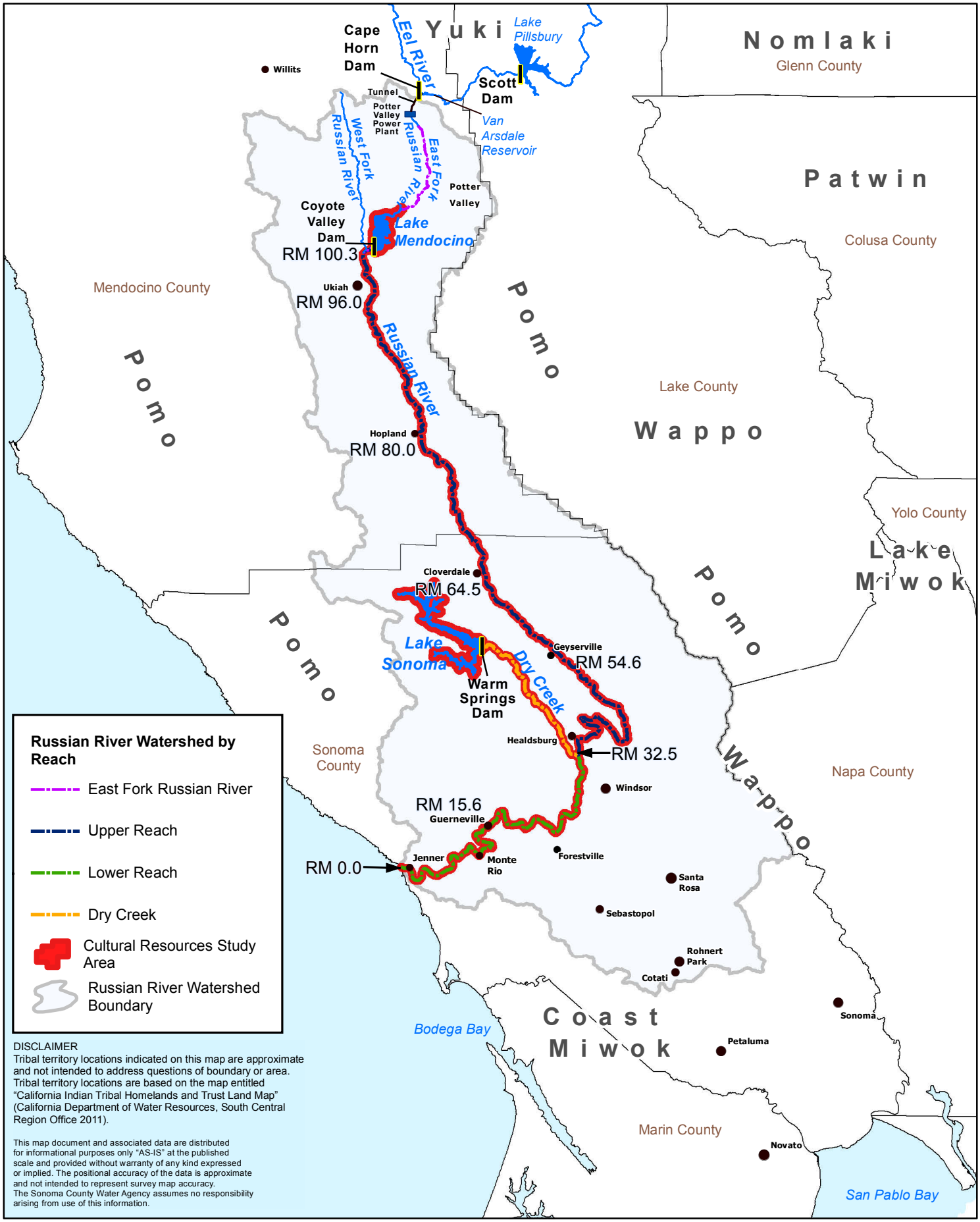

Yuki
Nomlaki
Glenn County
Patwin
Colusa County
Wappo
Lake County
Pomo
Mendocino County
Yolo County
Lake Miwok
Napa County
Sonoma County
Coast Miwok
Marin County
Cape Horn Dam
Eel River
Lake Pillsbury
Scott Dam
Willits
Tunnel
Potter Valley Power Plant
Van Arsdale Reservoir
West Fork Russian River
East Fork Russian River
Russian River
Potter Valley
Coyote Valley Dam
Lake Mendocino
RM 100.3
Ukiah
RM 96.0
Hopland
RM 80.0
Cloverdale
RM 64.5
Lake Sonoma
Warm Springs Dam
Dry Creek
Geyserville
RM 54.6
Healdsburg
RM 32.5
Windsor
RM 15.6
Guerneville
Forestville
Jenner
RM 0.0
Monte Rio
Santa Rosa
Sebastopol
Rohnert Park
Cotati
Sonoma
Petaluma
Novato
Bodega Bay
San Pablo Bay
Russian River Watershed by Reach
East Fork Russian River
Upper Reach
Lower Reach
Dry Creek
Cultural Resources Study Area
Russian River Watershed Boundary
DISCLAIMER
Tribal territory locations indicated on this map are approximate and not intended to address questions of boundary or area. Tribal territory locations are based on the map entitled "California Indian Tribal Homelands and Trust Land Map" (California Department of Water Resources, South Central Region Office 2011).
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.
SONOMA COUNTY WATER AGENCY
Fish Habitat Flows and Cultural Resources Study Area
N
0 5 10 Miles
Figure 4.7-1

reach a depth of up to 60 feet (Cardwell, G.T. in cooperation with the California Department of Water Resources 1965). These deposits are relatively young, from the Holocene epoch (11,700 years ago to present). However, in locations where the Russian River narrows, and around Lake Mendocino and Lake Sonoma, the geology consists of Franciscan formation, undivided Cretaceous marine deposits, lower Cretaceous marine deposits, and ultrabasic intrusive rocks. All of these were formed during the Mesozoic era (66 to 252 million years ago) (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016).

A search of the University of California Museum of Paleontology (UCMP) collections database identified that paleontological resources have been discovered in Mendocino and Sonoma counties, but not in the project area.

Prehistoric Context

Archaeological evidence indicates that human occupation of California began at least 11,000 years ago. Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to have arisen along with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems (Barrow and Caskey 2015).

In the regions north of the San Francisco Bay that became Sonoma, Marin and Mendocino counties, Pomo, Wappo, and Coast Miwok (California Indian Library Collections 2015) settled in village communities. Members of these nations lived in tribal groups made up of numerous autonomous village communities or tribelets. Within these tribelets were one or two central villages that were surrounded by up to a dozen smaller outlying villages. The tribelet occupied a specific tract of land and often spoke a distinct dialect. North San Francisco Bay tribelets followed a hunting and gathering subsistence pattern, with acorns providing a year-round food staple. They maintained permanent winter villages and set up temporary outlying camps during the summer to gather seasonal resources.

Pomo

The Pomo are one of the best-known aboriginal groups in California. Pomo settlements were distributed throughout nearly the entire Russian River watershed, but were most concentrated in the Russian River valley.

Northern Pomos inhabited present-day Mendocino County, extending from Cleone on the coast, east across the Coast Range to the Laytonville area, and south to Ukiah and the valley in which Lake Mendocino is now located. Their territory included the upper reaches of the Russian River watershed. The valleys and foothills they inhabited contained abundant resources and had a mild climate.

The Central Pomo occupied the area from the mouth of the Navarro River, south to Gualala, west to Cloverdale and north to Ukiah.

The Kashaya Pomo (Southwestern Pomo) occupied most of Sonoma County. The Kashaya territory consisted primarily of rocky coastline and redwood forest from Stewarts Point south to Jenner. Their territory included the mouth of the Russian River and the Austin Creek drainage area. Shellfish, sea mammals, and salmon were major resources. Village sites were situated along the coast and on inland ridges.

The Southern Pomo occupied the Russian River drainage south of the Mendocino-Sonoma county line near Cloverdale south to Santa Rosa and Cotati (Kroeber 1970).

Lake Sonoma and the Dry Creek-Warm Springs Valleys Archaeological District

Evidence suggests that the Lake Sonoma area was occupied by around 3000 B.C., or earlier. The 5000 years of Native American occupation is generally split into three periods that are defined by milestones in culture and technology. The Skaggs Phase (3000 B.C. to 500 B.C.) included the use of heavy handstones and millingstones, likely used to grind seeds; large projectile points, indicating the use of spears; and the atlatl, a dart thrower, rather than the bow and arrow. Stone tools of this phase were made from locally available chert. The Dry Creek Phase (500 B.C to A.D. 1,300) is typified by a large population increase and the emergence of the bowl and pestle, indicating a shift to an acorn-based diet. Points of this period were made almost exclusively from imported obsidian rather than chert, indicating the growth of trade in the region. The Smith Phase (A.D. 1300 to early 1800s) includes the development of the bow and arrow, making hunting much more effective; the hopper mortar, a more effective mortar for processing acorns which included a basket without a bottom placed on a flat stone mortar; and the clam disc bead, used for currency throughout north-centeral California further indicating the extensive trade of goods (Praetzellis, Praetzillis and Stewart 1986).

In anticipation of the filling of Lake Sonoma, the Dry Creek area was studied intensively from 1974 to 1984 by archaeologists, cultural anthropologists, architectural historians, ethnobotanists, historians, and Native American traditional scholars. In 1977, the Dry Creek-Warm Springs Valley Archaeological District was formed, which includes over 87,500 acres (NPS 2016) and extends south into Dry Creek Valley to Lytton Springs Road. The archaeological district includes 117 prehistoric, historic, and ethnobotanical sites ranging significantly in size, type, and age (Praetzellis, Praetzillis and Stewart 1986).

Wappo

The Wappo occupied an area north of the Coast Miwok and east of the Pomo, mainly in present-day Napa County, but including portions of northeastern Sonoma County. Their territory extended to Middletown in Lake County, east to the divide separating the Napa Valley from the Berryessa Valley, west to include portions of the Geyser's area, and south to the headwaters of Sonoma Creek and the upper Napa River. The Alexander Valley between Healdsburg and Geyserville was taken by the Wappo from the Southern Pomo around 1830. While the majority of Wappo territory was mountainous, most settlements were located in valleys.

There are few specific descriptions of Wappo customs. All accounts suggest that Wappo customs were similar to those of the Pomo; for example, both tribes cremated their dead and the few examples of Wappo handiwork that have been preserved in collections are very similar to Pomo wares (Kroeber 1970).

Historical Context

Many researchers believe 1579 was the year Sir Francis Drake established a fort in the Point Reyes area. The first European contact in Sonoma County came much later, in the fall of 1775, when the Spanish explorer Juan Francisco de la Bodega landed his schooner "Sonora" in what is now Bodega Bay (Kent G. Lightfoot 1991). By the end of the eighteenth century, trade goods were arriving from San Francisco's mission and presidio. By 1817, a mission was established at San Rafael and in 1823 the Mission San Francisco de Solano was established at Sonoma (Hansen and Miller 1962).

Russian settlers arrived at Bodega Bay in 1809 and established Fort Ross in 1812 in Kashaya territory just north of Jenner. Many Pomos learned to speak Russian, adopted Russian religion, and occasionally intermarried with the Russian settlers. In 1839, Fort Ross was determined to be economically infeasible for the Russians and the process for abandoning the fort began (Hansen and Miller 1962).

Hispanic settlement of California began in 1769 with the establishment of two missions in San Diego. Mexican independence from Spain in 1821 marked the beginning of the Mexican period in California. When the Mexican government secularized the missions in 1833, the government awarded much of the land as land grants. In 1846, the United States-Mexican War began as the United States sought to expand its boundaries to the Pacific coast. In 1848, the Treaty of Guadalupe Hidalgo transferred California from Mexico to the United States (California Department of Parks and Recreation Department of Historic Preservation December 1998).

Prior to 1848, the lands upon which the project area lies were primarily divided into Spanish and Mexican land grants given to various settlers by the Spanish and later Mexican governments. The land grants that the project area enter into are the Bodega, Molinos, Muniz, Rincon de Musalacon, Sanel, Sotoyome, Tzabaco, and the Yokaya.

After 1848 when California was taken over by the Americans, land was further divided into “public land” and given or sold as Homesteads to settlers. In addition, many of the settlers to California squatted on former Spanish and Mexican land grants and these lands were divided further (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016).

Sonoma County was one of the original 27 counties in California. The county seat was originally located at Sonoma in 1850, where it remained until 1854 when it was moved to Santa Rosa. The name "Sonoma" reportedly was derived from a Native American chief baptized by mission fathers in 1824.

Agriculture quickly became an integral part of Sonoma County’s economy. Potatoes were one of the earliest and most successfully grown crops in Sonoma County. By the 1850s, Sonoma

County potato farmers were out-producing farmers in every other county in California. Wheat, oat, corn, and barley produced in the region were being shipped by the ton from San Francisco to nations around the world. By the 1860s, a wine industry was established in the Sonoma Valley with assorted vines imported from Europe. Dairy and beef ranches surrounding the town of Santa Rosa also prospered.

Steamboats were used to transport products from farms, ranches, and mills, to the cities and ports of San Francisco Bay. Steamer ports were established at Bodega Bay, Petaluma, and Sonoma. Overland transportation gradually emerged. Early overland transportation consisted of horse or mule, stagecoach, or foot travel. Gradually, stagecoach lines were extended to Santa Rosa and Healdsburg. By the end of 1870, a railroad line from Petaluma to Santa Rosa was completed; and by 1877, a narrow gauge line from Sausalito to Cazadero was complete. As transportation developed, towns across the county emerged around train depots and stagecoach crossroads (Hansen and Miller 1962).

The project area remained relatively rural into the 20th century. Vacation resorts were developed along the Russian River at around the turn of the century and Santa Rosa grew significantly. The poultry industry, orchards, fruit processing, and hops production were important in Sonoma County until World War II. During this time, State Highway 101 transformed from the historic Redwood Highway built for wagons to a major freeway and significant development occurred along this transportation corridor (Hurley October 15, 2013).

Cultural Resources Studies Performed

Native American Contact

The State of California's Native American Heritage Commission, Coyote Valley Band of Pomo Indians, Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, the Federated Indians of Graton Rancheria, Guideville Band of Pomo Indians, Hopland Band of Pomo Indians, Lytton Rancheria of California, Middletown Rancheria of Pomo Indians, the Mishewal-Wappo Tribe of Alexander Valley, Pinoleville Pomo Nation, and Stewarts Point Rancheria were contacted in writing during the Cultural Resources Study for the Proposed Project. A log of contact efforts is provided at the end of the cultural resources report included in Appendix D.

Archival Study Methodology

The Water Agency hired Tom Origer & Associates to perform an archival study of the project area including a one-eighth mile buffer around Lake Mendocino, Lake Sonoma, the Russian River downstream of Coyote Valley Dam, and Dry Creek downstream of Warm Springs Dam. The project area was subject to a record search at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Archival research included examination of the library and project files at Tom Origer & Associates. A review (NWIC File No. 15-1481) was completed of the archaeological site base maps and records, survey reports, and other materials on file at the NWIC. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places, California Historical Landmarks,

California Register of Historical Resources, and California Points of Historical Interest as listed in the Office of Historic Preservation's *Historic Property Directory*.

The Office of Historic Preservation has determined that structures in excess of 45 years of age should be considered potentially important historical resources, and former building and structure locations could be potentially important historic archaeological sites. Archival research included an examination of historical maps to gain insight into the nature and extent of historical development in the general vicinity, and especially within the project area. Maps ranged from hand-drawn maps of the 1800s (e.g., GLO) to topographic maps issued by the United States Geological Survey (USGS) and the United States Army Corps of Engineers (USACE).

In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of the cultural resources report included in Appendix D.

A paleontological database records check request was made to the University of California's Museum of Paleontology (UCMP).

Archival Study Findings

Much of the project area had been subject to prior cultural resources studies. These studies have resulted in the finding of 262 cultural resources within one-eighth mile of the Russian River, Dry Creek, Lake Sonoma, and Lake Mendocino, including 63 ethnographic sites and 203 local, state, or federally recognized historic properties within the project area[1]. Ethnographic resources include midden, lithic scatter, ethnographic villages, sweathouse pits, petroglyphs, and other resources. Historic resources include buildings, homesteads, trash scatter, bridges, and other structures.

These sites are listed in Table 4.7-1 below.

No paleontological resources have been found within the project area.

[1] Four sites are listed as having both historic and prehistoric importance.

Common Name	Scientific Name	Dry Creek and/or Cloverdale Pomo Usage
Madrone	*Arbutus menziesii*	Food: Berries parched and eaten or stored for winter Tools: Leaf used to call dear for hunting
Manzanita	*Arctostaphylos spp.*	Food: Berries eaten fresh or dried, ground into flour for pinole, or used to make a drink Medicinal: Leaves used to make tea for stomach trouble, tea used externally to treat poison oak Ceremonial: Moth cocoons used for rattles Tools: Wood used to make war club, bull-roarer, fish hook, harpoon, bow
Mariposa Lilies	*Calochortus spp.*	Food: Corms eaten raw or parched
Milkweed	*Asclepias spp.*	Tools: Twine
Mugwort	*Artemisia douglasiana*	Medicinal: Tea used externally to treat sores and internally for diarrhea, leaves used externally for post-birth recovery for both mother and baby Ceremonial: Leaves rubbed on body for purification Tools: Doll-making, sweat-house thatching, mats
Mulefat	*Baccharis salicifolia* *B. glutinosa*	Tools: Shoots woven into fish dam or for fishing pole
Narrowlead Mule Ears, California Compassplant,	*Wyethia angustifolia*	Food: Stalks eaten raw before plant blooms in spring, seeds eaten in summer Medicinal: Tea made from root used externally to treat poison oak
Oak	*Quercus spp.*	Food: Nuts made into soup, mush, and bread Tools: Hulls used as dye, acorns used as toys
Oregon Ash	*Fraxinus latifolia*	Food: Caterpillars collected, roasted
Oregon Oak	*Quercus garryana*	Food: Nuts made into soup, mush, and bread Tools: Wood used to make paddle for stirring food

Common Name	Scientific Name	Dry Creek and/or Cloverdale Pomo Usage
Pacific Rush	*Juncus effusus ssp. pacificus*	Tools: Strings for hanging clam shells during shaping and polishing
Poison Oak	*Rhus diversiloba*	Tools: Roots used in basketry, dyeing bulrush roots
Ponderosa Pine	*Pinus ponderosa*	Food: Nuts eaten
Redwood	*Sequoia sempervirens*	Tools: Ends of boughs used in leaching acorn meal
Salmonberry	*Rubus spectabilis*	Food: Berries eaten fresh or dried
Scrub Oak	*Quercus dumosa*	Food: Nuts made into soup, mush, and bread
Shining Mule Ears, Coast Range Mule Ears, Smooth Mule Ears	*Wyethia glabra*	Food: Stalks eaten raw before plant blooms in spring, seeds eaten in summer
Soap Plant, Soaproot	*Chlorogalum pomeridianum*	Tools: Soap, shampoo, baking, fish poison, basketry, adhesive
Spicebush	*Calycanthus occidentalis*	Tools: Shoots used for arrow shafts
Spreading Dogbane, Bitter Dogbane	*Apocynum androsaemifolium L.*	Tools: Twine
Sticky Monkeyflower, Bush Monkeyflower	*Mimulus aurantiacus*	Medicinal: Tea made from leaves used as eye medicine
Stinging Nettle, Hoary Nettle	*Urtica dioica L. ssp. holosericea*	Food: Young leaves boiled and eaten Medicinal: Used as a counter-irritant
Sugar Pine	*Pinus lambertiana*	Food: Nuts eaten, sap collected and used as sugar
Sunflower	*Helianthus spp.*	Food: Seeds partched and/or ground for pinole or meal
Tanbark Oak, Tan Oak	*Lithocarpus densiflora*	Food: Nuts made into soup, mush, and bread Tools: Wood used to make ball for game
Tarweed	*Madia spp., Centromadia spp., Holocarpha spp.*	Food: Seeds collected, parched, and ground for pinole
Thimbleberry, Western thimbleberry	*Rubus parviflorus*	Food: Berries easten fresh or dried
Toyon, Christmas Berry	*Heteromeles arbutifolia*	Food: Berries baked or roasted and eaten
Valley Oak	*Quercus lobata*	Food: Nuts made into soup, mush, and bread

Common Name	Scientific Name	Dry Creek and/or Cloverdale Pomo Usage
Vinegar Weed	*Trichostema laxum*	Tools: Leaves stored with hides and furs to reduce odors Medicinal: Aromatic leaves used as deodorant
Western Raspberry	*Rubus leucodermis*	Food: Berries eaten fresh or dried
Western Redbud	*Cercis occidentalis*	Tools: Basketry
Wild Grape, California Wild Grape, California Grape	*Vitis californica*	Food: Berries eaten when ripe Tools: Vines used as hoop for baby baskets, vines used as ropes withes for lashing log rafts, leaves used in baking acorn bread
Wild Oat	*Avena fatua*	Food: Seeds parched and ground into meal or pinole
Wild Strawberry	*Fragaria vesca ssp. californica*	Food: Berries eaten fresh
Willows	*Salix spp.*	Tools: Used in construction of fish dams, dwelling and sweathouse frame, and for indoor acorn granary
Willow, Arroyo	*Salix lasiolepis*	Tools: Shoots used in basketry, roots used for large twined baskets
Willow, Sandbar	*Salix exigia*	Medicinal: Tea made from tender spring shoots used to treat diarrhea Tools: Shoots used in making baskets and fishtraps, shoots used in baby and acorn baskets
Woodbalm, Pitcher Sage	*Lepechinia calycina*	Medicinal: Tea made from leaves used for treating colds

Source: Peri, David W., Scott M. Patterson, Jennie L. Goodrich. 1983. *Ethnobotanical Mitigation, Warm Springs Dam – Lake Sonoma, California*

4.7.3 Regulatory Framework

Federal

Archaeological and architectural resources (buildings and structures) are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f) and its implementing regulations, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979.

Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies (e.g., U.S. Army Corps of Engineers) to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing on the National Register of Historic Places (National Register). Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the National Register. Under the NHPA, a find is significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

a. *That are associated with events that have made a significant contribution to the broad patterns of our history, or*

b. *That are associated with the lives of persons significant in our past, or*

c. *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or*

d. *That have yielded, or may be likely to yield, information important in prehistory or history.*

Federal review of projects is normally referred to as the Section 106 process. The Section 106 process normally involves step-by-step procedures that are described in detail in the implementing regulations (36 CFR Part 800) and summarized here:

1. Establish a federal undertaking;
2. Delineate the Area of Potential Effects;
3. Identify and evaluate historic properties in consultation with the SHPO and interested parties;

4. Assess the effects of the undertaking on properties that are eligible for inclusion in the National Register;

5. Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and

6. Proceed with the project according to the conditions of the agreement.

State

National Historic Preservation Act

The State of California implements the National Historic Preservation Act (NHPA) of 1966, as amended, through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation (OHP), an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the State's jurisdiction.

Assembly Bill 52

Assembly Bill 52 (AB 52) was signed by Governor Brown on September 25, 2014, and creates a new category of environmental resources, "tribal cultural resources," to be considered under CEQA. Tribal cultural resources are defined as either:

- "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are included in the state register of historical resources or a local register of historical resources, or that are determined to be eligible for inclusion in the register; or

- Resources determined by the CEQA lead agency to be significant based on the criteria for listing in the state register.

The legislation applies to projects for which a Notice of Preparation (NOP), Notice of Mitigated Negative Declaration or Notice of Negative Declaration is filed on or after July 1, 2015[2]. It requires that lead agencies provide notice to tribes in the geographic area of a Proposed Project if they have requested to be notified. The tribe may request consultation within 30 days of receipt of the notice. This consultation may include the type of environmental review appropriate for the project, the significance of tribal cultural resources and associated impacts, alternatives and mitigation (State of California 2014). Tribes in the region were contacted in order to assess any concerns and the Water Agency is actively collaborating with tribal interests in portions of the project area on other aspects of Russian River Biological Opinion implementation (see Appendix D for contact list).California Public Resources Code and Health and Safety Code

[2] The NOP for the Fish Flow Project was filed at the State Clearinghouse on September 29, 2010.

Several sections of the California Public Resources Code (PRC) protect cultural resources. Under Section 5097.5, “a person shall not knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands.” Violation of this section is a misdemeanor. Section 5097.98 states that if Native American remains are identified within a project area, the lead agency must work with the Native Americans most likely to be descended from the deceased to develop a plan for the preferred treatment of the human remains and any associated items. These procedures are also addressed in Section 15046.5 of the CEQA Guidelines. California Health and Safety Code Section 7050.5 prohibit disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

PRC Section 5024.1[a] states that the California Register of Historic Resources (California Register) is “an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change.” PRC Section 5024.1[b]) states that the criteria for eligibility to the California Register are based on National Register criteria, and that certain resources are determined by the statute to be automatically included in the California Register, including California properties formally eligible for or listed in the National Register.

Title 14, Section 4307 of the California Code of Regulations also prohibits any person from removing, inuring, defacing or destroying any object of paleontological, archaeological or historical interest or value.

The California Register of Historic Resources

The California Register, created by State legislation in 1993, is an authoritative guide to California’s significant historical and archaeological resources to be used in identifying the existing historical resources of the state. The State Historical Resources Commission (SHRC) oversees the California Register program, which the State Office of Historic Preservation (OHP) administers. Sites listed or eligible for listing in the National Register of Historic Places, State Historical Landmarks (numbered 770 or higher), and California Points of Historical Interest are included in the California Register. Properties listed on the California Register may still be used, sold, transferred, altered or demolished as land use authority resides with local government. Listing may qualify the owner to utilize certain grants or other programs such as the Mills Act, a local property tax incentive for historic preservation (California Office of Historic Preservation, Department of Parks and Recreation 2002)

California Environmental Quality Act

CEQA, as codified in PRC Sections 21000 et seq. and implemented via the CEQA Guidelines (14 CCR § 15000 et seq.), is the principal statute governing the environmental review of

projects in the State. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility to the California Register are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally eligible for or listed in the National Register.

To be eligible for the California Register as a historical resource, a prehistoric or historic-period resource must be significant at the local, State, and/or federal level under one or more of the following criteria as identified in 14 CCR Section 4852(b):

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,

4. Has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

CEQA requires lead agencies to determine if a Proposed Project would have a significant effect on important archaeological resources, either historical resources or unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person [PRC Section 21083.2 (g)]."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

Local

Boards and Commissions

Mendocino County Archaeological Commission and the Mendocino County Archaeological Ordinance

The Mendocino County Archaeological Ordinance was adopted in 1976 to protect cultural resources in the county. The Mendocino Archaeological Commission was established under this ordinance to ensure adequate proection for archaeological sites and the cultural heritage of Mendocino County. The Archaeological Commission consists of five members appointed by the Board of Supervisors (County of Mendocino 2016).

Mendocino Historical Review Board

The purpose of Mendocino County's Historical Review Board is to preserve the architecture and character of the Historic District of the Town of Mendocino. The Mendocino Historical Review Board reviews applications for development and protects the landmark status of buildings. It consists of five members who must be electors and residents within the Historic District appointed by the Board of Supervisors (County of Mendocino 2016).

Zoning and the Sonoma County Landmarks Commission

The County of Sonoma may regulate historic resources through the use of the Historic Combining District (HD). The HD zoning requires that work requiring a building permit, such as the building of a new structure or exterior alteration of an existing structure, is subject to review by the Sonoma County Landmarks Commission (Landmarks Commission). The Landmarks Commission was established under Ordinance No. 1768 on April 23, 1974. This ordinance also determined the procedure for designating Historic Structures and Historic Districts. The Landmarks Commission includes one resident from each Supervisoral District, appointed by the Board of Supervisors and one staffmember of the County Permit & Resource Management Department. (County of Sonoma 2016)

General Plan Policies

The project area is located within Mendocino and Sonoma counties.

Mendocino County General Plan

The Mendocino County General Plan does not contain goals, policies and objectives related to cultural resources and is not discussed further.

Sonoma County General Plan 2020

The following section lists goals, policies and objectives related to cultural resources from Sonoma County General Plan 2020 and ends with a brief analysis discussing consistency with this plan.

Goal OSRC-19: Protect and preserve significant archaeological and historical sites that represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County, including Native American populations. Preserve unique or historically significant heritage or landmark trees.

Objective OSRC-19.1: Encourage the preservation and conservation of historic structures by promoting their rehabilitation or adaptation to new uses.

Objective OSRC-19.2: Encourage preservation of historic buildings or cemeteries by maintaining a Landmarks Commission to review projects which may affect historic structures or other cultural resources.

Objective OSRC-19.3: Encourage protection and preservation of archaeological and cultural resources by reviewing all development projects in archaeologically sensitive areas.

Objective OSRC-19.4: Identify and preserve heritage and landmark trees.

Objective OSRC-19.5: Encourage the identification, preservation, and protection of Native American cultural resources, sacred sites, places, features, and objects, including historic or prehistoric ruins, burials grounds, cemeteries, and ceremonial sites. Ensure appropriate treatment of Native American and other human remains discovered during a project.

Objective OSRC-19.6: Develop and employ procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources and Native American cultural resources, sacred sites, places, features, or objects.

Policy OSCR-19a: Designate the County Landmarks Commission to review projects within designated historic districts.

Policy OSCR-19b: Refer proposals for County Landmark status and rezoning to the Historic Combining District to the County Landmarks Commission.

Policy OSCR-19c: The County Landmarks Commission shall review Historic Building Surveys and make recommendations for designation of structures or cemeteries as county landmarks.

Policy OSCR-19d: Include a list of historic structures proposed for designation as County landmarks in Specific or Area Plans or Local Area Development Guidelines and refer the list to the Landmarks Commission for their recommendations.

Policy OSCR-19e: Refer applications which involve the removal, destruction or alteration of a structure or cemetery identified in a historic building survey to the Landmarks Commission for mitigation. Measures may include reuse, relocation, or photo-documentation.

Policy OSCR-19f: Use the Heritage or Landmark Tree Ordinance and the design review process to protect trees.

Policy OSCR-19g: Pursue grant funding for the preparation and updating of historic resource inventories.

Policy OSCR-19h: Designate the County Landmarks Commission to administer a preservation program for stabilization, rehabilitation, and restoration of historic structures.

Policy OSCR-19i: Develop a historic resources protection program that provides for an ongoing process of updating the inventory of historic resources. Such a program should include:

1. Periodic historic building surveys,
2. Formalized recognition of the inventory of historic resources as recommended by the State Office of Historic Preservation, including rezoning to the Historic Combining District, and
3. Procedures for the protection of recognized historic resources for both ministerial and discretionary permits.

Policy OSCR-19j: Develop an archaeological and paleontological resource protection program that provides:

1. Guidelines for land uses and development on parcels identified as containing such resources,
2. Standard project review procedures for protection of such resources when discovered during excavation and site disturbance, and
3. Educational materials for the building industry and the general public on the identification and protection of such resources.

Policy OSCR-19k: Refer applications for discretionary permits to the Northwest Information Center to determine if the project site might contain archaeological or historical resources. If a site is likely to have these resources, require a field

survey and preparation of an archaeological report containing the results of the survey and include mitigation measures if needed.

Policy OSCR-19l: If a project site is determined to contain Native American cultural resources, such as sacred sites, places, features, or objects, including historic or prehistoric ruins, burial grounds, cemeteries, and ceremonial sites, notify and offer to consult with the tribe or tribes that have been identified as having cultural ties and affiliation with that geographic area.

Policy OSCR-19m: Develop procedures for consulting with appropriate Native American tribes during the General Plan adoption and amendment process.

Policy OSCR-19n: Develop procedures for complying with the provisions of State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, if applicable, in the event of the discovery of a burial or suspected human bone. Develop procedures for consultation with the Most Likely Descendant as identified by the California Native American Heritage Commission, in the event that the remains are determined to be Native American.

Consistency

The Proposed Project is consistent with Sonoma County General Plan 2020. The project would comply with Goal OSCR-19 listed above for several reasons. First, records reviews with the NWIC were performed and other resources were consulted to determine potential cultural resources within the project area. Second, no ground-disturbing activities would result from implementation of the Proposed Project. Third, tribes in the region were contacted in order to assess any concerns and the Water Agency is actively collaborating with tribal interests in portions of the project area on other aspects of Russian River Biological Opinion implementation (see Appendix D for contact list).

4.7.4 Impact Analysis

This section describes the impact analysis relating to cultural resources for the Proposed Project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

The analysis considers direct and indirect impacts on both known cultural and paleontological resources as well as inadvertent discoveries within the project area. Potential impacts on architectural and structural resources are assessed by identifying the activities that could affect the architectural resources that have been identified as historical resources for the purposes of CEQA. While most historic buildings and many historic-period archaeological properties are generally significant because of their association with important events, people, or styles (under California Register Criteria 1, 2, and 3), the significance of most prehistoric and historic-period

archaeological properties is usually assessed under Criterion 4. This criterion stresses the potential for discovering human remains regardless of their historical or archaeological importance.

Once a resource has been identified as significant, it must be determined whether the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines 15064.5[b]). A substantial adverse change in the significance of a historical resource or unique archaeological resources means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired" (CEQA Guidelines Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the historical resource's physical characteristics that convey its historical significance and that justify its inclusion in the California Register (CEQA Guidelines Section 15064.5[b][2][A]).

Archaeological and historical investigations for the project included: a review (NWIC File No. 15-1481) of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center, Sonoma State University, Rohnert Park to identify previous surveys and previously recorded cultural resources in the project area; examination of the library and project files at Tom Origer & Associates; review of other databases, including the National Register of Historic Places, California Historical Landmarks, California Register of Historical Resources, and California Points of Historical Interest as listed in the Office of Historic Preservation's *Historic Property Directory* (OHP 2016). In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of the cultural resources reports provided in Appendix D. Paleontological investigations included a search of the University of California Museum of Paleontology collections database. This search did not identify any paleontological resources in the project area, but did identify that paleontological resources have been discovered in other areas of Sonoma County.

The Proposed Project is not subject to Senate Bill 18, which requires cities and counties to consult with California Native American tribes before amending or adopting a general plan or specific plan, or designating open space lands, or Assembly Bill 52, which applies to projects for which a NOP of environmental impact report or a notice of intent to adopt a negative declaration is issued on or after July 1, 2015. Regardless, the Water Agency understands the importance of contacting local Tribes and values their participation in the planning process. The Dry Creek Rancheria Band of Pomo Indians was contacted by Water Agency staff as well as by Tom Origer & Associates. Additionally, the Native American Heritage Commission and all Native American groups and/or individuals identified by the Native American Heritage Commission were contacted by letter regarding the project by Tom Origer & Associates. These included: Coyote Valley Band of Pomo Indians, Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, the Federated Indians of Graton Rancheria, Guideville Band of Pomo Indians, Hopland Band of Pomo Indians, Lytton Rancheria of California, Middletown Rancheria of Pomo Indians, the Mishewal-Wappo Tribe of Alexander Valley, Pinoleville Pomo Nation, and Stewarts Point Rancheria. A log of contact efforts is provided at the end of the cultural resources report included in Appendix D.

As described in Chapter 4, the Water Agency's Russian River ResSim Model was used to simulate the water supply operations of Lake Mendocino and Lake Sonoma and flow and water quality conditions at multiple locations (model junctions) along the Russian River and Dry Creek on a daily time under the Proposed Project and No Project 1 and No Project 2 alternatives. System conditions were analyzed for historical hydrology from 1910 to 2013. Please refer to Appendix G for more information on the Russian River ResSim model and its results. Reservoir water surface elevations, as simulated by the Russian River ResSim model, were then used to assess potential impacts related to cultural resources.

Significance Criteria

Based on the Appendix G of the CEQA Guidelines, project implementation would have significant impacts and environmental consequences on cultural resources if it would result in any of the following:

1. A substantial adverse change in the significance of a unique archaeological resource or historical resource that is either listed or eligible for listing on the National Register of Historic Places, the California Register of Historical Resources, or a local register of historic resources;

2. Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or

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

For the purposes of this analysis, an additional criterion is established to evaluate significant impacts associated with the Proposed Project. Project implementation would have a significant impact if it would:

4. Affect the distribution of natural vegetation communities at Lakes Mendocino and Sonoma or along the Russian River or Dry Creek, such that availability of culturally significant plants is reduced.

Issues Not Discussed Further

The impact analysis for paleontological resources is based on the paleontological potential of the rock units to be disturbed by project-related activities. Impacts to paleontological resources could occur when excavation activities inadvertently disturb or destroy unique or significant fossils; no excavation would occur as part of the Proposed Project. The Proposed Project would take place within the existing footprints of Lake Mendocino and Lake Sonoma, as well as the recently-deposited alluvial soils and river-channel deposits of the Russian River and Dry Creek. A search of the University of California Museum of Paleontology (UCMP) collections database identified that paleontological resources have been discovered in Mendocino and Sonoma counties, but not in the project area (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016). The Proposed Project is not expected to adversely affect paleontological resources, therefore this potential impact is not discussed further.

Impacts and Mitigation Measures

The following section presents a detailed discussion of potential impacts associated within cultural resources resulting from the Proposed Project. Impacts are summarized and categorized as either “less than significant,” “less than significant with mitigation,” or “significant and unavoidable.”

Impact 4.7-1: Implementation of the Proposed Project could disturb any human remains or cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource. (No Impact)

Cultural resources would be vulnerable to damage during earth-moving, construction, and demolition activities. While the cultural resources study for the Proposed Project determined that there are 262 cultural resources located within one-eighth mile of the project area (see Figure 4.7-1), the Proposed Project does not include ground-disturbing activities such as excavation, grading, or construction of new facilities or modification or demolition of existing structures, therefore no impact to cultural resources is anticipated at Lakes Mendocino and Sonoma or along the Russian River and Dry Creek as a result of earth-moving, construction, or demolition activities.

Lake Mendocino and Lake Sonoma

Cultural resources would also be vulnerable to damage by inundation of areas not previously subject to inundation (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016); however, because the range of water surface elevations in all project area locations at Lake Mendocino and Lake Sonoma would remain within reservoir’s operational levels, no new areas would be inundated as a result of the Proposed Project and no impact is anticipated. Figures 4.7-2 and 4.7-3 depict maximum water surface elevations at Lake Mendocino and Lake Sonoma under Baseline Conditions, the No Project 1 and No Project 2 alternatives, and Proposed Project. Therefore, there would be no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource from new inundation.

Figure 4.7-2. Maximum Modeled Monthly Water Surface Elevations at Lake Mendocino Under Baseline, No Project 1, No Project 2, and Proposed Project Conditions[3]

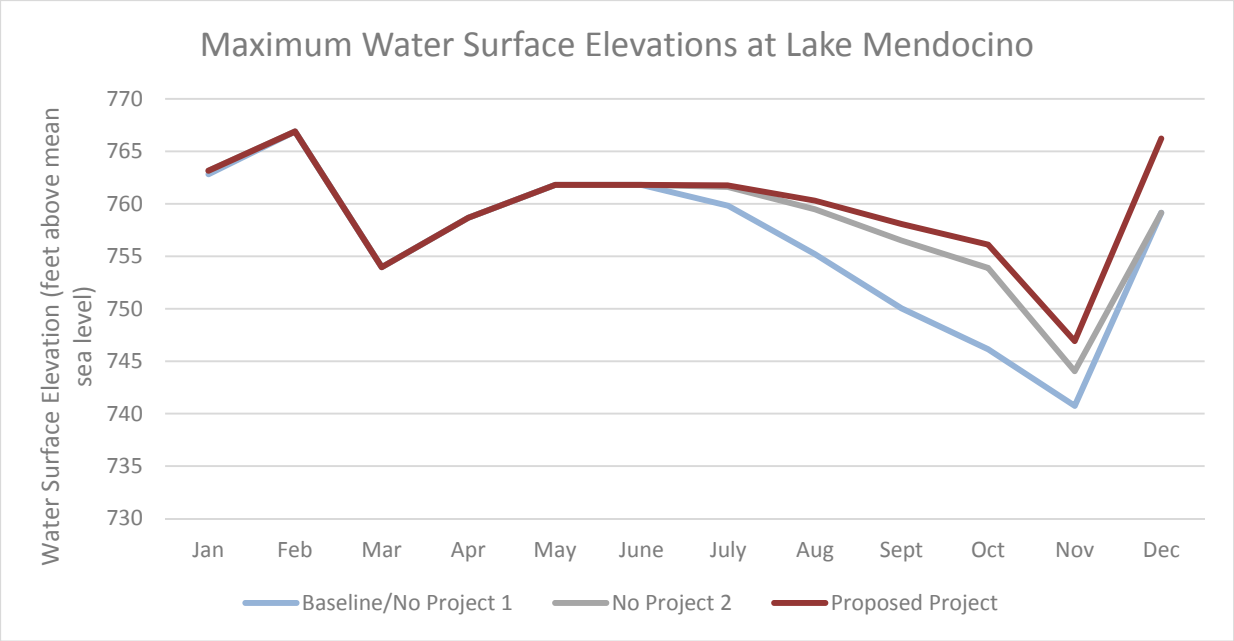
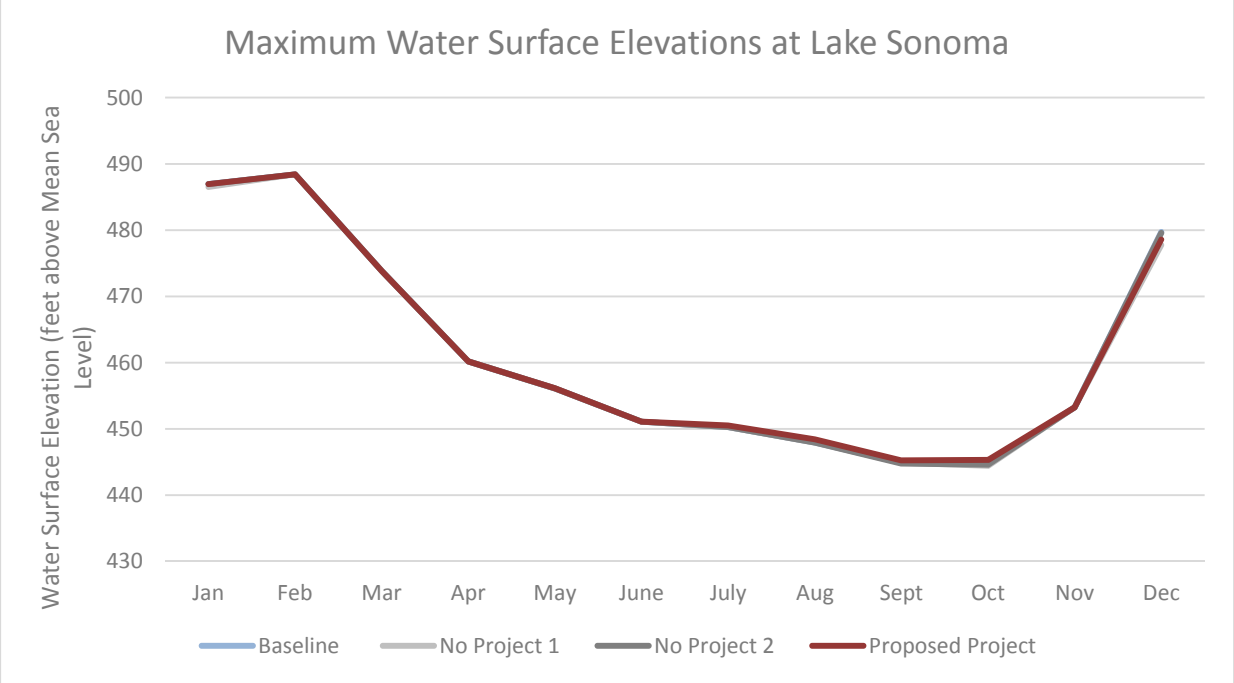


Figure 4.7-3. Maximum Modeled Monthly Water Surface Elevations at Lake Sonoma Under Baseline, No Project 1, No Project 2, and Proposed Project Conditions



[3] Baseline and No Project 1 Alternative maximum water surface elevations were identical and therefore overlapped completely. The series were combined in Figure 4.9-2 in order to avoid confusion.

Cultural resources could also be vulnerable to damage by erosional forces from an increase in fluctuations of water surface elevations (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016). Water surface elevations vary greatly at Lake Mendocino and Lake Sonoma during the year. Median water surface elevations at these reservoirs are depicted in Figures 4.7-4 and 4.7-5 below. At Lake Mendocino, annual fluctuations in water surface elevation would be identical to Baseline Conditions under the No Project 1 Alternative, reduced by 31 percent under the No Project 2 Alternative, and reduced by 54 percent under Proposed Project conditions. At Lake Sonoma, fluctuation would increase by 10 percent under the No Project 1 Alternative, by 5 percent under the No Project 2 Alternative, and by 3 percent under the Proposed Project. Water surface elevation fluctuation is greatly reduced at Lake Mendocino and nearly identical to Baseline Conditions at Lake Sonoma. No impact is anticipated to cultural resources at Lake Mendocino or Lake Sonoma because fluctuation would either be greatly reduced or similar to Baseline Conditions under the Proposed Project. Additionally, water surface elevations projected to occur at Lake Sonoma would be within the Baseline range of lake levels and would not result in erosional forces impacting areas previously excluded from such forces, thus no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource is anticipated at Lake Mendocino or Lake Sonoma due to fluctuations in water surface elevations.

Cultural resources could also be vulnerable to damage by erosional forces from a change in location of erosional forces on the shorelines of Lake Mendocino and Lake Sonoma (Barrow, An Archival Study for the Fish Habitat Flows and Water Rights Project Mendocino and Sonoma Counties, California 2016). The cultural resources study performed for the Proposed Project determined that no known cultural resources would be located in areas that would experience more frequent wave action due to changes in the median monthly water surface elevations under the No Project 1 and No Project 2 alternatives, or the Proposed Project, thus no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource is anticipated at Lake Mendocino or Lake Sonoma due to changes in median monthly water surface elevations.

Figure 4.7-4. Median Monthly Water Surface Elevation at Lake Mendocino under Baseline, No Project 1, No Project 2, and Proposed Project Conditions

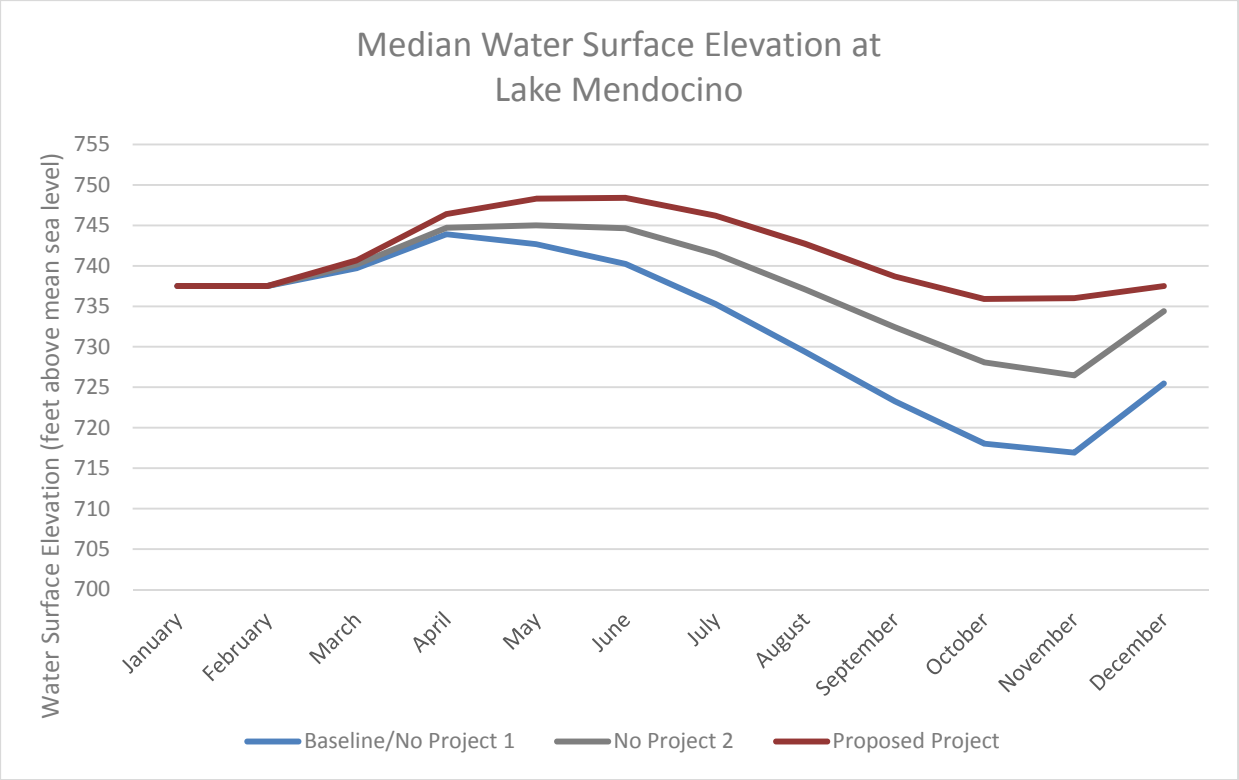
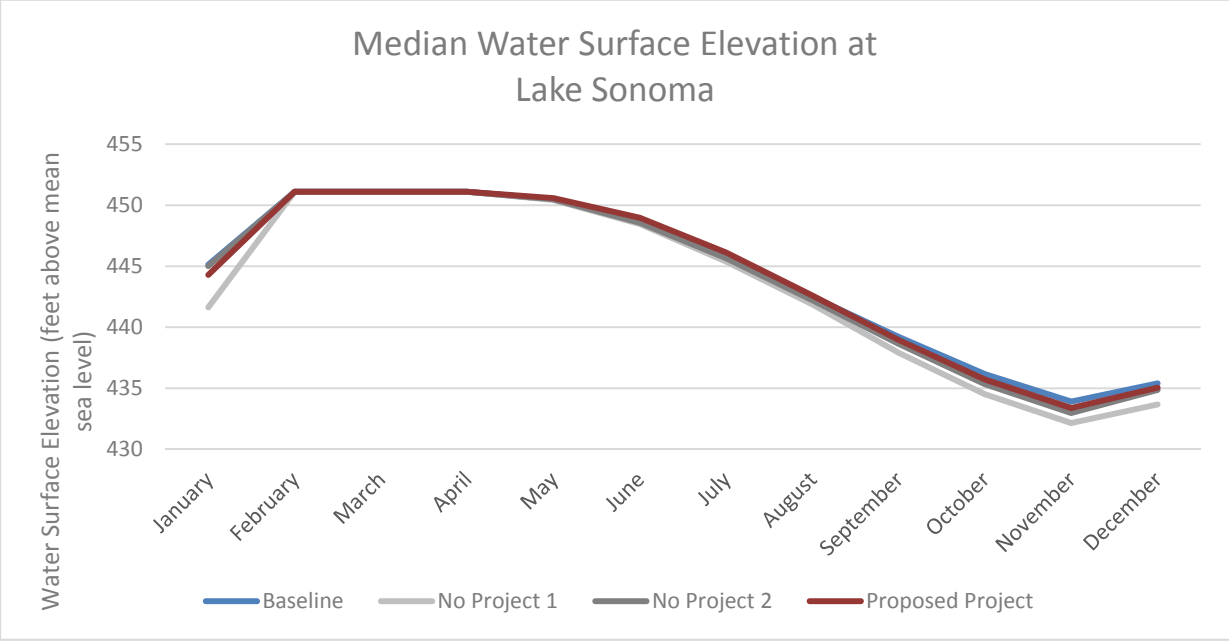


Figure 4.7-5. Median Monthly Water Surface Elevation at Lake Sonoma under Baseline, No Project 1, No Project 2, and Proposed Project Conditions



Russian River and Dry Creek

As discussed in Chapter 4.1, Hydrology, maximum water surface elevations within the Russian River and Dry Creek under the Proposed Project and No Project 1 and No Project 2 alternatives would remain similar to those under Baseline Conditions. Therefore, there would be no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource from new inundation.

Median monthly stage, or depth above river bed, of the Russian River and Dry Creek are depicted in Figures 4.7-6 through 4.7-8 below. Along the Russian River, median monthly stage at Hopland would be identical to Baseline Conditions under the No Project 1 Alternative, slightly reduced under the No Project 2 Alternative, and reduced below Baseline Conditions during much of the spring and summer under Proposed Project. The greatest reduction from Baseline Conditions occurs at Hopland during May and June when the median monthly water surface would likely be 5.1 inches below Baseline under the No Project 2 Alternative and 6.9 inches below Baseline under the Proposed Project. At Hacienda Bridge, in the Forestville area, median monthly stage would be lower than Baseline from approximately May through October for all alternatives. The greatest reduction from Baseline Conditions occurs in June and July when the median monthly water surface would likely be 2.3 inches below Baseline under the No Project 1 Alternative, 6.8 inches below Baseline under the No Project 2 Alternative, and 10.5 inches below Baseline under Proposed Project. However, these conditions are similar to flows that already occur along the Russian River under Baseline Conditions, therefore, no new areas would be subject to erosion and no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource along the Russian River are anticipated due to changes in water surface elevation fluctuation.

Figure 4.7-6. Median Monthly Stage of the Russian River at Hopland under Baseline, No Project 1, No Project 2, and Proposed Project Conditions

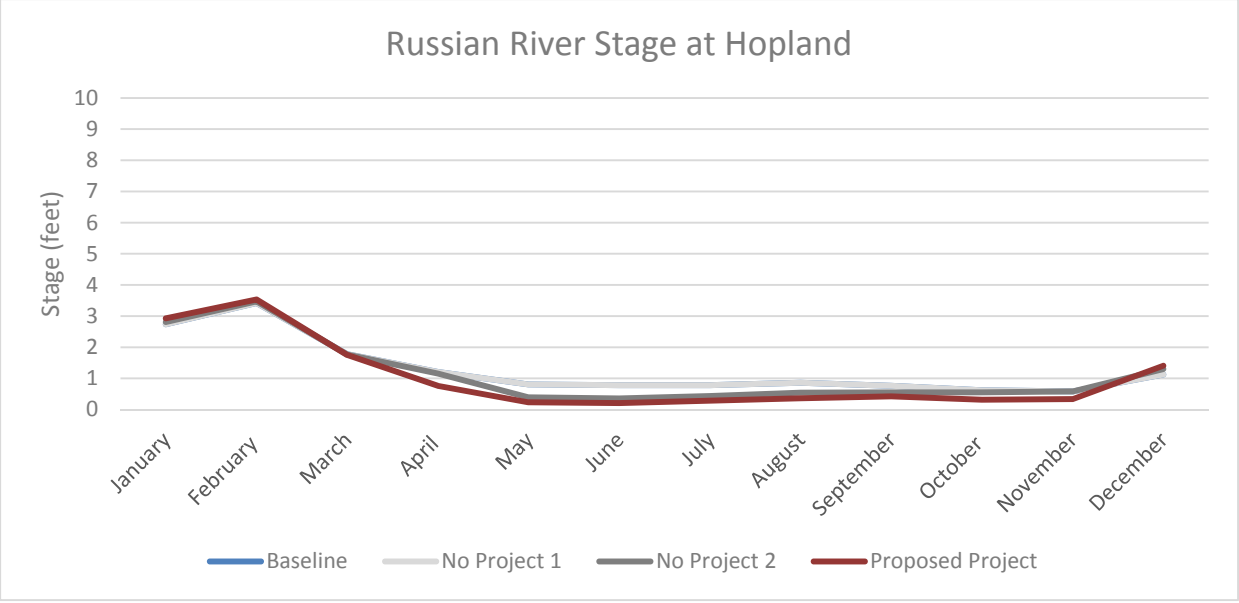
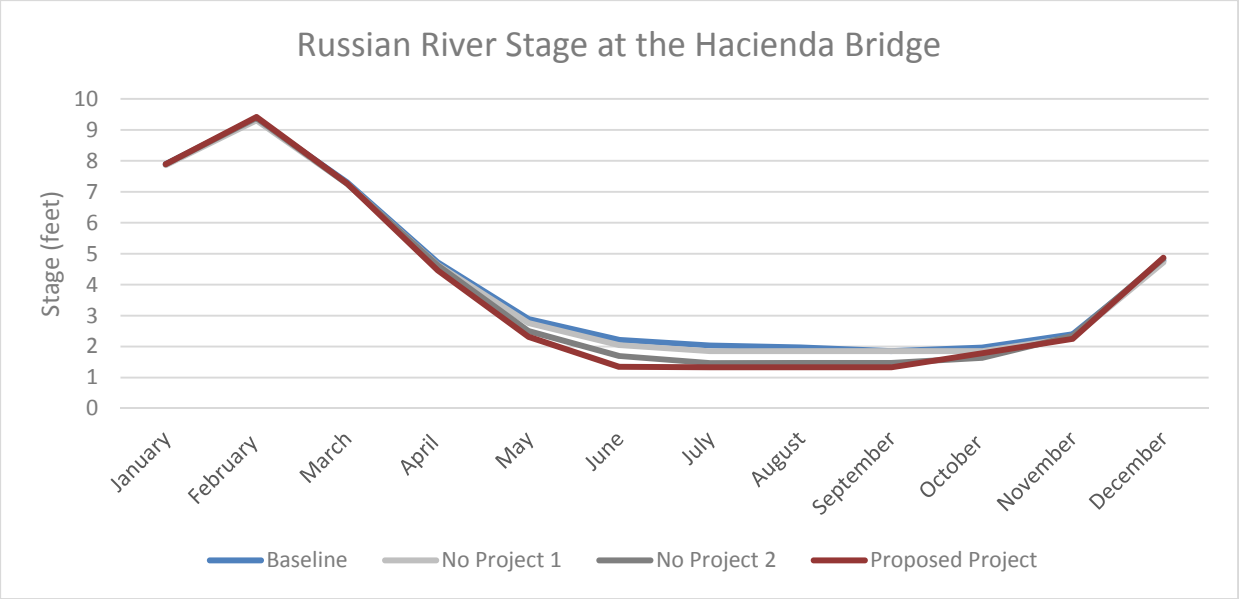
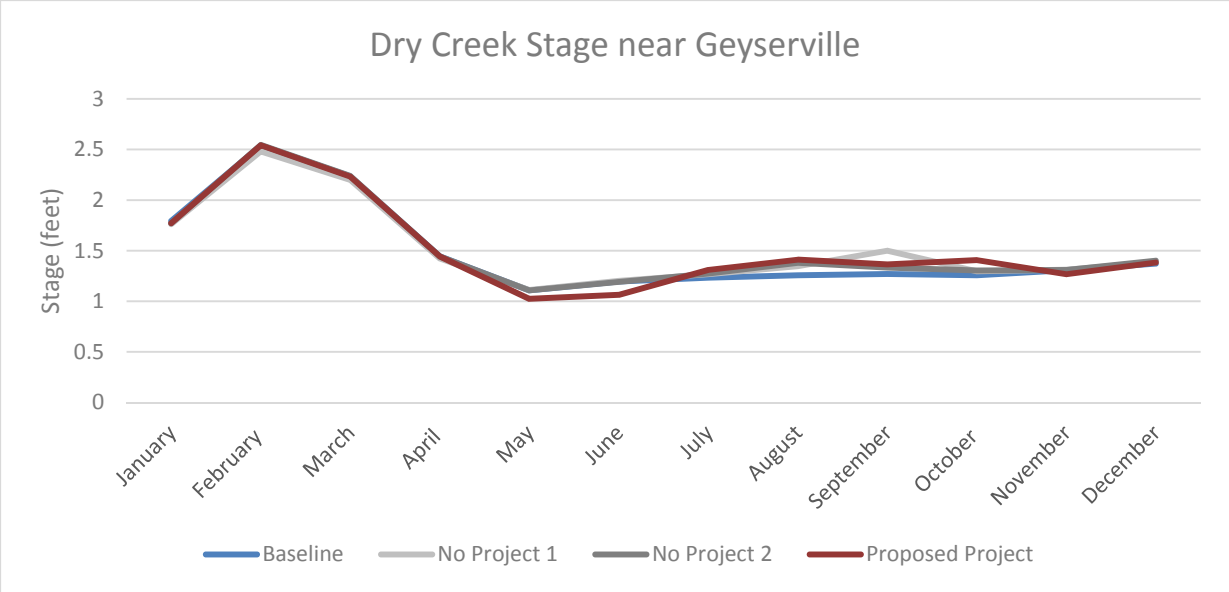


Figure 4.7-7. Median Monthly Stage of the Russian River at Hacienda Bridge, near Forestville, under Baseline, No Project 1, No Project 2, and Proposed Project Conditions



In Dry Creek, the median monthly stage would be fairly similar to Baseline Conditions under the No Project 1, No Project 2, and Proposed Project alternatives. Stage in Dry Creek near Geyserville would be very similar to Baseline Conditions under the No Project 1 Alternative with the exception of increases in stage by up to 2.8 inches in September. Stage under No Project 2 Alternative would also be similar to Baseline, although stage would increase by up to 1.5 inches in late summer. Stage under the Proposed Project would be similar to Baseline Conditions November through April, approximately 1.0 and 1.6 inches lower in May and June, respectively, and up to 1.9 inches higher in late summer and fall. These differences in median monthly stage are well within the Baseline range of elevations and, therefore, would not expose new areas to erosion, therefore no impact to any human remains or a change in the significance of a unique archaeological resource or a historical resource along Dry Creek are anticipated due to changes in water surface elevation fluctuation.

Figure 4.7-8. Median Monthly Stage of Dry Creek, near Geyserville, under Baseline, No Project 1, No Project 2, and Proposed Project Conditions



Because no ground-disturbing activities, construction, or demolition would result from project implementation and because no new areas would be inundated or exposed to new wave action or erosional forces, no impacts to human remains, unique archaeological resources, or historical resources are anticipated along the Russian River or Dry Creek.

Impact 4.7-2: Implementation of the Proposed Project could impact the distribution of natural vegetation communities along the Russian River or Dry Creek, such that availability of culturally significant plants is reduced. (No Impact)

Lake Mendocino and Lake Sonoma

As described in Chapter 4.4, Vegetation and Wildlife, vegetation along the shores of Lake Mendocino and Lake Sonoma has been determined by seasonal fluctuations in reservoir elevation that occur under Baseline Conditions. The maximum water surface elevation at each of these reservoirs would remain the same as Baseline Conditions under the Proposed Project as well as the No Project 1 and No Project 2 alternatives. The maximum water surface elevation determines the transition location from upper shoreline to upland vegetation. Annual plant species may seasonally colonize exposed shoreline areas. Because there would be no change in maximum water surface elevation, upland vegetation beyond the shoreline is not anticipated to change and there would be no impact to culturally significant plants.

Russian River and Dry Creek

As described in Chapter 4.4, Vegetation and Wildlife, plant communities would not change significantly from Baseline Conditions under the Proposed Project or No Project 1 and No Project 2 alternatives. Riparian vegetation along the banks of the Russian River and Dry Creek are deep rooted, receive water from shallow groundwater, and are expected to be unaffected by slight changes in stage height or wetted width. Freshwater marsh communities that typically

occur along these waterways may have gradual or slight shifts toward wetter shoreline areas compared to Baseline Conditions. Vegetation in the active stream channel is anticipated to be similar to Baseline Conditions under the Proposed Project as well as No Project 1 and No Project 2 alternatives. In the Estuary, because the plants species present are adapted to dynamic conditions and because the range of inundation would not change from Baseline under the Proposed Project or No Project 1 and No Project 2 alternatives, no impact to estuary vegetation is anticipated.

The ethnobotanical preserve located on Dry Creek downstream of Lake Sonoma would be vulnerable to impacts if the flows in Dry Creek were reduced enough to impact the health of the preserve's focal species, basket sedge (*Carex barbarae*), which was planted as mitigation for the construction of Warm Springs Dam. As discussed for Impact 4.7-1 and depicted in Figure 4.7-8 above, however, the stage at the closest USGS gage in Dry Creek at Yoakim Bridge would remain similar to Baseline Conditions under No Project 1, No Project 2, and Proposed Project alternatives. While stage information is not available for the exact location of ethnobotanical preserve, it is reasonable to assume that change in stage among alternatives at its location would be similar to change in stage at the USGS gage approximately 2.5 miles downstream.

Within the ethnobotanical preserve, basket sedge is present at a range of elevations from the edge of the creek to several feet upslope, indicating that basket sedge can exist within a range of locations relative to a water source. This species is known for being hearty and resistant to impact from either drought or flood (Stevens October 2004). Therefore, a periodic drop in instream flow by a few inches is not anticipated to impact the basket sedge within the ethnobotanical preserve on Dry Creek and no impact is anticipated to culturally significant plants.

4.7.5 References

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