tribe Historical Timeline

Era or Event	Year	Description
<i>Pre-European Contact</i>		Elaborate economies with barter and extensive trade networks among regional tribes and ceremonies that centered on the Klamath River and all that depended on it as central. The Yurok Tribe depended heavily on salmon and other anadromous species and resident fish year round in and around the lower Klamath River, estuary, and a small segment of the coast.
<i>Missionaries</i>	1500s–1846	Spanish missionaries explore area on and off and later used Indian slave labor to build missions and begin claiming lands.
<i>Reservations Established</i>	1812–1870	Treaties between Indians and England were over when England lost the war of 1812 and treaties were made between the U.S. and tribes, increasingly used to accommodate rapid settlement.
<i>Explorers</i>	1828	Jedediah Smith came to Yurok territory.
<i>Trust Relationship Established</i>	1831	<i>Cherokee Nation v. Georgia</i> case established the guardian-ward, or trust relationship between the U.S. and Indian tribes, or “domestic dependent nations.”
<i>Gold Rush</i>	1849	Miners and prospectors began to arrive in the Klamath Basin in search of gold.
<i>Reservation Period - Treaties</i>	1851	Klamath River Peace Treaty, California Treaty Q, was signed by some Yurok members at Camp Klamath. The treaty was never ratified.
<i>Reservation Period - EO</i>	1855	Klamath River (military) Reservation (not to be confused with the Klamath Reservation in Oregon) created by executive order, intended for Yurok and other area tribes
<i>Reservation Period - EO</i>	1857	Fort Terwer was established at Terwer Creek to keep peace between the Indians and the growing number of miners and traders trying to move onto Reservation.
<i>Reservation Period - EO</i>	1864	Hoopa Valley Reservation created by executive order, intended for Hoopa, Karuk, and some other area tribes.
<i>First Salmon Ceremony Ceased</i>	1860s	The last First Salmon Ceremony happened at Wehl-kwew. The ceremony was conducted every spring at the mouth of the Klamath River.
<i>Missionaries</i>	1865	Reservation schools were established under Christian organizations in 1865.
<i>Reservation Period - EO</i>	1876	Executive order makes Hoopa Valley Reservation borders official.
<i>First Commercial Fishery</i>		Despite Yurok protests, the first non-Indian commercial fishery is opened at the mouth of the Klamath.
<i>Assimilation - Boarding Schools</i>	1878	Off-reservation boarding schools were established to assimilate and educate Indian children away from their homelands and families.
	1883	The Code of Indian Offenses, which the courts implemented, outlawed many traditional Indian ceremonies and practices.
<i>Four Military Reservations</i>	1884	Congress authorizes President to establish four Indian Reservations, one of which was the Hoopa Valley Reservation where many Yurok and other local Indians were sent to live.
<i>Reservation Period -EO</i>	1891	Executive order connects Klamath Reservation and Hoopa Valley Reservation to create a larger Hoopa Valley Reservation.
<i>Allotments, - Assimilation, and Land Loss</i>	1892	Congress enacted legislation allotting lands of the former Klamath River Military Reservation to Yuroks. Under the Dawes Act, Congress allowed for ‘surplus’ land on the Reservation to be sold to the general public.
	1893	Indian allotments were granted to the Tribe on the Klamath River Military Reservation for three traditional villages (Rek-woy, Hop-ew, and Saa) totaling 70 acres.

Era or Event	Year	Description
	1887–1934	Dawes Act (25 U.S.C. 31) et seq. divided reservations into parcels to encourage individual Indians to become farmers, and leftover land was given to non-Indians. Indian-held lands declined from 138 million acres to 48 million.
<i>Assimilation-Boarding Schools</i>	1900s	Forced boarding school attendance ended and day schools on reservations begin.
<i>Allotments,-Assimilation, and Land Loss</i>	1910	Many Indians deemed ‘incompetent’ and 307 allotment parcels were sold.
<i>White Deerskin Dance ceased until 2000</i>	1912	The land White Deerskin Dance occurred at Weych-pues before it was revitalized in 2000.
<i>Allotments,-Assimilation, and Land Loss</i>	1917	Commissioner of Indian Affairs ‘Policy of Greater Liberalism’ took many allotments out of trust status, hence subject to taxation by Humboldt and Del Norte Counties; soon the allottees began losing allotments for non-payment of back taxes.
<i>Development, Copco 1</i>	1910	Copco 1 construction began, blocking salmon and other anadromous species’ migration to the Upper Klamath Basin.
<i>Disease</i>	1912	Flu epidemic.
<i>Development, Copco 2</i>	1925	Copco 2 Dam constructed without fish ladders for salmon passage up the Klamath River to Klamath Tribal areas.
<i>Allotments,-Assimilation, and Land Loss</i>		Another large group of allotments were taken out of trust status.
<i>Disease</i>	1920s–30s	TB epidemic.
<i>Allotments,-Assimilation, and Land Loss</i>	1931	With creation of the Redwood National Forest, the USFS targeted reservation lands, including 780 acres of the Klamath River Military Reserve and 2,110 acres of Indian allotments.
<i>Trust Fishing Rights</i>	1934	Klamath River Indians were banned from commercial fishing and gill-netting. Despite the ban, Yurok people continued to fish, but did so under the threat of being arrested and jailed.
<i>Self Governance Period</i>	1934–1953	Indian Reorganization Act (IRA) ended allotments and encouraged tribal self government through tribal constitutions and protected/expanded some tribal land bases.
<i>Resighini Rancheria Established</i>	1938	Federal Government purchased the Rancheria land January 7, 1938 by the Secretary of the Interior under the Wheeler Howard Act of 1934. The land was deeded in trust to the Resighini Rancheria Yuroks.
<i>Jump Dance ceased until 1980s</i>	1939	Last Jump Dance held in Pek-won before it was revitalized in the 1980s.
<i>Assimilation</i>	1940s–50s	BIA relocation programs meant a sudden loss of some tribal members to cities.
<i>WWII</i>	1940s	Relatively large proportion of men away at war made continuing ceremonies difficult during this time period.
<i>Allotments,-Assimilation, and Land Loss</i>	1953	Many Indians in the region were encouraged to sell their allotments through questionable and forced fee patents, resulting in at least 60% of the lands taken out of trust status and sold to logging companies which were booming after WWII.
<i>Cash Settlement – Trust Responsibility</i>	1940s – 1970s	From 1946 to 1978, Congress moved to resolve remaining 102 docket cases transferred to the U.S. Claims Court: Indian claims for compensation for lands ceded under treaties. The Karuk Tribe was given funds for 1851 ceded lands in the ungratified (ineffective) treaties.
<i>Termination and Relocation Programs</i>	1954–1966	Congress passed statutes terminating the Federal relationship with 109 Indian tribes and over 11,400 individuals lost “recognized” Indian status. About 1.5 million acres of Indian land were taken out of trust. At about the same time, relocation programs encouraged Indians to leave reservations for cities. 1958 California Rancheria Act terminated Resighini and about 40 other Rancherias. Resighini was terminated from 195__to 1975.

Era or Event	Year	Description
<i>Development - Trinity River Dam</i>	1955	The Trinity River Act allowed the construction of the Trinity River Dam. The Trinity is the Klamath River's largest tributary.
<i>Development, JC Boyle</i>	1958	JC Boyle hydroelectric dam constructed, blocking salmon passage up the Klamath River to Klamath Tribal areas.
<i>Trust Hoopa Timber</i>		Revenues from unallotted trust timberlands in the Hoopa Square were dispersed in per capita payments to Hoopa Tribal members only (later determined to be erroneous in the Jesse Short case).
<i>Development, Iron Gate Dam</i>	1962	Iron Gate Dam constructed without fish ladders for salmon passage up the Klamath River to Klamath Tribal areas.
<i>Trust (timber)</i> Jessie Short v. U.S.	1963	Short v. U.S. filed March 27, 1963 on behalf of 16 Yurok Indians asserted that Yurok Tribal members should share proceeds from the selling of Hoopa Reservation timber.
<i>Severe Flood</i>	1964	Worst flood in recorded history wiping out the town of Klamath.
<i>Trust (fishing rights)</i> Elser v. Gill Net Number One	1966	Elser v. Gill Net Number One held that Yurok Indians (Grover Reed and Dewey George) were enrolled members of a federally recognized tribe and had recognized tribal rights, thereby meeting the tribal roll requirements which exempted them from provisions of the Fish and Game Code and the State of California had no right to regulate Yurok gill net fishing on the Reservation.
<i>Trust - Termination</i>	1970s	Termination of federal recognition of Resighini Rancheria and other Rancherias
<i>Federal Recognition of Tribal Government</i>	1975	Coastal Indian Community of Resighini Rancheria tribal government formed.
<i>Trust Responsibility: health care</i>	1976	The Indian Health Care Improvement Act, 25 U.S.C. 1601, was passed "reflecting the Federal Government's trust responsibility to provide economic and social services necessary to ensure a standard of living for Indians comparable to non-Indian society."
<i>Indian Self Determination Act</i>	1975	The Act enabled tribes to operate federally run tribal programs. Overall, widespread implementation was relatively slow, with most activity beginning in the 1990s.
<i>Cultural Resources</i>	1970	The Northwest Indian Cemetery Protective Association formed to protect burial grounds and sacred sites and Yurok leadership worked toward protecting cultural and ceremonial sites in Yurok Ancestral Territory.
<i>Trust (timber)</i> Jessie Short v. U.S. (Short I)	1973	Jessie Short et. al. v. U.S. concluded that the Reservation was not a separate entity, but actually an extension of the Hoopa Valley Reservation and therefore Yurok Tribal Members were entitled to equal rights to income from timber sales on allotted trust lands.
<i>Trust (fishing rights)</i> Mattz v. Arnett		Mattz v. Arnett upheld that the Reservation was still considered "Indian Country" therefore the State of California had no jurisdiction.

Era or Event	Year	Description
Resighini Government Formed	1975	Resighini Tribal Government was Federally recognized
<i>Trust (fishing rights) Arnett v. 5 Gill Nets</i>	1976	The court ruled that the State of California lacked jurisdiction to regulate Indian fishing on the Reservation and that Yurok Indians had a right to commercial fishing practices which affirmed Federally protected fishing rights for Yurok commercial fishers.
<i>Beginning of 'fish wars'</i>	1978	The USFWS implemented a moratorium on commercial gill net fishing on the Klamath River, starting what is known as the 'fish wars' between the Yurok and Federal Government.
<i>Jump Dance revitalized</i>	1984	The Jump Dance was revitalized in Pek-won. The dance is held every other year.
Hoopa-Yurok Settlement Act	1988	The Hoopa-Yurok Settlement Act partitioned the former joint reservation and recognized and established traditional Yurok Indian homelands as the Yurok Reservation. Resighini Rancheria members were offered the option of joining the Yurok Tribe in its new formation, but opted to retain the Rancheria.
White Deerskin Dance revitalized	2000	The White Deerskin Dance is revitalized in Weych-pues. The dance is held every other year.
Development - Fish Kill	2002	Over 60,000 migrating adult salmon died in September on their way up the Klamath River to spawn. Diseases caused by low flows and high temperatures were responsible which cause unprecedented devastation to the Yurok fishery.
Self Governance and Self Determination	Beyond 2010	The Resighini Rancheria Tribe would like improvement in the health of the Klamath River, especially fish availability and water quality that would in turn help improve the social, cultural, economic, and physical health of Karuk people. Tribal emphasis has been on improving social and economic conditions, in part through the continued strengthening of cultural practices. The Tribe is interested in development that would improve living conditions for tribal members, including fisheries improvements, acquiring more land and providing more housing on the Rancheria to expand the on-reservation population, securing Federally reserved trust fishing rights, and developing additional economic enterprises that would provide employment opportunities and Tribal income.

Timeline adapted from several sources, including *Yurok Tribe: Pue-lik-lo, Pey-cheek-lo, Ner-er-ner*, 2007. 190 Klamath Blvd., Klamath, California 95548.

Attachment 2

Treaties (unratified) and Executive Orders. Klamath River Reservation
and Hoopa Valley Reservation Depictions

PART IV.—TREATY WITH THE POHLIK OR LOWER KLAMATH, ETC., 1851. 1117

In testimony whereof, the parties have hereunto signed their names and affixed their seals this eighteenth day of September, in the year of our Lord one thousand eight hundred and fifty-one.

O. M. WOZENCRAFT,
United States Indian Agent.

For and in behalf of the Cu-lu:	MI-ON-QUISH, his x mark. [SEAL.]
For and in behalf of the Yas-si:	SAN-TEA-GO, his x mark. [SEAL.]
For and in behalf of the Loc-lum-ne:	POL-TUCK, his x mark. [SEAL.]
For and in behalf of the Wo-pum-nes:	HIN-COY-E, his x mark. [SEAL.]
	MAT-TAS, his x mark. [SEAL.]
	HOL-LOH, his x mark. [SEAL.]
	BOY-ER, his x mark. [SEAL.]

Signed, sealed and delivered, after being fully explained, in presence of—
FLAVEL BELCHER.
J. B. MCKINNIE.
WILLIAM RHOAD.

TREATY WITH THE POHLIK OR LOWER KLAMATH, ETC., 1851.

TREATY MADE AND CONCLUDED AT CAMP KLAMATH, AT THE JUNCTION OF KLAMATH AND TRINITY RIVERS, STATE OF CALIFORNIA, OCTOBER 6, 1851, BETWEEN REDICK MCKEE, INDIAN AGENT ON THE PART OF THE UNITED STATES, AND THE CHIEFS, CAPTAINS AND HEAD MEN OF THE POHLIK OR LOWER KLAMATH, &C., TRIBES OF INDIANS.

A treaty of peace and friendship made and concluded at Camp Klamath, at ^{October 6, 1851.} the junction of the Klamath and Trinity rivers, between Redick ^{Unratified} McKee, one of the Indian agents specially appointed to make treaties with the various Indian tribes in California, on the part of the United States, and the chiefs, captains, and head men of the tribes or bands of Indians now in council at this camp, representing the Poh-lik or lower Klamath, the Peh-tsick or upper Klamath, and the Hoo-pah or Trinity river Indians; containing also stipulations preliminary to future measures to be recommended for adoption, on the part of the United States.

ARTICLE 1. The said tribes or bands acknowledge themselves, jointly and severally under the exclusive jurisdiction, authority and protection of the United States; and hereby bind themselves to refrain hereafter from the commission of all acts of hostility or aggression towards the government or citizens thereof, and to live on terms of peace and friendship among themselves, and with all other Indian tribes which are now or may hereafter come under the protection of the United States.

ART. 2. Lest the peace and friendship established between the United States and the said tribes should be interrupted by the misconduct of individuals, it is expressly agreed that, for injuries received on either side, no private revenge or retaliation shall take place or be attempted; but instead thereof, complaints shall be made by the party aggrieved to the other, through the Indian agent of the United States in their district, whose duty it shall be to investigate, and, if practicable, adjust the difficulty; or, in case of acts of violence being committed upon the person or property of a citizen of the United States by an Indian or Indians belonging to or harbored by either of said tribes or bands, the party or parties charged with the commission of the crime shall be promptly delivered up when demanded, to the civil authorities of the State of California for trial; and in case the crime has been committed by a citizen or citizens of the United States upon the person or property of an Indian or Indians of either of said tribes, the agent shall take all proper measures to bring the offender or offenders to trial in the same way.

ART. 3. The said tribes or bands hereby jointly and severally relinquish, cede, and forever quit claim to the United States, all their right, title, claim or interest of any kind which they or either of them have to lands or soil in California.

ART. 4. To promote the settlement and improvement of said tribes or bands, it is hereby stipulated and agreed, on the part of the United States, that the following tract or district of land shall be appropriated and set apart as an Indian reservation, and the use and possession thereof forever guaranteed to the said tribes, their successors, and to such other tribes as the United States may hereafter remove from other parts of the valleys of the Trinity or Klamath rivers, or the country adjacent, and settle thereupon, to wit: commencing at the mouth of a stream called John's creek, emptying into Trinity river on the north side thereof, about fourteen miles above this camp; thence running up the middle of the same with its windings, to a distance of five miles; thence north to the summit of the dividing ridge between the waters of the Trinity and Klamath rivers; thence northwestwardly in a straight line to a point on said Klamath river opposite the lower end of what is now known as "Red Cap's" bar; thence due west to the summit of the first ridge lying beyond the Klamath river; thence southwestwardly along the summit of said ridge to a point due north of the mouth of Pine creek; thence south to the mouth of Sand creek; thence up Pine creek with its windings, to a point due south of the place of beginning; and thence north to said place of beginning. The said reservation including, by estimation, a tract twenty miles in length by twelve miles in width, and containing in all six or seven square miles of farming land. It is, however, understood and agreed that the United States reserves the right of way over said lands, and of using for farming purposes any quantity thereof not exceeding one thousand acres; also the right to establish such military posts, erect such buildings, and make such improvements for the accommodation of their agent and other officers or servants as the President may direct; also that said tribes or bands shall never sell or alienate their right or claim to any part thereof, except to the United States, nor shall they ever lease to or permit white men to settle, work or trade upon any part thereof without the written permission of the United States Indian agent for the district.

ART. 5. It is further stipulated and agreed that the said tribes or bands shall, within three years from the date hereof, or sooner, if thereto required by the United States, remove to and settle upon said reservation; and that whenever said removal and settlement shall be ordered by the United States or made by said tribes, such farmers, mechanics, and school-teachers to instruct them in the language, arts, and agriculture of the whites as the President may deem expedient and proper, shall be assigned, provided for, and settled among them, so as to place the Indians on said reservation in a situation as favorable for their improvement (being in like manner supplied with facilities for farming, stock-raising, &c.,) as by the treaty of Lu-pi-yu-ma on the 20th day of August, 1851, is stipulated to be assigned to and provided for the *Clear Lake Indians*. It is understood, however, that if upon examination by the Indian agent it is found that any of the articles or supplies provided in said treaty for the *Clear Lake Indians* shall be unnecessary for or unsuited to the Indians on the Trinity and Klamath, the President may in his discretion withhold the same, and invest the value thereof in other and more suitable goods. And it is further expressly agreed and understood that if either of said tribes or bands, or other Indians harbored by them shall be guilty of theft, robbery or murder, either upon the persons and property of Indians or whites, the United States may exclude such tribe or band from all the benefits of this treaty.

ART. 6. As early as convenient after the ratification of this treaty by the President and Senate, the United States will deliver to the said Klamath and Trinity Indians, through their agent, during each of the years 1852 and 1853, viz: five hundred pairs two and a half point Mackinaw blankets, five hundred pairs strong cotton pantaloons, five hundred cotton (hickory) shirts, five hundred red flannel shirts, five hundred strong cotton or linsey gowns, three thousand yards of calico, three thousand yards of four-fourths brown sheetings, thirty pounds Scotch thread, five thousand needles, six dozen pairs scissors, two gross thimbles, ten pounds pins, ten dozen nine-inch flat files, thirty-five dozen large size butcher knives, ten mattocks, one hundred garden or corn hoes, two hundred chopping axes, handled, common size, two hundred chopping axes, handled, small size; one hundred sheetiron camp kettles, large size; one hundred sheet-iron camp kettles, second size.

It is understood, however, that the agent shall use a sound discretion as to the time when, and the tribes or persons to whom the said goods shall be distributed, having reference to their peaceful disposition and good conduct.

ART. 7. In consideration of the premises, the United States, in addition to the numerous presents of beef, bread, sugar, blankets, shirts, &c., &c., made to said tribes at this camp, will, within sixty days from the date hereof, furnish them free of charge at the ferry of C. W. Durkee, in Klamath river, to enable them to rebuild the houses recently destroyed by the whites, with four dozen chopping axes, handled, ten sacks of hard bread, and four bullocks, sixteen pairs heavy blankets, to be distributed among them by said Durkee, according to their respective losses.

ART. 8. These articles to be binding upon the contracting parties when ratified by the President and Senate of the United States.

In testimony whereof the parties have hereunto signed their names and affixed their seals this sixth day of October, anno Domini 1851.

[SEAL.]

REDICK MCKEE,

United States Indian Agent for California.

For and in behalf of the Wetch-peck tribe, living at mouth of Trinity:

WUCK-UG-GRA, his x mark. [SEAL.]

WA-PE-SHAW, his x mark. [SEAL.]

SA-SA-MICH, his x mark. [SEAL.]

EN-QUA or AMOS, his x mark. [SEAL.]

For and in behalf of Wuh-si tribe, living three miles below mouth of Trinity river:

MO-RU-KUS, his x mark. [SEAL.]

For and in behalf of the Cap-pel tribe:

MAH-ON, his x mark. [SEAL.]

For and in behalf of the Mor-ri-ahs:

MAH-ON, his x mark. [SEAL.]

WUS-SUR, his x mark. [SEAL.]

UP-PER-GASH, his x mark. [SEAL.]

For and in behalf of the Ser-a-goines:

UP-LA-GO-PUS, his x mark. [SEAL.]

MOO-ROO-KUS, his x mark. [SEAL.]

SA-ET-MA-GEHL, his x mark. [SEAL.]

For and in behalf of the Pak-wan tribe:

CAP-PEL-LA-WAH, his x mark. [SEAL.]

For and in behalf of the Ut-cha-pah tribe, living near the mouth of Bluff creek:

E-NE-NUCK, his x mark. [SEAL.]

MOW-WEIGHT, his x mark. [SEAL.]

For and in behalf of the Up-pa-goines, living near "Red Cap's" bar, on Klamath river:

KEE-CHAP, his x mark. [SEAL.]

RED CAP or MIK-KU-REE his x mark. [SEAL.]

For and in behalf of the Sa-von-ra tribe:

SA-VON-RA, his x mark. [SEAL.]

UP-PA-GRAH, his x mark. [SEAL.]

EX-FIN-E-PAH, his x mark. [SEAL.]

For and in behalf of Cham-ma-ko-nee tribe:

KA-TOP-KO-RISH, his x mark. [SEAL.]

For and in behalf of the Coc-ko-man tribe:

PA-NA-MO-NEE, his x mark. [SEAL.]

For and in behalf of the Chee-nah tribe, living ten miles below mouth of Salmon river:

AK-KA-REE-TA, his x mark. [SEAL.]

For and in behalf of the Hoo-pahs or Trinity river Indians, residing in twelve rancherias or villages:

Principal chief, AH-ROOK-KOS, his x mark.	[SEAL.]
TE-NAS-TE-AH or JOHN, his x mark.	[SEAL.]
MET-POOKA-TA-MAH, his x mark.	[SEAL.]
NIC-A-WA-EN-NA, his x mark.	[SEAL.]
WASH-TEN, his x mark.	[SEAL.]

Signed, sealed and delivered, after being duly explained, in presence of—

JOHN MCKEE, <i>Secretary.</i>	
C. W. DURKEE, } <i>Interpreters.</i>	
GEORGE GIBBS, }	
H. W. WESSELLS, Brevet Major, U. S. A., commanding escort	
WALTER VAN DYKE, }	
GEO. W. ELLSWORTH, }	} <i>Interpreters.</i>
MORRIS S. THOMPSON, }	
WALTER McDONALD, }	

A TREATY SUPPLEMENTARY TO THE FOREGOING TREATY

The undersigned chiefs, captains and head men of the Si-wah, Op-pe-o, He-ko-neck and In-neck tribes or bands of Indians, residing at and near to the mouth of the Cor-a-tem or Salmon river, having had the terms and stipulations of the foregoing treaty, concluded at Durkee's ferry on the 6th instant, fully explained to them by Redick McKee, Indian agent of the United States, having expressed an earnest desire to become parties to the said treaty in all its articles and stipulations, it is therefore agreed by and between the said agent and the said chiefs, &c., that the said bands be and hereby are admitted as parties to the same, and to the advantages thereof, and become bound by the stipulations therein contained as fully in all respects as if they had been parties thereto originally.

In testimony whereof the parties have hereunto signed their names and affixed their seals at Camp Cor-a-tem, near mouth of Salmon river, this twelfth day of October, anno Domini, 1851.

[SEAL.]

REDICK MCKEE,
United States Indian Agent

For and in behalf of the Si-wah band:

ESSE-PISH-I-A, his x mark.	[SEAL.]
RES-SOW, his x mark.	[SEAL.]
CHEE-FEE-CHA, his x mark.	[SEAL.]
PI-RA-TEEM, his x mark.	[SEAL.]

For and in behalf of the Op-pe-o band:

CA-POR-U-PUCK, his x mark.	[SEAL.]
PEEK-NEETS, his x mark.	[SEAL.]

For and in behalf of the He-ko-neck band:

YAH-FEE-PAH, his x mark.	
HON-A-PUCK-IF-MA, his x mark.	[SEAL.]

For and in behalf of the In-neck band:

SISH-KAH, his x mark.	[SEAL.]
-----------------------	---------

Signed, sealed and delivered after the foregoing treaty of 6th instant, and this addenda had been fully explained in presence of—

JOHN MCKEE, <i>Secretary.</i>
C. W. DURKEE, <i>Interpreter</i>
GEORGE GIBBS,
H. W. WESSELLS, <i>Brevet Major U. S. A., commanding escort</i>
JOHN S. GRIFFIN, <i>Assistant Surgeon U. S. A.</i>
WALTER McDONALD.

Klamath River Reserve.

DEPARTMENT OF THE INTERIOR,
Office of Indian Affairs, November 10, 1855.

SIR: Referring to your communication of the 8th of August last to the Acting Commissioner of Indian Affairs, advising him of the approval by the President of the United States of the recommendation of the Department that it was expedient to expend the money appropriated on the 3rd of March last for removing the Indians in California to two additional military reservations, I have the honor now to make the following report:

On the 15th of August last the Acting Commissioner inclosed a copy of your letter of the 8th of that month to the superintendent of Indian affairs in California, with directions to select these reservations from such "tracts of land adapted as to soil, climate, water-privileges, and timber, to the comfortable and permanent accommodation of the Indians, which tracts should be unincumbered by old Spanish grants or claims of recent white settlers," limiting the dimensions of the reserves to within 25,000 acres each, and to report to this office a description of their geographical position in relation to streams, mountain ranges, and county lines, etc., and indicating the same upon a map. A copy of that letter is herewith, marked A. By the last mail from California, I have received from Superintendent Thomas I. Henley a report upon this subject, dated the 4th ultimo (a copy of which is herewith, marked B), by which it appears he recommends as one of the reservations aforesaid "a strip of territory one mile in width on each side of the (Klamath) river, for a distance of 20 miles." The superintendent remarks upon the character of the country selected, and incloses an extract from a report (also herewith, marked C) to him of the 19th of June last, by Mr. S. G. Whipple, which contains in some detail a description of the country selected, habits and usages of the Indians, etc., but no map is furnished.

It will be observed from this report of the superintendent that he has deemed it important to continue the employ of an agent and to prepare for raising a crop in order to assure the Indians of the good faith of the Government and to preserve the peace of the country. Considering the great distance of this reserve from the seat of Government and the length of time it necessarily requires to communicate with an agency at the Klamath, it is desirable that some definite action be taken, if practicable, before the sailing of the next steamer, to leave New York on the 20th instant.

I, therefore, beg leave to ask your attention to the subject, and if you shall be of the opinion from the representations made by the superintendent in California and Mr. Whipple that the selection at the mouth of the Klamath River is a judicious and proper one, that it be laid before the President of the United States for his approval, but with the provision, however, that upon a survey of the tract selected that a sufficient quantity be cut off from the upper end of the proposed reserve to bring it within the limitation of 25,000 acres, authorized by the act of 3d March last.

I also inclose herewith a copy of another letter from Superintendent Henley, of 4th ultimo (marked D), in which he states, in relation to the other reserve, that it is intended to locate it "between the headwaters of Russian River and Cape Mendocino." In reference to both of these proposed reserves, and as connected with the means to be used to maintain peaceable relations with the Indians, the superintendent is of opinion that it is of great importance to provide for crops, and that to do so an agent in each instance is necessary. As this last-named selection has not been defined by any specific boundaries, and no sufficient description is given as to soil, climate, and suitability for Indian purposes, to enable the Department to determine the matter under-

standingly, of course nothing definite can now be done. But it may not be improper to consider the subject in connection with the general intent as to the particular locality in which it is proposed to make the location.

The reserve proposed on the Klamath River and Pacific coast does not appear from the map of the State of California to be very far removed from Cape Mendocino, or a point between that and Russian River; and as provision is made only for two reserves in the State other than those already in operation, the question arises whether it should not be situated farther in the interior, or perhaps eastern part of the State, than the point referred to. The Noome Lacke Reserve is situated in one of the Sacramento valleys, at about the latitude of 40 degrees north and 122 degrees of longitude west, about the center of that portion of the State north of the port of San Francisco. As, therefore, the proposed Klamath Reserve, being northwest from the Noome Lacke Reservation, would appear to be adapted to the convenient use of the Indians in that direction, the question is suggested whether the other reserve should not be located farther east and north, say on the tributaries of either Pitt or Feather Rivers. As in the case of the proposed reserve of the Klamath, I am desirous of obtaining your opinion and that of the President of the United States, with such decision as may be arrived at under the circumstances, in season to communicate the same by the next California mail, for the government of the action of superintendent Henley.

Very respectfully, your obedient servant,

GEO. W. MANYPENNY,
Commissioner.

Hon. R. McCLELLAND,
Secretary of the Interior.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., November 12, 1855.

SIR: I have the honor to submit herewith the report from the Commissioner of Indian Affairs of the 10th instant, and its accompanying papers, having relation to two of the reservations in California for Indian purposes, authorized by the act of 3d March last.

The precise limits of but one of the reservations, viz, a strip of territory commencing at the Pacific Ocean and extending 1 mile in width on each side of the Klamath River, are given, no sufficient data being furnished to justify any definite action on the other.

I recommend your approval of the proposed Klamath Reservation, with the provision, however, that upon a survey of the tract a sufficient quantity be cut off from the upper end thereof to bring it within the limit of 25,000 acres authorized by law.

Respectfully, your obedient servant,

R. McCLELLAND,
Secretary.

The PRESIDENT.

Let the reservation be made, as proposed.

FRANKLIN PIERCE.

NOVEMBER 16, 1855.

Mendocino Reserve.

DEPARTMENT OF THE INTERIOR,
Office of Indian Affairs, April 16, 1856.

SIR: Referring to the report I had the honor to submit for your consideration on the 10th of November last, relative to the establishment

Yuma Reserve.

(For order relating to Yuma Reserve in ARIZONA, see California, post page 831.)

CALIFORNIA.

Hoopa Valley Reserve.

[Occupied by Hunsatung, Hupa, Klamath River, Miskeet, Redwood, Saiaz, Sermolton, and Tishlanaton tribes; area, 156 square miles; established by act of April 8, 1864 (13 Stat., 39), and Executive orders.]

By virtue of power vested in me by an act of Congress approved April 8, 1864, and acting under instructions from the Interior Department, dated at Washington City, D. C., April 26, 1864, concerning the location of four tracts of land for Indian reservations in the State of California, I do hereby proclaim and make known to all concerned that I have this day located an Indian reservation, to be known and called by the name and title of the Hoopa Valley Reservation, said reservation being situated on the Trinity River, in Klamath County, California, to be described by such metes and bounds as may hereafter be established by order of the Interior Department, subject to the approval of the President of the United States. Settlers in Hoopa Valley are hereby notified not to make any further improvements upon their places, as they will be appraised and purchased as soon as the Interior Department may direct.

AUSTIN WILEY,

Superintendent Indian Affairs for the State of California.

FORT GASTON, CAL., August 21, 1864.

EXECUTIVE MANSION, June 23, 1876.

It is hereby ordered that the south and west boundaries and that portion of the north boundary west of Trinity River surveyed, in 1875, by C. T. Bissel, and the courses and distances of the east boundary, and that portion of the north boundary east of Trinity River reported but not surveyed by him, viz: "Beginning at the southeast corner of the reservation at a post set in mound of rocks, marked 'H. V. R., No. 3'; thence south $17\frac{1}{2}$ degrees west, 905.15 chains, to southeast corner of reservation; thence south $72\frac{1}{2}$ degrees west, 480 chains, to the mouth of Trinity River," be, and hereby are, declared to be the exterior boundaries of Hoopa Valley Indian Reservation, and the land embraced therein, an area of 89,572.43 acres, be, and hereby is, withdrawn from public sale, and set apart for Indian purposes, as one of the Indian reservations authorized to be set apart, in California, by act of Congress approved April 8, 1864. (13 Stats., p. 39.)

U. S. GRANT.

EXECUTIVE MANSION, October 16, 1891.

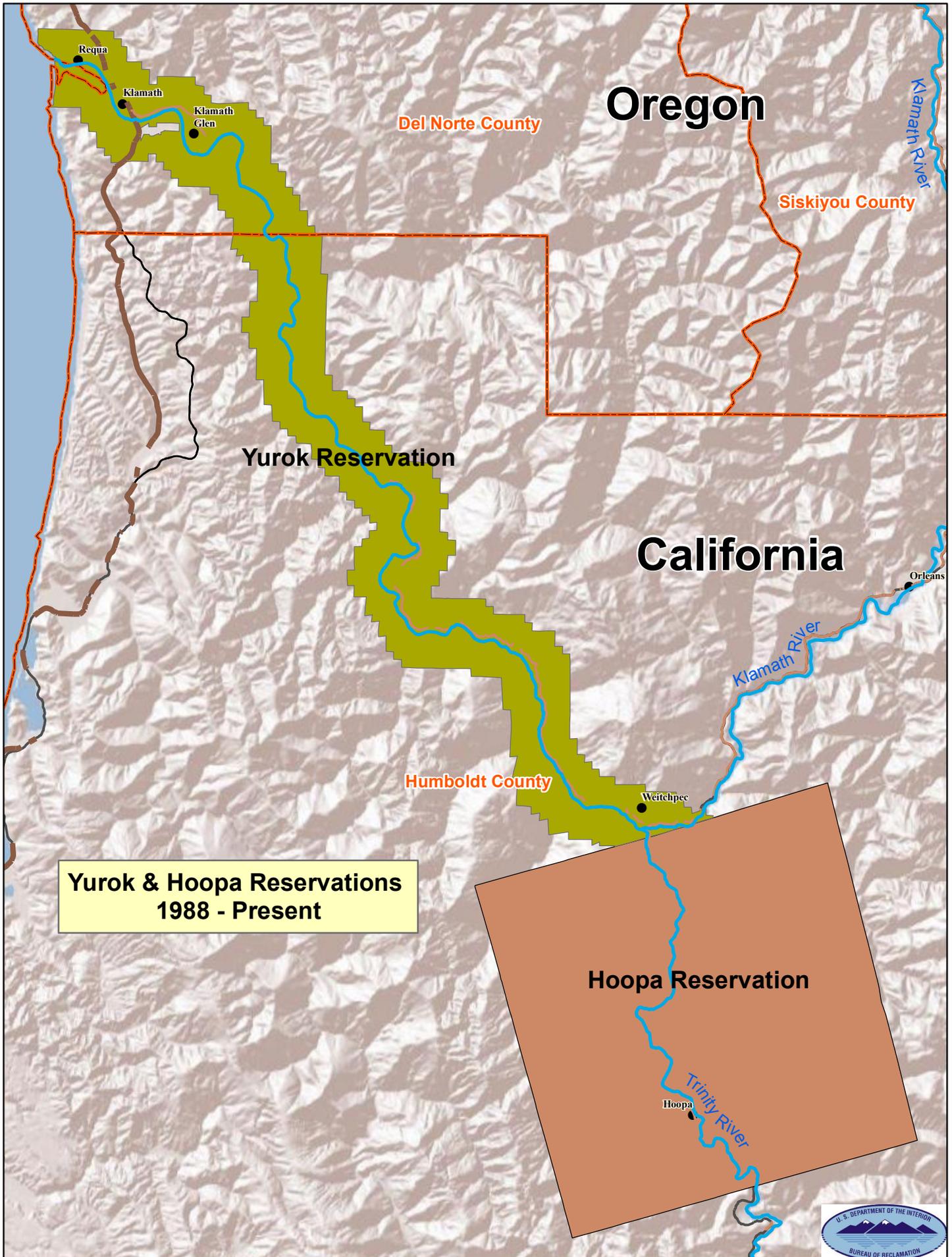
It is hereby ordered that the limits of the Hoopa Valley Reservation in the state of California, a reservation duly set apart for Indian purposes, as one of the Indian reservations authorized to be set apart, in said State, by Act of Congress approved April 8, 1864, (13 Stats., 39), be and the same are hereby extended so as to include a tract of country one mile in width on each side of the Klamath River, and extending from the present limits of the said Hoopa Valley reservation to the Pacific Ocean; *Provided, however,* That any tract or tracts included within the above described boundaries to which valid rights have attached under the laws of the United States are hereby excluded from the reservation as hereby extended.

BENJ. HARRISON.



 Hoopa Valley Reservation 1891 - 1987





**Yurok & Hoopa Reservations
1988 - Present**



Attachment 3

- 3a Resighini Rancheria Environmental Protection Authority Memo
- 3b Health Advisory
- 3c Yurok Tribe (Sloan, February 2011) Water Quality Excerpts

Attachment 3a

Resighini Rancheria Environmental Protection Authority Memo

RESIGHINI RANCHERIA
A Federally Recognized Indian Tribe
ENVIRONMENTAL PROTECTION AUTHORITY

Rick R. Dowd, Chairman
Allen Davis, Vice Chairperson
Donald D. Valenzuela, Tribal Mgr.

Phil Smith, B.S., J.D., Director
Frank S. Dowd, Water Resource Tech.,
ITCA/EPA & California Certified
Rocky T. Dowd, Air Resource Tech. Trainee

January 18, 2005

Ms. Magalie R. Salas
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Follow-up Comments Regarding December 16, 2004 Government-to-Government Meeting with FERC Representatives – P2082-027

Dear Ms. Salas:

We want to thank John Mudre, Fred Winchell and Rollie Wilson, Commission Staff, for coming to the Resighini Rancheria for Government to Government consultations representing the Federal Energy Regulatory Commission. We would like to follow up on the points that we made regarding the Area of Potential Effect (APE) of the Klamath River Hydroelectric Project. We recognize that FERC views environmental impacts related to the Project as separate from Native American cultural issues, which fall under Section 106 of the Federal Power Act. We are re-stating our case of impacts to the Resighini Reservation from the Project and accept your treating them under environmental issues because we view our culture and the environment as inseparable. We also will show that effects of the Project are well downstream of the Scott River, the point below which PacifiCorp (2004) contends there are none.

Klamath River Hydroelectric Project Impacts That Extend to the Resighini Rancheria

The Resighini Rancheria is located at the top of the Klamath River estuary and only about three miles above its convergence with the Pacific Ocean. The impacts of the Klamath River Hydroelectric Project that directly impact the Rancheria are 1) low survival of juvenile anadromous fish below the Project, 2) nutrient spiraling caused by the Project, and 3) the occurrence of *Aphanizoemenon flos aquae* from the Project in all parts of the river, including the estuary.

Anadromous Fish Survival: We have provided evidence that nutrient pollution below Iron Gate Dam is causing algae blooms that in turn cause major swings in water quality (Kier Associates, 2004). High pH, high levels of dissolved ammonia, elevated water temperature and low dissolved oxygen can act individually or in combination to create highly stressful or directly lethal conditions for juvenile salmonids. Fish disease surveys (Foott et al., 2003) find much higher rates of infection and mortality in the Klamath River proper than tributaries like the Salmon and Trinity rivers that do not suffer similar nutrient pollution (Figure 1).

It is clear from fisheries studies that a significant percentage of juvenile salmon migrating downstream from Iron Gate Hatchery are succumbing to disease, with mortality in several recent years ranging estimated at over 40% (Foott et al., 2003). Water pollution caused by the Project has the same impact on Shasta River salmon and steelhead, and a lesser but still significant impact on juveniles from other Klamath tributaries further downstream. Juvenile fish, stressed by pollution, that succumb to disease and die do not make their journey to the ocean. This translates to lost adult salmon that cannot be caught in fisheries at the mouth of the Klamath and has a direct impact on Native Americans along the whole Klamath River as a function of lost fishing opportunity.

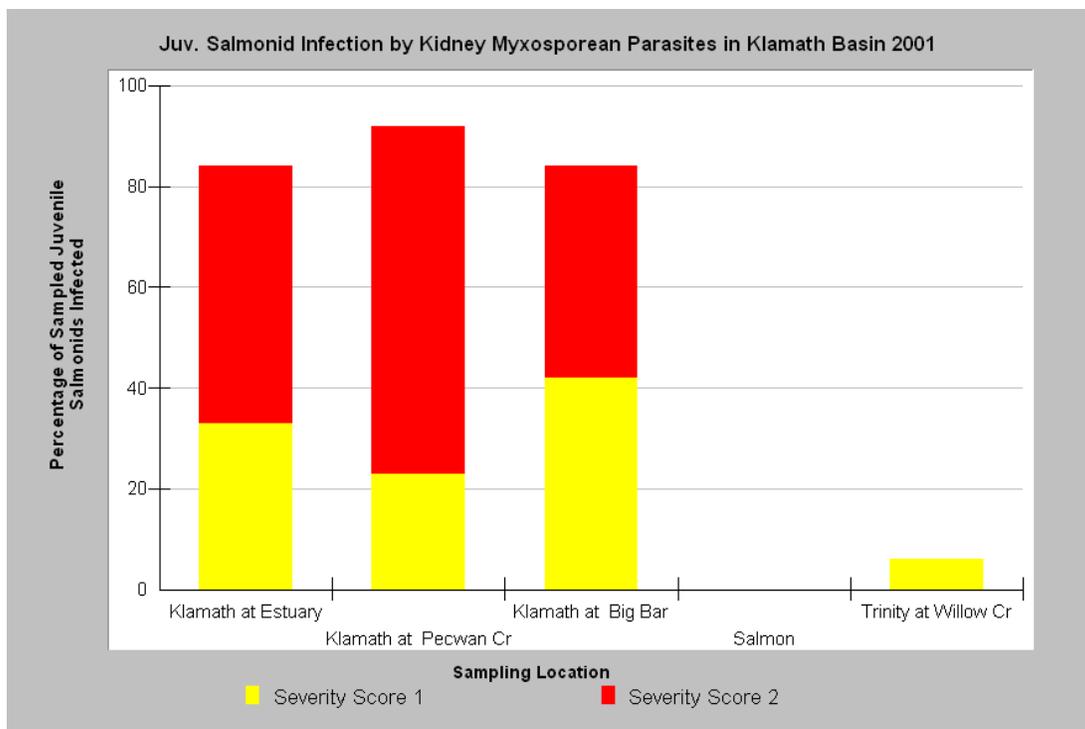


Figure 1. This chart displays salmon kidney disease results for the Klamath, Salmon and Trinity rivers from Foott et al. (2003), which shows a much higher incidence in the Klamath than the other less polluted tributaries. Chart from KRIS V 3.0 (TCRCD, 2003).



Nutrient Spiraling: While Deas and Orlob (1999) showed that dense beds of benthic algae in the Klamath River below Iron Gate Reservoir capture nutrients, this capture can only occur during the day when photosynthesis is occurring. Nutrients emitted from the reservoir at night pass downstream and stimulate algae blooms elsewhere. The capture of nitrogen by algae beds can also be temporary, and nutrients are released downstream as algae die or as segments break off and are suspended in the drift. Deas and Orlob (1999) show that inorganic nitrogen levels drop as a function of distance from Iron Gate Dam, but then show an increase again in the lower Klamath River. There are no major nutrient sources below the Scott River; consequently, this increase must be a result of Iron Gate Reservoir nutrients, and those from agricultural basins like the Shasta, recycling or “spiraling”. This fuels blooms in lower river areas, starting another cycle of pollution.

Other evidence of the effects of nutrient pollution well downstream are unionized or dissolved ammonia levels at Ikes Falls, more than 100 miles below Iron Gate Dam. Figure 2 shows unionized ammonia levels of 0.05 mg/l, which is more than double the level recognized as acutely stressful by the U.S. Environmental Protection Agency (1984). Dissolved ammonia is converted from ammonium ions in the presence of high pH in combination with water temperatures over 25 degrees C (Goldman and Horne, 1983). Water temperatures in the Klamath River in summer commonly exceed 25 C and field studies also find elevated pH levels (Figure 3). The high pH is a function of photosynthesis stimulated by nutrients made available due to the spiraling described above.

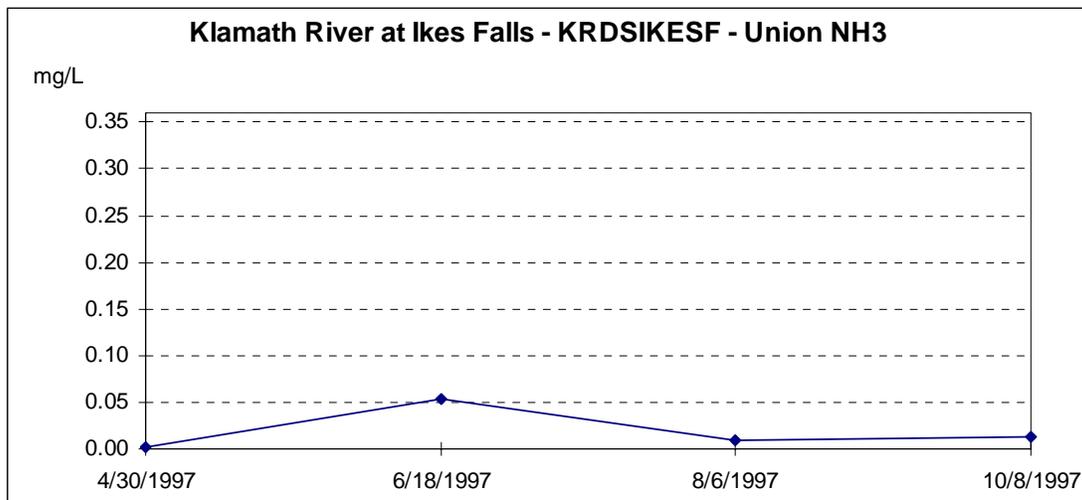


Figure 2. Unionized ammonia (Union NH3) at Ikes Falls on the Klamath River during the summer of 1997 shows a spike to highly stressful or lethal levels for salmonids on June 18. Data from the North Coast Regional Water Quality Control Board.



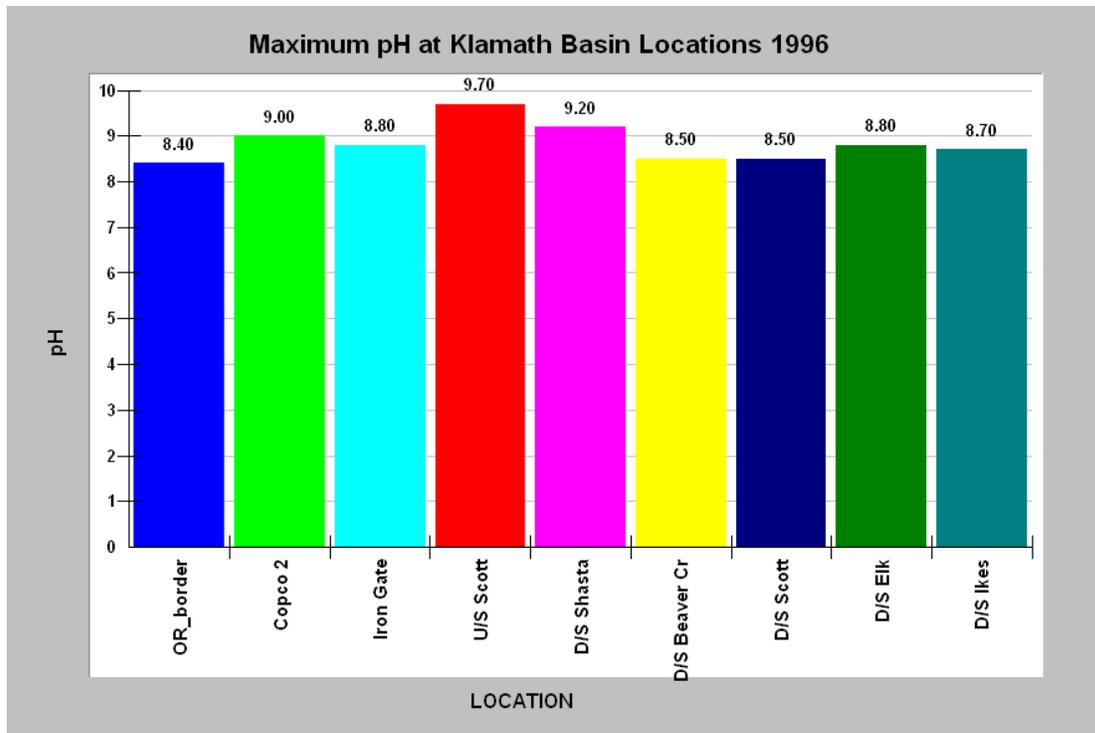


Figure 3. This chart shows the maximum pH values measured by the North Coast Regional Water Quality Control Board during the summer of 1997 with values over 8.0 indicating substantial photosynthetic activity as far downstream as Ikes Falls. Chart from KRIS Version 3.0 (TCRCD, 2003).

There is also evidence that problems with dissolved oxygen (D.O.) in the lower Klamath River are linked to nutrient emissions from the Project and spiraling downstream. The U.S. Fish and Wildlife Service (Halstead, 1997) found D.O. below lethal levels for salmonids on August 9, 1997 (Figure 4). Their reconnaissance of D.O. was prompted by their finding not just dead juvenile salmon and steelhead in their downstream migrant trap, but also other species more tolerant of poor water quality, like suckers and dace (Figure 5).

Both the high dissolved ammonia levels at Ikes Falls and the low D.O. at Big Bar occurred far downstream of the Project and the Scott River (Figure 6). While the Trinity River greatly improves water quality in the lower Klamath River, the effects of nutrient spiraling continue, although somewhat dampened, all the way to the Resighini Reservation.



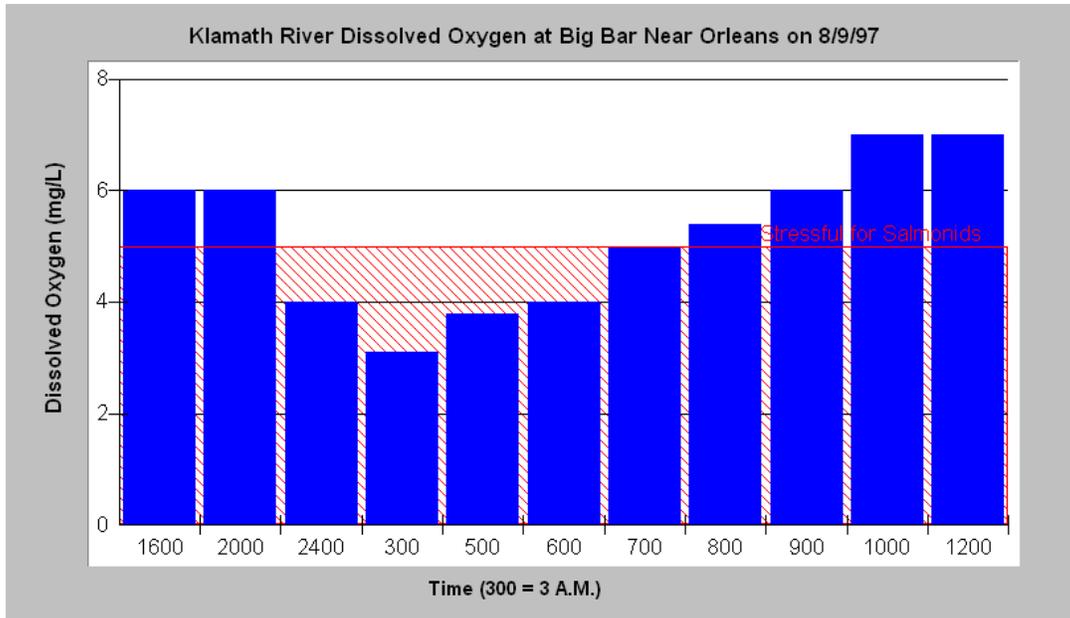


Figure 4. Dissolved oxygen dropped to 3.1 at 3 A.M according to measurements taken by the U.S. Fish and Wildlife Service Arcata Office (Halstead, 1997). Chart from KRIS Version 3.0.



Figure 5. U.S. Fish and Wildlife Service downstream migrant traps often catch sick and dying fish. The fact that both salmonids and warm water species, like Klamath small scale suckers and speckled dace, are also dying is a sign of acute water quality problems.



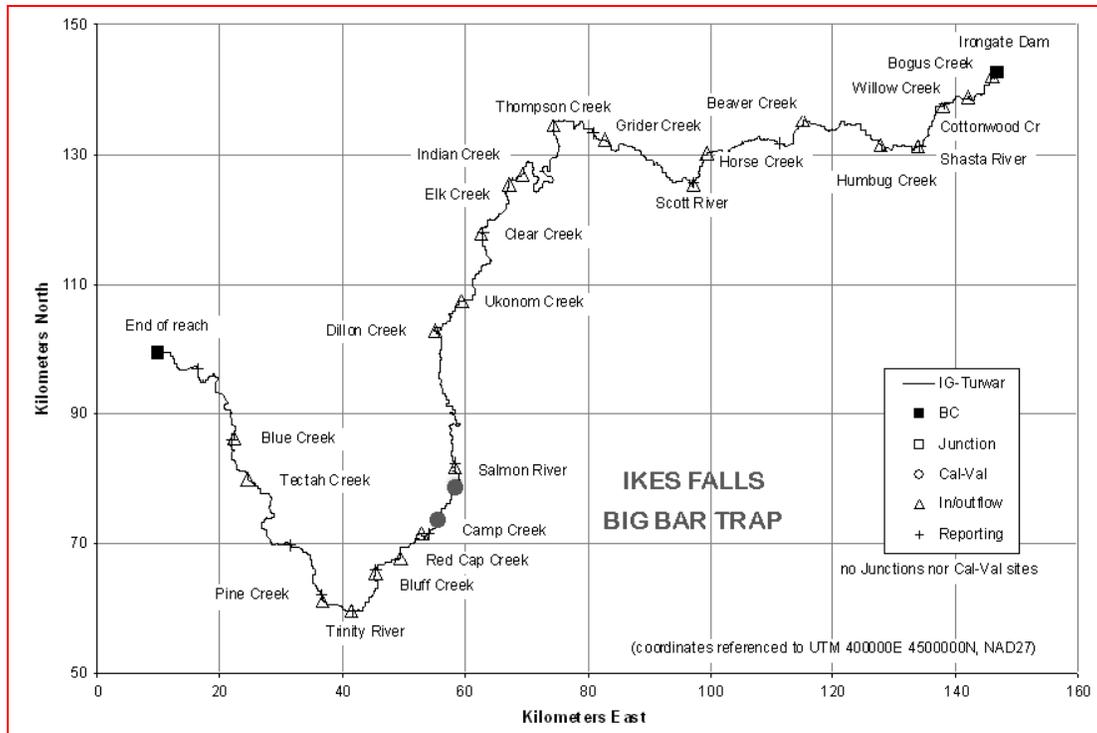


Figure 6. Map of the Klamath River showing the location of Ikes Falls and the USFWS Big Bar trap (black circles), below the Salmon River. This shows acute water quality problems caused by nutrient pollution are manifest well below the Scott River.

Aphanezomenon flos aquae: *A. flos aqua* is nitrogen fixing bacteria that inhabits Upper Klamath Lake and causes an increase in the outflow of the lake of 3.5 times the level of nitrogen versus tributaries above the lake. This species then sets up blooms in all reservoirs downstream and in the Klamath River below (Phinney and Peek, 1960). Phinney and Peek (1960) documented blooms of *A. flos aquae* in slow backwaters of the Klamath and even in the estuary. *A. flos aquae* flourishes in Upper Klamath Lake and in the Project reservoirs. If the only source of this blue green algae were Upper Klamath Lake, 60 miles upstream of Iron Gate Reservoir, it would be much less abundant and less likely to be able to create blooms in the lower Klamath River (Jake Kann, personal communication). The fact that *A. flos aquae* travels downstream from the Project and may set up blooms all the way to the ocean is a direct Project effect to the Resighini Rancheria and to other Tribes along the river.

Cultural Perspective

Tribes bring a different perspective on time to relicensing discussions with FERC. According to anthropologists, Klamath River Tribes have been in place for at least



10,000 years, but Native People know they have been here since time immemorial. The non-native culture typically thinks in one to five year corporate or government planning cycles. FERC is involved in oversight of a permit to affect our river for the next 50 years. The Yurok People of the Resighini Rancheria believe the Project has had huge and unforeseen consequences since its last license in 1956, and if FERC actions cause loss of fish stocks over the next 50 years, modern science enables us to foresee that we will lose fishing opportunities in perpetuity.

Scientific studies show that there are also ocean and climatic cycles in our region that are currently favorable, but change about every two and a half decades (Collison et al., 2003). If freshwater habitats are not improved by 2015 to 2025, when the cycle switches to poor ocean and dry on land conditions, weak fish stocks will go extinct and formerly strong stocks will become so weak there will be no harvestable surplus (Collison et al., 2003). We hope this gives FERC a sense of urgency in its deliberation.

The Yurok People of the Resighini Reservation and other Indian Tribes on the lower Klamath River have harmony based cultures. The people are indivisible from the environment and, if the environment is treated well, then the culture of the people will thrive. The Business Council of the Resighini Rancheria contends that the PacifiCorp Hydroelectric Project is not in balance with the river and represents a disruptive force to the harmony of man and nature in the basin. The Project represents an unnatural event which is having unnatural consequences on the environment and the Tribes. The unnaturally low flows imposed by the U.S. Bureau of Reclamation as part of its Ten Year Operations Plan that caused the fish kill of September 2002 (CDFG, 2003; Guillen, 2003) serves as another such example.

Whether your Environmental Impact Statement considers us as a people, a living culture and treats our arguments as germane under Section 106 of the Federal Power Act, or as part of the food web and under environmental law, matters only for the sake of argument. We will, however, expect you to remedy the abridgement of our traditional rights as long recognized by the federal government and guide the river's return to good health and allow the restoration of the fish on which we and other Tribes rely. The Council believes that dam removal is the path you must follow to honor that commitment and that such actions must be taken expeditiously to avoid irretrievable and irreversible harm to both Public Trust and Tribal Trust resources.

Sincerely,



Phil Smith, Director
cc: The Business Council
Tribal Manager



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Attachment 3b

Health Advisory

HEALTH ADVISORY



AVOID WATER CONTACT IN IRON GATE AND COPCO RESERVOIRS

Pollution has resulted in high levels of blue-green algae that can produce harmful toxins. This has resulted in violations of the State's water quality standards

- Do not use this water for drinking or cooking
- Fish from these waters previously tested positive for an algal toxin. Limit or avoid consuming fish as the risk to human health is being evaluated by public health agencies
- Do not consume fish innards, and wash fillets with drinking water

Children and pets are at greatest risk

For more information contact staff at:

North Coast Regional Water Quality Control Board

(707) 576-2220

Attachment 3c

Yurok Tribe (Sloan, February 2011) Water Quality Excerpts

**Yurok and the Klamath River:
Yurok Historical Context and Data
for Assessing Current Conditions and the
Effects of the proposed Klamath Restoration Project
on Yurok Tribal Trust Assets and
Yurok Resources of Cultural and Religious Significance**

**Report Prepared for the
Department of the Interior
Bureau of Indian Affairs
For Use in the Secretarial Determination Overview Report
and NEPA/CEQA Analysis
Under Grant # 81333AG053 from US Fish and Wildlife Service**

**Prepared by:
Dr. Kathleen Sloan
Yurok Tribe Environmental Program**

February 2011

The California North Coast Regional Water Quality Control Board has established both Native American Cultural and Subsistence Beneficial Uses for the Klamath River and its tributaries. In 2006, Klamath River tribes participated in an Environmental Justice Pilot Project with the State Water Resources Control Board that served to help provide data on these Beneficial Uses in terms of types of uses and also times of the year during which these Beneficial Uses occur. In 2006 a proposal prepared by the Tribes (Karuk, Yurok, Hoopa) stated:

The Klamath Basin Tribes working with the State Water Resources Control Board propose an Environment Justice Pilot Project for the Klamath River Watershed. This project seeks to restore Klamath River water resource health for the protection, restoration, and enforcement of Native American Cultural and Traditional Subsistence Beneficial Uses.

The need for such a pilot project is clear. Water quality- based Environmental Justice issues of special concern are:

- (1) that the tributaries, lakes, wetlands and the main stem of the Klamath River continue to benefit the Klamath River Basin tribes through traditional economic, subsistence, commercial, and ceremonial uses;
- (2) that Native American Cultural and Traditional Subsistence Beneficial Uses, including ceremonial and religious uses of the river, subsistence fishing and other continued traditional cultural uses can and must be restored and protected.
- (3) that tribal cultural, social, and physical health can be improved through State Water Board programs designed to restore water quality within the Klamath River Basin.

In order to address the significant water quality issues, the Klamath Basin Tribes have determined that the primary goal of this EJ Pilot Project is to uphold all regulatory parameters for Native American Cultural and Traditional Subsistence Beneficial Uses per the SWRCB North Coast Region Basin Plan:

The basis for the discussion of beneficial water uses, which follows, is Section 13050(f) of California's Porter-Cologne Water Quality Control Act, which states:

"Beneficial uses" of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. An essential part of a water quality control plan is an assessment of the beneficial uses, which are to be designated and protected....

Protection will be afforded to the present and potential beneficial uses of waters of the North Coast Region as designated....The beneficial uses of any specifically identified water body generally apply to all its tributaries....

Water quality standards are adopted to protect public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act (as defined in Sections 101(a)(2), and 303(c) of the Act). Water quality standards consist of 1) designated beneficial uses; 2) the water quality objectives to protect those designated uses; 3) implementation of the Federal and State policies for antidegradation; and 4) general policies for application and implementation....

Established and adopted Beneficial Uses for the SWRCB North Coast Region that are of particular importance to Klamath Basin Tribes include but are not limited to:

Native American Culture (CUL) Uses of water that support the cultural and/or traditional rights of indigenous people such as subsistence fishing and shellfish gathering, basket weaving and jewelry material collection, navigation to traditional ceremonial locations, and ceremonial uses.

Subsistence Fishing (FISH) Uses of water that support subsistence fishing.

The SWRCB EJ Pilot Project for Klamath Basin Tribes should be devoted to assisting each Tribe in asserting regulatory enforcement of tribally-determined water quality criteria for these Beneficial Uses as they relate to SWRCB policies and actions for the Klamath River Basin.

It is important to recognize that each tribe has its own unique history, culture, and status relative to federal recognition, retained rights, and sovereignty. Participation in this project does not represent a waiver of sovereignty or any rights for any tribe, nor does it establish any additional rights for any tribe.

In a final 2006 Scope of Work prepared by the California State Water Quality Control Board as part of the pilot project the tribes stated:

The State and Regional Water Boards are engaged in a number of activities to prevent further degradation to the Klamath River and its tributaries and to restore the health, habitat and beneficial uses of the river.

The Klamath River and its tributaries are listed as impaired on the Federal Clean Water Act (CWA) Section 303(d) list. The Regional Water Board has adopted Total Maximum Daily Loads (TMDLs) including Action Plans to restore the water quality and beneficial uses of Scott, Shasta, and Salmon River watersheds, and is in the process of developing TMDLs for the main stem Klamath River.

A TMDL is a framework for assessing the condition of a watershed, evaluating the factors that contribute to water quality problems in the watershed, and for developing a plan to restore healthy water quality conditions. There are five general objectives of a TMDL:

1. To assess the condition of a waterbody, and determine/confirm cause(s) / source(s) of stress.
2. To quantify the sources of the pollutant or stressor.
3. To determine how much of a particular pollutant or stressor a waterbody can handle and still meet desired conditions.
4. To identify whether and how much the different sources need to be reduced in order to support desired conditions.
5. To develop a plan which, when implemented, will restore waterbody health.

The Klamath River is listed as impaired due to low dissolved oxygen, high water temperature and nutrient concentrations. The Water Quality Control Plan for the North Coast Region (Basin Plan) designates the following beneficial uses to one or more hydrologic areas or sub-areas of the Klamath River:

- Municipal Water Supply (MUN)
- Water Contact Recreation (REC-1)
- Non-Contact Water Recreation (REC-2)
- Cold Freshwater Habitat (COLD)
- Spawning, Reproduction or Early Development (SPWN)
- Migration of Aquatic Organisms (MIGR)
- Rare, Threatened or Endangered Species (RARE)
- Commercial and Sport Fishing (COMM)
- Native American Cultural (CUL)
- Subsistence Fishing (FISH)
- Wildlife Habitat (WILD)
- Marine Habitat (MAR)
- Navigation (NAV)
- Shellfish Harvesting (SHELL)
- Aquaculture (AQUA)
- Agricultural Supply (AGR)
- Industrial Supply (IND)
- Industrial Process Supply (PRO)
- Groundwater Recharge (GWR)

- Freshwater Replenishment (FRSH)
- Hydropower Generation (POW)

In addition to beneficial uses related to the cold water fishery (COLD, SPAWN, MIGR) and drinking water (MUN); the Native American Cultural (CUL) use and the Subsistence Fishing (FISH) use are extremely important to the Klamath Basin Tribes (Tribes). The Regional Water Board added the CUL and FISH beneficial uses during a Basin Plan update in June 2003. This was done to specifically acknowledge reliance by the Tribes on fish to provide most of the protein in their diet and the extreme importance of high-quality water to their culture, spirituality and their economy.

The North Coast Basin Plan defines the Native American Cultural (CUL) and Subsistence Fishing (FISH) uses as follows.

Native American Culture (CUL) Uses of water that support the cultural and/or traditional rights of indigenous people such as subsistence fishing and shellfish gathering, basket weaving and jewelry material collection, navigation to traditional ceremonial locations, and ceremonial uses.

Subsistence Fishing (FISH) Uses of water that support subsistence fishing.

At the time the CUL use was added to the Basin Plan, the Regional Water Board staff did not have adequate information with which to support the designation of the use for all of the waterbodies in the region as existing or potential. Thus, staff did the best they could with the designations using the information submitted by approximately five tribes in the Region. For this reason the CUL designations are not complete in the beneficial use table found within the Basin Plan. There are many other waterbodies where the CUL use very likely exists or existed historically (potential). The Regional Water Board plans to update these beneficial use designations at their earliest opportunity.

In addition, Regional Water Board staff had originally proposed to add subsistence fishing to the Commercial and Sport Fishing use definition. However, at the adoption hearing for the Beneficial Use Amendment, the State Water Board stated that they preferred not to change the statewide definition of this use, but instead agreed to add a separate beneficial use entitled “Subsistence Fishing” (FISH). Because this use was adopted separately, the Regional Water Board was unable to designate this use to any specific waterbody at the time of adoption. This use is known to exist or existed historically (potential) in many waterbodies, including the Klamath River, and will be designated during the next update of the Beneficial Use Chapter of the Basin Plan.

Existing uses are those uses, which were attained in a waterbody on or after November 28, 1975. Existing uses cannot be removed or modified unless a use requiring more stringent criteria is added. However, a use requiring more

stringent criteria can always be added because doing so reflects the goal of further improvement of water quality. Biological data, human use statistics, and/or professional experience is used to document the existing uses.

Waterbodies may have potential beneficial uses established for any of the following reasons: 1) the use existed prior to November 28, 1975, but is not currently being attained; 2) plans already exist to put the water to that use; 3) conditions make such future use likely; 4) the water has been identified as a potential source of drinking water based on the quality and quantity available (see *Sources of Drinking Water Policy*, in Appendix 7); 5) existing water quality does not support these uses, but remedial measures may lead to attainment in the future or 6) there is insufficient information to support the use as existing, however, the potential for the use exists and upon future review, the potential designation may be re-designated as existing.

The CUL use is designated as an existing as well as a potential beneficial use in the Basin Plan and as such, must be protected and if impaired, must be restored. As stated above, existing uses cannot be removed using a use attainability analysis (UAA).

It is imperative that the beneficial use designations in the Basin Plan be updated to reflect existing and potential CUL and FISH beneficial uses so that water quality necessary to protect these uses can be restored and maintained as required by the federal Clean Water Act and the state Porter Cologne Water Quality Control Act.

Under the project described above, the Yurok Tribe Environmental Program (Sloan and McConnell 2007) collected data on Yurok Beneficial Uses of the Klamath River and its tributaries. This work continued in 2008 under a California Environmental Justice Grant (Sloan and McConnell 2009) and documented that Yurok traditional uses of the Klamath River and its tributaries is extensive and continual, spanning through most months of the year. The following tables present information both on types of uses and times of year during which these uses occur within the Yurok community.

YUOK TRIBE CULTURAL USES OF THE KLAMATH RIVER & TRIBUTARIES

Codes used in table: 1 = Main stem Klamath only, 2 = Tributaries only, 3 = Main stem AND Tributaries

USES:

	January	February	March	April	May	June	July	August	September	October	November	December
CEREMONIAL												
Plants	3	3	3	3	3	3	3	3	3	3	3	NO
Fish	3	3	3	1	1	1	1	1	1	1	1	NO
Fishing	3	3	3	3	3	3	3	3	3	3	3	NO
Water-drinking, steaming, cooking	2	2	2	2	2	2	2	2	2	2	2	2
Rocks	3	3	3	3	3	3	3	3	3	3	3	NO
Bathing						3	3	3	3	3	3	
Boating	3	3	3	3	3	3	3	3	3	3	3	3
Wildlife	3	3	3	3	3	3	3	3	3	3	3	3
River & Trail Access	3	3	3	3	3	3	3	3	3	3	3	3
Training	3	3	3	3	3	3	3	3	3	3	3	3
Swimming						3	3	3	3	3		NO
Prayer/Meditation	3	3	3	3	3	3	3	3	3	3	3	NO

YUOK TRIBE CULTURAL USES OF THE KLAMATH RIVER & TRIBUTARIES

Codes used in table: 1 = Main stem Klamath only, 2 = Tributaries only, 3 = Main stem AND Tributaries

USES:

ACTIVITIES	January	February	March	April	May	June	July	August	September	October	November	December
Plants	3	3	3	3	3	3	3	3	3	3	3	NO
Water-drinking, steaming, cooking	2	2	2	2	2	2	2	2	2	2	2	2
Rocks	3	3	3	3	3	3	3	3	3	3	3	NO
Bathing	3	3	3	3	3	3	3	3	3	3	3	3
Boating	1	1	1	1	1	1	1	1	1	1	1	1
River & Trail Access	3	3	3	3	3	3	3	3	3	3	3	3
Training	3	3	3	3	3	3	3	3	3	3	3	3
Swimming						3	3	3	3	3		
Washing	3	3	3	3	3	3	3	3	3	3	3	3
Meditation	3	3	3	3	3	3	3	3	3	3	3	3
Wood Gathering	3	3	3	3	3	3	3	3	3	3	3	3

YUOK TRIBE CULTURAL USES OF THE KLAMATH RIVER & TRIBUTARIES

Codes used in table: 1 = Main stem Klamath only, 2 = Tributaries only, 3 = Main stem AND Tributaries

USES:

BASKETRY	January	February	March	April	May	June	July	August	September	October	November	December
Roots	3	3	3	3	3	3	3	3	3	3	3	NO
Sticks	3	3	3	3	3	3	3	3	3	3	3	NO
River & Trail Access	3	3	3	3	3	3	3	3	3	3	3	NO
Plants				3	3	3	3	3	3	3		NO

JEWELRY	January	February	March	April	May	June	July	August	September	October	November	December
			3	3	3	3	3	3	3	3	3	

YUOK TRIBE CULTURAL USES OF THE KLAMATH RIVER & TRIBUTARIES

Codes used in table: 1 = Main stem Klamath only, 2 = Tributaries only, 3 = Main stem AND Tributaries

USES:

SUBSISTENCE	January	February	March	April	May	June	July	August	September	October	November	December
Plants				3	3	3						NO
Fishing	3	1	1	1	1	1	1	1	1	1	1	NO
Eeling	1	1	1	1	1							NO
Shellfish						1	1	1				NO
Water-drinking, steaming, cooking	2	2	2	2	2	2	2	2	2	2	2	2
Wildlife	3	3	3	3	3	3	3	3	3	3	3	NO
River & Trail Access	3	3	3	3	3	3	3	3	3	3	3	3
Food Preparation	2	2	2	2	2	2	2	2	2	2	2	2

Yurok Tribe Cultural Uses of the Klamath River & Tributaries

CEREMONIAL	Pathways of Exposure
Plants	Gathering, walking in streams & river side, cooking, cleaning, soaking, exposure to water when dispensing of medicinal plants, water often taken to ceremonies and used with plants for medicine
Fish	Catching is the same as subsistence, fish for ceremonial use is fresh, contact with fish during preparation
Fishing	Same as subsistence, contact with water nearly constant
Water-drinking, steaming, cooking	Water often taken to the site of ceremony and used in various ways including cleansing, cooking, preparation, drinking, landscaping (packing sand down),
Rocks	Steaming, sweating, cooking, gathering on river and creek banks, exposure to water while walking to pick up rocks.
Bathing	Bathing before, during and after ceremonies and sweats, exposure to water while immersed.
Boating	Getting in and out of boat, splashing, paddling, accidentally falling in, boat capsizing
Wildlife	Walking during hunting for wildlife, cleaning, wildlife drank the water, otter, sea lion, ducks
River & Trail Access	Splashing while walking near and in waterways, trail often cross tributaries or run along side waterways.
Training	Swimming, diving, bathing after training
Swimming	Immersion in waterways, splashing, possibly swallowing water during swimming
Prayer/Meditation	Sitting on riverbank, feet in water
Fish dam	Full body immersion during construction, use of dam after construction, and deconstruction

Yurok Tribe Cultural Uses of the Klamath River & Tributaries

ACTIVITIES	Pathways of Exposure
Plants	Gathering in and near waterways, walking to gather plants, cleaning, cooking, steaming, rinsing, wading in waterways to gather plants,
Water-drinking, steaming, cooking	Drinking water from tributaries, using water to cook and clean, steaming, used to rinse food and eating utensils, water used in camps for multiple purposes
Rocks	Rocks gathered from banks of waterways, often time coming in contact with the water while gathering, either by splashing or wading. The rocks gathered have been in contact with the water, as well as rinsed in the water. Rocks are then used to cook and prepare either medicine or food.
Bathing	Daily bathing in river or tributaries, either by immersion, rinsing or splashing. Direct contact with skin and body
Boating	Getting in and out of boat, splashing while moving and paddling, putting in and taking boat out of water. As a result of being on the water there is constant contact with the water. Bailing of water from boat.
River & Trail Access	The trails often cross paths with waterways or are around, run along side. Contact by wading, splashing. Also when traveling the trails the waterway is used for cooling down and drinking
Training	Swimming, immersion in water, bathing, and diving.
Swimming	Full body immersion, splashing, wading, playing near and in the waterways
Washing	Washing of baskets, utensils, food, rocks, and plants. Washing hands, face, feet, and other body parts. Water used through out the day to wash various things, constant contact with water.
Meditation	Same as ceremonial
Wood Gathering	Gathering wood from the banks of the river, splashing. Traveling to gather wood, having to go through or wade in the shallows of the water to get to the wood. Also possibility that wood has been exposed to the water at some point. Winter gathering involvesthe use of a boat to gather wood that is floating downstream
Tanning hides	Placing of hides in creek

Yurok Tribe Cultural Uses of the Klamath River & Tributaries

BASKETRY	Pathways of Exposure
Roots	Having to dig near the water for roots. Wading in water to get the roots. Constant exposure of water on hands to gather. Also the cleaning and preparing the roots for use. Soaking the roots for flexibility
Sticks	Gathering near tributaries and river could possibly put one in contact with the water. Cleaning and soaking of the sticks to make them usable.
River & Trail Access	Wading to get to the resource. Crossing tributaries and river while gathering basket materials.
Plants	Gathering plants near waterways, having to travel to the plant location puts one in contact with waterways. Also the preparation and cleaning of plants uses water from river and tributaries. The soaking of plant material for flexibility uses water from the river and tributaries.
Weaving	Women would often gather in groups near a tributary. The placing of a wet stick or root in the mouth while weaving.

JEWELRY	Pathways of Exposure
Shells	Gathering from the streams and river. Wading to gather resource. Also preparation of use of the shells requires them to be cleaned in the waterways. Dipping of shell (abalone) in water while grinding

Yurok Tribe Cultural Uses of the Klamath River & Tributaries

SUBSISTENCE	Pathways of Exposure
Plants	The gathering plants in and near streams and rivers, cleaning and rinsing. Preparation, cooking, soaking, steaming...
Fishing	Getting in and out of the boat, Setting and pulling the net. Hands and arms continuously in the water while checking the net and removing fish. Cleaning the fish with water, using the water for slush tanks for storage, wading in the water, splashing from fish, boat moving and dropping the anchor. Trigger net for salmon and sturgeon
Eeling	Setting and checking eel baskets in the water ways. Hooking eels by wading and exposing feet, legs, hands and arms to the water. `Scraping` eels from rocks at Coon Creek and Smokers Falls. Trigger net and dip net. Cleaning eels and preparing them.
Shellfish	Immersion in the water to gather, cleaning and preparation of freshwater clams.
Water-drinking, steaming, cooking	Drinking water directly from tributaries, using water to cook and clean food and items used for food preparation. Water used for multi purposes in the kitchen with preparing all foods.
Wildlife	Wildlife caught in and near waterways. Water used to clean and prepare wildlife for consumption. Geese, ducks, mudhens
River & Trail Access	The trails used to gather and prepare subsistence food are in direct or indirect contact with the waterways.
Food Preparation	Water is used directly and indirectly with food preparation. Used for gathering, cooking, steaming, boiling, cleaning, and multiple uses in all food preparation.

- Other impacts on fish – ranging from catastrophic effects like the massive 2002 fish kill to a general decline in the populations of both anadromous and resident fish, and including the complete or near elimination of particular fish runs¹., resulting from such factors as:
 - Release of insufficient water down the river, or releases at the wrong times, or in the wrong amounts, to meet the biological needs of all fish species, at all life stages.
 - Release of water that has been warmed (or cooled) by being held in reservoirs, creating an unnatural and detrimental temperature regime for fish.
 - Release of water that is polluted by agricultural runoff from above the reservoirs, full of chemical foam and algae, making it unhealthy not only for fish but also for people to drink or bathe in.
 - Deposition of sediment in cold-water holes where fish congregate.
 - Creation of a flow regime in which periodic flushing flows (“freshets”) are replaced by a flat flow punctuated by flood events², failing to clear away sand and gravel bars at the mouths of tributaries and thus sealing off spawning ground and fish refugia.
- Through the same alterations in flow regime, causing erosion of culturally important areas along the river, such as the World Renewal site *Katamin*.
- Through flow alterations, temperature changes, and pollution, causing damage to the health of plants required for basketry and other cultural purposes.

Such effects have obvious implications for the relationships of the tribes to the river, the fish, special places along the river, and other elements that contribute to the significance of the riverscape. If the salmon do not run, the First Salmon Ceremony becomes meaningless. If the priest’s sweatlodge washes away, the priest cannot use it during the World Renewal Ceremony. If the river is too polluted to bathe in, important purification rituals cannot be performed. If people cannot get enough salmon, or steelhead, or lampreys, their connection with the riverscape is diminished.

¹ For summary statistics from Federal government sources, see Karuk ethnographic report: 77-8

² See, for instance, Karuk ethnographic report: 57-8

Further, interviews with Yurok tribal elders have made it clear that for Yurok, there is a direct cause and effect between the dams and the conditions on the River and impairments to the fishery and Yurok way of life:

I think Iron Gate has a lot to do with the Klamath River because what it's doing is during these slack years when there is less water, that algae builds up in the bottom of swimming ponds, well that's the same thing that's happening up there now and we're getting this fertilizer and stuff from them farms building up on the floor of these little reservoirs. It is building up thick and then we get a little high water and they hold the water back. They hold the water back because they're trying to keep their water level in the reservoirs which cuts it short from going into the ocean. Then it just builds up and finally we get our weather and they say, 'Okay, we hit our level,' and they turn it loose. Then they open the gates and all we get is that slush and cow shit and debris from them reservoirs and it's pouring into our water and there is that white foamy stuff on the top of the water and this algae that is so thick you can't even walk in it and it's no good for the fish. It's no good for the wildlife. It's no good for nothing. And anymore even if we do have a high water it doesn't flush it. It goes down the little channels where the water is supposed to be and all this algae is on the sides and it floats up and goes down to where the fish are and never goes away. There it is. That has a lot of effect on our river.

The River used to have high winter flows. People would move around in the winter. The River would rise 40-50 feet every year in peak flows. Walt recalls high water and flood events in 1955, 1964, and 1974. High water events removed silt and sediments and large woody debris from the river. Now the flows are not high enough to float out the big logs over the riffles or clear out the gravel and sediments that pile up at the mouths of the creeks. The construction of dams on the Klamath and the Trinity Rivers had a big impact on the River and its annual flow. Walt stated that a significant decline in fish population was evident after the construction of the dams.

(Walt McCovey Jr., 2003)

In his 2004 analysis, Thomas King concludes the following:

The Klamath Riverscape is the physical cultural environment of the tribes, and that its health is intimately related to the health of their less tangible cultural institutions. The Klamath Riverscape, the river itself, and its fish would be key cultural resources for the tribes even if they were not eligible for the National Register. To the extent the dams contribute to the pattern of cumulative impacts on the riverscape, they have an adverse effect on the integrity of these resources, which must be considered in project review under NEPA.

It remains the position of the Yurok Tribe that the only resolution of these long standing violations of Yurok sovereignty, the depletion and degradation of Yurok Trust Resources and the actual fulfillment of the federal government's Trust Responsibility to the Yurok

Tribe and its members requires the full removal of the 4 Klamath River dams and the implementation of the KBRA and KHSA all leading to the restoration of the Klamath River its ecosystem and its fishery. This report has been prepared for the purposes of providing citations, references, data and evidence that will assist the Department of the Interior, the Secretary of the Interior and all federal agencies engaged in the Secretarial Determination Process and the ongoing NEPA/CEQA process in making a sound and informed decision on these important matters of vital interest to the Yurok Tribe.

Attachment 4

- 4a Bureau of the Census Maps
- 4b Bureau of the Census Definitions
- 4c Bureau of Indian Affairs Labor Force Report Definitions

Attachment 4a

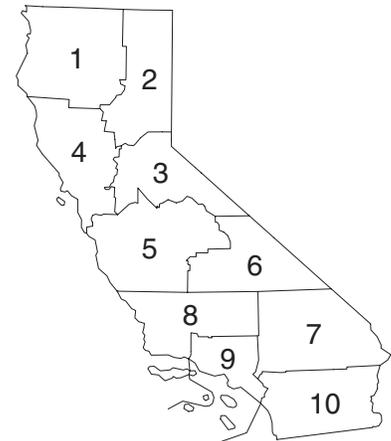
Bureau of the Census Maps

County Subdivision Outline Map Legend and County Location Index

Map Legend

---	International
	CAMPO American Indian Reservation (Federal)
	ZIA Off-Reservation Trust Land
	Tetlin Tribal Designated Statistical Areas
---	State
	ERIE County
---	YORK County Subdivision ¹
---	ROME Incorporated Place ¹
---	Zena Census Designated Place
	<i>Lake Erie</i> Large River, Lake, Water Body, or Shoreline
	A fishhook joins contiguous and/or discontinuous parts of the same geographic entity

Map Sections



¹ A "*" following a place name indicates that the place is coextensive with a separate county subdivision. The county subdivision name is shown only if different than the name of the place.

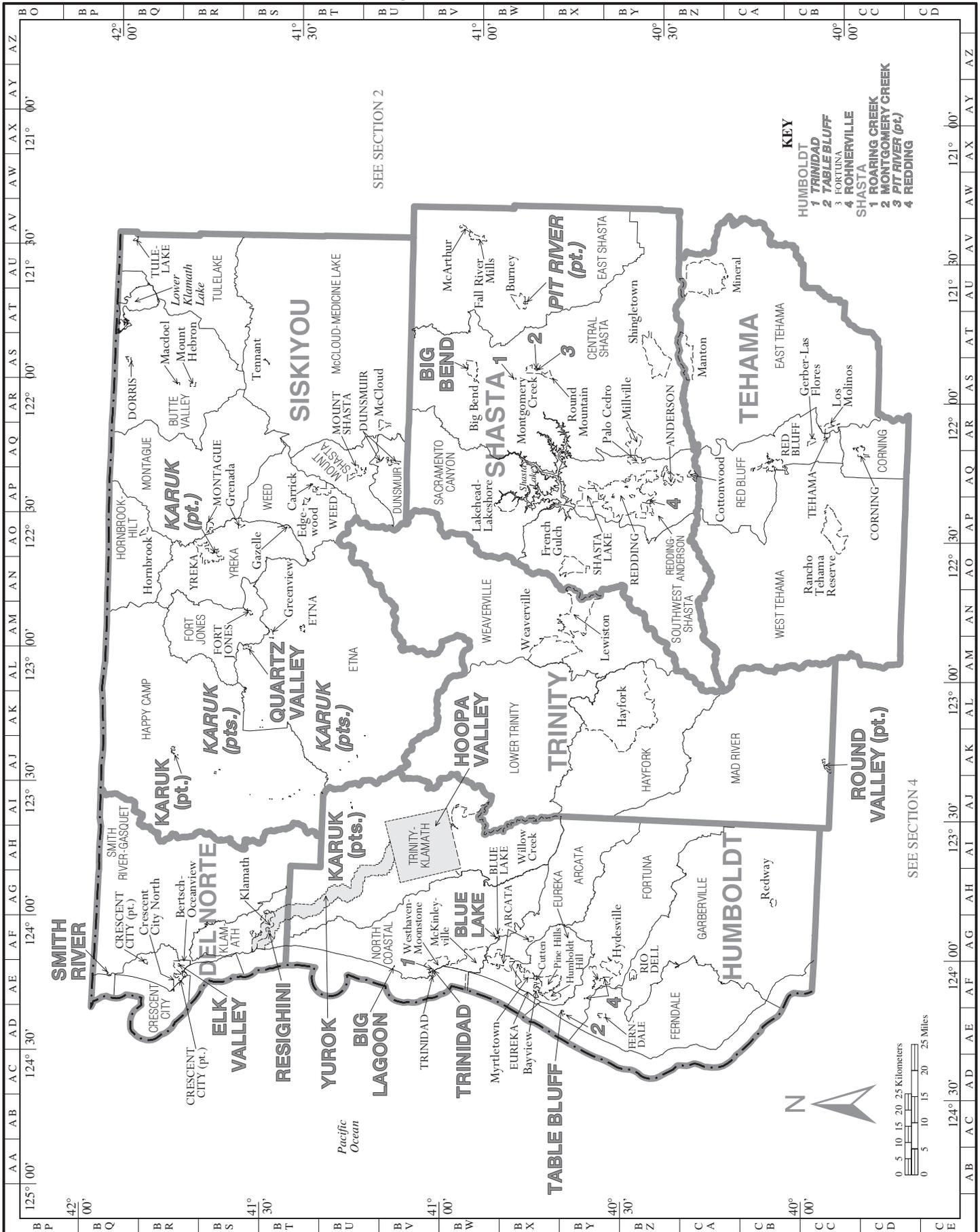
Note: All legal boundaries and names are as of January 1, 2000. Where international, state, county, and/or county subdivision boundaries coincide, the map shows the boundary symbol for the highest level of these geographic entities. The county boundary is always shown. Where a county subdivision boundary coincides with a place boundary, the map does not show the place boundary symbol. Any geographic entity name may include '(pt.)' if some portion of the entity extends beyond the limits of the map area displayed on the page, or if multiple discontinuous pieces of the entity have been discretely labeled on the page. A geographic entity name may include '(pts.)' if many discontinuous pieces exist for that entity that cannot be discretely labeled. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

County Location Index

This list presents the reference coordinates for each county on the county subdivision outline map. Map section numbers refer to the county subdivision outline maps only.

COUNTY	MAP SEC	MAP REF	COUNTY	MAP SEC	MAP REF	COUNTY	MAP SEC	MAP REF
Alameda.....	4	AS-CQ	Napa.....	4	AQ-CK	Tuolumne.....	3	BE-CN
Alpine.....	3	BF-CK	Nevada.....	2	AZ-CG	Ventura.....	9	BJ-DJ
Amador.....	3	BA-CL	Orange.....	9	BR-DN	Yolo.....	4	AS-CJ
Butte.....	2	AU-CE	Placer.....	3	AZ-CH	Yuba.....	2	AV-CG
Calaveras.....	3	BA-CM	Plumas.....	2	AY-CB			
Colusa.....	4	AQ-CG	Riverside.....	10	CC-DN			
Contra Costa.....	4	AS-CO	Sacramento.....	3	AV-CL			
Del Norte.....	1	AG-BR	San Benito.....	5	AX-CW			
El Dorado.....	3	BA-CJ	San Bernardino.....	7	CA-DG			
Fresno.....	5	BG-CV	San Diego.....	10	BX-DR			
Glenn.....	4	AP-CE	San Francisco.....	4	AP-CP			
Humboldt.....	1	AG-BX	San Joaquin.....	3	AW-CO			
Imperial.....	10	CF-DR	San Luis Obispo.....	8	BB-DD			
Inyo.....	6	BT-CW	San Mateo.....	4	AP-CR			
Kern.....	8	BL-DD	Santa Barbara.....	8	BD-DH			
Kings.....	5	BF-CZ	Santa Clara.....	5	AT-CS			
Lake.....	4	AN-CH	Santa Cruz.....	5	AR-CT			
Lassen.....	2	BA-BX	Shasta.....	1	AR-BX			
Los Angeles.....	9	BO-DJ	Sierra.....	2	BA-CE			
Madera.....	5	BF-CS	Siskiyou.....	1	AO-BS			
Marin.....	4	AN-CN	Solano.....	4	AS-CM			
Mariposa.....	5	BE-CQ	Sonoma.....	4	AM-CK			
Mendocino.....	4	AJ-CF	Stanislaus.....	5	AY-CQ			
Merced.....	5	AZ-CS	Sutter.....	4	AT-CH			
Modoc.....	2	AZ-BS	Tehama.....	1	AQ-CB			
Mono.....	3	BK-CO	Trinity.....	1	AL-BY			
Monterey.....	5	AW-CY	Tulare.....	6	BL-CY			

American Indian Areas, Counties, County Subdivisions, and Places - Section 1



Attachment 4b

Bureau of the Census Definitions

Attachment 4b

Census Bureau - Glossary (online): http://factfinder.census.gov/home/en/epss/glossary_e.html#employed.

American Indian Area, Alaska Native Area, Hawaiian Home Land (AIANAHH)

A Census Bureau term referring to these types of geographic areas: federal and state American Indian reservations, American Indian off-reservation trust land (individual or tribal), Oklahoma tribal statistical area (in 1990 tribal jurisdictional statistical area), tribal designated statistical area, state designated American Indian statistical area, Alaska Native Regional Corporation, Alaska Native village statistical area, and Hawaiian home lands.

American Indian off-reservation trust land

Lands held in trust by the federal government for either a tribe or an individual member of that tribe. They may be located on or outside of the reservation; the Census Bureau recognizes and tabulates data only for the off-reservation trust lands because the tribe has primary governmental authority over these lands.

American Indian reservation

Land that has been set aside for the use of the tribe. There are two types of American Indian reservations, federal and state. These entities are designated as colonies, communities, pueblos, ranches, rancherias, reservations, reserves, tribal towns, and villages.

American Indian Reservation - federal

Areas with boundaries established by treaty, statute, and/or executive or court order recognized by the federal government as territory in which American Indian tribes have primary governmental authority. The U.S. Census Bureau contacts representatives of American Indian tribal governments to identify the boundaries. The Bureau of Indian Affairs (BIA) maintains a list of federally recognized tribal governments.

American Indian Reservation - state

Lands held in trust by state governments for the use and benefit of a given tribe. A governor-appointed state liaison provides the names and boundaries for state reservations. The names of the American Indian reservations recognized by state governments, but not by the federal government, are followed by "(state)" in the data presentations.

American Indian Tribal Subdivision

Administrative subdivisions of federally recognized American Indian reservations, off-reservations trust lands, and Oklahoma tribal statistical areas (OTSAs), known as an area, chapter, community, or district. Internal units of self-government or administration that serve social, cultural, and/or economic purposes for American Indians. Provided in 1980 as "American Indian subreservation areas." These areas were not available in 1990.

American Indian tribe/Selected American Indian categories

Self-identification among people of American Indian descent. Many American Indians are members of a principal tribe or group empowered to negotiate and make decisions on behalf of the individual members.

Employed

Employed includes all civilians 16 years old and over who were either (1) "at work" -- those who did any work at all during the reference week as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business; or (2) were "with a job but not at work" -- those who did not work during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons. Excluded from the employed are people whose only activity consisted of work around the house or unpaid volunteer work for religious, charitable, and similar organizations; also excluded are people on active duty in the United States Armed Forces. The reference week is the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed. This week may not be the same for all respondents.

Household

A household includes all the people who occupy a housing unit as their usual place of residence.

Labor force

The labor force includes all people classified in the civilian labor force, plus members of the U.S. Armed Forces (people on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard). The Civilian Labor Force consists of people classified as employed or unemployed.

Median age

This measure divides the age distribution in a stated area into two equal parts: one-half of the population falling below the median value and one-half above the median value.

Median income

The median income divides the income distribution into two equal groups, one having incomes above the median, and other having incomes below the median.

Occupation

Occupation describes the kind of work the person does on the job. For employed people, the data refer to the person's job during the reference week. For those who worked at two or more jobs, the data refer to the job at which the person worked the greatest number of hours. Some examples of occupational groups shown in this product include managerial occupations; business and financial specialists; scientists and technicians; entertainment; healthcare; food service; personal services; sales; office and administrative support; farming; maintenance and repair; and production workers.

Per capita income

Average obtained by dividing aggregate income by total population of an area.

Poverty

Following the Office of Management and Budget's (OMB's) Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to detect who is poor. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as being "below the poverty level."

Race

Race is a self-identification data item in which respondents choose the race or races with which they most closely identify.

For Census 2000:

In 1997, after a lengthy analysis and public comment period, the Federal Office of Management and Budget (OMB) revised the standards for how the Federal government would collect and present data on race and ethnicity. The new guidelines reflect "the increasing diversity of our Nation's population, stemming from growth in interracial marriages and immigration."

These new guidelines revised some of the racial categories used in 1990 and preceding censuses and allowed respondents to report as many race categories as were necessary to identify themselves on the Census 2000 questionnaire.

How the new guidelines affect Census 2000 results and the comparison with data from 1990:

Census 2000 race data are not directly comparable with data from 1990 and previous censuses. See the Census 2000 Brief, "[Overview of Race and Hispanic Origin](#)".

Race Alone categories (6):

Includes the minimum 5 race categories required by OMB, plus the 'some other race alone' included by the Census Bureau for Census 2000, with the approval of OMB.

- White alone
- Black or African-American alone
- American Indian or Alaska Native alone
- Asian alone
- Native Hawaiian or other Pacific Islander alone
- Some other race alone

Race Alone or in combination categories (63):

There will be other tabulations where 'race alone or in combination' will be shown. These tabulations include not only persons who marked only one race (the 'race alone' category) but also those who marked that race and at least one other race. For example, a person who indicated that she was of Filipino and African-American background would be included in the African-American alone or in combination count, as well as in the Asian alone or in combination count. The alone or in combination totals are tallies of responses, rather than respondents. So the sum of the race alone or in combination will add to more than the total population.

Some tabulations will show the number of persons who checked 'two or more races'.

In some tables, including the first release of Census 2000 information, data will be tabulated for 63 possible combinations of race:

- 6 race alone categories
- 15 categories of 2 races (e.g., White and African American, White and Asian, etc.)
- 20 categories of 3 races
- 15 categories of 4 races
- 6 categories of 5 races
- 1 category of 6 races
- =63 possible combinations

Some tables will show data for 7 race categories: the 6 (mutually-exclusive) major race-alone categories (White, African-American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and some other race) and a 'two or more races' category. The sum of these 7 categories will add to 100 percent of the population.

Unemployed

All civilians 16 years old and over are classified as unemployed if they (1) were neither "at work" nor "with a job but not at work" during the reference week, and (2) were actively looking for work during the last 4 weeks, and (3) were available to accept a job. Also included as unemployed are civilians who did not work at all during the reference week, were waiting to be called back to a job from which they had been laid off, and were available for work except for temporary illness.

Attachment 4c

Bureau of Indian Affairs Labor Force Report Definitions

Service Population

The total 2005 Service Population of 1,731,178 represents an increase of 143,659 Indian residents or 9 percent over the 1,587,519 reported in the 2003 Labor Force Report.

The total 2005 Service Population represents an increase of 470,972 or 37 percent over the 1,260,206 total Service Population reported in 1995, and an increase of 996,283 or 136 percent over the total Service Population of 734,895 reported in 1982 (the earliest year for which historical data is available).

The 2005 increase in Service Population is attributed to increased record-keeping and improved data collection methods, as well as eligible Indian individuals and families who came to reside in a tribe's service area to benefit from opportunities and services unavailable to them in off-reservation communities. The trend, wherein enrolled Indians returned to reside on or near a reservation, continued in 2005.

Employment

Unemployment, as a percent of the available labor force, did not change between 2003 and 2005, remaining at 49 percent.

The total 2005 workforce (i.e., those available for work) of 872,483 increased by 71,955 individuals, a 9 percent increase over the total workforce of 800,528 reported in 2003. The total 2005 workforce increase is, in part, attributable to the increase of 84,771 reservation residents in the Service Population who were age 16 to 64, as well as the increase in the number of Indians who were available for work.

Between 2003 and 2005, private sector employment increased by 14 percent or 24,439 (from 178,692 in 2003 to 203,131 in 2005). During the same time period, public sector employment increased by 8 percent or 18,195 (from 227,131 in 2003 to 245,326 in 2005). Hence, the total number of employed Indians increased by 11 percent (from 405,823 to 450,511) over the two-year period.

In 2005, Indian individuals employed but earning wages below the poverty level increased by 494 or less than 1 percent between 2003 (131,728) and 2005 (132,222). Even so, the percentage of those employed below the poverty guidelines decreased from 32 percent in 2003 to 29 percent in 2005.

Since the total number of employed Indians increased by 11 percent, from 2003 to 2005, and the number of Indians who were employed under the poverty guidelines increased by less than 1 percent in the same two-year period, this yielded a slight net decrease (3 percent) in the proportion of the Indian reservation population who were employed below the poverty guideline.

Report Coverage

Each tribe that responded designated a tribal labor force coordinator who used a standardized survey reporting form to collect data and provide estimates on their enrolled members and members from other tribes who lived “on-or-near” the reservation and who were eligible to use the tribe’s BIA-funded services. The aggregated total of those eligible to use the services constituted the tribe’s Indian “Service Population.” Excluded from each tribe’s 2005 Service Population total and other report totals were members who, for example, were serving in the Armed Forces or attending post-secondary institutions and not residing on tribal lands. Members were also excluded from the tribe’s Service Population if they had relocated for purposes of direct employment or were incarcerated or confined to a long-term treatment facility.

The data within the Regional section of this Report are provided by Tribe, by BIA Agency, and by BIA Region. The Navajo Nation is listed by BIA Agency under the BIA Navajo Region. Alaska Native entities are listed individually or grouped by consortium.

Definitions Used for the Report (from 25 CFR § 20.1)

Indian means any person who is a member of a federally recognized Indian tribe. Some tribes have enrollment criteria that allows their members to have a blood quantum less than the one-fourth specified in 25 CFR § 20.1.

Indian Tribes are tribes, bands, nations, rancherias, pueblos, colonies, communities, and Alaska Native groups recognized as eligible for funding and services from the BIA and included in the current list of tribal entities, pursuant to Section 104 of the Act of November 2, 1994 (Pub. L. 103-454; 108 Stat. 4791). The list was last published in the Federal Register on November 25, 2005.

Near Reservation means those areas or communities adjacent or contiguous to a reservation, which are designated by the Assistant Secretary upon recommendation of the local BIA Superintendent. The recommendation is based upon consultation with the tribal governing body of those reservations on the basis of such general criteria as:

- ▶ Number of Indian people native to the reservation residing in the area;
- ▶ A written designation by the tribal governing body that members of their tribe and family members who are Indians and residing in the area are socially, culturally, and economically affiliated with the tribe and the reservation;
- ▶ Geographic proximity of the area to the reservation; and
- ▶ Administrative feasibility of providing an adequate level of service.

For Alaska, the term includes the entire State, since Alaska Native tribes are typically isolated from each other and are not formed as reservations, except for the Metlakatla Indian Community on the Annette Island Reserve in southeast Alaska.

On Reservation means American Indians who live within present reservation boundaries and who are eligible for BIA-funded services.

Resident Indian means American Indians living on or near Federal reservations who are considered part of the tribe's service population.

Report Headings/Terms

Tribal Enrollment is the total number of tribal enrollees who are certified as being tribal members by their tribe's leader or designate. Pursuant to tribal governing documents, tribal enrollees may live on-reservation or anywhere outside the reservation – for example, in distant towns, cities, or foreign countries.

Total Service Population is the tribe's estimate of all American Indians and Alaska Natives, members and non-members, who are living on or near the tribe's reservation during the 2005 calendar year and who are eligible to use BIA-funded services. The aggregated sum of those reported as "Age Under 16", "Age 16-64", and "Age 65 and Over" sub-totals of a given tribe equals the tribe's "Total Service Population". Typically, Indians included in a tribe's Service Population live within a reasonable distance of the reservation from where they can access the tribe's services. Such Indians typically do not live in distant cities, towns, or foreign countries.

Not Available for Work is the total estimated number of individuals who were age 16 and over and who were included in a tribe's Service Population, but because of personal circumstances were unable to assume or sustain gainful employment.

Available for Work represents the tribe's 2005 "Total Work Force" and is the sum of the "Age 16-64" and "Age 65 and Over" sub-totals minus the number of individuals who were "Not Available for Work".

Number Employed is determined by aggregating the tribe's estimated subtotals of the number of individuals in its Service Population who were employed by either public, private, or tribal entities.

Number Not Employed is determined by subtracting the "Number Employed" from the tribe's number of individuals in the tribe who were "Available for Work".

Unemployed as a percent of the Labor Force is determined by dividing the "Number Not Employed" by the "Total Workforce" (also called the "Available for Work" total).

Employed, but Below Poverty Guidelines is determined by using the U.S. Department of Health and Human Services (DHHS) 2005 Poverty Guidelines. The tribe estimated the number of its employed workforce whose annual earned income was below the poverty guidelines. For example, for a family of two the poverty threshold of combined earned income was \$12,830 and for a family of four the poverty threshold of combined earned income was \$19,350 (for Alaska, \$16,030 and \$24,190, respectively). Additionally, the report tables show the percent of those employed below the "Poverty Guideline." This percent is derived by dividing the tribe's estimated total number of "Employed, but Below Poverty Guidelines" by the "Number Employed".

Description of Report Tables

State

This table provides information, by state, on the number of Indians who reside on or near a reservation in that state.

Regional

This series of tables provides information on those tribes which were under each BIA Region. In addition, a Self-Governance Table provides information on self-governing tribes.

Alphabetical

This table provides a quick reference tool to locate a specific tribe.

Report Participation

This table provides information on how current and complete the data are for this report. The data included in the 2005 biennial report are reasonably current in that 73 percent of the reporting entities submitted data for the 2005 reporting period and an additional 18 percent submitted data in 2003. Therefore, 91 percent of the data in the report are no older than the previous reporting period (2003). This report participation analysis was not performed in prior reporting periods.

Additional Information

Any questions regarding a specific tribe's labor market information can be directed to the tribe's BIA Agency, Field Office, or Regional Office. The current BIA Tribal Leaders Directory, with contact information for BIA Regional and Agency offices and the federally recognized tribes, can be accessed at www.doi.gov/leaders.pdf. This report can be accessed at www.doi.gov/triballaborforce2005.pdf.

Note to Readers

The process for collecting data included in the *American Indian Population and Labor Force Report* has remained unchanged since 1999. Tribes are provided written instructions and technical assistance, if requested, to report the data. Data is certified by the tribe. In most cases, BIA reports data as reported by the tribes. An analysis of the data provided in this report, however, reveals problems in the population data reported by the tribes. Users of this report should also be aware that the unemployment data detailed in the report is calculated pursuant to the law that requires the report and that this definition of employment is not the same as that used by the Federal Bureau of Labor Statistics.

Population Data includes “Tribal Enrollment” and the “Total Eligible for Services” data reported by Tribes. Tribes are instructed to report “Tribal Enrollment” as well as the “Total [number of individuals] Eligible for Services” within the tribal domain. The distinction is made because services provided through BIA funding are only available to tribal members living on or near the reservation. The numbers differ because not all enrolled members live on or near the tribal reservation (because they are serving in the armed forces or attending colleges or live in another part of the country, for example.) Conversely, in many cases members of one tribe may live on or near another tribe’s reservation (because of marriage, for example). These individuals are eligible for services provided through BIA funding from the tribe on whose reservation they live on or near.

A review of the reported population data indicates that many tribes do not report these numbers as instructed. For example, there are many cases where “Tribal Enrollment” and the “Total Eligible for Services” are identical, which while possible, is not probable, especially to the extent reported in this document. BIA believes that many of the reporting issues may be the result of misunderstandings of how to fill out the data submission form. To address this problem, as part of the 2007 data collection, the BIA will re-examine its data collection process and train the tribes on how to fill out the submission forms so that future Labor Force Reports reflect a truer depiction of Tribal enrollment and BIA service population in Indian Country.

Unemployment Data is calculated consistent with the methodology included in the Indian Employment, Training and Related Services Demonstration Act of 1992 (P. L. 102-477), which differs from the methodology used by the Federal Bureau of Labor Statistics. The BLS unemployment rates includes adults who do not have a job, are currently available for work, and who have actively looked for work in the last 4 weeks. The BIA definition includes the BLS definition plus those who would like a job but who are no longer actively looking for work. The difference in calculations generally leads to the Tribes reporting significantly higher unemployment rates than those reported by BLS for counties and states in proximity to the reservations.

Attachment 5

5a Indian Health Care Improvement Act Made Permanent by Health
Care Reform Legislation

5b 90 Stat. 1400 1976

Attachment 5a

Indian Health Care Improvement Act Made Permanent by Health
Care Reform Legislation

Indian Health Care Improvement Act Made Permanent By Health Care Reform Legislation

By Craig A. Conway, J.D., LL.M. (Health Law)
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Included in the recently-passed Patient Protection and Affordable Care Act¹ signed into law by President Obama was the reauthorization of the Indian Health Care Improvement Act (IHCIA)² – considered to be the cornerstone legal authority for the provision of progressive health care services to American Indians and Alaska Natives (AI/AN).³ Viewed as a victory for individuals and tribes that have requested the legislation for the past ten years, the reauthorization of the IHCIA affirms the federal government's trust responsibility to provide health care to AI/ANs across the country.⁴

Background

During the 1890s, the federal government began to advocate the assimilation of Native Americans into mainstream American life.⁵ As part of that assimilation process, the government sought to increase the tribes' dependence on medicine practiced by physicians of the West and decreased reliance on Tribal practices. The Bureau of Indian Affairs oversaw congressional appropriations used for health care programs offered to American Indians. Since that time, the responsibility for their health care oversight has bounced around and currently is placed with the Indian Health Service (IHS), a division of the U.S. Department of Health and Human Services.

The IHS provides health care services to 1.9 million of the estimated 3.3 million nationwide AI/ANs belonging to 562 federally-recognized tribes in 35 states.⁶ The agency does this through a network of 63 health centers, 29 hospitals, and 28 health stations which are managed by 161 service units and 12 Area Offices.⁷ Health care services are delivered in three ways: (1) directly through IHS services; (2) through tribal medical services; or (3) by contract with non-IHS service providers.⁸

Better quality and increased health care services provided to AI/ANs has been met with some success in the last 30 years. Life expectancy among the Indian people has

¹ Patient Protection and Affordable Care Act, H.R. 3590, Pub. L. No. 111-148, 111th Cong. (2010).

² Indian Health Care Improvement Act, Pub. L. No. 94-437, 94th Cong. (Sept. 30, 1976).

³ See Nat'l Indian Health Bd., Press Release, *America Reaffirms Health Care for Indian Country*, (Mar. 21, 2010), <http://www.nihb.org/docs/03212010/PR-03.21.10%20FINAL.pdf>.

⁴ *Id.*

⁵ Gary D. Sandefur, *Federal Policy Toward Minorities, 1787-1980*, 10 FOCUS 21 (1987), available at <http://www.irp.wisc.edu/publications/focus/pdfs/foc102c.pdf>.

⁶ Indian Health Serv., *Indian Health Service Introduction*, http://www.ihs.gov/PublicInfo/PublicAffairs/Welcome_Info/IHSintro.asp (last accessed Apr. 3, 2010).

⁷ Indian Health Serv., *IHS Year 2010 Profile*, <http://info.ihs.gov/Profile2010.asp> (last accessed Apr. 3, 2010).

⁸ Indian Health Serv., *Quick Look*, <http://info.ihs.gov/QuickLook2010.asp> (last accessed Apr. 3, 2010). See also Holly T. Kuschell-Haworth, *Jumping Through Hoops: Traditional Healers And The Indian Health Care Improvement Act*, 4 DEPAUL J. OF HEALTH CARE L. 843 (Summer 1999).

increased by more than 9 years since 1973 while mortality rates have decreased for infant deaths, tuberculosis, pneumonia, influenza, homicide, suicide, and alcoholism.⁹ However, disparities for each of those categories still exist compared with the U.S. general population. Indian life expectancy is still nearly 5 years less than the average American while death rates for various illnesses and other causes are significantly higher across the board.¹⁰

Federal Legislation Governing AI/AN Health Care

The duty of the federal government to provide health services to Indian Tribes derives from a number of different sources, including negotiated treaties to ceded lands, settlements, agreements, and legislation.¹¹ The principal legislation authorizing federal funds for health services to American Indians is the Snyder Act of 1921.¹² That legislation authorized funds for “the relief of distress and conservation of health...[and]...for the employment of...physicians...for Indian Tribes throughout the United States.”¹³ Following the Snyder Act, Congress created a patchwork process for transferring the responsibility of overseeing health programs to tribal governments in 1975.

By enacting the Indian Self-Determination and Education Assistance Act of 1975,¹⁴ Congress sought to provide Indian Tribes with a greater role in governing their own health care and education programs. The 1975 Act contained two provisions: (1) the Indian Self-Determination Act, which established procedures by which Tribes could eventually administer their own education and social service programs, and (2) the Indian Education Assistance Act, which sought to increase parental involvement in Indian education.¹⁵ Since 1975 the Act has been amended several times. The following year, Congress passed a health care-specific bill designed to provide the quality and quantity of health care services necessary to elevate the health status of AI/ANs to the highest possible health status and to provide existing Indian health services with all resources necessary to effect that policy.

⁹ *Id.*

¹⁰ *Id.* For example, tuberculosis (500% higher), alcoholism (519% higher), diabetes (195% higher), unintentional injuries (149% higher), homicide (92% higher), and suicide (72% higher).

¹¹ Nat’l Indian Health Bd., *supra* note 3. See also Holly T. Kuschell-Haworth, *Jumping Through Hoops: Traditional Healers And The Indian Health Care Improvement Act*, 4 DEPAUL J. OF HEALTH CARE L. 843 (Summer 1999).

¹² Pub. L. No. 67-85, 42 Stat. 208 (Nov. 2, 1921), *codified at* 25 U.S.C. 1 *et seq.* (2001), *available at* http://www.ihs.gov/adminmngresources/legislativeaffairs/legislative_affairs_web_files/key_acts/snyder_act.pdf.

¹³ *Id.* See also Indian Health Serv., *Fact Sheet*, http://www.ihs.gov/PublicAffairs/Welcome_Info/ThisFacts.asp (last accessed Apr. 3, 2010).

¹⁴ Pub. L. No. 93-638, 88 Stat. 2203 (1975), *codified as* 25 U.S.C. §§ 450a-450n, and as amended in scattered sections of 25 U.S.C, 42 U.S.C, and 50 U.S.C.).

¹⁵ *Id.* See also GEORGE CASTILE, *TO SHOW HEART: NATIVE AMERICAN SELF-DETERMINATION AND FEDERAL INDIAN POLICY, 1960–1975* (Univ. of Ariz. Press, 1998); THOMAS CLARKIN, *FEDERAL INDIAN POLICY IN THE KENNEDY AND JOHNSON ADMINISTRATIONS, 1961–1969*, (Univ. of N.M. Press, 2001).

In 1976, Congress found that many IHS facilities were “inadequate, outdated, inefficient, and undermanned,” and enacted the Indian Health Care Improvement Act (IHCIA)¹⁶ to “implement the Federal responsibility for the care and education of the Indian people by improving the services and facilities of Federal Indian health programs and encouraging maximum participation” in those programs.¹⁷ Specific portions of the IHCIA contained language that would ensure that AI/ANs could obtain access to high-quality, comprehensive health care services when needed and also established procedures for the IHS to assist tribes in developing infrastructure to manage their health programs. Since 1976, the legislation has been amended numerous times,¹⁸ including substantive changes in 1992 which extended the act’s purpose of raising the health status of AI/ANs over a specified period of time to the level of the general U.S. population.¹⁹

During the late 1990s, the IHS worked closely with Indian Tribes and governments to draft amendments to IHCIA that would provide greater administrative capabilities to tribal health programs and increase quality of care given.²⁰ In 1999, a National Steering Committee was established to review those proposed recommendations and complete a final legislative draft. By late 1999, the Committee’s final proposal was in the hands of the Congressional leadership as well as the White House. However, nothing ever materialized.

The IHCIA expired in 2000, but was extended through 2001 in the belief that Congress would reauthorize it shortly thereafter. Yet, since 2001 Congress has only held hearings on various proposals but enacted no substantive changes to the IHCIA until the recently-passed health care reform legislation was passed.

Reauthorization of IHCIA

The version of the IHCIA signed into law on March 23, 2010, differs in several ways from the original 1976 version. It includes many major changes and improvements to effectuate the delivery of health care services to AI/ANs, including:

- Enhances the authority of the IHS Director, including the responsibility to facilitate advocacy and promote consultation on matters relating to Indian health within the Department of Health and Human Services.

¹⁶ Pub. L. No. 94-437, 90 Stat. 400, 94th Cong. (Sept. 30, 1976); *Ariz. Health Care Cost Containment Sys. v. McClellan*, 508 F.3d 1243, 1246 (9th Cir.2007).

¹⁷ *Id.*

¹⁸ Pub. L. No. 94-437, 90 Stat. 400, 94th Cong. (Sept. 30, 1976), as amended by Pub. L. No. 96-537 (Dec. 17, 1980), Pub. L. No. 100-579 (Oct. 31, 1988), Pub. L. No. 100-690 (Nov. 18, 1988), Pub. L. No. 100-713 (Nov. 23, 1988), Pub. L. No. 101-630 (Nov. 28, 1990), Pub. L. No. 102-573 (Oct. 29, 1992), Pub. L. No. 104-313 (Oct. 19, 1996), and Pub. L. No. 106-417 (Nov. 1, 2000). A copy of the marked-up legislation may be found at <http://www.ihs.gov/adminmngresources/ihcia/documents/ihcia.pdf>.

¹⁹ *Id.* See also Holly T. Kuschell-Haworth, *supra* note 8.

²⁰ Indian Health Serv., *Indian Health Care Improvement Act*, <http://info.ihs.gov/TreatiesLaws/Treaties3.pdf> (last accessed Apr. 3, 2010).

- Provides authorization for hospice, assisted living, long-term, and home- and community-based care.
- Extends the ability to recover costs from third parties to tribally operated facilities.
- Updates current law regarding collection of reimbursements from Medicare, Medicaid, and CHIP (Children’s Health Insurance Program) by Indian health facilities.
- Allows tribes and tribal organizations to purchase health benefits coverage for IHS beneficiaries.
- Authorizes IHS to enter into arrangements with the Departments of Veterans Affairs and Defense to share medical facilities and services.
- Allows a tribe or tribal organization carrying out a program under the Indian Self-Determination and Education Assistance Act and an urban Indian organization carrying out a program under Title V of IHCA to purchase coverage for its employees from the Federal Employees Health Benefits Program.
- Authorizes the establishment of a Community Health Representative program for urban Indian organizations to train and employ Indians to provide health care services.
- Directs the IHS to establish comprehensive behavioral health, prevention, and treatment programs for Indians.²¹

The inclusion of the IHCA in the reform legislation was hailed by the National Indian Health Board as a much-needed provision. “No one can deny the intense political climate that has been present in the debates regarding health care reform. However, there is one issue that has remained consistently agreed upon: Indian Country is in dire need of health care reform,” said Reno Franklin, Chairman of the National Indian Health Board.²² Adding to that sentiment, President Obama remarked after he signed the reform legislation that he “believes it is unacceptable that Native American communities still face gaping health care disparities.”²³

²¹ Pub. L. No. 94-437, 90 Stat. 400, 94th Cong. (Sept. 30, 1976); Patient Protection and Affordable Care Act, H.R. 3590, Pub. L. No. 111-148, 111th Cong. (2010) at Sec. 10221; U.S. Dep’t of Health & Human Servs., Press Release, *Indian Health Care Improvement Act Made Permanent*, (Mar. 26, 2010), <http://www.hhs.gov/news/press/2010pres/03/20100326a.html>.

²² Nat’l Indian Health Bd., Press Release, *America Reaffirms Health Care for Indian Country*, Mar. 21, 2010, <http://www.nihb.org/docs/03212010/PR-03.21.10%20FINAL.pdf>.

²³ The White House, Office of the Press Sec’y, *Statement by the President on the Reauthorization of the Indian Health Care Improvement Act*, Mar. 23, 2010, <http://www.whitehouse.gov/the-press-office/statement-president-reauthorization-indian-health-care-improvement-act>; U.S. Dep’t of Health &

Conclusion

Federal funding for the IHCIA has contributed billions of dollars to improve the health status of Indian people, yet significant health care disparities still exist compared with the U.S. general population. Hopefully, the inclusion of the IHCIA in the reform legislation will be a significant step towards reducing those disparities.

Health Law Perspectives (April 2010)

Health Law & Policy Institute

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Attachment 5b

90 Stat. 1400 1976

Public Law 94-437
94th Congress

An Act

Sept. 30, 1976
 [S. 522]

**Indian Health
 Care
 Improvement
 Act**
 25 USC 1601
 note.
 25 USC 1601.

To implement the Federal responsibility for the care and education of the Indian people by improving the services and facilities of Federal Indian health programs and encouraging maximum participation of Indians in such programs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the “Indian Health Care Improvement Act”.

FINDINGS

SEC. 2. The Congress finds that—

(a) Federal health services to maintain and improve the health of the Indians are consonant with and required by the Federal Government's historical and unique legal relationship with, and resulting responsibility to, the American Indian people.

(b) A major national goal of the United States is to provide the quantity and quality of health services which will permit the health status of Indians to be raised to the highest possible level and to encourage the maximum participation of Indians in the planning and management of those services.

(c) Federal health services to Indians have resulted in a reduction in the prevalence and incidence of preventable illnesses among, and unnecessary and premature deaths of, Indians.

(d) Despite such services, the unmet health needs of the American Indian people are severe and the health status of the Indians is far below that of the general population of the United States. For example, for Indians compared to all Americans in 1971, the tuberculosis death rate was over four and one-half times greater, the influenza and pneumonia death rate over one and one-half times greater, and the infant death rate approximately 20 per centum greater.

(e) All other Federal services and programs in fulfillment of the Federal responsibility to Indians are jeopardized by the low health status of the American Indian people.

(f) Further improvement in Indian health is imperiled by—

(1) inadequate, outdated, inefficient, and undermanned facilities. For example, only twenty-four of fifty-one Indian Health Service hospitals are accredited by the Joint Commission on Accreditation of Hospitals; only thirty-one meet national fire and safety codes; and fifty-two locations with Indian populations have been identified as requiring either new or replacement health centers and stations, or clinics remodeled for improved or additional service;

(2) shortage of personnel. For example, about one-half of the Service hospitals, four-fifths of the Service hospital outpatient clinics, and one-half of the Service health clinics meet only 80 per centum of staffing standards for their respective services;

(3) insufficient services in such areas as laboratory, hospital inpatient and outpatient, eye care and mental health services, and services available through contracts with private physicians, clinics, and agencies. For example, about 90 per centum of the surgical operations needed for otitis media have not been performed, over 57 per centum of required dental services remain to be provided, and about 98 per centum of hearing aid requirements are unmet;

(4) related support factors. For example, over seven hundred housing units are needed for staff at remote Service facilities;

(5) lack of access of Indians to health services due to remote residences, undeveloped or underdeveloped communication and transportation systems, and difficult, sometimes severe, climate conditions; and

(6) lack of safe water and sanitary waste disposal services. For example, over thirty-seven thousand four hundred existing and forty-eight thousand nine hundred and sixty planned replacement and renovated Indian housing units need new or upgraded water and sanitation facilities.

(g) The Indian people's growth of confidence in Federal Indian health services is revealed by their increasingly heavy use of such services. Progress toward the goal of better Indian health is dependent on this continued growth of confidence. Both such progress and such confidence are dependent on improved Federal Indian health services.

DECLARATION OF POLICY

SEC. 3. The Congress hereby declares that it is the policy of this Nation, in fulfillment of its special responsibilities and legal obligation to the American Indian people, to meet the national goal of providing the highest possible health status to Indians and to provide existing Indian health services with all resources necessary to effect that policy.

25 USC 1602.

DEFINITIONS

SEC. 4. For purposes of this Act—

(a) "Secretary", unless otherwise designated, means the Secretary of Health, Education, and Welfare.

(b) "Service" means the Indian Health Service.

(c) "Indians" or "Indian", unless otherwise designated, means any person who is a member of an Indian tribe, as defined in subsection (d) hereof, except that, for the purpose of sections 102, 103, and 201 (c)(5), such terms shall mean any individual who (1), irrespective of whether he or she lives on or near a reservation, is a member of a tribe, band, or other organized group of Indians, including those tribes, bands, or groups terminated since 1940 and those recognized now or in the future by the State in which they reside, or who is a descendant, in the first or second degree, of any such member, or (2) is an Eskimo or Aleut or other Alaska Native, or (3) is considered by the Secretary of the Interior to be an Indian for any purpose, or (4) is determined to be an Indian under regulations promulgated by the Secretary.

(d) "Indian tribe" means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or group or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

(e) "Tribal organization" means the elected governing body of any Indian tribe or any legally established organization of Indians which is controlled by one or more such bodies or by a board of directors elected or selected by one or more such bodies (or elected by the Indian population to be served by such organization) and which includes the maximum participation of Indians in all phases of its activities.

(f) "Urban Indian" means any individual who resides in an urban center, as defined in subsection (g) hereof, and who meets one or more of the four criteria in subsection (c) (1) through (4) of this section.

(g) "Urban center" means any community which has a sufficient urban Indian population with unmet health needs to warrant assistance under title V, as determined by the Secretary.

25 USC 1603.

(h) "Urban Indian organization" means a nonprofit corporate body situated in an urban center, composed of urban Indians, and providing for the maximum participation of all interested Indian groups and individuals, which body is capable of legally cooperating with other public and private entities for the purpose of performing the activities described in section 503 (a).

TITLE I—INDIAN HEALTH MANPOWER

PURPOSE

25 USC 1611.

SEC. 101. The purpose of this title is to augment the inadequate number of health professionals serving Indians and remove the multiple barriers to the entrance of health professionals into the Service and private practice among Indians.

HEALTH PROFESSIONS RECRUITMENT PROGRAM FOR INDIANS

Grants. 25 USC 1612.

SEC. 102. (a) The Secretary, acting through the Service, shall make grants to public or nonprofit private health or educational entities or Indian tribes or tribal organizations to assist such entities in meeting the costs of—

(1) identifying Indians with a potential for education or training in the health professions and encouraging and assisting them (A) to enroll in schools of medicine, osteopathy, dentistry, veterinary medicine, optometry, podiatry, pharmacy, public health, nursing, or allied health professions; or (B), if they are not qualified to enroll in any such school, to undertake such postsecondary education or training as may be required to qualify them for enrollment;

(2) publicizing existing sources of financial aid available to Indians enrolled in any school referred to in clause (1)(A) of this subsection or who are undertaking training necessary to qualify them to enroll in any such school; or

(3) establishing other programs which the Secretary determines will enhance and facilitate the enrollment of Indians, and the subsequent pursuit and completion by them of courses of study, in any school referred to in clause (1)(A) of this subsection.

Application, submittal, and approval.

(b) (1) No grant may be made under this section unless an application therefore has been submitted to, and approved by, the Secretary. Such application shall be in such form, submitted in such manner, and contain such information, as the Secretary shall by regulation prescribe: *Provided*, That the Secretary shall give a preference to applications submitted by Indian tribes or tribal organizations.

Amount and payment.

(2) The amount of any grant under this section shall be determined by the Secretary. Payments pursuant to grants under this section may be made in advance or by way of reimbursement, and at such intervals and on such conditions as the Secretary finds necessary.

Appropriation authorization.

(c) For the purpose of making payments pursuant to grants under this section, there are authorized to be appropriated \$900,000 for fiscal year 1978, \$1,500,000 for fiscal year 1979, and \$1,800,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984 there are authorized to be appropriated for such payments such sums as may be specifically authorized by an Act enacted after this Act.

HEALTH PROFESSIONS PREPARATORY SCHOLARSHIP PROGRAM FOR INDIANS

Scholarship grants, eligibility requirements. 25 USC 1613

SEC. 103. (a) The Secretary, acting through the Service, shall make scholarship grants available to Indians who—

(1) have successfully completed their high school education or high school equivalency; and

(2) have demonstrated the capability to successfully complete courses of study in schools of medicine, osteopathy, dentistry, veterinary medicine,

optometry, podiatry, pharmacy, public health, nursing, or allied health professions.

(b) Each scholarship grant made under this section shall be for a period not to exceed two academic years, which years shall be for compensatory preprofessional education of any grantee.

**Two-year
limitation.**

(c) Scholarship grants made under this section may cover costs of tuition, books, transportation, board, and other necessary related expenses.

(d) There are authorized to be appropriated for the purpose of this section: \$800,000 for fiscal year 1978, \$1,000,000 for fiscal year 1979, and \$1,300,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984 there are authorized to be appropriated for the purpose of this section such sums as may be specifically authorized by an Act enacted after this Act.

**Appropriation
authorization.**

HEALTH PROFESSIONS SCHOLARSHIP PROGRAM

SEC. 104. Section 225(i) of the Public Health Service Act (42 U.S.C. 234(i)) is amended (1) by inserting “(1)” after “(i)”, and (2) by adding at the end the following:

“(2)(A) In addition to the sums authorized to be appropriated under paragraph (1) to carry out the Program, there are authorized to be appropriated for the fiscal year ending September 30, 1978, \$5,450,000; for the fiscal year ending September 30, 1979, \$6,300,000; for the fiscal year ending September 30, 1980, \$7,200,000; and for fiscal years 1981, 1982, 1983, and 1984 such sums as may be specifically authorized by an Act enacted after the Indian Health Care Improvement Act, to provide scholarships under the Program to provide physicians, osteopaths, dentists, veterinarians, nurses, optometrists, podiatrists, pharmacists, public health personnel, and allied health professionals to provide services to Indians. Such scholarships shall be designated Indian Health Scholarships and shall be made in accordance with this section except as provided in subparagraph (B).

**Appropriation
authorization.**

“(B)(i) The Secretary, acting through the Indian Health Service, shall determine the individuals who receive the Indian Health Scholarships, shall accord priority to applicants who are Indians, and shall determine the distribution of the scholarships on the basis of the relative needs of Indians for additional service in specific health professions.

Distribution.

“(ii) The active duty service obligation prescribed by subsection (e) shall be met by the recipient of an Indian Health Scholarship by service in the Indian Health Service, in a program assisted under title V of the Indian Health Care Improvement Act, or in the private practice of his profession if, as determined by the Secretary in accordance with guidelines promulgated by him, such practice is situated in a physician or other health professional shortage area and addresses the health care needs of a substantial number of Indians.

**Active duty
service
obligation.
Post, p. 1410.**

“(C) For purposes of this paragraph, the term ‘Indians’ has the same meaning given that term by subsection (c) of section 4 of the Indian Health Care Improvement Act and includes individuals described in clauses (1) through (4) of that subsection.”

**“Indians.”
Ante, p. 1401.**

INDIAN HEALTH SERVICE EXTERN PROGRAMS

SEC. 105. (a) Any individual who receives a scholarship grant pursuant to section 104 shall be entitled to employment in the Service during any nonacademic period of the year. Periods of employment pursuant to this subsection shall not be counted in determining the fulfillment of the service obligation incurred as a condition of the scholarship grant.

25 USC 1614.

(b) Any individual enrolled in a school of medicine, osteopathy, dentistry, veterinary medicine, optometry, podiatry, pharmacy, public health, nursing, or allied

health professions may be employed by the Service during any nonacademic period of the year. Any such employment shall not exceed one hundred and twenty days during any calendar year.

(c) Any employment pursuant to this section shall be made without regard to any competitive personnel system or agency personnel limitation and to a position which will enable the individual so employed to receive practical experience in the health profession in which he or she is engaged in study. Any individual so employed shall receive payment for his or her services comparable to the salary he or she would receive if he or she were employed in the competitive system. Any individual so employed shall not be counted against any employment ceiling affecting the Service or the Department of Health, Education, and Welfare.

**Appropriation
authorization.**

(d) There are authorized to be appropriated for the purpose of this section: \$600,000 for fiscal year 1978, \$800,000 for fiscal year 1979, and \$1,000,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984 there are authorized to be appropriated for the purpose of this section such sums as may be specifically authorized by an Act enacted after this Act.

CONTINUING EDUCATION ALLOWANCES

25 USC 1615.

Sec. 106. (a) In order to encourage physicians, dentists, and other health professionals to join or continue in the Service and to provide their services in the rural and remote areas where a significant portion of the Indian people resides, the Secretary, acting through the Service, may provide allowances to health professionals employed in the Service to enable them for a period of time each year prescribed by regulation of the Secretary to take leave of their duty stations for professional consultation and refresher training courses.

**Appropriation
authorization.**

(b) There are authorized to be appropriated for the purpose of this section: \$100,000 for fiscal year 1978, \$200,000 for fiscal year 1979, and \$250,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984 there are authorized to be appropriated for the purpose of this section such sums as may be specifically authorized by an Act enacted after this Act.

TITLE II—HEALTH SERVICES

HEALTH SERVICES

25 USC 1621.

SEC. 201. (a) For the purpose of eliminating backlogs in Indian health care services and to supply known, unmet medical, surgical, dental, optometrical, and other Indian health needs, the Secretary is authorized to expend, through the Service, over the seven-fiscal-year period beginning after the date of the enactment of this Act the amounts authorized to be appropriated by subsection (c). Funds appropriated pursuant to this section for each fiscal year shall not be used to offset or limit the appropriations required by the Service under other Federal laws to continue to serve the health needs of Indians during and subsequent to such seven-fiscal-year period, but shall be in addition to the level of appropriations provided to the Service under this Act and such other Federal laws in the preceding fiscal year plus an amount equal to the amount required to cover pay increases and employee benefits for personnel employed under this Act and such laws and increases in the costs of serving the health needs of Indians under this Act and such laws, which increases are caused by inflation.

**Employment
during seven-
fiscal-year
period.**

(b) The Secretary, acting through the Service, is authorized to employ persons to implement the provisions of this section during the seven-fiscal-year period in accordance with the schedule provided in subsection (c). Such positions authorized each fiscal year pursuant to this section shall not be considered as offsetting or limiting the personnel required by the Service to serve the health needs of Indians

during and subsequent to such seven-fiscal-year period but shall be in addition to the positions authorized in the previous fiscal year.

(c) The following amounts and positions are authorized, in accordance with the provisions of subsections (a) and (b), for the specific purposes noted:

(1) Patient care (direct and indirect): sums and positions as provided in subsection (e) for fiscal year 1978, \$8,500,000 and two hundred and twenty-five positions for fiscal year 1979, and \$16,200,000 and three hundred positions for fiscal year 1980.

(2) Field health, excluding dental care (direct and indirect): sums and positions as provided in subsection (e) for fiscal year 1978, \$3,350,000 and eighty-five positions for fiscal year 1979, and \$5,550,000 and one hundred and thirteen positions for fiscal year 1980.

(3) Dental care (direct and indirect): sums and positions as provided in subsection (e) for fiscal year 1978, \$1,500,000 and eighty positions for fiscal year 1979, and \$1,500,000 and fifty positions for fiscal year 1980.

(4) Mental health: (A) Community mental health services: sums and positions as provided in subsection (e) for fiscal year 1978, \$1,300,000 and thirty positions for fiscal year 1979, and \$2,000,000 and thirty positions for fiscal year 1980.

(B) Inpatient mental health services: sums and positions as provided in subsection (e) for fiscal year 1978, \$400,000 and fifteen positions for fiscal year 1979, and \$600,000 and fifteen positions for fiscal year 1980.

(C) Model dormitory mental health services: sums and positions as provided in subsection (e) for fiscal year 1978, \$1,250,000 and fifty positions for fiscal year 1979, and \$1,875,000 and fifty positions for fiscal year 1980.

(D) Therapeutic and residential treatment centers: sums and positions as provided in subsection (e) for fiscal year 1978, \$300,000 and ten positions for fiscal year 1979, and \$400,000 and five positions for fiscal year 1980.

(E) Training of traditional Indian practitioners in mental health: sums as provided in subsection (e) for fiscal year 1978, \$150,000 for fiscal year 1979, and \$200,000 for fiscal year 1980.

(5) Treatment and control of alcoholism among Indians: \$4,000,000 for fiscal year 1978, \$9,000,000 for fiscal year 1979, and \$9,200,000 for fiscal year 1980.

(6) Maintenance and repair (direct and indirect): sums and positions as provided in subsection (e) for fiscal year 1978, \$3,000,000 and twenty positions for fiscal year 1979, and \$4,000,000 and thirty positions for fiscal year 1980.

(7) For fiscal years 1981, 1982, 1983, and 1984 there are authorized to be appropriated for the items referred to in the preceding paragraphs such sums as may be specifically authorized by an Act enacted after this Act. For such fiscal years, positions are authorized for such items (other than the items referred to in paragraphs (4)(E) and (5)) as may be specified in an Act enacted after the date of the enactment of this Act.

(d) The Secretary, acting through the Service, shall expend directly or by contract not less than 1 per centum of the funds appropriated under the authorizations in each of the clauses (1) through (5) of subsection (c) for research in each of the areas of Indian health care for which such funds are authorized to be appropriated.

(e) For fiscal year 1978, the Secretary is authorized to apportion not to exceed a total of \$10,025,000 and 425 positions for the programs enumerated in clauses (c)(1) through (4) and (c)(6) of this section.

**Appropriation
authorization.**

Research funds.

**Appropriation
authorization.**

TITLE III—HEALTH FACILITIES

CONSTRUCTION AND RENOVATION OF SERVICE FACILITIES

25 USC 1631.

SEC. 301. (a) The Secretary, acting through the Service, is authorized to expend over the seven-fiscal-year period beginning after the date of the enactment of this Act the sums authorized by subsection (b) for the construction and renovation of hospitals, health centers, health stations, and other facilities of the Service.

Appropriation authorization.

(b) The following amounts are authorized to be appropriated for purposes of subsection (a):

(1) Hospitals: \$67,180,000 for fiscal year 1978, \$73,256,000 for fiscal year 1979, and \$49,742,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984, there are authorized to be appropriated for hospitals such sums as may be specifically authorized by an Act enacted after this Act.

(2) Health centers and health stations: \$6,960,000 for fiscal year 1978, \$6,226,000 for fiscal year 1979, and \$3,720,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984, there are authorized to be appropriated for health centers and health stations such sums as may be specifically authorized by an Act enacted after this Act.

(3) Staff housing: \$1,242,000 for fiscal year 1978, \$21,725,000 for fiscal year 1979, and \$4,116,000 for fiscal year 1980. For fiscal years 1981, 1982, 1983, and 1984, there are authorized to be appropriated for staff housing such sums as may be specifically authorized by an Act enacted after this Act.

(c) Prior to the expenditure of, or the making of any firm commitment to expend, any funds authorized in subsection (a), the Secretary, acting through the Service shall—

Consultation.

(1) consult with any Indian tribe to be significantly affected by any such expenditure for the purpose of determining and, wherever practicable, honoring tribal preferences concerning the size, location, type, and other characteristics of any facility on which such expenditure is to be made; and

(2) be assured that, wherever practicable, such facility, not later than one year after its construction or renovation, shall meet the standards of the Joint Committee on Accreditation of Hospitals.

CONSTRUCTION OF SAFE WATER AND SANITARY WASTE DISPOSAL FACILITIES

25 USC 1632.

SEC. 302. (a) During the seven-fiscal-year period beginning after the date of the enactment of this Act, the Secretary is authorized to expend under section 7 of the Act of August 5, 1954 (42 U.S.C. 2004a), the sums authorized under subsection (b) to supply unmet needs for safe water and sanitary waste disposal facilities in existing and new Indian homes and communities.

Appropriation authorization.

(b) For expenditures of the Secretary authorized by subsection (a) for facilities in existing Indian homes and communities there are authorized to be appropriated \$43,000,000 for fiscal year 1978, \$30,000,000 for fiscal year 1979, and \$30,000,000 for fiscal year 1980. For expenditures of the Secretary authorized by subsection (a) for facilities in new Indian homes and communities there are authorized to be appropriated such sums as may be necessary for fiscal years 1978, 1979, and 1980. For fiscal years 1981, 1982, 1983, and 1984 for expenditures authorized by subsection (a) there are authorized to be appropriated such sums as may be specifically authorized in an Act enacted after this Act.

New York Indian tribes, eligibility for assistance.

(c) Former and currently federally recognized Indian tribes in the State of New York shall be eligible for assistance under this section.

PREFERENCE TO INDIANS AND INDIAN FIRMS

SEC. 303. (a) The Secretary, acting through the Service, may utilize the negotiating authority of the Act of June 25, 1910 (25 U.S.C. 47), to give preference to any Indian or any enterprise, partnership, corporation, or other type of business organization owned and controlled by an Indian or Indians including former or currently federally recognized Indian tribes in the State of New York (hereinafter referred to as an "Indian firm") in the construction and renovation of Service facilities pursuant to section 301 and in the construction of safe water and sanitary waste disposal facilities pursuant to section 302. Such preference may be accorded by the Secretary unless he finds, pursuant to rules and regulations promulgated by him, that the project or function to be contracted for will not be satisfactory or such project or function cannot be properly completed or maintained under the proposed contract. The Secretary, in arriving at his finding, shall consider whether the Indian or Indian firm will be deficient with respect to (1) ownership and control by Indians, (2) equipment, (3) bookkeeping and accounting procedures, (4) substantive knowledge of the project or function to be contracted for, (5) adequately trained personnel, or (6) other necessary components of contract performance.

25 USC 1633.

(b) For the purpose of implementing the provisions of this title, the Secretary shall assure that the rates of pay for personnel engaged in the construction or renovation of facilities constructed or renovated in whole or in part by funds made available pursuant to this title are not less than the prevailing local wage rates for similar work as determined in accordance with the Act of March 3, 1931 (40 U.S.C. 276a-276a-5, known as the Davis-Bacon Act).

Construction personnel, pay rates.

40 USC 276a, note.

SOBOBA SANITATION FACILITIES

SEC. 304. The Act of December 17, 1970 (84 Stat. 1465), is hereby amended by adding the following new section 9 at the end thereof: "SEC. 9. Nothing in this Act shall preclude the Soboba Band of Mission Indians and the Soboba Indian Reservation from being provided with sanitation facilities and services under the authority of section 7 of the Act of August 5, 1954 (68 Stat. 674), as amended by the Act of July 31, 1959 (73 Stat. 267)."

42 USC 2004a.

TITLE IV - ACCESS TO HEALTH SERVICES

ELIGIBILITY OF INDIAN HEALTH SERVICE FACILITIES
UNDER MEDICARE PROGRAM

SEC. 401. (a) Sections 1814(c) and 1835(d) of the Social Security Act are each amended by striking out "No payment" and inserting in lieu thereof "Subject to section 1880, no payment".

42 USC 1395f, 1395n.

(b) Part C of title XVIII of such Act is amended by adding at the end thereof the following new section:

42 USC 1395x.

"INDIAN HEALTH SERVICE FACILITIES

"SEC. 1880. (a) A hospital or skilled nursing facility of the Indian Health Service, whether operated by such Service or by an Indian tribe or tribal organization (as those terms are defined in section 4 of the Indian Health Care Improvement Act), shall be eligible for payments under this title, notwithstanding sections 1814(c) and 1835 (d), if and for so long as it meets all of the conditions and requirements for such payments which are applicable generally to hospitals or skilled nursing facilities (as the case may be) under this title.

Hospital or skilled nursing facility, eligibility for payments.
42 USC 1395qq.

"(b) Notwithstanding subsection (a), a hospital or skilled nursing hospital or skilled facility of the Indian Health Service which does not meet all of the conditions

Ineligible hospital or skilled nursing facility, submittal of plan for compliance.

and requirements of this title which are applicable generally to hospitals or skilled nursing facilities (as the case may be), but which submits to the Secretary within six months after the date of the enactment of this section an acceptable plan for achieving compliance with such conditions and requirements, shall be deemed to meet such conditions and requirements (and to be eligible for payments under this title), without regard to the extent of its actual compliance with such conditions and requirements, during the first 12 months after the month in which such plan is submitted.

Fund for improvements.

“(c) Notwithstanding any other provision of this title, payments to which any hospital or skilled nursing facility of the Indian Health Service is entitled by reason of this section shall be placed in a special fund to be held by the Secretary and used by him (to such extent or in such amounts as are provided in appropriation Acts) exclusively for the purpose of making any improvements in the hospitals and skilled nursing facilities of such Service which may be necessary to achieve compliance with the applicable conditions and requirements of this title. The preceding sentence shall cease to apply when the Secretary determines and certifies that substantially all of the hospitals and skilled nursing facilities of such Service in the United States are in compliance with such conditions and requirements.

Post, p. 1413.

Post, p. 1410.

“(d) The annual report of the Secretary which is required by section 701 of the Indian Health Care Improvement Act shall include (along with the matters specified in section 403 of such Act) a detailed statement of the status of the hospitals and skilled nursing facilities of the Service in terms of their compliance with the applicable conditions and requirements of this title and of the progress being made by such hospitals and facilities (under plans submitted under subsection (b) and otherwise) toward the achievement of such compliance.”.

42 USC 1395qq note.

(c) Any payments received for services provided to beneficiaries hereunder shall not be considered in determining appropriations for health care and services to Indians.

Services to an Indian beneficiary.
42 USC 1395qq note.
42 USC 1395.

(d) Nothing herein authorizes the Secretary to provide services to an Indian beneficiary with coverage under title XVIII of the Social Indian Security Act, as amended, in preference to an Indian beneficiary without such coverage.

SERVICES PROVIDED TO MEDICAID ELIGIBLE INDIANS

SEC. 402. (a) Title XIX of the Social Security Act is amended by adding at the end thereof the following new section:

“INDIAN HEALTH SERVICE FACILITIES

Eligibility for reimbursement.
42 USC 1396j.
Ante, p. 1401.

“SEC. 1911. (a) A facility of the Indian Health Service (including a hospital, intermediate care facility, or skilled nursing facility), whether operated by such Service or by an Indian tribe or tribal organization (as those terms are defined in section 4 of the Indian Health Care Improvement Act), shall be eligible for reimbursement for medical assistance provided under a State plan if and for so long as it meets all of the conditions and requirements which are applicable generally to such facilities under this title.

Facilities, submittal of plan for compliance.
42 USC 1396j note.

“(b) Notwithstanding subsection (a), a facility of the Indian Health Service (including a hospital, intermediate care facility, or skilled nursing facility) which does not meet all of the conditions and requirements of this title which are applicable generally to such facility, but which submits to the Secretary within six months after the date of the enactment of this section an acceptable plan for achieving compliance with such conditions and requirements, shall be deemed to meet such conditions and requirements (and to be eligible for reimbursement under this title), without regard to the extent of its actual compliance with such conditions

and requirements, during the first twelve months after the month in which such plan is submitted.”.

(b) The Secretary is authorized to enter into agreements with the appropriate State agency for the purpose of reimbursing such agency for health care and services provided in Service facilities to Indians who are eligible for medical assistance under title XIX of the Social Security Act, as amended.

(c) Notwithstanding any other provision of law, payments to which any facility of the Indian Health Service (including a hospital, intermediate care facility, or skilled nursing facility) is entitled under a State plan approved under title XIX of the Social Security Act by reason of section 1911 of such Act shall be placed in a special fund to be held by the Secretary and used by him (to such extent or in such amounts as are provided in appropriation Acts) exclusively for the purpose of making any improvements in the facilities of such Service which may be necessary to achieve compliance with the applicable conditions and requirements of such title. The preceding sentence shall cease to apply when the Secretary determines and certifies that substantially all of the health facilities of such Service in the United States are in compliance with such conditions and requirements.

(d) Any payments received for services provided recipients hereunder shall not be considered in determining appropriations for the provision of health care and services to Indians.

(e) Section 1905(b) of the Social Security Act is amended by inserting at the end thereof the following: “Notwithstanding the first sentence of this section, the Federal medical assistance percentage shall be 100 per centum with respect to amounts expended as medical assistance for services which are received through an Indian Health Service facility whether operated by the Indian Health Service or by an Indian tribe or tribal organization (as defined in section 4 of the Indian Health Care Improvement Act).”.

**25 USC 1396j
note.**

25 USC 1396.

Supra.

**25 USC 1396j
note.**

**Federal medical
assistance
percentage.
25 USC 1396d.**

Ante, p. 1401

REPORT

SEC. 403. The Secretary shall include in his annual report required by section 701 an accounting on the amount and use of funds made available to the Service pursuant to this title as a result of reimbursements through titles XVIII and XIX of the Social Security Act, as amended.

**25 USC 1671
note.**

**42 USC 1395,
1396.**

TITLE V—HEALTH SERVICES FOR URBAN INDIANS

PURPOSE

SEC. 501. The purpose of this title is to encourage the establishment of programs in urban areas to make health services more accessible to the urban Indian population.

25 USC 1651.

CONTRACTS WITH URBAN INDIAN ORGANIZATIONS

SEC. 502. The Secretary, acting through the Service, shall enter into contracts with urban Indian organizations to assist such organizations to establish and administer, in the urban centers in which such organizations are situated, programs which meet the requirements set forth in sections 503 and 504.

25 USC 1652.

CONTRACT ELIGIBILITY

SEC. 503. (a) The Secretary, acting through the Service, shall place such conditions as he deems necessary to effect the purpose of this title in any contract which he makes with any urban Indian organization pursuant to this title. Such conditions

25 USC 1653.

shall include, but are not limited to, requirements that the organization successfully undertake the following activities:

- (1) determine the population of urban Indians which are or could be recipients of health referral or care services;
- (2) identify all public and private health service resources within the urban center in which the organization is situated which are or may be available to urban Indians;
- (3) assist such resources in providing service to such urban Indians;
- (4) assist such urban Indians in becoming familiar with and utilizing such resources;
- (5) provide basic health education to such urban Indians;
- (6) establish and implement manpower training programs to accomplish the referral and education tasks set forth in clauses (3) through (5) of this subsection;
- (7) identify gaps between unmet health needs of urban Indians and the resources available to meet such needs;
- (8) make recommendations to the Secretary and Federal, State, local, and other resource agencies on methods of improving health service programs to meet the needs of urban Indians; and
- (9) where necessary, provide or contract for health care services to urban Indians.

Urban Indian organizations, selection criteria.

(b) The Secretary, acting through the Service, shall by regulation Urban Indian prescribe the criteria for selecting urban Indian organizations with organizations, which to contract pursuant to this title. Such criteria shall, among other factors, take into consideration:

- (1) the extent of the unmet health care needs of urban Indians in the urban center involved;
- (2) the size of the urban Indian population which is to receive assistance;
- (3) the relative accessibility which such population has to health care services in such urban center;
- (4) the extent, if any, to which the activities set forth in subsection (a) would duplicate any previous or current public or private health services project funded by another source in such urban center;
- (5) the appropriateness and likely effectiveness of the activities set forth in subsection (a) in such urban center;
- (6) the existence of an urban Indian organization capable of performing the activities set forth in subsection (a) and of entering into a contract with the Secretary pursuant to this title; and
- (7) the extent of existing or likely future participation in the activities set forth in subsection (a) by appropriate health and health-related Federal, State, local, and other resource agencies.

OTHER CONTRACT REQUIREMENTS

25 USC 1654.

SEC. 504. (a) Contracts with urban Indian organizations pursuant to this title shall be in accordance with all Federal contracting laws and regulations except that, in the discretion of the Secretary, such contracts may be negotiated without advertising and need not conform to the provisions of the Act of August 24, 1935 (48 Stat. 793), as amended.

**49 Stat. 793.
40 USC 270a-
270d**

(b) Payments under any contracts pursuant to this title may be made in advance or by way of reimbursement and in such installments and on such conditions as the Secretary deems necessary to carry out the purposes of this title.

Contract revision or amendment.

(c) Notwithstanding any provision of law to the contrary, the Secretary may, at the request or consent of an urban Indian organization, revise or amend any contract made by him with such organization pursuant to this title as necessary to carry out

the purposes of this title: Provided, however, That whenever an urban Indian organization requests retrocession of the Secretary for any contract entered into pursuant to this title, such retrocession shall become effective upon a date specified by the Secretary not more than one hundred and twenty days from the date of the request by the organization or at such later date as may be mutually agreed to by the Secretary and the organization.

(d) In connection with any contract made pursuant to this title, the Secretary may permit an urban Indian organization to utilize, in carrying out such contract, existing facilities owned by the Federal Government within his jurisdiction under such terms and conditions as may be agreed upon for their use and maintenance.

(e) Contracts with urban Indian organizations and regulations adopted pursuant to this title shall include provisions to assure the fair and uniform provision to urban Indians of services and assistance under such contracts by such organizations.

Government facilities, use.

REPORTS AND RECORDS

SEC. 505. For each fiscal year during which an urban Indian organization receives or expends funds pursuant to a contract under this title, such organization shall submit to the Secretary a report including information gathered pursuant to section 503(a)(7) and (8), information on activities conducted by the organization pursuant to the contract, an accounting of the amounts and purposes for which Federal funds were expended, and such other information as the Secretary may request. The reports and records of the urban Indian organization with respect to such contract shall be subject to audit by the Secretary and the Comptroller General of the United States.

Report to the Secretary of the Interior.
25 USC 1655.

Audit.

AUTHORIZATIONS

SEC. 506. There are authorized to be appropriated for the purpose of this title: \$5,000,000 for fiscal year 1978, \$10,000,000 for fiscal year 1979, and \$15,000,000 for fiscal year 1980.

25 USC 1656.

REVIEW OF PROGRAM

SEC. 507. Within six months after the end of fiscal year 1979, the Secretary, acting through the Service and with the assistance of the urban Indian organizations which have entered into contracts pursuant to this title, shall review the program established under this title and submit to the Congress his assessment thereof and recommendations for any further legislative efforts he deems necessary to meet the purpose of this title.

Submittal to Congress.
Legislative recommendations.
25 USC 1657.

RURAL HEALTH PROJECTS

SEC. 508. Not to exceed 1 per centum of the amounts authorized by section 506 shall be available for not to exceed two pilot projects providing outreach services to eligible Indians residing in rural communities near Indian reservations.

25 USC 1658.

TITLE VI—AMERICAN INDIAN SCHOOL OF MEDICINE; FEASIBILITY STUDY

FEASIBILITY STUDY

SEC. 601. The Secretary, in consultation with Indian tribes and appropriate Indian organizations, shall conduct a study to determine the need for, and the feasibility of, establishing a school of medicine to train Indians to provide health services for Indians. Within one year of the date of the enactment of this Act the Secretary shall

25 USC 1661.

Report to Congress.

complete such study and shall report to the Congress findings and recommendations based on such study.

TITLE VII—MISCELLANEOUS

REPORTS

Report to the President and Congress.
25 USC 1671.

SEC. 701. The Secretary shall report annually to the President and the Congress on progress made in effecting the purposes of this Act. Within three months after the end of fiscal year 1979, the Secretary shall review expenditures and progress made under this Act and make recommendations to the Congress concerning any additional authorizations for fiscal years 1981 through 1984 for programs authorized under this Act which he deems appropriate. In the event the Congress enacts legislation authorizing appropriations for programs under this Act for fiscal years 1981 through 1984, within three months after the end of fiscal year 1983, the Secretary shall review programs established or assisted pursuant to this Act and shall submit to the Congress his assessment and recommendations of additional programs or additional assistance necessary to, at a minimum, provide health services to Indians, and insure a health status for Indians, which are at a parity with the health services available to, and the health status, of the general population.

Program review, submittal to Congress.

REGULATIONS

Consultation.
25 USC 1672.

SEC. 702. (a)(1) Within six months from the date of enactment of this Act, the Secretary shall, to the extent practicable, consult with national and regional Indian organizations to consider and formulate appropriate rules and regulations to implement the provisions of this Act.

Publication in Federal Register.

(2) Within eight months from the date of enactment of this Act, the Secretary shall publish proposed rules and regulations in the Federal Register for the purpose of receiving comments from interested parties.

Rules or regulations, proposed revision or amendment; publication in Federal Register.

(3) Within ten months from the date of enactment of this Act, the Secretary shall promulgate rules and regulations to implement the provisions of this Act.

(b) The Secretary is authorized to revise and amend any rules or regulations promulgated pursuant to this Act: *Provided*, That, prior to any revision of or amendment to such rules or regulations, the Secretary shall, to the extent practicable, consult with appropriate national or regional Indian organizations and shall publish any proposed revision or amendment in the Federal Register not less than sixty days prior to the effective date of such revision or amendment in order to provide adequate notice to, and receive comments from, other interested parties.

PLAN OF IMPLEMENTATION

Submittal to Congress.
25 USC 1673.

SEC. 703. Within two hundred and forty days after enactment of this Act, a plan will be prepared by the Secretary and will be submitted to the Congress. The plan will explain the manner and schedule (including a schedule of appropriation requests), by title and section, by which the Secretary will implement the provisions of this Act.

LEASES WITH INDIAN TRIBES

25 USC 1674.

SEC. 704. Notwithstanding any other provision of law, the Secretary is authorized, in carrying out the purposes of this Act, to enter into leases with Indian tribes for periods not in excess of twenty years.

AVAILABILITY OF FUNDS

SEC. 705. The funds appropriated pursuant to this Act shall remain available until expended.

25 USC 1675.

Approved September 30, 1976.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 94-1026 pt. I and 94-1026 part IV (Comm. on Interior and Insular Affairs), No. 94-1026 pt. II (Comm. on Ways and Means), and No. 94-1026 pt. III (Comm. on Interstate and Foreign Commerce) all accompanying H.R. 2525.

SENATE REPORT No. 94-133 (Comm. on Interior and Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 121 (1975): May 16, considered and passed Senate.

Vol. 122 (1976): July 30, considered and passed House, amended, in lieu of H.R. 2525.

Sept. 9, Senate concurred in House amendment with an amendment.

Sept. 16, House concurred in Senate amendment.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:

Vol. 12, No. 40: Oct. 1, Presidential statement.

Attachment 6

Resighini Rancheria Tribe and Aquatic Species Impacts

Attachment 6

Resighini Rancheria and Aquatic Species Impacts

This summary was based primarily on four sources for each species:

1. Expert Panel Reports (EP)
2. Final Draft Synthesis Report (SR),
3. February 2011 Internal Draft Klamath Settlement EIS/EIR (EIS/EIR)
4. Draft BIA Subteam Technical Report (BIA)

All native species are historically and presently important socially, economically, and culturally to area tribes, as are impacts to those species; however it is important to note that some species are Federally protected trust resources and others are not which differs by tribe. (BIA, June 2011b). The first section of this attachment covers the No Action Alternative followed by the Action Alternative information.

No Action Alternative

The “Synthesis of the Effects to Fish Species of Two Management Scenarios for the Secretarial Determination on Removal of the Lower Four Dams on the Klamath River” (referred to here as the synthesis report, or biological subteam document) described the 2002 fish kill that occurred under current conditions:

“The most noted fish health incident in the Klamath River was an adult fish die-off that occurred in September 2002 in the lower river. A minimum of 32,533 fall Chinook salmon, 629 steelhead, and 344 coho salmon perished during this event as a result of poor environmental conditions, high escapement, and an epizootic outbreak of columnaris (*Flavobacterium columnare*) and Ich (*Ichthyophthirius multifiliis*) (USDI Fish and Wildlife Service 2003b) (California Department of Fish and Game 2004b). It is important to note that estimates from the Service mortality report ‘should be viewed as a minimum number of fish killed’ (USDI Fish and Wildlife Service 2003a),” (p. 95-96).

Table 6-1. Summary of Projected No Action Conditions by Species

Coho Salmon (Threatened)	<p>Summation: Coho would likely remain endangered and continuation depressed populations below IGD and unavailable in UB.</p> <p>EP: Marginal benefits and unavailable in UB.</p> <p>SR: Remain endangered and unavailable in UB. Below IGD, current populations may remain depressed.</p> <p>EIS/EIR: Continue downward trend/LTS impacts.</p> <p>BIA: Continue downward trend.</p>
Spring Chinook Salmon	<p>Summation: Continue on current downward trajectory, remain unavailable in UB, and may become extinct/ESA listing.</p> <p>EP: Numerous negative factors listed.</p> <p>SR: Significantly lower than historic levels and some fishing restrictions; remain on current downward trajectory and unavailable in UB, may become extinct.</p> <p>EIS/EIR: Significant impact on essential fish habitat, but overall LTS impacts.</p> <p>BIA: Remain at low levels and high risk of ESA and CESA uplisting.</p>
Fall Chinook Salmon	<p>Summation: Continue current downward trajectory and remain unavailable in UB.</p> <p>EP: Numerous negative factors listed.</p> <p>SR: Significantly lower than historic levels; would remain unavailable in UB and would likely continue on current downward trajectory.</p> <p>EIS/EIR: Significant impact on essential fish habitat and continuation of downward trend, LTS impacts.</p> <p>BIA: Chinook would remain in a depleted state and unavailable in UB.</p>
Pacific Lamprey	<p>Summation: Pacific Lamprey would remain about the same or decline in Klamath River and remain unavailable in UB.</p> <p>EP: No change, unavailable in UB.</p> <p>SR: Remain the same or decline and continue to be unavailable in UB.</p> <p>EIS/EIR: Essentially no change, LTS impacts.</p> <p>BIA: Unavailable in UB.</p>
Steelhead Trout	<p>Summation: May remain the same or decline in Klamath River and remain unavailable in the UB.</p> <p>EP: Unsure, remain unavailable in UB, small improvement otherwise.</p> <p>SR: Somewhat uncertain, remain unavailable in UB, may decline.</p> <p>EIS/EIR: Remain on current downward trend, LTS impact.</p> <p>BIA: Remain unavailable in UB.</p>
Green Sturgeon	<p>Summation: Uncertain - range from low levels to may improve.</p> <p>EP: Not included/analyzed.</p> <p>SR: May improve.</p> <p>EIS/EIR: No change, LTS impact.</p> <p>BIA: Expected to remain at low levels.</p>

<p>Eulachon or Candlefish (essentially extinct in California)</p>	<p>Summation: There would essentially be no impacts since eulachon are practically extinct in California. EP: Not included/analyzed. SR: Essentially no impact since few if any exist; however, TMDLs would improve any potential habitat use. (p. 95). EIS/EIR: The extent and quality of eulachon habitat would be expected to remain similar, LTS effects. (p. 3.3-88). BIA: not analyzed.</p>
<p>Longfin Smelt</p>	<p>Summation: Since smelt occur in the estuary and a great deal of mixing occurs, water quality problems are expected to be relatively insignificant. Klamath Settlement EIS/EIR “...extent and quality of..habitat would be expected to remain similar to that under existing conditions. Because they occur in the estuary, mixing and inflows from intervening tributaries would reduce adverse water quality conditions originating from the reservoirs, LTS effects. Other reports - not analyzed.</p>
<p>Crayfish (Benthic Macro invertebrates)</p>	<p>Summation: No change. EP and SR: Not included/analyzed. EIS/EIR: No change expected, LTS impact. BIA: Not included/analyzed, but stated importance of mussels to Karuk Tribe in BIA Tribal Background Report.</p>
<p>Freshwater Mussels (Mollusks)</p>	<p>Summation: No change. EP and SR: Not included/analyzed. EIS/EIR: No change expected, LTS impact. BIA: Not included/analyzed, but stated importance of mussels to Karuk Tribe in BIA Tribal Background Report.</p>
<p>Acronyms: Expert panel reports (EP), biological subteam synthesis report (SR), preliminary administrative draft EIS/EIR (EIS/EIR), and BIA Final Report (BIA). Acronyms: Iron Gate Dam (IGD), Upper Basin (UB), Upper Klamath Basin (UKB), Upper Klamath Lake (UKL), hydroelectric reach (HR), Upper Klamath River (UKR), Endangered Species Act (ESA). Sources listed in bibliography at the end of this attachment.</p>	

Salmon

Coho (endangered)¹

In sum, coho salmon would continue to be unavailable in the Upper Klamath Basin during the project period, and are expected to remain endangered throughout the entire Klamath Basin during the project period.

Draft Expert Panel Report

No access to upstream habitats, and current trends would provide marginal benefits:

“Coho salmon and steelhead will not have access to habitats upstream of Iron Gate Dam,” (Table ES-1, p. v and p. 45) [and] Continuation of current level of restoration activities and flow regulation will provide only marginal benefits for the two [coho and steelhead] species,” (Dunne, et.al., January 8, 2011, Table ES-1, p. iii).

Synthesis Report

Based on information in the biological subteam report, Coho salmon would continue to be unavailable in the Upper Klamath Basin and likely remain endangered, and as such, are not expected to be at harvestable levels within the period of analysis despite efforts towards recovery (Hamilton, et.al., November 23, 2010, p. 49).

Klamath Settlement EIS/EIR

The Klamath Settlement EIS/EIR indicated no change from current downward trends:

“Under the No Action/No Project Alternative, most of the factors currently suppressing coho salmon populations would remain similar in the future. These factors would continue to cause these populations to be precarious [and] The No Action/No Project Alternative would result in a significant impact on essential fish habitat for Chinook and coho salmon, (p. 3.3-85), [however] The No Action/No Project Alternative would result in a less-than-

¹ “Coho salmon were once abundant in the Klamath River. Coho salmon in the Klamath River watershed are included within the SONCC coho salmon ESU and are currently listed as a threatened species under the Federal ESA. Historically, coho salmon inhabited an expansive range of the Klamath Basin, including habitat upstream of current dams - Iron Gate, Lewiston (Trinity River), and Dwinnell (Shasta River). Coho salmon populations within the Klamath River watershed have declined dramatically and currently exist only within a limited portion of their historical range. NMFS determined that coho salmon populations throughout the SONCC coho salmon ESU continue to be depressed relative to historical numbers, and strong indications exist that breeding groups have been lost from a significant percentage of streams within their historical range.” (p. 86).

significant impact on coho salmon,” (p. 3.3-86).

Draft BIA Subteam Technical Report

[lower basin]“Under the No Action Alternative, it is expected that populations of these fishes will also continue to decline, particularly with anticipated changes in the climate, resulting in further reductions in tribal health. Coho salmon, steelhead, green sturgeon, and Pacific lamprey are expected to remain at low population levels, with low viability of Klamath River populations...[existing efforts] will help reduce the stress on the fishes, but will not be sufficient to bring the species to recovery,” (p. 4-4).

Spring and Fall Chinook Salmon²

When project report sources are taken together, conclusions indicate that Chinook salmon would continue to be unavailable in the Upper Klamath Basin and Spring Chinook could possibly become extinct with Fall Chinook remaining low or its populations declining further.

Draft Expert Panel Report

The reports did not analyze the no action alternative per se, however aspects of current conditions were discussed. The TMDLs would be less likely to be met under current conditions, disease rates would remain relatively high, escapement rates are low, there are too many hatchery fish (Iron Gate Hatchery), predation is relatively high, and water supplies may be too low, at least at critical times depending on various factors (including climate change and agriculture). (p. 12).

Synthesis Report

The biological subgroup report asserted that spring and fall Chinook salmon would continue to be unavailable in the Upper Klamath Basin, remain a fraction of historical levels in the lower basin, and spring-run Chinook may become extinct:

“Chinook salmon populations were extirpated [above Iron Gate Dam] with the construction of Project dams. Historically, the range of this species included tributaries to Upper Klamath Lake...[and] Under conditions with dams, Chinook salmon will remain extirpated in the Klamath River above Iron Gate Dam,” (p. 44 and 46). [In general and below IGD] “Chinook salmon in the Klamath Basin are not listed under the State or federal

² The NMFS determined that there are modest genetic differences between the fall and spring runs, but Spring Chinook have higher fat content valued by Indians for greater subsistence value after winter rations were low and by non-Indians for better flavor.

ESA, but low abundance predictions of Klamath River Fall Chinook salmon in recent years have forced restrictions to West Coast commercial and recreational fisheries. Klamath River fall-run Chinook salmon enter the Klamath River in August through October of each year, spawning shortly thereafter in the lower reaches of rivers and streams. These runs are substantially lower than historical levels.” (p. 80).

Spring Chinook:³

[In general and below Iron Gate Dam] “With minimal access to appropriate habitat, Spring Chinook runs will likely remain at a fraction of historical levels; it is possible that Klamath River spring run Chinook runs may become extinct over the period of analysis (Nehlsen et al. 1991) (Moyle et al. In review.)”(p. 80).

Fall Chinook:⁴

[below Iron Gate Dam] Chinook salmon in the Klamath Basin are not listed under the State or federal ESA, but low abundance predictions of Klamath River Fall Chinook salmon in recent years have forced restrictions to West Coast commercial and recreational fisheries. Klamath River fall-run Chinook salmon enter the Klamath River in August through October of each year, spawning shortly thereafter in the lower reaches of rivers and streams. These runs are substantially lower than historical levels....under conditions with dams, the status of naturally spawning fall-run Chinook salmon may continue on its current trajectory (Quiñones In Progress) and Figure 4. (p. 80).

³ [existing conditions: spring run]Spring-run Chinook salmon enter the Klamath River from April to June of each year before migrating to smaller headwater tributaries. Historically, populations may have returned earlier, perhaps as early as February and March (Klamath Republican articles in Fortune et al. 1966). They require cold, clear rivers and streams with deep pools to sustain them through the warm summer months (McCullough 1999). These areas have been greatly reduced in the basin due to dams and degradation of habitat. Naturally spawned spring-run Chinook salmon populations are now a remnant of their historical abundance and primarily occur in the South Fork Trinity River and Salmon River Basins.

⁴ “[existing conditions: fall run]Chinook salmon in the Klamath Basin are not listed under the State or federal ESA, but low abundance predictions of Klamath River Fall Chinook salmon in recent years have forced restrictions to West Coast commercial and recreational fisheries. Klamath River fall-run Chinook salmon enter the Klamath River in August through October of each year, spawning shortly thereafter...These runs are substantially lower than historical levels. (p. 80)/

Klamath Settlement EIS/EIR

Spring Chinook:

“Because spring-run Chinook salmon use the mainstem primarily for upstream and downstream migration, and their distribution is limited to reaches far below Iron Gate Dam (up to the Salmon River), they would not be expected to be affected by channel coarsening in the 8 miles downstream of IGD.”(p. 3.3-86). “The No Action/No Project Alternative would result in a significant impact on essential fish habitat for Chinook...,” (p. 3.3-85), but would ...”result in less-than-significant...” impacts on spring-run Chinook salmon, (p. 3.3-86).

Fall Chinook:

“...conditions would continue to have negative short- and long-term effects on fall-run Chinook salmon populations. Under these conditions, the current downward trend in the population of wild fish might continue. [however] The No Action/No Project Alternative would result in a less-than-significant impact on fall-run Chinook salmon,” (p. 3.3-86).

Draft BIA Subteam Technical Report

Both Spring- and Fall-Run Chinook

[upper basin] “Under the No Action Alternative, Chinook salmon, steelhead, and Pacific lamprey will continue to be precluded from waters within the Klamath Tribes’ land,” (p. 4-10).

[lower Klamath River] “Under the No Action Alternative, Chinook salmon populations will continue to be affected by loss of habitat, warm water, and blockage of substrate movement negatively affecting spawning habitat....The Chinook salmon populations will remain in a depleted state...there will be long term degradation of habitat complexity and suitability...increased disease, and impaired geomorphologic functions in the river downstream from Iron Gate Dam,” (p. 4-3 to 4-4).

Spring Chinook:

[lower Klamath River] “Spring-run Chinook salmon will continue to remain at low population levels with a high risk of uplisting under the ESA and CESA,”

Pacific Lamprey

In sum, populations below IGD would remain about the same or continue declining.

Final Expert Panel (January 14, 2010)

The report stated it was uncertain whether Pacific lamprey were in the upper basin, and that there would likely continue to be no change (no Pacific Lamprey in the upper basin):

[Upper Basin]“This area was historically accessible to anadromous fishes, but the historical occurrence by Pacific lamprey is unresolved...Nevertheless, improvements to fish passage scheduled for Keno Dam may open the upper Klamath Basin to Pacific lamprey irrespective of their historical occurrence (p. 46) [and] Pacific lamprey are currently extirpated above Iron Gate Dam; they are unable to pass the dam and the confirmed upstream limit in the mainstem Klamath River is Bogus Creek...” (p. 28).

[Below IGD]”Other habitat improvements [under no action] are also planned in a general way that may gradually extend small areas of both spawning and rearing conditions for resident lamprey in the sediment-starved UKL Basin and spawning conditions in the Klamath River downstream of IGD....but since the Panel was provided with no concrete information about TMDL actions, it is not possible to assess whether such effects are likely to be recognizable downstream of UKL without more specific information about the TMDL actions.” (p. 23).

*Synthesis Report*⁵

Synthesis report conclusions were that Pacific lamprey had been in the upper basin, dams extirpated them from that area, and that they would remain extirpated in the upper basin and populations below IGD may remain the same or decline:

[above Iron Gate Dam] “Anadromous Pacific lamprey have been extirpated from the upper Klamath River by Project dams. The historical upstream distribution of Pacific lamprey

⁵ “[existing conditions, below Iron Gate, synth rpt] There is little data on historical abundance or distribution of Pacific lamprey in the Klamath River Basin, however anecdotal evidence suggests stocks have been in decline since the late 1980’s (Larson and Belchik 1998; (Moyle et al. 2009) and are currently on a status “Watch List” (Moyle et al. In review.). FERC believes this decline may be part of a coastwide trend (Federal Energy Regulatory Commission 2007). However, a lamprey distribution survey conducted by the Karuk Tribe in 2002 captured no lamprey ammocoetes in the reach below Iron Gate Dam to Cottonwood Creek (Karuk Tribal Fisheries 2010). Crews noted that “ideally suitable” habitat with substrate consisting of soft (easy to push your finger into) sand and fine silt material was almost entirely absent within the reach (Karuk Tribal Fisheries 2010). Lamprey ammocoetes were captured directly below Cottonwood Creek, one of the first sediment contributing tributaries below the dam (Karuk Tribal Fisheries 2010).”(p. 92-93).

was likely to at least Spencer Creek in the upper basin,” [and] Under conditions with dams Pacific lamprey will remain extirpated in the Klamath River above Iron Gate Dam,” (Hamilton et al. 2005, p. 51).

[below Iron Gate Dam] “Under conditions with dams, anadromous Pacific lamprey populations may remain at status quo or continue to decline below IGD. TMDL implementation for the Klamath River will likely benefit Pacific lamprey,” (p. 92).

Klamath Settlement EIS/EIR - “...a less-than-significant impact on anadromous lamprey,” (p. 3.3-87).

Draft BIA Subteam Technical Report

[upper basin] “Under the No Action Alternative, Chinook salmon, steelhead, and Pacific lamprey will continue to be precluded from waters within the Klamath Tribes’ land,” (p. 4-10).

Steelhead Trout⁶

Overall, indications from the reports are that populations would likely continue declining.

Draft Expert Panel Report (January 8, 2011)

“...steelhead will not have access to habitats upstream of Iron Gate Dam, [and] This alternative could result in small improvements in habitat for steelhead due to TMDLs, NMFS coho BO, and ongoing...restoration activities. However, these actions are not necessarily targeted for steelhead so their effectiveness is unknown,” (Close, et. a., p. 45 and 50).

Synthesis Report⁷

⁶ Rainbow trout that develop a more pointed head, migrate to the ocean, and become much larger than those that remain in fresh water.

The biological subgroup report stated that steelhead used to be in the upper basin, but were extirpated with construction of the dams—a condition would remain unchanged under no action, and lower basin populations may continue to decline:

[above Iron Gate Dam] “Steelhead populations in the Klamath River above Iron Gate Dam were extirpated with the construction of Project dams. Historically, the range of this species included the tributaries of Upper Klamath Lake...Under conditions with dams steelhead will remain extirpated in the Klamath River above Iron Gate Dam. Klamath River summer steelhead in particular appear to be in decline as data for the Salmon River indicate,” (Hamilton et. al., November 23, 2010, p. 50).

[below Iron Gate Dam] “Under this scenario, considerable efforts to improve habitat are underway (National Marine Fisheries Service 2010b) toward the goal of recovery of salmon and steelhead stocks. Once implemented, TMDLs and associated Implementation Plans are expected to improve water quality, reduce stress on salmonids from pollution, and contribute to their recovery (National Marine Fisheries Service 2010b). However, under conditions with dams, the status of steelhead in general may continue to decline, if they continue on the same trajectory as Klamath Chinook salmon (Quiñones In Progress),” (p. 91).

Klamath Settlement EIS/EIR

“Under the No Action/No Project Alternative, most of the factors currently suppressing steelhead populations would remain similar in the future. These factors would continue to cause these populations to be precarious...[and] would result in a less-than-significant impact...”(p. 3.3-86).

Draft BIA Subteam Technical Report

[upper basin] “Under the No Action Alternative, Chinook salmon, steelhead, and Pacific lamprey will continue to be precluded from waters within the Klamath Tribes’ land,” (p. 4-10). “Coho salmon, steelhead, green sturgeon, and Pacific lamprey are expected to remain at low population levels, with low viability of Klamath River populations...[existing efforts] will help reduce the stress on the fishes, but will not be sufficient to bring the species to recovery,” (p. 4-4).

⁷ “[Existing conditions below Iron Gate Dam] The limited data on summer steelhead abundance indicates this run is depressed, Steelhead are widely distributed throughout the Klamath River watershed below IGD. Populations, including summer, fall, and winter steelhead, are considered part of the Klamath Mountains Province ESU. Even though NMFS found that listing of the Klamath Mountain Province Steelhead Distinct Population Segment (DPS) was not warranted, NMFS expressed concerns about the status of steelhead within this DPS, and identified the DPS as a candidate species, which the agency would continue to monitor and re-assess (66 FR 17845).

Green Sturgeon

In sum, indications from the documents were that green sturgeon populations are expected to remain at low population levels.

Expert Panel Reports - not analyzed.

*Synthesis Report*⁸

[below Iron Gate Dam] “Under this scenario, considerable efforts to improve habitat are underway (National Marine Fisheries Service 2010b) toward the goal of recovery of salmon and steelhead stocks. Once implemented, TMDLs and associated Implementation Plans are expected to improve water quality, reduce stress on salmonids from pollution, and contribute to their recovery (National Marine Fisheries Service 2010b). These efforts may benefit green sturgeon as well.(p. 93).

Klamath Settlement EIS/EIR

“...the extent and quality of green sturgeon habitat would be expected to remain similar...bed coarsening in the 8 miles between IGD and Cottonwood Creek would not affect them, and mixing and inflows from intervening tributaries would reduce adverse water quality conditions...would result in a less than significant impact...”(p. 3.3-87).

Draft BIA Subteam Technical Report

“Coho salmon, steelhead, green sturgeon, and Pacific lamprey are expected to remain at low population levels, with low viability of Klamath River populations...[existing efforts]

⁸ “[existing conditions, below Iron Gate] Green sturgeon are long-lived, slow-growing fish and the most marine-oriented of the sturgeon species. Green sturgeon are believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Early life-history stages reside in fresh water, with adults returning to freshwater to spawn when they are more than 15 years of age and more than 4 feet (1.3 m) in size. Green sturgeon are thought to spawn every two to four years (74 FR 52300). However, the Northern green sturgeon DPS is considered a Species of Concern (69 FR 19975). Green sturgeon populations in this DPS face a number of potential threats including concentration of spawning, lack of population data, harvest concerns, and loss of spawning habitat. The Klamath River drainage is thought to contain most of the total spawning population of green sturgeon (Adams et al. 2002). Green sturgeon are known to occupy the mainstem Klamath River to Ishi Pishi falls and the lower portions of the Salmon River. Green sturgeon also occupy the Trinity River. Each year juveniles are captured in outmigrant traps at Willow Creek. Green sturgeon are regularly harvested by Hoopa Valley Tribal members.” (p. 93).

will help reduce the stress on the fishes, but will not be sufficient to bring the species to recovery,” (p. 4-4).

Eulachon or Candlefish (essentially extinct in California)

There would essentially be no impacts since eulachon are practically extinct in California.

Expert Panel Reports - Not included/analyzed.

Synthesis Report

Essentially no impact since few if any exist; however, TMDLs would improve any potential habitat use.(p. 95).

Klamath Settlement EIS/EIR

The extent and quality of eulachon habitat would be expected to remain similar. (p. 3.3-88).

Draft BIA Subteam Technical Report - not analyzed.

Longfin Smelt

Klamath Settlement EIS/EIR

“...extent and quality of..habitat would be expected to remain similar to that under existing conditions. Because they occur in the estuary, mixing and inflows from intervening tributaries would reduce adverse water quality conditions originating from the reservoirs.

Other reports - not analyzed.

Crayfish

Klamath Settlement EIS/EIR

Concerning Benthic Macro invertebrates, “...suspended sediment levels are expected to be the same as under existing conditions. Bedload transport and water quality in the Klamath River, J.C. Boyle Reservoir downstream of the estuary and Pacific Ocean, is not expected to change...[and] result in a less than significant impact...”(p. 3.3-88).

Other reports - not analyzed.

Mussels

Klamath Settlement EIS/EIR

Concerning mollusks, "...suspended sediment levels would be expected to be the same as under existing conditions. Bedload transport and water quality in the Klamath River, from J.C. Boyle Reservoir downstream to the estuary and Pacific Ocean, is not expected to change.....[and] result in a less than significant impact..."(p. 3.3-88).

Other reports - not analyzed.

Action Alternative

Table 6-2. Summary of Projected Action (KHSA and KBRA) Conditions by Species

<p>Coho Salmon (Threatened)</p>	<p>Summation: Below IGD, significant negative short term impacts and long term effects range from marginal to beneficial. UB, uncertain whether they would reoccupy the area.</p> <p>EP: Adverse impacts in short run, minimal effects in long run, and additional habitat in the UB would be marginal.</p> <p>SR: Likely reestablish Coho above IGD in a short period of time which will improve overall population persistence.</p> <p>EIS/EIR: Populations/habitat restored in JC Boyle to IGD reach. Below IGD, short term impacts would be adverse/significant and long term impacts beneficial and LTS. Unclear whether they would be available in upper river/UB.</p> <p>BIA: Expected coho to benefit.</p>
<p>Spring Chinook Salmon</p>	<p>Summation: Estuarine habitat would not be affected. Below IGD, negative short run impacts (about 2020) due to dam removal sediment, positive long run effects (roughly 2021-2060), although extent varies from minimal to more extensive. UB, Spring Chinook would reoccupy, possibly substantial increase, but not to historic levels.</p> <p>EP: Abundance is exceptionally low therefore KBRA actions would have to be significant to improve survival of existing populations.</p> <p>SR: Short run, reduced harvest 2012 to 2020 due to reduced harvest restrictions (plus another 5 for sediments effects?). Significant positive consequences below IGD. Considerable potential to increase population in UB, but not to historical levels.</p> <p>EIS/EIR: Estuarine habitat would not be affected. Short run, poor water quality might affect passage through Keno Dam. In HR/JC Boyle to IGD reach, short run sediment would not affect this area; long run, establish a more favorable water temperatures and quality, decrease disease/toxins that would benefit species 2021 onward. In the Lower KR/downstream of IGD, short run, some adverse effects, but would be minimized by dilution, long run, more natural flow regime and other changes would benefit species in the reach beginning in 2020. LTS impacts. Additional access to UB – total increase of 350 miles of habitat.</p> <p>BIA: Gain access to 350 miles of historic spawning habitat. Short run suffer losses from up to 1.2 to 2.4 million tons of released sediment. Long run, quick recovery of the fall run and potentially spring run. Salmon would have access to UB habitat.</p>

<p>Fall Chinook Salmon</p>	<p>Summation: Estuarine habitat would not be affected. Negative short run impacts (around 2020) due to dam removal sediment, especially in the lower Klamath. Positive long run effects (about 2021-2060). Fall Chinook would reoccupy the UB, possibly substantial increase, particularly helpful in years when production is low.</p> <p>EP: Would experience a modest increase in lower reaches and there could be significant adverse short term dam removal sediment impacts.</p> <p>SR: Below IGD, short run adverse impacts, but population expected to fully recover within 5 years, and in the long run, modeling shows substantially more spawners. Above IGD, greatest benefit would be in years production was low.</p> <p>EIS/EIR: Estuarine habitat would not be affected. In HR/JC Boyle to IGD reach, short run sediment effects would only last about 4 months, long run, establish a more favorable water temperatures and quality, decrease disease/toxins that would benefit species 2021 onward. In the Lower KR/downstream of IGD, short run, adverse effects with 100 percent mortality, but would be minimized by spawning in tributaries, dilution, and short length of time; long run, more natural flow regime and other changes would benefit species in the reach beginning in 2020. LTS impacts. Additional access to UB – total increase of 350 miles of habitat.</p> <p>BIA: Gain access to 350 miles of historic spawning habitat. Short run suffer losses from up to 1.2 to 2.4 million tons of released sediment. Long run, quick recovery of the fall run and potentially spring run. Salmon would have access to UB habitat.</p>
<p>Pacific Lamprey</p>	<p>Summation: Estuarine habitat would not be affected. Below IGD, short run, 2012-2020 no change and around 2020-2025/30 decline due to dam removal sediment could be severe, but would recover, especially UKR. Long run (about 2025/30 - 2060), population would increase up to 10% (14% in the mainstem). Potential to occupy UB, but uncertain.</p> <p>EP: Below IGD their range would increase 1 – 10%. Mainstem increase capacity about 14% or more. Short term, 2012 to 2020, no change in harvest rates. 2020 to 2025/2030, short term decline due to sediment release. Long term, 2025/2030 to 2060, gradual increase (up to 10%) resulting from recolonization. IGD to Keno reach would see an increase in habitat quality and population. Potential to access and occupy UB.</p> <p>SR: Below IGD, short term, effects from sediment could be severe, but would recover quickly. Above IGD, 58 more miles of available habitat and would quickly recolonize area between UKL and IGD.</p> <p>EIS/EIR: Estuarine habitat would not be affected. Below IGD, short term, LTS effects; long term substantial benefits. Not expected to occupy UB.</p> <p>BIA: Expected to benefit/increase.</p>
<p>Steelhead Trout</p>	<p>Summation: Estuarine habitat would not be affected. Below IGD, short term, adverse sediment impacts (approximately 2020-2026), long term, increased numbers, possibly substantial. UB, reestablish and increase, possibly substantial.</p> <p>EP: Short term, sediment will be injurious to upstream migratory steelhead and coho. Long term, increased numbers. UB, assuming passage through Keno and UKL is successful, then increase in habitat and abundance, possibly substantial.</p> <p>SR: Increased habitat available above IGD would enable reestablishment. Below IGD, short term, reservoir drawdown would affect 6 year classes. Long term Action Alternative would be beneficial.</p> <p>EIS/EIR: Estuarine habitat would not be affected. Short term negative sediment effects. Long term restore connectivity to 350 miles of potentially useable habitat in UKB. Below IGD, substantial long term benefit. Short term, summer run could have up to 40% mortality and winter up to 100%.</p> <p>BIA: Expected to benefit/increase.</p>

Green Sturgeon	<p>Summation: Estuarine habitat would not be affected. Short term minimal adverse effects, long term benefit, possibly substantial.</p> <p>EP: Not included/analyzed.</p> <p>SR: Short term would have little influence on the population over the long term. Dam removal and KBRA would likely be beneficial.</p> <p>EIS/EIR: Estuarine habitat would not be affected. In the short term, mortality could reach 20 percent, but most adults would avoid effects and, long term, they could benefit substantially.</p> <p>BIA: Expected to benefit/increase.</p>
Eulachon or Candlefish (likely extinct in California)	<p>Summation: Essentially no impacts since eulachon are practically extinct in California. Short term minimal adverse effects and long term beneficial habitat changes.</p> <p>EP: Not included/analyzed.</p> <p>SR: No impact since essentially none exist, so short term sediment impacts are likely to be minimal and overall long term any 'strays' would benefit.</p> <p>EIS/EIR: Short term sediment may affect adults and larvae, but magnitude is expected to be minimal due to dilutions downstream, LTS impacts. Estuarine habitat is not expected to substantially change.</p> <p>BIA: Not included/analyzed.</p>
Longfin Smelt	<p>Summation: Short term minimal adverse effects, long term benefit, possibly substantial.</p> <p>EP and SR: Not included/analyzed.</p> <p>EIS/EIR: Short term sediment may affect smelt, but the magnitude would be low, in part because of dilutions downstream, LTS impacts.</p> <p>BIA: Not included/analyzed.</p>
Crayfish (Benthic Macro invertebrates)	<p>Summation: Short term minimal adverse effects, long term benefit, possibly substantial.</p> <p>EP and SR: Not included/analyzed.</p> <p>EIS/EIR: Would be a significant impact on crayfish populations in HR and mainstem Klamath River downstream of IGD, but recovery would be relatively quick.</p> <p>BIA: Not analyzed.</p>
Mollusks, mainly Mussels	<p>Summation: Significant adverse effects in HR and mainstem from about 2020-2030.</p> <p>EP: Not included/analyzed.</p> <p>SR: No effect from changes in algal toxin since bioaccumulation is transitory.</p> <p>EIS/EIR: Would be a significant impact on mussel populations in HR and mainstem Klamath River downstream of IGD since it would take up to a decade to recover.</p> <p>BIA: Not analyzed.</p>
<p>Sources and acronyms: Expert panel reports (EP), biological subteam synthesis report (SR), preliminary administrative draft EIS/EIR (EIS/EIR), and BIA Final Report (BIA). Acronyms: Iron Gate Dam (IGD), Upper Basin (UB), Upper Klamath Basin (UKB), Upper Klamath Lake (UKL), hydroelectric reach (HR), Upper Klamath River (UKR), Endangered Species Act (ESA).</p>	

Salmon

Coho

In sum, it appears that there would be adverse short term impacts to coho salmon populations, and positive long term impacts for the action alternative; although there are differences in degrees of positive long term impacts. It is unclear whether there would be Coho salmon in the Upper Klamath Basin.

Draft Expert Panel Report (January 8, 2011)

Action Alternative would have minimal effects in the long run and would have some adverse impacts in the short term (dam removal sediment), and additional habitat in the Upper Klamath Basin would be marginal:

“Short-term effects of dam removal on sediment transport will be injurious to upstream migrating steelhead and coho...Benefits to coho salmon of Conditions without Dams and with KBRA are expected to be small, especially in the short-term (0-10 years after dam removal). This will result from small increases in habitat area usable by coho with dam removal, small changes in conditions in the mainstem, positive but unquantified changes in tributary habitats where most coho spawn and rear...Improvements on the order of two to four times the current freshwater survival are likely needed to offset low marine survival. If hatchery production ceases, fitness of natural origin populations might improve, but overall population size and harvest might decline,” (p. ii, Table ES-1, p. iii, 58). On the other hand, there were statements that short term impacts would be short-lived and relatively minor (Dunne, et.al., January 8, 2011, p. 31-35).

[concerning Upper Basin] “Assuming that both upstream and downstream passage through Keno Reservoir and Upper Klamath Lake is successful, then increased access to upstream habitat (above Upper Klamath Lake) could increase the abundance of steelhead (possibly substantially) if fish utilize the new habitat and can successfully complete their life cycle. Population responses of coho salmon are expected to be marginal,” (p. v).

Synthesis Report

Dam removal would benefit coho salmon by providing additional habitat and reestablish them above Iron Gate Dam, and the KBRA would accelerate TMDL water quality benefits with essentially negligible short term impacts since most would be out of the mainstem by November:

[short term below IGD] “The effect of dam removal on the coho salmon population is not expected to be significant, despite direct mortality to a proportion of some life stages (Stillwater Sciences 2009a). A decrease in coho

salmon production is likely for two year classes (Stillwater Sciences 2009a).”(p. 89).

[mid to long term below IGD] “Dam removal would result in an increase in habitat and likely reestablish coho salmon above Iron Gate Dam in a short period of time... From 2012 to 2020 sport, commercial, and Tribal harvest will be held at minimal levels to rebuild runs under KBRA. Consequently, incidental coho salmon harvest would be reduced. Afterward 2020 coho incidental harvest would likely increase due to the increase effort directed at Chinook salmon, “(p. 49-50).

[long term below IGD] “Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species (USDI Secretarial Determination Water Quality SubGroup In Prep)...Access to habitat above IGD would provide connectivity across historically accessible habitats and allows fish to respond to changing environmental conditions...”(p. 89). “Benefits of dam removal for coho salmon go beyond only the accessibility of additional habitat. In general, as habitat availability and diversity increases for an ESU, the risk of extinction to the species is reduced. Reestablishing coho salmon to the upper Klamath Basin, will considerably increase the quantity and diversity of habitats available to Klamath coho salmon. These actions are likely to improve persistence of a population within an ESU, and the ESU as a whole (McElhany et al. 2000). Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species...”(Hamilton, et.al., November 23, 2010, p.. 50).

Klamath Settlement EIS/EIR

The Klamath Settlement EIS/EIR indicated that coho salmon would continue to be absent in the Upper Klamath Basin and that there would be adverse impacts in the short run with improvements in the long term due to additional habitat and improved water quality and temperatures:

“Removal of J.C. Boyle, Copco 1, Copco 2, and Iron Gate Dams would allow coho salmon to access an additional 54 miles of habitat; 38 miles on the mainstem, and 16 miles on tributary streams...to provide habitat suitable for coho salmon. In the short-term, the Proposed Action would have a significant impact on critical habitat for coho salmon. In the long-term, the Proposed Action would have a less than significant and beneficial impact on critical habitat for coho salmon,” (p. 3.3-116).

[Upper Klamath River] “Coho salmon did not historically occur upstream of J.C. Boyle Reservoir and are not anticipated to occupy this reach after dam removal. The Proposed

Action would not affect coho salmon in the Upper Klamath Basin in the reach upstream of J.C. Boyle Reservoir,” (p. 3.3-124).

[Upstream End of J.C. Boyle Reservoir to Iron Gate Dam] “The Proposed Action would restore Coho salmon access to the Hydroelectric Reach...”(p. 3.3.-124).

[Downstream of Iron Gate Dam] “The Proposed Action would release dam-stored sediment...[but] would establish a more natural flow regime. Long term changes to flow would benefit coho salmon using the Lower Klamath River Reach,” (p. 3.3-124 to 3.3-126).

[Short Term Impacts] “The Proposed Action would have short term effects related to SSCs, bedload sediment transport, and deposition, and water quality that would not substantially affect coho salmon populations, but which would likely result in the loss of individuals in the mainstem after drawdown in January 2020....However, the effects would be limited as most...originate from the Trinity River where effects are muted by tributary input and a short migration distance. The population would be expected to recover from these losses within two to three generations, given the long-term benefits...The loss of these individuals would be a significant impact,” (p. 3.3-126)

[Long Term Impacts] “...a more natural flow regime would improve water quality, restore natural temperature variation, and reduce instances of fish disease and proliferation of algal toxins, providing a substantial long term benefit. Dam removal would restore connectivity to habitat on the mainstem Klamath River up to and including Spencer Creek and would create additional habitat within the Hydroelectric Reach, which would provide a long-term benefit to coho salmon populations. This would have a less than significant impact on coho salmon and would provide a benefit to this resource,” (p. 3.3-126).

Draft BIA Subteam Technical Report

“Coho salmon, steelhead, and Pacific lamprey populations are expected to increase in the Klamath River and its tributaries as a result of the Proposed Action,” (p. 4-15).

Spring and Fall Chinook

Fall Chinook conclusions ranged from modest increase to a sizeable increase due primarily to improvements in water quality, temperature, and additional habitat. Short term impacts, although dam removal may have significant impacts, are not expected to last longer than five years at most. For Spring Chinook, mid to long term conclusions ranged essentially no change to significant improvement due primarily to improvements in water quality, temperature, and additional habitat. Short term impacts would be negligible since dam removal would occur in the fall.

Draft Expert Panel Report (May 2, 2011)

Conclusions indicate that fall Chinook would experience a modest increase in lower reaches of the River and there may be significant adverse short term dam removal sediment impacts. Improvements in spring Chinook populations is expected to be minimal, although the conclusion involves unknowns.

Fall Chinook

[short term middle and lower River] "...sediment from Klamath project reservoirs may have significant effects on the survival of the run and brood present when the dams are removed."(p. 25).

[Keno to Iron Gate Dam reach and LKR mid to long term] "...a modest increase in Chinook salmon is likely in the reach between Iron Gate dam and Keno Dam if some of the conditions listed below are met." (p. 11) Lower fall flows may have an impact, but the "...net effects of these two changes is unknown." (p. 24).. [Dam removal/sediment]..the degree to which these persistent sands will reduce Chinook salmon spawning success in the lower mainstem Klamath River, relative to increase spawning success in the project area, is unknown (Goodman, et. al., May 2, 2011, p. 25)

[Upstream of Keno Dam] "...less certain because of the difficulties in satisfying all the conditions described below [water quality, etc.]. The Panel has strong reservations that KBRA, even if fully implemented, will address all these conditions to the extent required to meet the goals of the program." (p. 11).

Spring Chinook

"As opposed to fall Chinook salmon, the Panel was not optimistic that the Proposed Action would have substantial effects on spring-run Chinook salmon. The abundance of spring Chinook salmon is exceptionally low and spawning occurs in only a few tributaries in the basin....Therefore, habitat quality would need to be higher than at present, and KBRA actions would need to greatly improve survival of existing populations of spring-run

Chinook salmon. Factors specifically affecting the survival of spring Chinook salmon have not been quantified.” (p. 27).

Synthesis Report

The mobility of Chinook salmon (and other anadromous species) require consideration of the entire Klamath River Basin when examining impacts for particular reaches or areas, as with commercial fisheries, described by the synthesis report:

[above IGD]“...access to habitat above IGD would benefit commercial salmon fisheries. For these commercial fisheries, any increases in the abundance of natural Klamath River Chinook salmon stocks from habitat above IGD (as well as below) would not just be limited to the Klamath River and associated fisheries. There are multiplier benefits to Chinook salmon fisheries coastwide from increases in the abundance of these natural Klamath River Chinook salmon.(p. 67). “Dam removal would make habitat accessible to both spring run and fall run Chinook salmon above IGD (FERC 2007) and likely reestablish Chinook salmon above IGD in a short period of time....(p. 46). “For one reach of the mainstem Klamath above Iron Gate Dam there are historical counts (with harvest) of Chinook salmon from 1925 to 1961...Between Iron Gate Dam and Copco 2 Dam these counts ranged from 1,113 to 18,925 Chinook salmon for this period...[and returning Chinook numbered] 6,026 on average...with restoration and the current expectation in KBRA that harvest would be reduced to rebuild runs during the period 2012 to 2020, it is not unreasonable to expect future returns in this reach to be within this range,” (p. 46-47).

Spring Chinook

[Entire River] “Dam removal provides an opportunity for spring-run Chinook salmon to become reestablished in the upper Klamath River,” (p.47). “Restoration under KBRA provides considerable potential to increase spring run abundance. However, Huntington (2006) cautioned that the existing potential for Chinook salmon production within the basin above UKL is clearly much lower than his estimate of historical potential,”(p. 45-46)(topic also discussed on p. 85).

[below Iron Gate Dam – short term] Because no spring-run Chinook salmon spawning occurs in the mainstem Klamath River, spawners, incubation eggs and fry would not be affected by dam removal (Stillwater Sciences 2009a). The overall effect of dam removal to the spring-run Chinook population is not anticipated to be significant (Stillwater Sciences 2009a),” (p. 83).

[below Iron Gate Dam – long run] “Implementing either the KBRA type flows or the Hardy et al. (2006) Phase II flow recommendations was predicted to decrease

the occurrence of poor production years in the future by 2/3. This would have significant positive consequences for Chinook salmon given their life cycle in the Klamath River (Hetrick et al. 2009). Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species (USDI Secretarial Determination Water Quality SubGroup In Prep). The restored temperature regime would mean varied and differing effects to anadromous fish below IGD,”(p. 83). Once Chinook salmon could migrate to groundwater areas in the tributaries to UKL (Federal Energy Regulatory Commission 2007) the likelihood of restoring spring-run Chinook salmon to the Klamath River would be greater for this life history form,” (p. 85).

[middle Klamath River short to mid term]Because no spring-run Chinook salmon spawning occurs in the mainstem Klamath River, spawners, incubation eggs and fry would not be affected by dam removal (Stillwater Sciences 2009a). The overall effect of dam removal to the spring-run Chinook population is not anticipated to be significant (Stillwater Sciences 2009a).(p.83)

Fall Chinook

[Overall] “Modeling for fall-run Chinook salmon shows the chance of getting substantially more fall-run Chinook salmon spawners is much better with the dams removed than with the dams remaining, over a 50 year period (Oosterhout 2005). Oosterhout’s results also suggest that returns would also be greater for steelhead and coho salmon; however, further analysis is needed. FERC concluded that removal of one or more of the project dams in conjunction with provisions of fish passage at the remaining dams, probably holds the greatest promise for restoring anadromous fish species, especially if IGD and Copco 1 dam are removed (Federal Energy Regulatory Commission 2007).

[above Iron Gate Dam]“A ranking level model comparison of fall run Chinook spawners in the upper watershed predicts that numbers will likely be higher with dam removal than under existing conditions...over a 50 year period (Oosterhout 2005),” (p. 46, 86). “...conditions for fall-run Chinook migration appear favorable (at least through Upper Klamath Lake),” (p. 48). “KBRA flows are intended to benefit fall-run Chinook salmon. Hetrick’s analysis of KBRA type²³ flows interim flows showed the greatest benefits of would be in years when production was low (Hetrick et al, 2009),”(p. 83).

[below Iron Gate Dam – short term] “For fall-run Chinook salmon...[dam removal and sediment]...impacts on adults, in addition to the cumulative impacts on multiple life stages, are anticipated to result in no production from redds in the mainstem during the year of dam removal (Stillwater Sciences 2009a),”(p. 82). The reduction in the number of

fall-run spawners that would occur under the worst-case scenario would only be evident for three years of direct impact from a given sediment pulse (Stillwater Sciences 2009a). In a worst-case scenario, the average percent reduction in escapement for the three simulations is 33 percent three years after dam removal, 32 percent four years after dam removal, and around 1 percent five years after dam removal (Stillwater Sciences 2008). Overall, it appears that the impacts on fall-run Chinook salmon due to suspended sediments will be short-term, and that the population will fully recover within five years after dam removal (Stillwater Sciences 2008),”(p. 83).

[middle Klamath River short to mid term] “The Main impacts of sediment releases following dam removal (reservoir drawdown) are anticipated to be greatest for species and life stages distributed mainly in the mainstem Klamath River during winter and spring peaks in suspended sediments, particularly in the mid- to upper river (Stillwater Sciences 2009a). November, adults are not generally found in the mainstem during early November period for dam removal analyzed (Stillwater Sciences 2009a). Those adults remaining in the mainstem prior to entering tributaries would be exposed to TSS. These impacts on adults, in addition to the cumulative impacts on multiple life stages, are anticipated to result in no production from redds in the mainstem during the year of dam removal (Stillwater Sciences 2009a).” (p. 81-82)

[middle Klamath River mid to long term] “KBRA flows are intended to benefit fall-run Chinook salmon. Hetrick’s analysis of KBRA type²³ flows interim flows showed the greatest benefits of would be in years when production was low (Hetrick et al, 2009). For years where modeled historical production was high, there was little difference from KBRA management. The percent change in production between the historical water years 1961-2000 baseline and KBRA type flows for the 10 highest historical production years (upper 25th percentile) averaged about +6 percent and for the 10 lowest historical production years (lower 25th percentile), about 45 percent. A similar comparison of percent change in production between the historical water years 1961-2000 baseline and the Hardy Phase II simulations showed -7 percent and +50 percent for the 10 highest and lowest historical production years (Hetrick et al. 2009).(p. 83). Implementing either the KBRA type flows or the Hardy et al. (2006) Phase II flow recommendations was predicted to decrease the occurrence of poor production years in the future by 2/3. This would have significant positive consequences for Chinook salmon given their life cycle in the Klamath River (Hetrick et al. 2009).”(p. 83). Conclusions about temperature changes and their effects were mixed.(p. 83-85).

[long term middle and lower Klamath River] The miles of habitat below IGD with suitable temperatures for Chinook salmon migration during August 15 to September 1 would increase from 20 miles with dams in to more than 100 miles with dams out (Figure 12). The miles of habitat below IGD with Chinook salmon spawning and egg incubation during October would be slightly greater under Conditions without dams and with

KBRA. (p. 83) Under conditions without dams, Dunsmoor and Huntington (2006) showed a net reduction in the duration of highly stressful conditions as well as the frequency of the need for thermal refugia in most of the river reaches outside of the Boyle Bypass Reach and at the dams. (p. 84). Dam removal would reestablish connectivity of resident and anadromous fish to habitat currently blocked by the dams (Burroughs et al. 2010).(p. 85).

[below IGD long run] “Modeling for fall-run Chinook salmon shows the chance of getting substantially more fall-run Chinook salmon spawners is much better with the dams removed than with the dams remaining, over a 50 year period (Oosterhout 2005)... FERC concluded that removal of one or more of the project dams in conjunction with provisions of fish passage at the remaining dams, probably holds the greatest promise for restoring anadromous fish species, especially if Iron Gate Dam and Copco 1 dam are removed (Federal Energy Regulatory Commission 2007),” (p. 86).

Draft BIA Subteam Technical Report

[Overall long run]“...Chinook salmon would gain access to more than 350 miles of historic spawning habitat,” (p. 4-14).

[Short term] Chinook salmon are expected to suffer losses resulting from a release of up to 1.2 to 2.4 million tons of fine sediment, causing high suspended sediment loads and local, short-term sediment deposition,” (p. 4-14).

[Long term] “...Improved temperatures (reduced by 7 degrees to 9 degrees Celsius) from October through November would create more ideal temperatures for adult migration and spawning. Implementation of the proposed action will directly affect Chinook salmon by accelerating the TMDL process, and thus improving water quality conditions at a more rapid rate...This life cycle change benefits the Klamath River Chinook salmon because it takes them closer to their historic conditions...These factors in combination will result in an anticipated quick recovery of the fall-run and potentially spring run, Chinook salmon populations,” (p. 4-15.)

[UKB]“Chinook salmon would be able to access habitat in the Klamath River within the Tribes’ reservation...[and] their numbers are expected to increase,” (p. 4-19).

Klamath Settlement EIS/EIR

Spring Chinook:

[short term] “The Proposed Action would have short term effects related to SSCs and water quality. These SSC effects and water quality effects would be less than significant

for spring run Chinook salmon populations. In the long term...a more natural flow regime would improve water quality, restore natural temperature variation, and reduce instances of fish disease and proliferation of algal toxins, providing a substantial long term benefit. The Proposed Action would release dam-stored sediment to the Lower Klamath River,” (p. 3.3-122). “Because spawning occurs in the Trinity River, magnitude of exposure would be limited by dilution from tributaries entering downstream of Iron Gate Dam. All changes would benefit spring run Chinook salmon produced in the Lower Klamath River Reach in 2020 and thereafter,” (p. 3.3-123).

[long term lower Klamath] “Dam removal would restore connectivity to 350 miles of potentially usable habitat in the Upper Klamath Basin and would create additional habitat within the Hydroelectric Reach, which would provide a long-term benefit to spring run Chinook salmon populations. This would have a less than significant impact on Chinook salmon and would provide a benefit to this resource,” (p. 3.3-123). “...the Proposed Action would improve essential fish habitat for Chinook and coho salmon by providing access to habitats upstream of Iron Gate Dam, improved water quality, and decreased prevalence of disease. The Proposed Action would have a less-than-significant and potentially beneficial impact on essential fish habitat for Chinook and Coho salmon,” (p. 3.3-117).

[in the Upper Klamath River]...would allow...access to the Upper Klamath River upstream of J.C. Boyle Reservoir. The access would expand the...current habitat to include historic habitat along the mainstem Klamath river and upstream to the Sprague, Williamson, and Wood Rivers (Hamilton, et al, 2005), a potential increase in habitat of 350 miles. The Proposed Action would not result in changes to suspended or bedload sediment, flow-related habitat, or occurrence of disease and algal toxins in the areas upstream of J.C. Boyle Reservoir, although poor water quality might affect fish passage through Keno Dam (Dunsmoor and Huntington, 2006),” (p. 3.3-122).

Fall Chinook:

[short term] “The Proposed Action would have short-term effects related to SSCs, bedload sediment transport and deposition, and water quality. Because only a small proportion of the total Chinook Salmon population uses the mainstem, these effects would be less than significant for fall-run Chinook salmon populations. In the long term...a more natural flow regime would improve water quality, restore natural temperature variation, and reduce instances of fish disease and proliferation of algal toxins, providing a substantial long-term benefit,”(p. 3.3-121).

[downstream of Iron Gate Dam] “The Proposed Action would release dam-stored sediment to the Lower Klamath River,” (p. 3.3-120). “...but these effects would be short

term....Long term changes to flow would benefit fall run Chinook salmon using the Lower Klamath River Reach in the long term,” (p. 3.3-121).

[in the Upper Klamath River]“...removal of [the four dams]...would allow fall-run Chinook salmon to gain access to the Upper Klamath River upstream of J.C. Boyle Reservoir. The access would expand the Chinook salmon’s current habitat to include historic habitat along the mainstem Klamath River, upstream to the Sprague, Williamson, and Wood Rivers (Hamilton et al. 2005), a potential increase in habitat of 350 miles.”

[long term] “Dam removal would restore connectivity to 350 miles of potentially usable habitat in the Upper Klamath Basin and would create additional spawning and rearing habitat within the Hydroelectric Reach, which would provide a long-term benefit to fall-run Chinook salmon populations. This would have a less than significant impact on fall run Chinook salmon and would provide a benefit to this resource.” (p. 3.3-119 to 3.3-121).

Pacific Lamprey

In sum, there could be a total increase in their range of 1 to 10 percent below Iron Gate dam and increased capacity in the mainstem of about 14 percent or more. From about 2010 to 2020, there would be no change, and from 2020 to about 2025 to 2030 there is expected to be a short term decline due to sediment release, and from 2030 to 2060, there is would likely be a gradual increase.

Final Expert Panel (January 14, 2010)

There is the potential for Pacific Lamprey to exist in the Upper Klamath Basin; there could be a total increase in the range of 1 to 10 percent below Iron Gate Dam and increased capacity in the mainstem of about 14 percent, potentially more if the Upper Klamath Basin becomes accessible and suitable. From about 2012 to 2020, there would be no change in harvest rates, and from roughly 2020 to anywhere from about 2025 to 2030, a short term decline due to sediment issues associated with dam removal, and from 2030 to 2060, there is expected to be a gradual increase and flow regimes would become more natural post dam removal:

[Overall and long term] “Increased extent of habitat (capacity) for Pacific lamprey as the result of implementation of the Conditions without Dams and the KBRA alternative was estimated approximately at 14 percent (Section 5.2.1),” (p. 45).

[hydroelectric reach] “Dam removal will put an end to rapid fluctuations of flow for peaking of power production in the impounded reach. Halting of this practice will remove

the frequent alternation of hours of high flow velocities followed by rapid dewatering of channel margins,” (p. 25).

[long term]“Implementation of the KBRA would improve habitat quality primarily for salmonids that would also benefit Pacific lamprey; however, the long-life cycle of Pacific lamprey would mean that it could be a decade before KBRA alone could result in an increase in harvestable lamprey.” (p. 46).

[short to mid term] “In the second decade following the Secretarial Determination, there could be a short-term decline in outmigrant lamprey numbers resulting from sediment transport, smothering, and scour immediately following dam removal (depending on timing for dam removal Section 5.3.2).”(p. 46).

[long term] “In the third to fifth decade, there could be a gradual increase resulting from recolonization of the reach between Iron Gate Dam and Keno Dam and improved habitat quality. The rate of this increase would depend on ocean conditions, but might reach 10 percent by the end of 50 year period relative to Conditions with Dams (Figure 4, Arrow B),” (p. 46).

[below Iron Gate Dam]”...might be a total increase of production of outmigrant lamprey (and hence harvest potential) in the range of 1 to 10 percent relative to Conditions with Dams. Within the range of 1 to 10 percent, the production of lamprey in this extended range downstream of Keno Dam will depend on survival of adults in the ocean and the success of the KBRA,”(p. 46).

[mainstem] “Dam removal would then increase the extent of potential mainstem habitat by approximately 14 percent,”(p. 29). “Capacity for Pacific Lamprey in the Klamath River system is predicted to increase by a maximum of 14 percent (based on analysis of mainstem habitat), with potentially more if habitat in the upper Klamath River Basin is accessible and suitable,”(p. 32).

[above IGD] ”Pacific lamprey are currently extirpated above Iron Gate Dam; they are unable to pass the dam and the confirmed upstream limit in the mainstem Klamath River is Bogus Creek. Hamilton e. al. (2010) estimated that an additional 69 miles of Pacific lamprey habitat will be opened up by removal of the four lower Klamath River dams.(Close, et al., p. 28-29).

Synthesis Report

Dam removal is expected to expand their range and Pacific lamprey would recolonize the Upper Klamath Basin and benefit mid to long term despite negative short term impacts:

[below IGD short term]”... nearly half of the escapement returns to the Trinity River and its tributaries...where effects would be less severe because of dilution...With few ammocoetes directly below IGD, effects are unlikely to impact the Pacific lamprey population as a whole. Due to their wide spatial distribution in the Klamath basin, straying behavior, and high fecundity, Pacific lamprey are anticipated to recover relatively quickly from dam removal impacts (Stillwater Sciences 2009a). “ (p. 92-93).

[Below IGD mid to long term] “...increased habitat availability and reestablishment of natural sediment dynamics following dam removal are likely to help reduce the impacts of dam removal for any Pacific lamprey in the mainstem that survive initial sediment releases (Stillwater Sciences 2009a). The return to a temperature regime and flows that more closely mimic historical patterns would likely benefit Pacific lamprey. Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species (USDI Secretarial Determination Water Quality SubGroup In Prep),” (p. 92-93).

[above Iron Gate Dam]“...dam removal would be more conducive to the reestablishment of anadromous Pacific lamprey above Iron Gate Dam. There would be 58 more miles of available habitat for this species, assuming fish distribution was up to Spencer Creek. Access to habitat would benefit Pacific lamprey by increasing their viability through: a) extending range and distribution of the species; b) providing additional spawning and rearing habitat; c) increasing genetic diversity of the species; and d) increasing the abundance of the Pacific Lamprey.... Removal of dams is considered to be the only feasible step that could be expected to expand the current range of Pacific lamprey to areas upstream of Iron Gate Dam. [they are]...expected to recolonize the area between Upper Klamath Lake and Iron Gate Dam quickly after dam removal without human intervention. Overall dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species....,” (Hamilton et al. 2005, p. 51-52).

Klamath Settlement EIS/EIR

[short term] “The Proposed Action would have short term [adverse] effects related to SSCs, bedload sediment transport and deposition, and water quality. These effects would be less than significant for Pacific Lamprey populations. (p. 3.3-130).

[Long run] “...a more natural flow regime would improve water quality, restore natural temperature variation providing a substantial long term benefit. Dam removal would restore connectivity to potentially usable habitat in the Hydroelectric Reach and would create additional spawning and rearing habitat within the Hydroelectric Reach, which would provide a long-term benefit to Pacific Lamprey populations. This would have a less than significant impact on Pacific Lamprey and would provide a benefit to this resource,” (p. 3.3-130).

Draft BIA Subteam Technical Report

“Coho salmon, steelhead, and Pacific lamprey populations are expected to increase in the Klamath River and its tributaries as a result of the Proposed Action,” (p. 4-15).

Steelhead Trout

Short term effects of dam removal would be negative, but short-lived, and positive in the long term, primarily due to many more miles of habitat available.

Draft Expert Panel Report (January 8, 2011)

[short term] “...effects of dam removal on sediment transport will be injurious to upstream migrating steelhead and coho...Conditions without Dams and the KBRA could result in increased spatial distribution and numbers of individual steelhead, and in the long-term, (decades), increased numbers relative to the current population abundance in the Klamath system,” (p. ii-v, Table ES-1). On the other hand, short term sediment impacts were also described as likely to be short-lived and relatively minor (p. 31-35).

[Upper Basin]”Assuming that both upstream and downstream passage through Keno Reservoir and Upper Klamath Lake is successful, then increased access to upstream habitat (above Upper Klamath Lake) could increase the abundance of steelhead (possibly substantially) if fish utilize the new habitat and can successfully complete their life cycle,” (Dunne, et. a., p. ii-v, Table ES-1, p.45).

Synthesis Report

[below Iron Gate Dam] Summer and winter steelhead are currently distributed throughout the Klamath River downstream of IGD and its tributaries, spawning primarily in tributaries such as Trinity, Scott, Shasta, and Salmon rivers. Reservoir draw down impacts are predicted to be greatest for the portion of the steelhead adults migrating to spawn in tributaries upstream of the Trinity River, and are anticipated to affect at least six year classes of this group (Stillwater Sciences 2009a). Access to additional habitat in the upper Klamath River watershed would benefit steelhead runs. In general, dam removal with KBRA would likely result in the restoration of more reproducing populations, higher genetic diversity, and the opportunity for variable life histories and use of new habitats. Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species (USDI Secretarial Determination Water Quality SubGroup In Prep). (p. 91).

[above Iron Gate Dam] “Conditions without dams would enable reestablishment of steelhead above Iron Gate Dam and result in an increase in the amount of habitat for this species (FERC, 2007). Because of their ability to navigate steeper gradient channels and spawn in smaller and intermittent streams (Platts and Partridge 1978), steelhead would realize the extent of anadromous habitat gain to a greater degree than other species. Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species....” (Hamilton et. al., November 23, 2010, p. 50-51).

Klamath Settlement EIS/EIR

[short term] “The Proposed Action would have short term effects related to SSCs, bedload sediment transport and deposition, and water quality. These effects would be less than significant for either summer or winter run steelhead populations.

[long term] “...a more natural flow regime would improve water quality, restore natural temperature variation, and reduce instances of fish disease and proliferation of algal toxins, providing a substantial long term benefit. Dam removal would restore connectivity to 350 miles of potentially usable habitat in the Upper Klamath Basin and would create additional habitat within the Hydroelectric Reach, which would provide a long-term benefit to spring run Chinook salmon populations. This would have a less than significant impact on steelhead and would provide a benefit to this resource,” (p. 3.3-128 to 3.3-129).

Draft BIA Subteam Technical Report

“Coho salmon, steelhead, and Pacific lamprey populations are expected to increase in the Klamath River and its tributaries as a result of the Proposed Action,” (p. 4-15).

Green Sturgeon

Green sturgeon only occur in the lower Klamath River. Short term sediment would impact sturgeon, possibly severely, much of the spawning and rearing occurs away from areas most impacted. Improved water quality, temperature, and flow regimes would have beneficial mid to long term effects.

Expert Panel Reports - not covered.

Synthesis Report

“Although green sturgeon in the mainstem Klamath River at the time of dam removal could be severely affected, much of the spawning and rearing habitat occurs downstream of the Trinity River where sediment concentrations are predicted to be lower. Any impacts to green sturgeon life stages in the mainstem Klamath River during dam removal will have little influence on the population as a whole over time (Stillwater Sciences 2009a). The return to a temperature and flow regime that more closely mimic historical patterns would likely benefit green sturgeon. Overall, dam removal and associated KBRA actions will accelerate TMDL potential water quality benefits to this species (USDI Secretarial Determination Water Quality SubGroup In Prep),” (p. 94).

Klamath Settlement EIS/EIR

[lower Klamath River short term] “...migrating adults and juveniles rearing or migrating in the mainstem after dam removal would be exposed to poor water quality due to the Proposed Action, but these effects would be short term.” (p. 3.3-130 to 3.3-131).

[lower Klamath River long term] “The Proposed Action would establish a more natural flow regime...would result in water temperature more favorable for green sturgeon occurring in the mainstem, and would improve water quality and reduce instances of algal toxins...Long -term changes would benefit green sturgeon using the Lower Klamath River Reach.” (p. 3.3-130 to 3.3-131).

Draft BIA Subteam Technical Report - not analyzed.

Eulachon or Candlefish (essentially extinct in California)

There would essentially be no impacts since eulachon are practically extinct in California; however, short term impacts would be minimal and there would be long term beneficial habitat

changes.

Expert Panel - Not included/analyzed.

Synthesis Report

No impact since essentially none exist, so short term sediment impacts are likely to be minimal and overall long term any 'strays' would benefit.

Klamath Settlement EIS/EIR

Short term sediment may affect adults and larvae, but magnitude is expected to be minimal due to dilutions downstream, LTS impacts. Estuarine habitat is not expected to substantially change.

Draft BIA Subteam Technical Report - not analyzed.

Longfin Smelt

Klamath Settlement EIS/EIR

Short term sediment may affect smelt, but the magnitude would be low, in part because of dilutions downstream, LTS impacts.

Other reports - not analyzed.

Crayfish (Benthic Macro invertebrates)

Klamath Settlement EIS/EIR

“The Proposed Action would have a less than significant impact on benthic macro invertebrate populations, because while a large proportion of their populations in the Hydroelectric Reach and in the mainstem Klamath River downstream of IGD would be affected, their populations would be expected to recover quickly because of the many sources for recolonization and their rapid dispersion through drift or areal movement of adults.”(p. 3.3-139).

Other reports - not analyzed.

Mussels (Mollusks)

Klamath Settlement EIS/EIR

“The Proposed Action would have a significant impact on mussel populations, because a large

proportion of the mussel populations in the Hydroelectric Reach and in the Mainstem Klamath River downstream of IGD would be affected, and because these populations would likely take a long time to recover.” (p.3.3-137).

Other reports - not analyzed.

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