

Chapter 4.5 Recreation

4.5.1 Introduction

This chapter describes the existing recreational resources conditions within the area of the Proposed Project. Section 4.5.2, “Environmental Setting” describes the major recreation activities that occur within the project area. Section 4.5.3, “Regulatory Framework” details the federal, state, and local laws related to recreation. Potential impacts to recreation resulting from the Proposed Project are analyzed in Section 4.5.4, “Impact Analysis” in accordance with the California Environmental Quality Act (CEQA) significance criteria (CEQA Guidelines, Appendix G) and includes mitigation measures that could reduce, eliminate, or avoid such impacts as appropriate.

Other impacts to recreation-related resources are addressed in other chapters as follows: impacts to visual quality are addressed in Chapter 4.9, “Aesthetics;” fisheries-related impacts are discussed in Chapter 4.3, “Fisheries Resources;” impacts to Hydrology are discussed in Chapter 4.1, “Hydrology;” impacts to water quality are discussed in Chapter 4.2 “Water Quality”; and impacts related to vegetation are addressed in Chapter 4.4, “Vegetation and Wildlife.”

4.5.2 Environmental Setting

Regional Setting

The Russian River area of Sonoma and Mendocino counties is a popular vacation destination and draws visitors from all over the world. Recreational opportunities for locals and visitors range from outdoor pursuits such as canoeing or bike riding to a relaxing weekend at a bed and breakfast or spa. Outdoor recreational opportunities include sightseeing, camping, hiking, fishing, golfing, and canoeing on the Russian River. For the outdoor enthusiast, camping facilities are available in settings ranging from coastal environments to redwood groves. Numerous city, county, and state parks offer activities ranging from hiking and bike riding to picnicking. Many parks offer facilities for participation in team sports such as softball and soccer. The Russian River, Lake Mendocino, and Lake Sonoma are focal points for many recreational opportunities such as sailing, motor boating, canoeing, kayaking, swimming, fishing, camping, bird watching, and others. The Russian River area is world-renowned for the wines produced from its vineyards and wine tasting offered by local wineries is popular with local citizens and visitors alike.

Project Area Setting

The following section describes the Proposed Project area’s recreational resources along the Russian River. The project area for the Fish Flow Project includes Lake Mendocino, Lake Sonoma, Dry Creek, and the Russian River from Lake Mendocino to the confluence with the Pacific Ocean. Recreational opportunities within the project area range from energy intensive activities, like canoeing and mountain biking, to more passive pursuits, such as bird watching or sunbathing and swimming. There are a variety of recreational areas in the Russian River

watershed that are managed by various federal, state, and local agencies. In addition, the Russian River, which is not managed by any single entity, is used extensively for recreation. The Lake Mendocino and Lake Sonoma Recreation Areas, which are managed by the U.S. Army Corps of Engineers (USACE), and the Russian River area are the primary recreational areas that would be affected by the Proposed Project.

Lake Mendocino

The Lake Mendocino Recreation Area offers a variety of recreational activities, including boating, water skiing, swimming, camping, fishing, hunting, picnicking, mountain biking, horseback riding, and sightseeing. Lake Mendocino recreation facilities are open year round; however, the summer months of June through August are the most popular months for boating activities on the reservoir.

Lake Mendocino offers four large day-use areas with covered picnic shelters and barbeques (Figure 4.5-1). Lake Mendocino provides boating, swimming, water skiing, and fishing opportunities. Fishing for large and small mouth bass, striped bass, crappie, blue gill and catfish are popular sport fish at Lake Mendocino. There is a 700-acre wilderness area where native wildlife can be viewed on the east side of the reservoir, which is accessible by boat or by driving or walking down Inlet Road.

Camping at Lake Mendocino is available at Kyen Campground, Bushay Recreation Area, and Chekaka Recreation Area. Kyen Campground offers 102 campsites, Bushay Recreation Area offers over 100 campsites, and Chekaka Recreation Area offers 17 campsites. There are approximately 15 miles of trails around Lake Mendocino that are accessible to mountain bikers and hikers. Horseback riders are allowed on designated trails.

Lake Mendocino provides 1,750 surface acres of water that are accessible by canoe, sailboat, motorboats, or other water vessels. Boat launching is provided at public boat ramps located at the northern end of Lake Mendocino off of Marina Drive (North Boat Ramp) and at the southern end of Lake Mendocino near Coyote Valley Dam (South Boat Ramp). Many of the recreation facilities are built at or slightly above 748 feet mean sea level (msl). Historically, the USACE considered 748 feet msl to be optimal for recreation. This WSE provided the largest wetted area without inundating recreation sites. However, late in the recreation season WSE would often be so low that it would affect recreation. Recently the USACE have allowed the Water Agency to store water in Lake Mendocino up to 761.8 feet msl during the summer months. This has benefited recreation because WSE remains higher later into the recreation season than when operating the lake to a maximum summer level of 748 feet (Dillabough and Miller 2016).

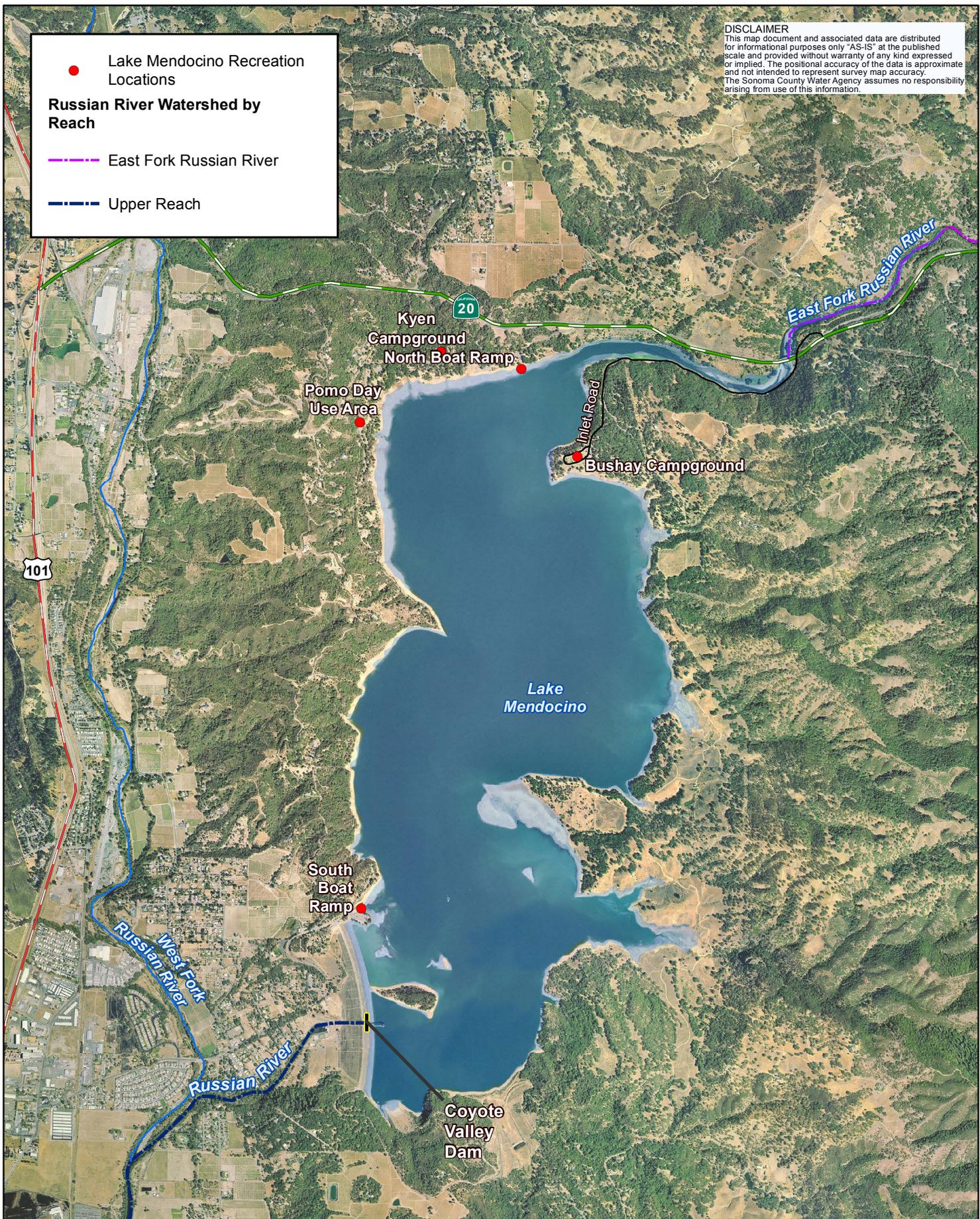
DISCLAIMER
 This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

● Lake Mendocino Recreation Locations

Russian River Watershed by Reach

— East Fork Russian River

— Upper Reach



Fish Habitat Flows and Water Rights Project
Lake Mendocino Recreation Locations

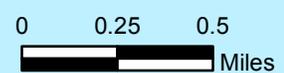


Figure 4.5-1

Lake Sonoma

The Lake Sonoma Recreation Area offers a variety of recreational activities, including boating, water skiing, swimming, camping, fishing, hunting, picnicking, hiking, horseback riding, mountain biking, and sightseeing. Lake Sonoma extends 9 miles up Dry Creek and 4 miles up Warm Springs Creek and is accessible by canoe, sailboat, motorboats, or other water vessels. Water skiing is allowed in designated areas of Lake Sonoma. Boat launching is provided at the public boat ramp near the west end of Warm Springs Bridge, and car-top boat launching is provided at the Yorty Creek Recreation Area off Hot Springs Road. A privately-operated marina located off Stewarts Point Road offers a boat launch ramp, boat slips, boat rentals, picnic sites, day use areas and other services (Figure 4.5-2).

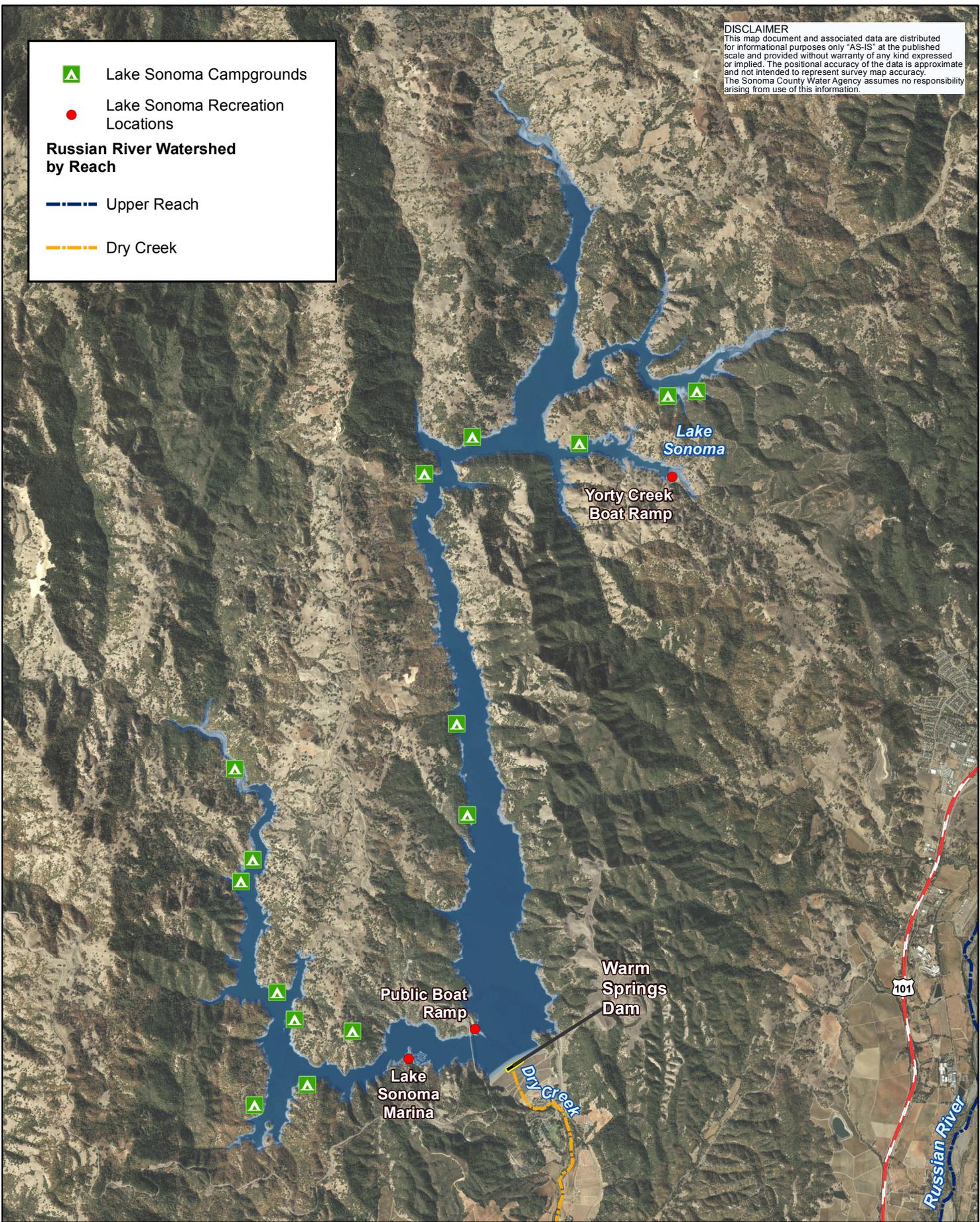
Camping at Lake Sonoma is available at primitive boat-in campgrounds or in the developed Liberty Glen campground. Nine of these sites are also accessible via hiking and equestrian trails. The Liberty Glen Campground contains 96 campsites for recreational vehicles and tent campers (USACE n.d.a). Picnic sites are located throughout the park for day-use, with group picnic areas available by reservation near the park headquarters. Additional picnic areas are located in the Yorty Creek Recreation Area.

There are approximately 40 miles of trails around Lake Sonoma that are accessible to horseback riders and hikers. Mountain bikes are allowed on designated trails.

Fishing is enjoyed year-round at Lake Sonoma. Lake Sonoma primarily supports a warm-water fishery (primarily for largemouth bass, redear sunfish, and channel catfish); although a limited cold-water fishery is available in the winter for rainbow trout. Hunting in the park is limited to special hunts for feral pig, deer, and wild turkey, which are held during the hunting seasons specified by the California Department of Fish and Wildlife (USACE n.d.b).

DISCLAIMER
 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.

 Lake Sonoma Campgrounds
 Lake Sonoma Recreation Locations
Russian River Watershed by Reach
 Upper Reach
 Dry Creek



Fish Habitat Flows and Water Rights Project
Lake Sonoma Recreation Locations



Figure
4.5-2

Russian River and Vicinity

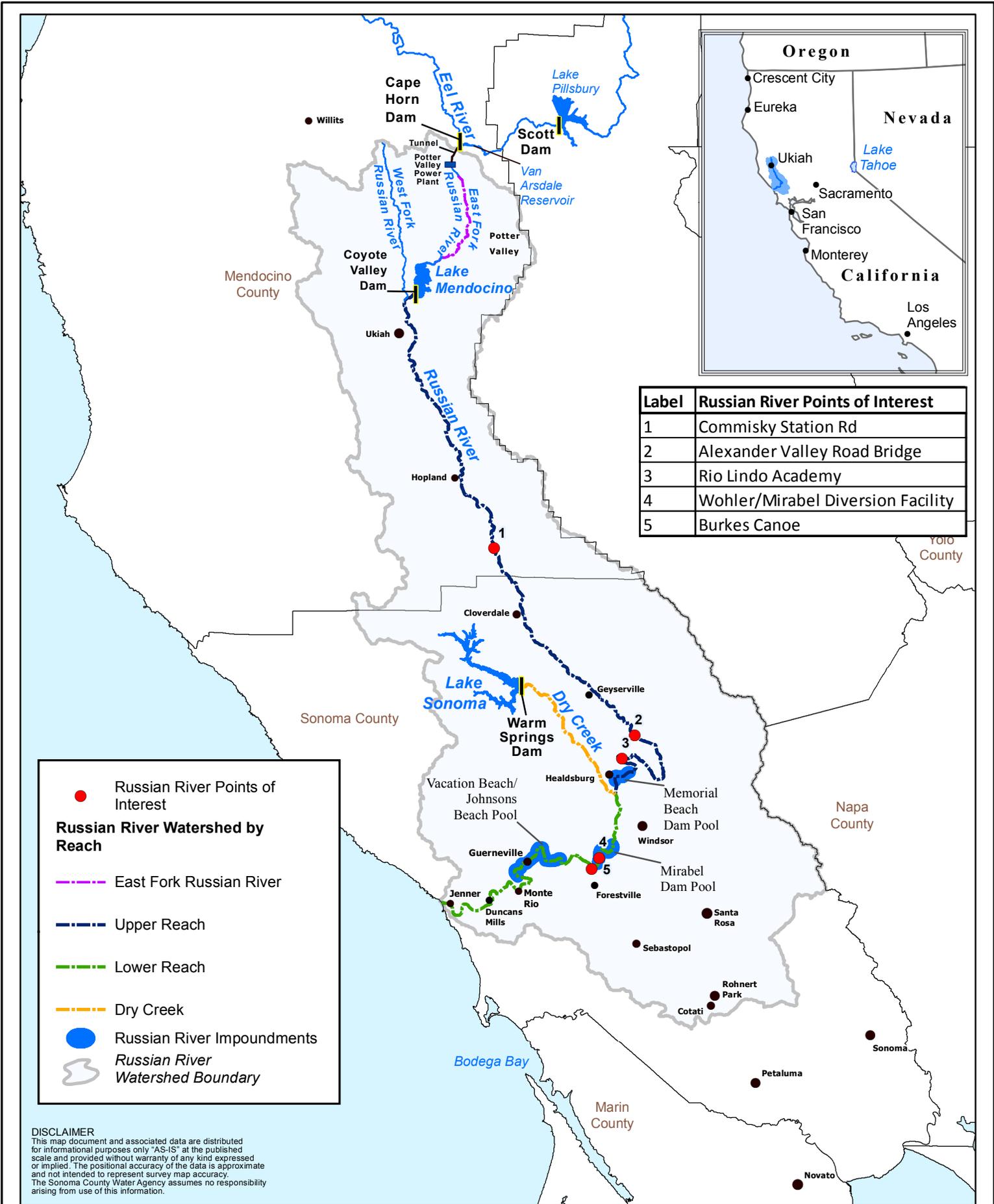
The Russian River provides a variety of recreational opportunities nearly year-round (Figure 4.5-3). It is used heavily at points throughout its length for a variety of water-related recreational activities, ranging from passive uses, such as sunbathing, to more active pursuits, such as wading and swimming, sport fishing, and boating. The Russian River provides habitat for a variety of native and introduced sport fish, hatchery steelhead, smallmouth bass, striped bass, catfish, bluegill, and American shad. Wild steelhead are protected under the Endangered Species Act, and no fishing is allowed for wild stocks of this species, although it is legal to fish for hatchery-reared steelhead. Anglers typically target steelhead from October through April (CDFG 2007) and warm water species such as bluegill, striped bass, smallmouth bass, and catfish from May through September when these fish are more active due to higher summer water temperatures. Adult shad are in the Russian River from April through August (see Chapter 4.3, Fisheries Resources) and can be targeted by anglers. Recent changes in fishing regulations for October 1 through April 30 closes the Russian River to all fishing when instream flow at the USGS stream gage near Guerneville (USGS gage number 1146700) is below 300 cfs (CDFW 2016). In addition to fishing, the riparian areas along the Russian River provide for other recreational pursuits, such as bird watching, wildlife observation, photography, and hiking. Local residents have traditionally used the river bordering and just upstream of the Water Agency's existing Wohler facilities for sunbathing and Russian River access, although this use is neither authorized nor promoted.

Summertime canoe trips are possible primarily due to the controlled releases from Lake Mendocino and Lake Sonoma to meet minimum instream flow requirements in the Russian River throughout the summer. During the recreational season the section of the Russian River from the confluence of Dry Creek to Wohler in the Lower Russian River¹ often has higher instream flows than the sections of river both up and down stream. This is because reservoir releases from Lake Sonoma increase instream flows in this section of river, but this increased amount of water is mostly diverted by the Water Agency at its diversion facilities at Wohler and Mirabel for before reaching the sections Lower Russian River downstream of Mirabel.

Upper Russian River

The Upper Russian River extends from the confluence of the East Fork Russian River and mainstem to its confluence with Dry Creek. This section of river is popular with swimmers and sun bathers especially between Pieta and Cloverdale where there are multiple public access points. Canoeing and kayaking is popular at the downstream end of this reach near Healdsburg.

¹ The Lower Russian River is the section of the Russian River that extends from the mouth of Dry Creek to the Pacific Ocean.



Label	Russian River Points of Interest
1	Commisky Station Rd
2	Alexander Valley Road Bridge
3	Rio Lindo Academy
4	Wohler/Mirabel Diversion Facility
5	Burkes Canoe

Russian River Points of Interest

Russian River Watershed by Reach

- Russian River Points of Interest
- East Fork Russian River
- Upper Reach
- Lower Reach
- Dry Creek
- Russian River Impoundments
- Russian River Watershed Boundary

DISCLAIMER
 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.



**Fish Habitat Flows and Water Rights Project
 Recreational Locations of Interest
 Along the Russian River**



**Figure
 4.5-3**

Publicly Accessible River Beaches in the Upper Russian River

Vichy Springs is a 2.7 acre river access point located on the Russian River under the Perkins Street overpass. It is intended for day use and fishing access (County of Mendocino 2016). Cloverdale River Park and Healdsburg Veterans Memorial Beach Park are county parks in the Upper Russian River that provide access to the river. Cloverdale River Park offers river access, boat launching facilities, sunbathing, swimming and fishing, horseback riding, biking, birding and hiking opportunities (Sonoma County 2016a). Healdsburg Veterans Memorial Beach has beach access, picnicking areas, swimming, kayaking, and canoeing opportunities (Sonoma County 2016b). In addition to these county parks, Badger Park located in Healdsburg is a municipal park operated by the City of Healdsburg and provides limited swimming access to the Russian River.

There are two privately-owned camp grounds that provide access to the Upper Russian River for either customers or club members. These camp grounds are NACO West Campground in Cloverdale and Alexander Valley Campground in Healdsburg. These camp grounds are both located adjacent to the river and provide many river related recreational opportunities.

The public may also access the Upper Russian River at a number of locations along public roadways. These areas are primarily located in the Upper Russian River between Hopland and Cloverdale. Based on Google Earth imagery there are 12 areas off of Highway 101 between Hopland and Cloverdale, two areas off of Cominsky Station Road, and 8 areas off Geysers Road that the public park and access the river. These areas consist of gravel turn outs where one or more cars can be parked and trails from these turnouts that people have used to access the Russian River.

A residential community is located off Fitch Mountain road near Healdsburg and uses a nearby beach that can only be accessed through private property. While this beach is only accessible to local community members it still receives heavy use.

Boating Sections of the Upper Russian River

Canoeing and kayaking are popular recreational activities along the Russian River. It is possible to boat the entire length of the Russian River from Coyote Valley Dam to the Pacific Ocean, however the section of river from Coyote Valley Dam to Asti receives significantly less boat traffic when compared to the sections of the Russian River from Asti to the Pacific Ocean. There are several commercial canoe and kayak trips offered in the Upper Russian River. These trips require a shuttle service and allow boaters to travel long sections of the river. Shuttled trips include the sections of the Russian River from Alexander Valley Road to Diggers Bend (11 miles), Diggers Bend to Healdsburg (5 miles) (Rivers Edge n.d.). Customers can arrange to have shuttles run on other sections of the Upper Russian River, but these sections are less commonly used when compared to the previously mentioned sections of the Upper Russian River.

A seasonal dam at Healdsburg increase the depth of water in the river and affects boating. The Healdsburg Memorial Beach consists of a 16.5 foot concrete structure that accepts wooden flashboards (NMFS 2008). This dam is typically erected to 7 feet and historically has been between 6 and 10 feet tall (Johnson 2016). The Healdsburg Memorial dam impounds water for

approximately 2 miles (based on Light Detection and Ranging (LiDAR) data). This dam is permitted to be installed on June 15, or later and be removed by October 1 (NMFS 2008). When this dam is in place water surface elevation immediately upstream of the dam increases until water spills over the dam. Water surface elevation immediately upstream of the dam is set by the height of the dam and depths in the inundated section of stream remain relatively unchanged when instream flow is reduced as long as surface flow remains connected. As a result boating (and swimming) conditions within the impounded section of the river remain relatively unchanged when instream flow is reduced.

Lower Russian River

The Lower Russian River extends from the confluence with Dry Creek to Duncans Mills. This section of river is heavily used for recreation. Sunbathing and swimming are popular in the Lower Russian River. The Lower Russian River is also a very popular canoeing and kayaking destination.

Publicly Accessible River Beaches of the Lower Russian River

The most popular swimming and sunbathing areas are between Forestville and Monte Rio where there are many public access points. Six county parks are located along the Lower Russian River: Riverfront Regional Park, Wohler Bridge, Steelhead Beach, Forestville River Access, Sunset Beach, and Guerneville River Park. Riverfront Regional Park is owned by the Water Agency and is operated for recreational use by the Sonoma County Regional Parks Department. The Sonoma County Agricultural Preservation and Open Space District holds a conservation easement on the property that restricts certain activities. Riverfront Park covers approximately 305 acres of a former pit gravel mining operation. The main features of the park are three lakes (reclaimed gravel extraction pits) and access to the Russian River. The park provides opportunities for angling (in the abandoned gravel mining ponds and the Russian River), hiking, picnicking, horseback riding, bicycling, and access to the Russian River for river-related activities. Wohler Bridge is open to the public from October 1 through May 15. This location is good for birding and fishing. Users can pay for a key that allows them to open a locked gate and access the river and launch small boats (Sonoma County 2016c). Commercial canoe and kayak companies use this location as a downstream take out during the summer. Steelhead Beach Regional Park offers picnicking, sunbathing, swimming, and fishing. The park also provides excellent access to the river for canoeing, and kayaking. Forestville River Access is an access site operated by the Sonoma County Regional Parks, which provides beach access, swimming, birding, and fishing opportunities. Sunset Beach River Park provides picnic facilities, kayak and canoeing opportunities as well as beach access, swimming, birding, and fishing opportunities. There are plans to develop a small craft boat launch facility at Guerneville River Park, but currently this park only offers views of the Russian River and picnicking facilities, as well as hiking, and birding opportunities (Sonoma County 2016d).

There are five municipal parks located on the Lower Russian River that provide river access. Vacation Beach in Guerneville is operated by Russian River Recreation and Parks District and provides swimming and boat launching access. Cozy Cove River Access is also operated by Russian River Recreation and Parks District and is open June 15 through October 1. Small boat launching and swimming access occur at this park. The Russian River Recreation and Park

District is also responsible for the summer dams at Vacation Beach and Johnson's Beach (Russian River Recreation and Parks Districts 2013). Monte Rio Recreation and Parks District operates Monte Rio Beach, Sandy Beach, and Dutch Bill Beach. Monte Rio Beach is located on the east side of Monte Rio Bridge. This beach is popular with swimmers and sunbathers. Canoes and kayaks can be rented at Monte Rio Beach. On the west side of Monte Rio Bridge is Sandy Beach, which is also popular with swimmers and sunbathers. A boat ramp provides launching opportunities for small boats. Dutch Bill Beach is a small beach on the south bank of the Russian River west of Monte Rio Bridge. This beach is also popular with swimmers and sunbathers (Monte Rio Recreation and Parks District 2016).

There are 4 privately-owned access points that provide access to the Russian River for either customers or in some cases club members. These access points include: Mirabel Park Campground in Forestville; Hilton Park Family Campground; Johnson's Beach in Guerneville; and Cassini Ranch Campground in Duncans Mills. Access may be limited to members only. However some of these private access points provide access to paying customers.

The public also accesses the Lower Russian River at a number of locations along public roadways. Some of these access points are located near road crossings of the Russian River, such as near Summer Crossing Road near Guerneville. Others locations are accessed from roadways such as River Road that run adjacent to the Russian River.

There are several local or private communities that provide limited access to the river through their properties to community members. These areas include locations off Summer Home Park near Guerneville, Odd Fellows Recreation Club, an area off Northern Avenue near Guerneville, and Patterson Point Preserve in Villa Grande. While access is generally limited to low impact use by community members some of these areas still receive heavy use.

Boating Sections of the Lower Russian River

Canoeing and kayaking are popular recreational activities along the Lower Russian River. Popular Lower Russian River canoe runs originate in Healdsburg and Forestville and continue downstream to Wohler, Guerneville, Monte Rio or other Lower Russian River destinations. There are several commercial canoe and kayak trips that require a shuttle on the Lower Russian River and allow boaters to travel long sections of the river. Shuttled trips include the sections of the Lower Russian River from Healdsburg to Wohler (9 miles), Steelhead Beach to Guerneville (10 miles), Vacation Beach to Duncans Mills (6 miles), Monte Rio or Duncans Mills to the coast (7-10 miles), Willow Creek to Jenner (2-4 miles) (Russian River Adventures n.d.) (Burke's Canoe 2016) (Water Treks n.d.). Customers can arrange to have shuttles run on other sections of the river, but these sections are less commonly used when compared to the previously mentioned sections of the Lower Russian River.

During the recreation season the section of the Russian River from the mouth of Dry Creek to the Water Agency's diversion facilities near Forestville often has higher instream flows than the sections of river upstream (Healdsburg to Dry Creek) and downstream (the Water Agency's diversion facilities to the Pacific Ocean). This is because releases made from Lake Sonoma to meet Dry Creek minimum instream flow requirements and water supply demands enter the Russian River at the confluence with Dry Creek. This water from Lake Sonoma combines with

water in the Russian River (which was released from Lake Mendocino in the Upper Russian River). These higher flows travel downstream to the Water Agency's diversion facilities where some of this water is diverted from the river. For more information on water supply and river instream flows see Chapter 4.1, "Hydrology."

Paddle craft can be rented at Johnson's Beach, Monte Rio, Cassini Ranch, and at Jenner for more localized out-and-back trips (Johnsons Beach n.d.), (Monte Rio Recreation and Parks District 2016). Due to the necessity of paddling against the current for a portion of the trip, out-and-back kayak trips typically cover a shorter distance than trips that require a shuttle.

Power boaters operate their watercraft on the Russian River. Power boating is generally limited to the Lower Russian River, particularly where larger boats can be launched at public boat ramps (Jenner, Monte Rio, and Johnson's Beach), and where water depth is suitable to allow for the operation of power boats. Power boating is most popular upstream of the Johnson's Beach summer recreational dam where the impoundment creates depths that are favorable for power boats.

There are three recreational and one municipal seasonal impoundments on the Lower Russian River that influence water depth and boating on the river immediately upstream of the impoundments. Recreational impoundments in the Lower Russian River include the Johnson's Beach dam and the Vacation Beach dam. The municipal dam is the Mirabel inflatable dam, which is operated by the Water Agency and is located near Forestville. The Vacation Beach dam consists of an 8 foot tall concrete structure that accepts flashboards. This dam impounds water to Johnson's Beach Dam, which is located approximately 2 miles upstream. The Johnson's Beach Dam consists of an 8 foot tall concrete structure that accepts flashboards. When this dam is erected the top of the dam is 6 feet tall with a 40 foot wide spillway notch that is one foot below the top of the dam (Condon 2016). Collectively the Vacation Beach and Johnson's Beach dams impound approximately 6.5 miles of the Lower Russian River (based on LiDAR data). The Mirabel inflatable dam increases the depth of the river approximately 3 miles upstream. The recreational dams are permitted to be installed on June 15, or later and be removed by October 1 (NMFS 2008). The Mirabel inflatable dam is inflated when flows are low enough to safely operate the dam (typically below 500 cfs) and deflated during the fall when water demands decline and flow in the river approaches 2,000 cfs. When these dams are in place water surface elevation immediately upstream of the dam increases until water spills over the dam. Water surface elevation at these dams are set by the height of the dams and depths in the inundated section of stream remain relatively unchanged when flow is reduced as long as flows are high enough for surface flow to remain connected. As a result boating (and swimming) conditions within the impounded section of the river remain relatively unchanged when flow is reduced.

Estuary

The Russian River Estuary extends from the mouth of Austin Creek near the town of Duncans Mills to the Pacific Ocean. The downstream portion of the Estuary is heavily influenced by the marine environment. The water in the downstream portion of the Estuary is often mainly comprised of cold sea water. The lower Estuary is also exposed to strong coastal winds.

Sunbathing and swimming occur primarily in the upstream end of the Estuary where the water is warmer. This section of river is a popular canoe and kayaking destination.

Publicly Accessible River Beaches

There are three state parks facilities located within the Sonoma Coast State Park that provide public access to the Estuary. Willow Creek State Park is located south of the Russian River near the town of Jenner and provides river access and camping opportunities. Small boats can be hand launched at this park off of Willow Creek Road. A campground provides 11 walk-in camp sites along the Russian River at the Willow Creek Environmental Camp. The Jenner boat ramp provides river access for larger boats as well as canoes and kayaks. Access to the mouth of the Russian River is possible through Goat Rock State Beach (California State Parks 2016).

Duncans Mills Camping Club is a privately-owned campground located in the Russian River Estuary that provides river access for their customers and club members. The Sportsman's Club is also located in Duncans Mills and provides river access for club members.

Boating Sections of the Russian River Estuary

Commercial canoe and kayak trips that require a shuttle are offered in the Russian River Estuary and allow boaters to travel long sections of the river. Shuttled trips in the Estuary include Monte Rio or Duncans Mills to the coast (7-10 miles) and Willow Creek to Jenner (2-4 miles) (Water Treks n.d.). Customers can arrange to have shuttles run on other sections of the Estuary, but these shuttled trips are less commonly used when compared to the previously mentioned sections of the Russian River Estuary.

Kayaks can be rented for more localized out-and-back trips in the Russian River Estuary. Paddle craft can be rented in Jenner (Water Treks n.d.). Duncans Mills Camping Club has complementary canoes and kayaks available for their guests (Duncans Mills Camping Club 2015). Due to the necessity of paddling against the current for a portion of the trip, out-and-back kayak trips typically cover a shorter distance than trips that require a shuttle. However, this is not always the case in the Russian River Estuary when the river mouth is open. Careful planning of Estuary kayaking trips can allow for boaters to travel one direction with the incoming tide and return to their entry point with the outgoing tide, thereby avoiding paddling against the current and extending the range of the kayak trip. This allows some paddlers to cover a distance similar to a shuttle trip without relying on a shuttle.

Dry Creek

Conditions in Dry Creek differ significantly from the Russian River and affect the level of recreation that occurs in Dry Creek. During the recreation season, water flowing in Dry Creek is released from deep within Lake Sonoma. This water is cold when compared to the mainstem Russian River. Relative to the size of the channel flow is high, and water velocity is swift in Dry Creek under Baseline Conditions. Because water temperatures are cold, velocity is swift, and access is limited relatively little recreation occurs in Dry Creek.

Dry Creek is almost entirely in private ownership and unlike the Russian River there are no known public access points for recreation. The USACE has a municipal-style park at the base of Warm Springs Dam, but fencing excludes access to Dry Creek. Fishing in Dry Creek is not

permitted, based on California Fish and Wildlife regulations. There are no commercial canoe or kayak trips offered in Dry Creek and recreational boating and swimming is uncommon due to difficult navigational conditions. Dry Creek provides recreational opportunities to people who own, live and work on properties adjacent to the creek. Recreational activities on Dry Creek are mostly limited to private access for picnicking, boating, swimming, and sunbathing.

4.5.3 Regulatory Framework

Local

Mendocino County General Plan

Part of the Proposed Project are located within the jurisdiction of the Mendocino County General Plan (Mendocino County 2009). The Mendocino County General Plan is discussed further in Section 4.5.5.

Sonoma County General Plan 2020

Parts of the Proposed Project are located within the jurisdiction of the Sonoma County General Plan 2020 (PRMD 2013). The Sonoma County General Plan is discussed further in Section 4.5.5.

4.5.4 Impact Analysis

This section describes the impact analysis relating to recreation 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 potentially significant impacts accompany each impact discussion, where applicable.

Methodology

The analysis includes direct and indirect impacts on recreation within the Proposed Project area. Potential impacts to recreation from the Proposed Project were considered significant if the project resulted in any of the changes or conditions identified in "Significance Criteria." Since recreation occurs primarily from June through September, a seasonal component to potential impacts to recreation is considered. However, impacts to recreation during the year as a whole (October through September) are often presented as well.

As described in Chapter 4, the Water Agency's Russian River ResSim Model was used to simulate water surface elevations (WSE) in Lake Mendocino and Lake Sonoma, and instream flows and river stage in the Russian River and Dry Creek under the Proposed Project and No Project 1 and No Project 2 alternatives. For this analysis these data are reported as percent occurrence of the 104-year model simulation (percent occurrence). Percent occurrence refers to the frequency that a WSE, a flow, or river stage would occur during the 104-year model simulation. Please refer to Appendix G, for more information on the Russian River ResSim Model and its results. Reservoir water surface elevations and instream flow changes, as

simulated by the Russian River ResSim Model, were then used to assess potential impacts to recreation.

Lake Mendocino

The water surface elevations related to potential impacts to recreation at Lake Mendocino are (based on LiDAR data, (Schooley 2016) and (National Recreation Reservation Service 2014)):

- Below 722 feet msl, the runout channel leading from the South Boat Ramp to the main portion of Lake Mendocino becomes too shallow to operate boats, and the USACE close the boat ramp for safety reasons although it may be possible for lightweight vessels to be carried over land and launched.
- At 750 feet msl the parking lot at the South Boat Ramp begins to be inundated. About half of the lower parking lot is inundated at a WSE of 755 feet msl and the entire lower parking lot is inundated at 760 feet msl.
- Below 728 feet msl, the North Boat Ramp is closed by USACE for safety reasons although lightweight vessels may be carried over land and hand launched
- At 748 feet msl the lower parking lot at the North Boat Ramp begins to be inundated
- Above 750 feet msl, Inlet Road, which is the public road that provides access to the east side of Lake Mendocino, including Bushay campground, floods
- At 755 feet msl sites 74 through 103 in the Kyen Campground are flooded
- At 750 feet the Pomo Day Use Area on the west side of Lake Mendocino begins to be inundated.

The Russian River ResSim model results were used to estimate how often reservoir levels would reach certain crucial water surface elevations. Both high and low WSE could impact recreation sites at Lake Mendocino, although the effects of low WSE are more severe as access to the lake becomes restricted. Boat launching is provided at public boat ramps located at the northern end of Lake Mendocino off of Marina Drive (North Boat Ramp) and at the southern end of Lake Mendocino near Coyote Valley Dam (South Boat Ramp). High water surface elevations could inundate some low-lying recreation sites, but many recreation sites would remain unaffected and the boat ramps would remain operational. Low WSE can cause both boat ramps to become unusable and effectively block all, but small hand-launched boats from accessing the reservoir. The USACE closes both boat ramps at Lake Mendocino when WSE are too low to safely use the boat ramps. As a result the use of day use areas and campgrounds can decrease when the boat ramps are closed.

The USACE closes the North Boat Ramp for safety reasons when water surface elevations are below 728 feet msl (Schooley 2016) and during that time, only the South Boat Ramp is open for boaters to launch their boats. When WSE are below 722 feet, the USACE closes the South Boat Ramp because the run out channel becomes too shallow to operate a power boat. At a WSE of below 722 feet msl water craft access to the lake is limited to small boats that can be launched by hand. For many people there is little incentive to camp at Lake Mendocino once WSEs are below 722 feet msl and larger water craft cannot be launched at the lake (Schooley 2016).

A few recreational facilities are built within the maximum pool of Lake Mendocino (764.8 feet msl). High WSE can inundate low-lying parking lots, access roads, day use areas and campground sites. However, when these recreational areas are inundated the North and South boat ramps continue to operate and many other recreational areas that continue to attract visitors to Lake Mendocino remain above water.

High water surface elevation can inundate some parking spots at the North Boat Ramp, which can reduce parking opportunities; however, additional parking nearby is available to accommodate boaters. The lower parking lot at the North Boat Ramp begins to become inundated at a WSE above 748 feet msl. The North Boat Ramp contains parking for approximately 141 vehicles. The lower parking lot at the North Boat Ramp accommodates approximately 55 vehicles, with approximately 45 of these parking spots oriented so that a vehicle towing a trailer could park by occupying two spots. When the lower parking lot is inundated, parking at the North Boat Ramp is reduced by approximately 40 percent. However, additional parking areas are available near the North Boat Ramp that do not become inundated. Nearby parking opportunities include a dirt parking lot near Highway 20, approximately 0.25 mile from the North Boat Ramp that could accommodate 25 vehicles, and 23 parking spots off Marina Drive near Kyen Campground, which is 0.33 mile from the North Boat Ramp. Parking is also available at the 102 camp sites at the Kyen Campground for registered campers.

High water surface elevations can inundate the parking lot at the South Boat Ramp. At an elevation of 750 feet msl the parking lot for the South Boat Ramp begins to become inundated. At 755 feet msl approximately half of the South Boat Ramp parking is inundated and at 760 feet msl the entire South Boat Ramp parking lot is inundated. The parking lot at the South Boat Ramp contains 66 parking spots most of which could accommodate a vehicle towing a trailer. There are three parking lots within a 0.25 mile of the South Boat Ramp that would not become inundated and could accommodate approximately 90 vehicles; however, most of these parking spots may not be able to accommodate a vehicle and a trailer and visitors would most likely need to detach the boat trailer and park in separate parking spots.

In addition to affecting parking at the boat ramps, high WSE affects the use of the Pomo Day Use Area, the Kyen Campground, and the Bushay Recreational Area. The Pomo Day Use Area has three picnic shelters that can accommodate about 50 people as well as other picnic tables, and a Pomo Cultural Center that offers displays of Pomo hunting, dancing, and basketry. The picnic areas are located along the reservoir shoreline and would begin to become inundated at 750 feet msl. A portion of the Kyen Campground is located on the south side of Marina Drive and along the lake shore. At 755 feet msl sites 74 through 103 in the Kyen Campground are flooded (National Recreation Reservation Service 2014). However, there are 73 campsites that would not be inundated by high WSE. Above 750 feet msl, Inlet Road, which is the public road that provides access to the east side of Lake Mendocino, including Bushay Campground, floods and limits vehicle and pedestrian access to the Bushay Recreation Area, including the Bushay Campground. At high WSE, visitors could still access the 100 camp sites at the Bushay Campground via boat.

In summary, both low and high water surface elevations affect recreation at Lake Mendocino, but the effects from low WSE can create reduced access to Lake Mendocino’s recreation opportunities. When water surface elevations are below 722 feet msl the boat ramps are closed and only small hand launched boats can access the lake (Figure 4.5-4). When water surface elevations are above 748 feet msl all of the recreation areas are functioning; however use of the parking lots at the boat ramps, day use areas, an access road, and campsites that were built within the maximum pool, are limited. The boat ramps continue to function at high WSE and many other recreational sites including campgrounds are not inundated by high WSE

When evaluating minimum instream flow alternatives, the analysis focuses on the connection between low WSE, optimal WSE, and high WSE. Both high and low water surface elevations can affect recreation at Lake Mendocino (Figure 4.5-4). At low WSE the boat ramps become unavailable and impacts to boating occur. High WSE can inundate some parking areas, campsites, and roads, however the boat ramps are functioning during these times and there are no impacts to boating. Optimal WSE is when all recreational facilities and areas are functioning (Figure 4.5-4).

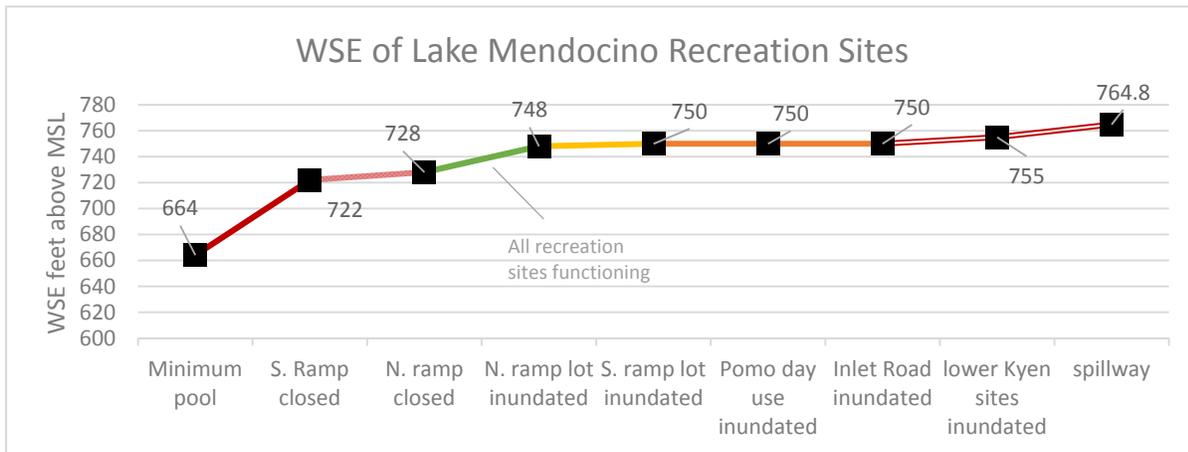


Figure 4.5-4. The water surface elevations (WSE) at which recreation sites in Lake Mendocino become inundated and the consequence of these water surface elevations. These data points are color coded to match Figure 4.5-6.

Lake Sonoma

The water surface elevations related to potential impacts to recreation at Lake Sonoma are (Bramlett 1994), (SCWA 1984), (Dillabough and Miller 2016):

- 458 feet inundates the lowest campground;
- 451 feet msl is the top of the water supply pool;
- Below 416 feet msl, the paved portion of Yorty Creek Boat Ramp becomes disconnected from the lake;
- Below 360 feet msl, use of the Lake Sonoma Marina boat ramp becomes limited; and
- Below 320 feet msl, the Lake Sonoma public boat ramp is unusable.

The analysis focuses on the connection between low WSE, optimal WSE, and high WSE. In Lake Sonoma high water surface elevations are not expected to impact recreation. Only low water surface elevations would affect recreation at Lake Sonoma. High WSE typically does not impact recreation at Lake Sonoma as the facilities are built above the water supply pool elevation of 451 feet msl. Therefore, the range for optimal WSE is much larger and begins at 416 feet msl and extends to 458 feet msl (Figure 4.5-5). The campgrounds at Lake Sonoma range in elevation from 458 feet msl to 1,038 feet msl (based on ILiDAR data). At 416 feet msl Yorty Creek boat ramp becomes disconnected from the lake. However small boats are still allowed to be launched at the Yorty Creek boat launch by carrying them over land to the lake. Boat trailers are not allowed on Hot Springs Road which is the only road that access Yorty Creek boat ramp. At 416 feet msl, there are still two functioning boat ramps available to visitors to access the lake.

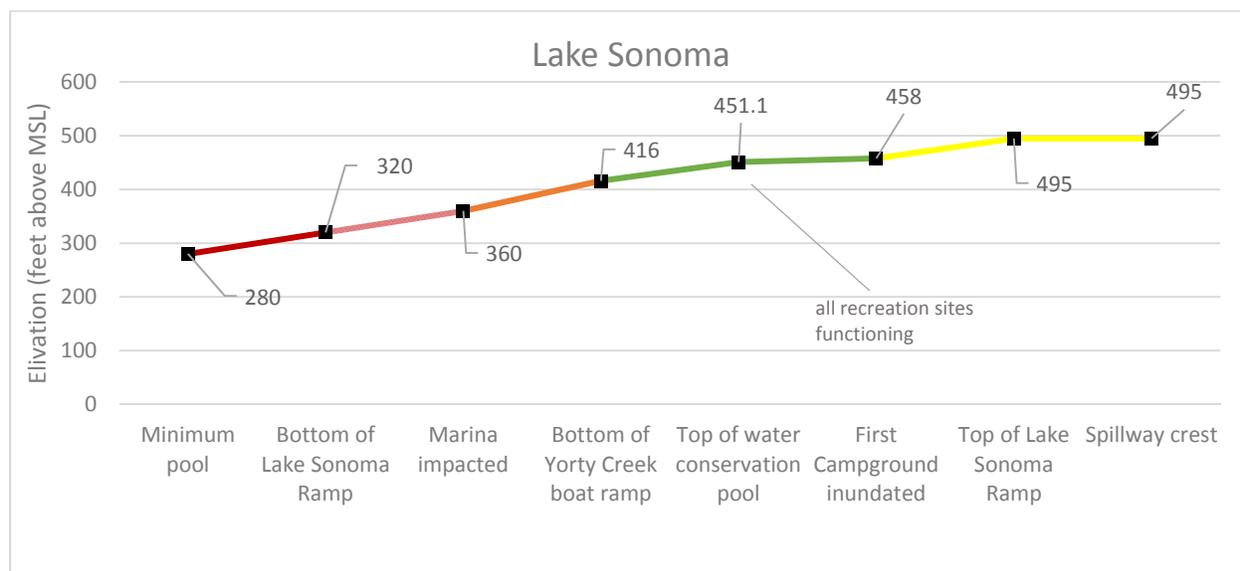


Figure 4.5-5: The elevations (feet msl) at which recreation sites in Lake Sonoma are located and the consequence of these water surface elevations. These data points are color coded to match Figure 4.5-7.

Mainstem Russian River

Based on the 2009 Russian River Recreation Assessment (SCWA 2009) and the 2016-2017 California Freshwater Fishing Regulations (CDFW 2016) flows that affect recreation in the mainstem Russian River are as follows:

- A flow of 70 cfs when measured at Healdsburg is sufficient for the section of the Russian River from Rio Lindo Academy to the confluence of Dry Creek (SCWA 2009).
- A flow of 180 cfs at the Russian River downstream of the confluence of the Dry Creek provides sufficient depth for boating from the mouth of Dry Creek to Wohler (SCWA 2009).
- A flow of 80 cfs provides sufficient depth for boating from Wohler to the mouth of the Russian River (SCWA 2009).
- A flow of less than 300 cfs from October 1 through April 30 would cause the Russian River to be closed to fishing according to the California Freshwater Fishing Regulations (CDFW 2016).

2009 Russian River Recreation Assessment

In 2009, the State Water Resources Control Board approved a Temporary Urgency Change Petition filed by the Water Agency requesting temporary reductions to the Russian River minimum instream flow requirements. The Temporary Urgency Change Petition was filed to prevent depletion of storage in Lake Mendocino by allowing for Dry year flow conditions in the Russian River. The minimum instream flows in the Russian River under the Temporary Urgency Change Order were allowed from July 1, 2009, to October 2, 2009, to be reduced to as low as 25 cubic feet per second (cfs) in the Upper Russian River (from the confluence with the East Fork Russian River to its confluence with Dry Creek) and down to 35 cfs in the Lower Russian River (from its confluence with Dry Creek to the Pacific Ocean). In comparison, under Normal water supply conditions, minimum instream flows in these reaches at the same time of the year range from 150 to 185 cfs for the Upper Russian River and 125 cfs for the Lower Russian River (SWRCB 2009).

Under the 2009 Temporary Urgency Change Order, the Water Agency was required by the State Water Resources Control Board to undertake a variety of fisheries, water temperature, and water quality monitoring tasks to assess potential impacts that could occur as a result of implementing the order. An assessment of impacts to recreation activities in the Russian River was not a condition of the order; however, the Water Agency recognized that the Russian River is heavily utilized as a recreation resource and that there was a need to assess how lower minimum instream flows under the order may impact the ability of people to utilize the Russian River for recreational activities. On June 9, 2009, the Water Agency met with representatives from different parks districts as well as representatives from recreation companies and advocates groups. During the meeting the Water Agency presented the methods to be used to assess the effects of flows on recreation. The study reach was expanded to incorporate areas of concern that were brought representatives from the parks districts, recreation companies and advocates groups. The Water Agency provided the dates, locations, and times that the 2009 Russian River Recreation Assessment would be conducted so that representatives from the

parks districts, recreation companies and advocates groups could participate in the assessment. The 2009 Russian River Recreation Assessment is Appendix C.

Water Agency staff traveled 4 sections of river to compare water depth changes between the higher Russian River minimum instream flows required by the Water Agency's water right permits (as approved in 1986 by Decision 1610) in June 2009 with the lower minimum instream flows that occurred under the order between July and October 2009 (SCWA 2009), (Table 5.4-1). These sections of river were:

- Rio Linda to Healdsburg Memorial Beach (4.85 river miles)
- Healdsburg Memorial Beach to Wohler (8 river miles)
- Wohler to Johnson's Beach, Guerneville (9.30 river miles)
- Johnson's Beach, Guerneville to Casini Ranch (8 river miles)

Water Agency staff boated the above sections of river and used the following methods in order to track changes in depth associated with the implementation of TUCO minimum instream flows:

- Measured first 3 riffles encountered shallow enough to cause issues with boating
 - Longitudinal measurement (20 depth measurements taken with a stadia rod along the thalweg²)
 - Photograph taken of the longitudinal transect
 - Cross-sectional measurements
 - Cross-sectional Measurements taken at 25 percent, 50 percent and 75 percent of the distance from the upstream to downstream end of the riffle
 - Each cross-sectional transect was marked with surveyors flagging
 - Photos were taken at each cross-sectional transect
 - Depth measurements were taken every 3 feet along each transect and recorded to the nearest 1/10 of a foot
- A handheld GPS was used to recorded location of each of these riffles
- If time allowed additional riffles were measured following the above protocols

² Thalweg is the deepest part of the stream channel that would cross a series of consecutive cross-sections of a stream at their deepest points

Table 4.5-1. Survey reaches for the 2009 Russian River Recreation Assessment shown with observed instream flow from USGS stream gages located near the survey reach. Observed instream flow for the first survey which occurred in June before the Temporary Urgency Change Order (TUCO) went into effect and in July and October after the TUCO went into effect. Flows are shown in cubic feet per second (cfs).

Survey Reach	Gage	June observed flows (cfs)	July/October observed flows (cfs)
Rio Linda to Healdsburg Memorial Beach	Healdsburg (11464000)	154	69
Healdsburg Memorial Beach to Wohler	Healdsburg (11464000)	142	69
	Mouth of Dry Creek (11465350)	80	81
	Healdsburg (11464000) + Dry Creek (11465350)	222	177
Wohler to Guerneville	Guerneville (11467000)	176	81
Guerneville to Casini	Guerneville (11467000)	172	78

Water Agency staff measured 10 riffles before TUCO minimum instream flows went into effect. These riffles were revisited after TUCO minimum instream flows went into effect. Longitudinal profiles and cross-section transect measurements were taken at each riffle of the 10 riffles. Water Agency staff noted a measurable drop in average water depths of 3 to 5 inches in the shallow riffle areas along the Russian River in the study area after the TUCO flows went in to effect. However, when looking at the overall cross-section measurements there was generally sufficient depth at most of the riffle areas to maneuver a canoe or kayak (SCWA 2009). The US Fish and Wildlife Service recommend depths of 0.5 feet as a minimum for canoeing (USFWS 1978). All longitudinal profiles measured for the 2009 Russian River Recreation assessment had depths equal to or greater than 0.5 feet. All cross-sectional transects measured for the 2009 Russian River Recreation Assessment had sections, with depths equal to or greater than 0.5 feet which were wide enough for a canoe to navigate.

During the 2009 recreation Assessment Water Agency staff noted that the Russian River has numerous deep pools and runs that are separated by short riffle areas and that these pools and runs were relatively unaffected by the change in instream flows observed during the assessment. Because these pools and runs are relatively deep (several feet) a decrease of a few inches of depth from a boating perspective, essentially had no effects to deep pools and runs (SCWA 2009).

Seasonal impoundments (summer dams) appeared to affect boating opportunities more than the instream flow changes experienced during the data collection for the 2009 Russian River Recreation Assessment. These summer dams set the water elevation for the pool that backs up behind the dam, and as long as water is still flowing over the dam, the pool area available for boating remains relatively unchanged under different instream flows. A more noticeable impact to boating opportunities occurred when there was a change in the summer impoundments. In the Rio Lindo to Healdsburg Memorial Beach reach, the Healdsburg Memorial Beach Summer Dam was not in place when Water Agency staff floated this reach during the higher June instream flows. Water depths in June in the lower portion of this reach were much lower than

later in the summer when instream flows were decreased but the summer dam was in place. In addition, the area below Vacation Beach was similarly affected by the formation of a barrier beach at the river mouth (SCWA 2009).

Using observations and measurements taken during the 2009 Russian River Recreation Assessment the following observed instream flows provide enough depth to operate canoes and kayaks in the Russian River between Rio Lindo Academy and Duncans Mills.

- An instream flow of 70 cfs measured at the USGS gage at Healdsburg was sufficient to provide enough depth to operate canoes and kayaks between Rio Lindo Academy and the mouth of Dry Creek.
- An instream flow of 180 cfs at Windsor was sufficient to provide enough depth to operate canoes and kayaks between Rio Lindo Academy and the mouth of Dry Creek.
- For the section of river from Wohler to Duncans Mills an instream flow of 80 cfs when measured at the USGS stream gage (11467000) at Hacienda is sufficient to provide enough depth to operate canoes and kayaks. It is likely that a flow of 80 cfs when measured at the USGS stream gage (11467000) at Hacienda is also sufficient to provide enough depth to operate canoes and kayaks in the Russian River Estuary as the channel shape of the river is similar in this section of river.

An instream flow of 180 cfs at Windsor is due to the combination of flows from the Upper Russian River and from Dry Creek. These instream flows are higher than flows measured upstream of the confluence of Dry Creek because of water released from Lake Mendocino and Lake Sonoma combine in this section of the river. The Water Agency's Wohler and Mirabel diversion facilities are located in this section of the river and can divert up to 180 cfs divert to meet municipal demands (see Chapter 4.1, "Hydrology" for more information on the Water Agency's diversion and reservoir releases). As a result of diversions at Wohler and Mirabel, observed instream flows below the Water Agency's diversion facilities in July and October were approximately 80 cfs during the 2009 Russian River Recreation Assessment. It is likely that an instream flow of less than 180 cfs would provide depths sufficient depths to operate a canoe or kayak through this section of river. However, the 2009 Russian River Recreation Assessment did not observe flows lower than 177 cfs in this section of the river.

Significance Criteria

Based on the Appendix G of California Environmental Quality Act (CEQA) Guidelines, project implementation would have significant impacts and environmental consequences on recreational resources if it would result in any of the following:

1. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
2. Include recreational facilities or require the construction or expansion of recreational facilities, which might have adverse physical effects on the environment.

For the purposes of this analysis, additional criteria are established to evaluate potential significant impacts associated with the Proposed Project. Project implementation would have a significant impact on recreation if the project would:

3. Substantially alter or inhibit access to recreational facilities or activities.

Based on the nature and function of the Proposed Project, the following criteria included in Appendix G of the CEQA Guidelines do not apply to this analysis and are not discussed further, as explained below.

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have adverse physical effects on the environment.

Implementation of the Proposed Project would not involve any construction activities or new or changed facilities. The Proposed Project, No Project 1, and the No Project 2 would not include actions or project elements that would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Nor would the Proposed Project, No Project 1, or the No Project 2 include recreational facilities or require the construction or expansion of recreational facilities, which might have adverse physical effects on the environment.

Impacts and Mitigation Measures

The following section presents a detailed discussion of potential recreational impacts associated with the project alternatives, including the Proposed Project, the No Project 1 Alternative and the No Project 2 Alternative. Each impact discussion includes an analysis of the impact, a summary statement of the impact and its significance, and proposed mitigation measures, where applicable. Impacts are summarized and categorized as either “no impact,” “less than significant,” “less than significant with mitigation,” “significant and unavoidable,” or “beneficial.”

Lake Mendocino

Impact 4.5-1. Changes in releases from Lake Mendocino could result in low water surface elevations and substantially impact access to Lake Mendocino at the South Boat Ramp. (No Impact)

Low WSE could impact recreation at Lake Mendocino. The USACE closes the South Boat Ramp when WSE is below 720 to 722 feet msl (Schooley 2016). When water surface elevations are at or below this range, the South Boat Ramp would still be connected to the reservoir water line, but the runout channel that boats must navigate to reach the main body of the reservoir becomes too shallow to safely operate a power boat (Schooley 2016). For this analysis the elevation of 722 feet msl was used as the point at which the South Boat Ramp would be closed.

Under the Proposed Project and the No Project 2 Alternative, the South Boat Ramp would be closed less often than under Baseline Conditions. There is a 3 percent occurrence to a 42 percent occurrence that the South Boat Ramp is closed during the recreational season (June through September) due to low lake levels (water surface elevation of 722 feet msl) under Baseline Conditions (Table 4.5-2). Modeled results under the Proposed Project show that there would be a less than 1 percent occurrence to a 1 percent occurrence that the South Boat Ramp would be closed due to low lake levels. There would be a 1 percent occurrence to an 11 percent occurrence that the South Boat Ramp would be closed due to low lake levels under the No Project 2 Alternative. The Proposed Project and the No Project 2 Alternative would benefit recreational use of the South Boat Ramp by reducing the frequency of low WSEs resulting in closure of the facility. The frequency of closure of the South Boat Ramp would be similar between the No Project 1 Alternative and Baseline Conditions. Therefore, no impacts to the use of the South Boat Ramp which may limit access to Lake Mendocino would occur under the Proposed Project or the No Project 1 and 2 alternatives.

Table 4.5-2. The estimated percent occurrence that water surface elevations (WSE) would be too low (less than 722 feet msl) for the South Boat Ramp at Lake Mendocino to be operational. When compared to Baseline Conditions, a decrease in the amount of time that the South Boat Ramp would be impacted by low WSE is shown in green.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	64%	64%	43%	23%	10%	3%	2%	2%	3%	5%	11%	42%
Proposed Project	1%	4%	3%	<1%	0%	0%	0%	0%	<1%	<1%	<1%	1%
No Project 1	64%	64%	43%	23%	10%	3%	2%	2%	3%	5%	11%	42%
No Project 2	26%	38%	30%	15%	6%	2%	2%	1%	1%	2%	6%	11%

Impact 4.5-2. Changes in releases from Lake Mendocino could result in higher water surface elevations and substantially impact the operation of the South Boat Ramp, including closure of the South Boat Ramp parking lot, during the recreational season. (No Impact)

Under the Proposed Project and the No Project 2 Alternative, the South Boat Ramp parking lot would be inundated by high water levels more often than under Baseline Conditions. There would be a less than 1 percent occurrence to a 20 percent occurrence that the South Boat Ramp parking lot would be inundated (WSE of more than 750 feet msl) under Baseline Conditions (Table 4.5-3). There would be a 14 percent occurrence to a 40 percent occurrence that the South Boat Ramp parking lot would begin to be inundated due to high lake levels under the Proposed Project. There would be a 12 percent occurrence to a 32 percent occurrence that the South Boat Ramp parking lot would begin to be inundated due to high lake levels under the No Project 2 Alternative. The frequency of closure of the South Boat Ramp parking lot would be the same between the No Project 1 and Baseline Conditions according to the model.

Table 4.5-3. The estimated percent occurrence that the South Boat Ramp parking lot at Lake Mendocino would begin to be inundated by high lake levels (WSE above 750 ft msl). When compared to Baseline Conditions an increase in the amount of time that the South Boat Ramp parking lot would be impacted is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	0%	0%	<1%	1%	<1%	<1%	18%	24%	20%	12%	4%	<1%
Proposed Project	6%	0%	<1%	1%	<1%	<1%	22%	38%	40%	34%	26%	14%
No Project 1	0%	0%	<1%	1%	<1%	<1%	18%	24%	20%	12%	4%	<1%
No Project 2	4%	0%	<1%	1%	<1%	<1%	20%	31%	32%	25%	14%	12%

As discussed in the Methodology section above, inundation near the South Boat Ramp can result in some parking spaces becoming unavailable. However, there are three parking lots within a 0.25 mile of the South Boat Ramp parking lot that would not become inundated and could accommodate approximately 90 vehicles. High WSE would not preclude people from using the South Boat ramp and accessing Lake Mendocino, but they would not be able to park at the South Boat ramp parking lot. As discussed in the Methodology section, the Proposed Project and the No Project alternatives would allow for a longer optimal WSE and recreation season and would not substantially affect the operation of the South Boat Ramp and would not exclude people from recreating on the reservoir or using many of the other recreation facilities at Lake Mendocino (Figure 4.5-6). Therefore, no impacts to the use of the South Boat Ramp parking lot would result from the Proposed Project or the No Project 1 and 2 alternatives.

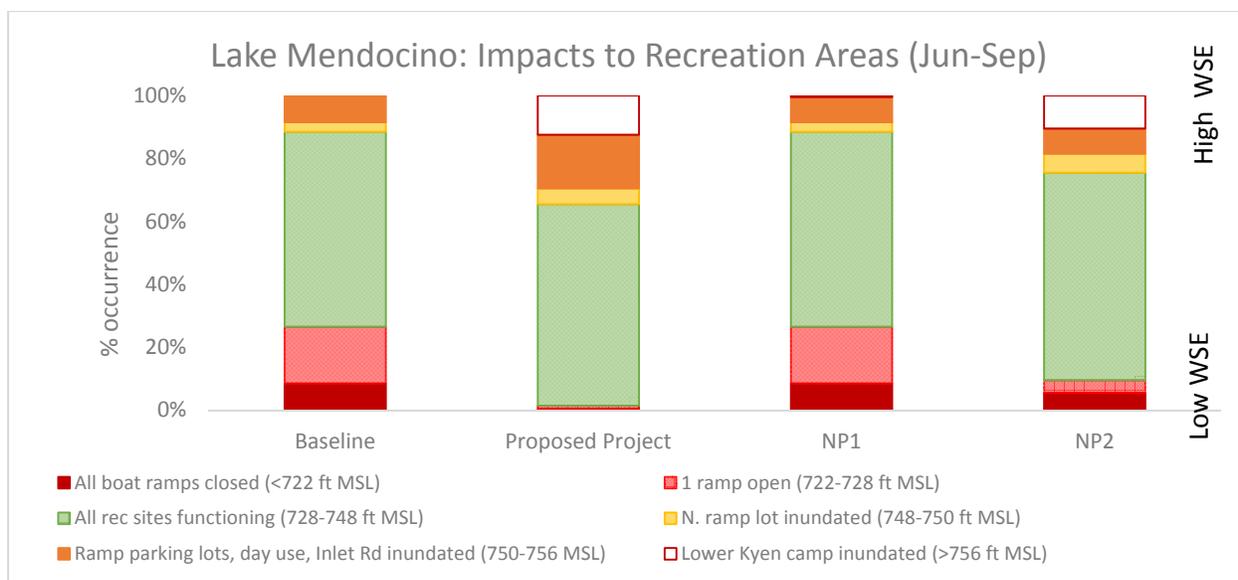


Figure 4.5-6. The frequency that low water surface elevations (WSE) affect recreation sites, the frequency that WSE is optimal for recreation, and the frequency that high WSE affect recreation sites in Lake Mendocino according to the Russian River ResSim model. This figure is color coded to match Figure 4.5-4.

Impact 4.5-3. Changes in releases from Lake Mendocino could result in low water surface elevations and substantially impact access to Lake Mendocino at the North Boat Ramp. (No Impact)

Low WSE can impact recreation at Lake Mendocino. The USACE closes the North Boat Ramp when WSE is below 728 feet msl (Schooley 2016). When water surface elevations are at or below this range, the North Boat Ramp is no longer connected to the lake. For this analysis the 728 feet msl elevation is used as the point at which the North Boat Ramp would be closed.

Under the Proposed Project and the No Project 2 Alternative, the North Boat Ramp would be closed less often than under Baseline Conditions. There would be a 7 percent occurrence to a 70 percent occurrence that the North Boat Ramp is closed during the recreational season (June through September) due to low lake levels (water surface elevation of 728 feet msl) under Baseline Conditions (Table 4.5-4). There would be a less than 1 percent occurrence to a 5 percent occurrence that the North Boat Ramp would be closed due to low lake levels under the Proposed Project. There would be a 4 percent occurrence to a 30 percent occurrence that the North Boat Ramp would be closed due to low lake levels under the No Project 2 Alternative. The Proposed Project and the No Project 2 Alternative would benefit recreational use of the North Boat Ramp by reducing the frequency of low WSEs resulting in closure of the facility. Releases are similar under the No Project 1 Alternative as Baseline Conditions. Therefore, no impacts to the use of the North Boat Ramp that could substantially limit access to Lake Mendocino would occur under the Proposed Project or the No Project 1 and 2 Alternatives.

Table 4.5-4. The estimated percent occurrence that water surface elevations (WSE) would be too low (less than 728 feet msl) for the North Boat Ramp at Lake Mendocino to be operational. When compared to Baseline Conditions a decrease in the amount of time that the North Boat Ramp would be impacted is shown in green.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	80%	79%	55%	31%	17%	6%	4%	4%	7%	11%	40%	70%
Proposed Project	10%	17%	11%	4%	1%	<1%	<1%	<1%	<1%	<1%	2%	5%
No Project 1	80%	79%	55%	31%	17%	6%	4%	4%	7%	11%	40%	70%
No Project 2	49%	52%	40%	22%	11%	4%	3%	3%	4%	7%	12%	30%

Impact 4.5-4. Changes in releases from Lake Mendocino could result in higher water surface elevations and substantially impact access to Lake Mendocino at the North Boat Ramp, including closure of the North Boat Ramp parking lot. (No Impact)

High water levels in Lake Mendocino can inundate the lower parking lot at the North Boat Ramp and reduce the amount of available parking. At a WSE of 748 feet msl the lower parking lot begins to become inundated. There is a less than 1 percent occurrence to a 25 percent occurrence that the North Boat Ramp parking lot is inundated under Baseline Conditions, during the recreational season (June through September) (Table 4.5-5). There is a 21 percent occurrence to a 54 percent occurrence that the North Boat Ramp parking lot would be inundated, under the Proposed Project. There is a 12 percent occurrence to a 36 percent occurrence that the North Boat Ramp parking lot would be inundated under the No Project 2 Alternative. The North Boat Ramp parking lot would be inundated at the same frequency under the No Project 1 Alternative and under Baseline Conditions.

Table 4.5-5. The estimated percent occurrence that water surface elevations (WSE) would be above 748 feet msl and inundate the lower parking lot at the North Boat Ramp. When compared to Baseline Conditions an increase in the amount of time that the North Boat Ramp parking lot would be inundated is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	0%	0%	<1%	1%	1%	<1%	28%	29%	25%	14%	7%	<1%
Proposed Project	8%	0%	<1	1%	1%	1%	36%	52%	54%	40%	31%	21%
No Project 1	0%	0%	<1%	1%	1%	<1%	28%	29%	25%	14%	7%	<1%
No Project 2	6%	0%	<1%	1%	1%	1%	31%	36%	36%	30%	20%	12%

As discussed in the Methodology section above, inundation near the North Boat Ramp can cause some parking to become unavailable. The North Boat Ramp contains two parking levels for approximately 141 vehicles. The higher parking lot accommodates for the majority of the parking with approximately 86 parking spots. The lower parking lot at the North Boat Ramp accommodates approximately 55 vehicles. Near the North Boat Ramp there are additional parking areas that would not be inundated. Nearby parking opportunities include a dirt parking lot near Highway 20 approximately 0.25 mile from the North Boat Ramp that could

accommodate 25 vehicles and 23 parking spots off Marina Drive near Kyen Campground, which is 0.33 mile from the North Boat Ramp. Parking is also available at the 102 camp sites at the Kyen Campground for registered campers. There are also 176 parking spots near the Pomo Day Use Areas. These spots are 0.5 to 1 mile from the North Boat Ramp, but near the reservoir shoreline. As discussed in the Methodology section, the Proposed Project and the No Project 1 and 2 alternatives would allow for a longer optimal WSE and recreation season and would not substantially affect the operation of the North Boat Ramp parking lot and would not exclude people from recreating on the lake or using many of the other recreation facilities at Lake Mendocino (Figure 4.5-6). Therefore, no impacts to the use of the North Boat Ramp which may substantially alter or limit access to Lake Mendocino would occur under the Proposed Project or the No Project 1 and 2 alternatives.

Impact 4.5-5. Changes in releases from Lake Mendocino could result in higher water surface elevations that could flood Inlet Road and substantially alter or inhibit access to Bushay Campground during the recreational season. (Less Than Significant)

A portion of Inlet Road, which is the public access road that allows vehicle and hiking access to the east side of Lake Mendocino including access to the Bushay Campground, floods at a WSE of 750 feet msl (Schooley 2016). Under the Proposed Project and the No Project 2 Alternative, Inlet Road would be flooded more often during the recreational season in the months of June through September and at a similar rate during the remainder of the year when compared to Baseline Conditions.

According to the Russian River ResSim model there is a 1 percent occurrence to a 20 percent occurrence that Inlet Road floods, under Baseline Conditions (Table 4.5-6). There is a 14 percent occurrence to a 40 percent occurrence Inlet Road would flood, under the Proposed Project. There is a 12 percent occurrence to a 32 percent occurrence that Inlet Road would flood, under the No Project 2 Alternative. Inlet Road would have the same frequency of flooding under the No Project 1 Alternative as Baseline Conditions (Table 4.5-6).

Table 4.5-6. The estimated percent occurrence that water surface elevations (WSE) would be above 750 feet msl and inundate Inlet Road at Lake Mendocino. When compared to Baseline Conditions an increase in the amount of time that Inlet Road would be inundated is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	0%	0%	<1%	1%	<1%	<1%	18%	24%	20%	12%	4%	<1%
Proposed Project	6%	0%	<1%	1%	<1%	<1%	22%	38%	40%	34%	26%	14%
No Project 1	0%	0%	<1%	1%	<1%	<1%	18%	24%	20%	12%	4%	<1%
No Project 2	4%	0%	<1%	1%	<1%	<1%	20%	31%	32%	25%	14%	12%

Although Inlet Road would be flooded more often under the Proposed Project, visitors could still access the 100 camp sites at the Bushay Campground via boat. In addition, changes in releases under the Proposed Project and the No Project 2 Alternative increases the availability of optimum WSE (Figure 4.5-6) that would allow for a longer recreation season and would not

substantially alter or inhibit access to Bushay Campground. Therefore, access to the Inlet Road and Bushay Campground would not be substantially altered or inhibited under the Proposed Project or the No Project 2 Alternative and the impact would be less than significant and no mitigation is required.

Impact 4.5-6. Changes in releases from Lake Mendocino could result in higher water surface elevations that could substantially alter or inhibit access to Kyen Campground during the recreational season. (Less Than Significant)

A portion of Kyen Campground is located on the south side of Marina Drive near the north shore of Lake Mendocino. This portion of the campground contains sites 74 through 103 and is flooded at a WSE of 755 feet msl (National Recreation Reservation Service 2014). Kyen Campground would have the same frequency of flooding during the recreational season of June through October under the No Project 1 Alternative as Baseline Conditions. Therefore, there would be no impact to Kyen Campground by implementing the No Project 1 Alternative.

For the Proposed Project and the No Project 2 Alternative, a portion of the Kyen Campground would be inundated more often than under Baseline Conditions. There is a 0 percent occurrence to an 11 percent occurrence that the lower portion of the Kyen Campground is inundated during the recreational season under Baseline Conditions (Table 4.5-7).

There is an 8 percent occurrence to a 25 percent occurrence that the lower portion of the Kyen Campground is inundated, under the Proposed Project. There is a 1 percent occurrence to a 22 percent occurrence that the lower portion of the Kyen Campground would be inundated under the No Project 2 Alternative.

Table 4.5-7. The estimated percent occurrence that water surface elevations (WSE) would be above 755 feet msl and inundate the lower portion of the Kyen Campground. When compared to Baseline Conditions an increase in the amount of time that the lower portion of the Kyen Campground would be inundated is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	0%	0%	<1%	<1%	<1%	0%	3%	11%	11%	5%	<1%	0%
Proposed Project	<1%	0%	<1%	<1%	<1%	0%	3%	21%	25%	20%	12%	8%
No Project 1	0%	0%	<1%	<1%	<1%	0%	3%	11%	11%	5%	<1%	0%
No Project 2	0%	0%	<1%	<1%	<1%	0%	3%	15%	18%	22%	10%	1%

Although a portion of Kyen Campground would be flooded more often and inhibit access to a portion of the camping sites, visitors could still access approximately 73 camp sites at 755 feet msl (based on LiDAR data). In addition, at this WSE, Bushay Campground would be accessible via boat. Furthermore, this high WSE impact is offset by extending the percent occurrence that the boat ramps can be used (see impact 4.5-1, 4.5-2 and figure 4.5-6). In wet years with high WSE the period of time that people could recreate on Lake Mendocino extended later into the recreation season and the USACE noted an increase in visitation when compared to dryer years (Dillabough and Miller 2016). Minimum instream flow releases under the Proposed Project and the No Project 2 Alternative increases the availability of optimum WSE (Figure 4.5-6) that allows

for a longer recreation season and would not substantially alter or inhibit access to Kyen Campground. Therefore, the access to Kyen Campground would not be substantially altered or inhibited under the Proposed Project or the No Project 1 and 2 Alternatives, therefore the impact would be less than significant and no mitigation is required.

Lake Sonoma

Impact 4.5-7. Changes in releases from Lake Sonoma could result in low water surface elevations that could cause additional closures of the Yorty Creek Boat Ramp and could substantially alter or inhibit access to Lake Sonoma during the recreational season. (No Impact)

Yorty Creek Boat Ramp is the only boat launch ramp in the northern area of Lake Sonoma and is favored by many boaters with canoes, rafts, or other lightweight vessels. Boat trailers are prohibited on Hot Springs Road, the only access road to the Yorty Creek Boat Ramp. Below 420 msl, the Yorty Creek Boat Ramp becomes disconnected from the lake due to low WSE. However the boat ramp remains open. Boaters can portage their vessels overland to hand launch at Yorty Creek even when the boat ramp is not connected to the lake. Even when the paved portion of the Yorty Creek Boat Ramp is disconnected from the lake the USACE typically allows people to drive over the unpaved shoreline to the water's edge in order to launch boats from their vehicles (Dillabough and Miller 2016).

There is a less than 1 percent occurrence to a 3 percent occurrence that the Yorty Creek Boat Ramp would be closed during the recreation season (June through September), under Baseline Conditions (Table 4.5-8).

Table 4.5-8. The estimated percent occurrence that water surface elevations in Lake Sonoma would decline below 420 feet msl, closing the Yorty Creek Boat Ramp shown by month. When compared to Baseline Conditions, a decrease in the amount of time that the boat ramp would be closed is shown in green while an increase is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	5%	6%	6%	4%	2%	1%	<1%	<1%	<1%	<1%	1%	3%
Proposed Project	4%	6%	5%	2%	1%	1%	<1%	<1%	<1%	<1%	2%	4%
No Project 1	11%	18%	16%	8%	3%	1%	<1%	<1%	<1%	1%	3%	6%
No Project 2	4%	4%	4%	3%	2%	0%	<1%	<1%	<1%	<1%	1%	4%

There would be a less than 1 percent occurrence to a 4 percent occurrence that the Yorty Creek boat ramp would be closed, under the Proposed Project and the No Project 2 Alternative (Table 4.5-8). This would be a 1 percent increase in the percent of time that Yorty Creek Boat Ramp could be closed in the recreation months of August and September for the Proposed Project and a 1 percent increase for No Project 2 in the month of September. No change would be anticipated for the months of June or July over Baseline Conditions.

There would be a less than 1 percent occurrence to a 6 percent occurrence the Yorty Creek boat ramp would be closed, under the No Project 1 Alternative. This would be a 0 percent, less

than 1 percent, 2 percent, and 3 percent increase over Baseline Conditions in the months of June, July, August, and September respectively.

Fluctuating lake levels are a normal and expected operating pattern for a reservoir such as Lake Sonoma. The slight increase in the amount of time that the Yorty Creek boat ramp would be closed during the recreation season due to low water surface elevations would not substantially alter or inhibit access to Lake Sonoma. Boat trailers are prohibited on Hot Springs Road and larger vessels would not be affected by low WSE at Yorty Creek. Only smaller light weight vessels can be launched at the Yorty Creek Boat Ramp and these small vessels could still be launched at the Yorty Creek boat Ramp when the boat ramp is disconnected to the lake due to low WSE. Furthermore there are the Lake Sonoma Marina and the public boat ramp available to visitors (see Impacts 4.5-11 and 4.5-12 below and Figure 4.5-7). As described in the Methodology section above, the Proposed Project or the No Project 1 and 2 alternatives would not substantially alter the optimum WSE to Lake Sonoma. Therefore, there would be no impact to access to the Yorty Creek boat ramp or Lake Sonoma.

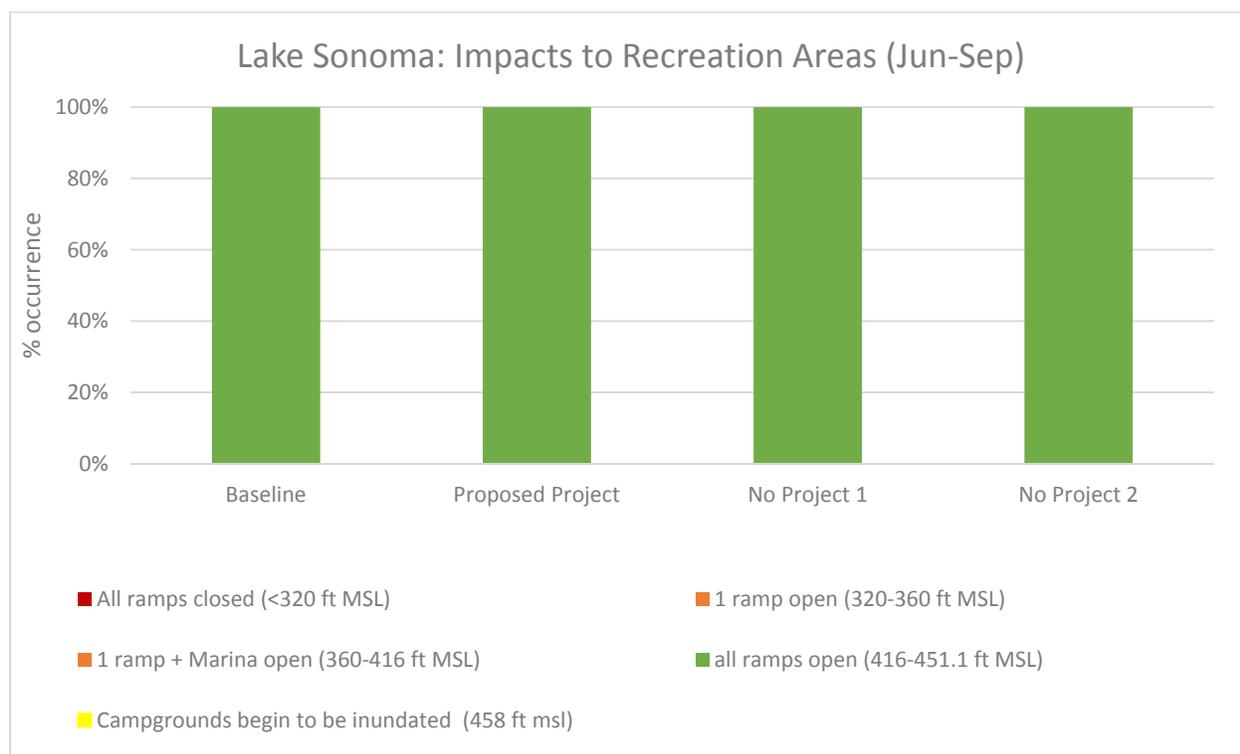


Figure 4.5-7: The frequency that low water surface elevations (WSE) affect recreation sites, the frequency that WSE is optimal for recreation, and the frequency that high WSE affect recreation sites in Lake Sonoma according to the Russian River ResSim model. This figure is color coded to match Figure 4.5-5.

Impact 4.5-8. Changes in releases from Lake Sonoma could result in low water surface elevations that could substantially alter or inhibit access to the Lake Sonoma Marina during the recreational season. (No Impact)

Operation of the Lake Sonoma Marina is impacted when lake levels drop below 360 feet msl. If WSE become too low the Lake Sonoma Marina may close the boat ramp located at the marina. However the marina will continue to operate and boats that rent slips from the marina can still access Lake Sonoma from the marina (Dillabough and Miller 2016). Furthermore, when the marina boat ramp is closed the Lake Sonoma Marina can be accessed by boats launched at the Lake Sonoma public boat ramp which is located approximately 0.8 miles away. The Lake Sonoma Marina would be rarely impacted under the Proposed Project. The Russian River ResSim model results show that under Baseline Conditions the Lake Sonoma Marina would be minimally impacted during the recreation season. Under the Proposed Project and the No Project 1 Alternative, there would be less than 1 percent occurrence that the Lake Sonoma Marina would be affected by low WSE during the month of September. Under the No Project 2 Alternative, the results are the same as Baseline Conditions and the Marina would not be impacted during the recreational season (Table 4.5-9).

Table 4.5-9. The estimated percent occurrence that water surface elevations in Lake Sonoma would decline below 360 feet msl, closing the Lake Sonoma Marina Boat Ramp shown by month. When compared to Baseline Conditions, a decrease in the amount of time that the boat ramp would be closed is shown in green while and increase is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	<1%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Proposed Project	<1%	<1%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	<1%
No Project 1	<1%	<1%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	<1%
No Project 2	<1%	<1%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	0%

There would be a less than 1 percent increase in the amount of time that the Lake Sonoma Marina boat ramp would be closed during the month of September due to low water surface elevations under the Proposed Project or No Project 1 Alternative. This 1 percent increase in occurrence would not substantially alter or inhibit access to Lake Sonoma over Baseline Conditions. Therefore, no impacts to the use of the Lake Sonoma Marina boat ramp or access to Lake Sonoma would occur under the Proposed Project or the No Project 1 and 2 Alternatives.

Impact 4.5-9. Changes in releases from Lake Sonoma could result in low water surface elevations that could substantially alter or inhibit access to Lake Sonoma at the public boat ramp. (No Impact)

Operation of the public boat ramp at Lake Sonoma is significantly impacted when lake levels drop below 320 feet MSL. Based on Russian River ResSim modeling results, WSE would not drop below 320 feet msl under Baseline Conditions, the Proposed Project, or the No Project 1 and 2 alternatives. Operation of the public boat ramp would not change during the recreational season. Therefore, no impacts to the use of the Lake Sonoma public boat ramp or access to Lake Sonoma would occur under the Proposed Project or the No Project 1 and 2 alternatives.

Impact 4.5-10. Changes in releases from Lake Sonoma could result in low water surface elevations that could substantially alter or inhibit access to Lake Sonoma's boat in campgrounds. (No Impact)

As reservoir water surface elevations decline, campers at Lake Sonoma's boat-in campgrounds must traverse a longer distance between the water's edge and campsites. Fluctuating lake levels are a normal and expected operating pattern for a reservoir such as Lake Sonoma. Changes in releases under the Proposed Project or the No Project 1 and 2 alternatives would not cause additional closures to the boat-in campsites and would not substantially alter or inhibit access to Lake Sonoma's recreational facilities or activities. Reservoir water surface elevations may decline sooner in the season and to a lower level in some years; however, this would not substantially alter or inhibit access for boat-in campsite users. Because this impact would not preclude the use of the campgrounds or access to the water and because fluctuating lake levels are a normal operating pattern for reservoirs such as Lake Sonoma, there would be no impact.

Impact 4.5-11. Changes in releases from Lake Sonoma could result in high water surface elevations that could substantially alter or inhibit access to Lake Sonoma's boat in campgrounds. (No Impact)

Changes in reservoir releases to meet lower minimum instream flows could result in increased WSE in the reservoir during the recreation season and inundate boat in campgrounds. Based on LiDAR data the boat in campgrounds at Lake Sonoma range in elevation from 458 feet msl to 625 feet msl. Changes in releases under the Proposed Project or the No Project 1 and 2 alternatives would not cause additional closures to the boat-in campsites and would not substantially alter or inhibit access to Lake Sonoma's recreational facilities or activities (Figure 4.5-7). Because this impact would not preclude the use of the campgrounds or access to the water and because fluctuating lake levels are a normal operating pattern for reservoirs such as Lake Sonoma, this impact would be less than significant and no mitigation is required.

Russian River

Impact 4.5-12. Changes in minimum instream flows could result in impacts that substantially alter or inhibit access to recreational activities such as swimming and sunbathing in the Russian River. (Less Than Significant)

Swimming and sunbathing are popular recreational activities along the Upper Russian River, but could be affected by changes in river stage with changes in minimum instream flows. The most popular swimming and sunbathing areas in the Upper Russian River are located between Pieta and Cloverdale, and near Healdsburg. The Proposed Project and the No Project 1 and 2 alternatives are not anticipated to substantially change river stage and alter or inhibit access for swimming and sunbathing in the Upper Russian River. Swimming and sunbathing opportunities are available at various river locations and water depths. Pools in the river generally provide sufficient water depths for swimming. The depths of pools in the Upper Russian River would not change substantially based on modeling of stage by the Russian River ResSim. As discussed in Chapter 4.1, Hydrology, changes in river stage under the Proposed Project in the Upper Russian River would be relatively small (0 feet to 0.6 feet depending on the site, the flow, the

month, and percent occurrence analyzed). Since pools that are used for swimming are several feet deep the decrease of up to 0.6 feet would not substantially alter or inhibit access to recreational activities such as swimming and sunbathing in the Upper Russian River.

Furthermore, the Healdsburg Memorial Beach dam influences stage and water depths at popular recreation sites for a distance of approximately 2 miles upstream of the dam. As a result water levels at the Healdsburg Memorial Beach, at Badger Park, and at some of the popular beaches off Fitch Mountain Road are largely influenced by this seasonal impoundment. When the Healdsburg Dam is in place water surface elevation immediately upstream of the dam increases until water spills over the dam. Water surface elevation immediately upstream of the dam is set by the height of the dam and depths in the inundated section of stream remain relatively unchanged when instream flows decline as long as surface flow remains connected. As a result access to recreational activities such as swimming and sunbathing within the impounded section of the river would not be substantially altered or inhibited by changes in minimum instream flows.

Under the Proposed Project, No Project 1 and No Project 2 alternatives, the depths of pools in the Lower Russian River would not change substantially enough to impact swimming at many popular Lower Russian River recreation sites because they are either relatively deep or within the impounded section of seasonal dams. Swimming and sunbathing opportunities are available at various river locations and water depths. Pools in the river generally provide sufficient water depths for swimming. As discussed in Chapter 4.1, Hydrology, change in river stage under the Proposed Project in the Lower Russian River would be relatively small (0 feet to 0.9 feet depending on the site, the flow, the month, and percent occurrence analyzed). The Mirabel inflatable dam, Johnson's Beach dam, and Vacation Beach dam set the water surface elevation for pools within the impounded section of river upstream of these dams. As a result, water levels at Riverfront Regional Park, Wohler, Odd Fellows Park Road crossing, Guerneville River Park, Johnsons Beach, and Vacation Beach are largely influenced by these seasonal impoundments. When these dams are in place water surface elevation immediately upstream of the dams increases until water spills over the dams. Water surface elevation immediately upstream of these dams are set by the height of the dams and depths in the inundated section of stream remain relatively unchanged when instream flow is reduced as long as surface flow remains connected. As a result access to swimming and sunbathing within these impounded sections of the river would not be substantially altered or inhibited by changes in minimum instream flows.

In the Upper Russian River extremely low flows (0 cfs) could cause pools in the river to become disconnected and pool depth could lower significantly in an extreme drought condition such as 1976-1977. Russian River ResSim model results indicate that under Baseline Conditions there would be a less than 1 percent occurrence when surface flows in the Upper Russian River would become disconnected (flow of 0 cfs) in July, August, and September. This would occur during the most extreme drought conditions (a 1976-77 type drought scenario) under Baseline Conditions. The No Project 1 Alternative has the same frequency of occurrence of disconnected surface flows (0 cfs) in the Upper Russian River as Baseline Conditions. Under the Proposed Project and No Project 2 Alternative surface flows would not become disconnected (flow of 0 cfs) during the recreation season according to the Russian River ResSim model results, even

during a 1976-77-type drought scenario. When compared to Baseline Conditions disconnected surface flow (0 cfs) occur at the same frequency or less often under the Proposed Project or the No Project 1 and No Project 2 alternatives. Therefore, implementation of the Proposed Project or the No Project 1 and No Project 2 alternatives would not substantially alter or inhibit access to recreational activities such as swimming and sunbathing in the Upper Russian River.

In the Lower Russian River disconnected surface flow (0 cfs) could cause pool depth to lower significantly. However the Russian River ResSim model does not predict that surface flows would become disconnected in the Lower Russian River under Baseline Conditions even when the most severe drought (1976-77) was simulated. Furthermore the Russian River ResSim model does not predict that surface flows would become disconnected (flow of 0 cfs) in the Lower Russian River under the Proposed Project or the No Project 1 and No Project 2 alternatives.

In summary, a decrease in river stage at recreation sites as a result of reducing minimum instream flows could alter access to swimming and sunbathing, but because many of the pools in the Russian River are relatively deep and because many of the popular recreation sites used for swimming and sunbathing are influenced by summer impoundments, access to swimming and sunbathing would not be substantially altered or inhibited by changes in minimum instream flows. Therefore this would be a less than significant impact and no mitigation is required. Furthermore there is an improvement in severe drought flows when implementing the Proposed Project and the No Project 2 alternatives over Baseline Conditions.

Impact 4.5-13. Changes in minimum instream flows could result in impacts that substantially alter or inhibit access to recreational activities in the Russian River Estuary. (No Impact)

The Proposed Project and the No Project 1 and 2 alternatives are not anticipated to change the frequency of closures in the Russian River Estuary or the maximum WSE during closures. Proposed minimum instream flows from the Proposed Project and No Project 1 and 2 alternatives during the lagoon management period would not affect the current managed target water level of 7 feet (range 4.5 to 9 feet), but may slightly influence the rate at which water level rises during lagoon conditions by slowing the rate of rise. Under Baseline Conditions, Lower Russian River beaches from Vacation Beach to the Pacific Ocean below 9 feet msl are inundated when the river mouth naturally closes and creates lagoon conditions. The slight change in the rates at which water levels rise in the Estuary would not result in new areas of inundation from Baseline Conditions, but may increase the time it takes for beaches to become inundated as water levels would be expected to rise more slowly than under Baseline Conditions. This would not result in substantial alteration of or inhibit access to recreational activities in the Russian River Estuary above Baseline Conditions, therefore, no impact is anticipated to result from the Proposed Project or No Project 1 or No Project 2 alternatives.

Impact 4.5-14. Changes in minimum instream flows could result in impacts that substantially alter or inhibit access to boating in the Russian River from Rio Lindo Academy to the confluence of Dry Creek. (Less Than Significant)

Chapter 4.1, Hydrology, discusses river stage in the Upper Russian River in detail. In summary, the Russian River ResSim model predicts that under the Proposed Project stage would decrease from Baseline Conditions in the Upper Russian River by 0 feet to 0.6 feet depending on the month in the recreation season, the site, and the flow exceedance analyzed. Under the No Project 1 minimum instream flows are the same as Baseline Conditions in the Upper Russian River which would result in the same river stage. Under the No Project 2 alternative stage in the Upper Russian River would decrease from baseline by 0 feet to 0.4 feet depending on the month in the recreation season, the site, and the flow exceedance analyzed. These changes in stage are relatively small. Flows observed during the 2009 Russian River Recreation Assessment are similar to Baseline Conditions and the flow alternatives. As a result the 2009 Russian River Recreation Assessment can be used to assess the effects of the flow alternatives on boating in the Upper Russian River.

As described in the Methodology section, observations from the 2009 Recreational Assessment showed that a flow of 70 cfs measured at the USGS gage at Healdsburg (11465350) was sufficient to provide enough depth to operate canoes and kayaks between Rio Lindo Academy and the confluence of Dry Creek (SCWA 2009). Based on Russian River ResSim modeling results, stream flows of less than 70 cfs occur at the same frequency under the No Project 1 and 2 alternatives as under Baseline Conditions (Table 4.5-10).

Table 4.5-10. The estimated percentage of time that instream flows would be less than 70 cfs and potentially impact boating in the section of the Russian River from Rio Lindo Academy to the confluence of Dry Creek by month. When compared to Baseline Conditions, a decrease in the amount of time that boating would be impacted is shown in green while an increase is shown in orange.

Flow Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	1%	<1%	0%	<1%	<1%	<1%	<1%	1%	1%	1%	1%	1%
Proposed Project	6%	<1%	0%	0%	<1%	<1%	<1%	2%	6%	6%	6%	7%
No Project 1	1%	<1%	0%	<1%	<1%	<1%	<1%	1%	1%	1%	1%	1%
No Project 2	1%	<1%	0%	<1%	<1%	<1%	<1%	1%	1%	1%	1%	1%

Based on Russian River ResSim results, flows of less than 70 cfs occur more often under the Proposed Project than under Baseline Conditions. Under Baseline Conditions and during the recreation season (June through September), minimum instream flows are 185 cfs, 75 cfs, and 25 cfs for *Normal*, *Dry*, and *Critical* water supply conditions, respectively. Based on modeling results only *Critical* water supply conditions would have flows that were below 70 cfs and may be insufficient for boating in the section of river from Rio Lindo Academy to the confluence of Dry Creek under Baseline Conditions. The Proposed Project has minimum flows in the Upper Russian River (during the recreation season of June through September) of 105 cfs, 85 cfs, 65 cfs, 45 cfs, and 25 cfs for schedules 1, 2, 3, 4, and 5 respectively. Schedule 1, Schedule 2, and

Schedule 3 when accounting for an operational buffer would have flows above 70 cfs in the Upper Russian River (at Healdsburg (11465350) according to the model and would be sufficient for boating. Schedule 4 and Schedule 5 would have flows below 70 cfs even with the operational buffer according to model results. During the recreation season Schedule 4 has a 5 percent occurrence to a 6 percent occurrence depending on the month. Schedule 5 has a 1 percent occurrence depending on the month. These schedules occur in the driest years over the historical time period simulated by the model. This is a small change that only occurs in the driest years. Since the Proposed Project slightly increases (an increase of 5 percent occurrence to 6 percent occurrence during the recreation season) the frequency that flows below 70 cfs occur when compared to Baseline Conditions this would be a less than significant impact and no mitigation is required.

Impact 4.5-15. Changes in minimum instream flows could result in impacts that substantially alter or inhibit access to boating in the Russian River from the mouth of Dry Creek to Wohler. (No Impact)

Chapter 4.1 Hydrology discusses river stage in the Upper Russian River detail however, stage is based on a flow and depth relationship from various USGS stream gages in the Russian River and Dry Creek. There is not a USGS stream gage in the section of river from the mouth of Dry Creek to Wohler that can be used for this analysis. As a result observations from the 2009 Russian River Recreation Assessment are the best available data regarding boating in this section of river. Based on observations during the 2009 Russian River Recreation Assessment canoes and kayaks could travel the Russian River from the confluence of Dry Creek to Wohler when flow in this reach is approximately 180 cfs (SCWA 2009). Flows from the confluence of Dry Creek to Wohler are often significantly higher than flows in the adjacent sections of the river just upstream and downstream of this section. This is due to reservoir releases from Lake Sonoma increasing flow in this section of river and then the Water Agency diverting a portion of this water at the Mirabel diversion facility for water supply. There would be a 1 percent occurrence in June, 1 percent occurrence in July, less than 1 percent occurrence in August, and 1 percent occurrence in September that flows in the section of the Russian River between the confluence of Dry Creek and Wohler would be below 180 cfs under Baseline Conditions. There would be a 2 percent occurrence in June, less than 1 percent occurrence in July, 0 occurrence percent in August, and less than 1 percent occurrence in September that flow would be below 180 cfs, under the Proposed Project. The 1 percent increase from baseline in June under the proposed project would be mostly offset by the less than 1 percent decrease that would occur in the months of July, August, and September.

There would be a less than 1 percent occurrence in the months of June, July, August, and September that flow during the recreation season would be below 180 cfs, under the No Project 1 alternative. There would be a less than 1 percent occurrence months of June, 0 percent in July, 0 percent in August, and less than 1 percent occurrence in September that flow during the recreation season would be below 180 cfs, under the No Project 2 alternative (Table 4.5-11).

Implementing the Proposed Project, the No Project 1, or the No Project 2 Alternatives would not increase the frequency that flows below 180 cfs occurred in the section of river from the mouth

of Dry Creek to Wohler over the course of the recreation season. Therefore, changes in minimum instream flows would not result in impacts that substantially alter or inhibit access to boating in the Russian River from the mouth of Dry Creek to Wohler when implementing the Proposed Project, No Project 1, or the No Project 2 Alternatives. This impact would be less than significant and no mitigation is required.

Table 4.5-11. The estimated percent occurrence that instream flows would be less than 180 cfs and potentially impact boating in the section of the Russian River from the confluence of Dry Creek to Wohler shown by month. When compared to Baseline Conditions, a decrease in the amount of time that boating would be impacted is shown in green while an increase is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	2%	<1%	0%	<1%	1%	<1%	1%	1%	1%	1%	<1%	1%
Proposed Project	3%	<1%	<1%	0%	<1%	<1%	<1%	2%	2%	<1%	0%	<1%
No Project 1	1%	<1%	0%	<1%	1%	<1%	0%	<1%	<1%	<1%	<1%	<1%
No Project 2	1%	<1%	0%	<1%	1%	<1%	1%	<1%	<1%	0%	0%	<1%

Impact 4.5-16: Changes in minimum instream flows could result in impacts that substantially alter or inhibit access to recreational facilities or activities such as boating in the Russian River from Wohler to the Pacific Ocean. (Less Than Significant)

Chapter 4.1, "Hydrology," discusses river stage in the Lower Russian River in detail. In summary, the Russian River ResSim model predicts that under the Proposed Project stage would decrease from Baseline Conditions in the lower Russian River by 0.1 feet to 0.9 feet, under the No Project 1 stage would decrease from Baseline Conditions by 0 feet to 0.2 feet, under the No Project 2 alternative stage would decrease from Baseline Conditions by 0 feet to 0.6 feet depending on the month in the recreation season, the site, and the flow exceedance analyzed. Flows observed during the 2009 Russian River Recreation Assessment are similar to Baseline Conditions and the flow alternatives. Therefore, the 2009 Russian River Recreation Assessment can be used to assess the effects of the flow alternatives on boating in the Upper Russian River.

Based on observations during the 2009 Russian River Recreation Assessment, canoes and kayaks could travel the Russian River from Wohler to the Pacific Ocean when flow at the USGS gage (11467000) at Hacienda in this reach is approximately 80 cfs (SCWA 2009). Based on Russian River ResSim results, flows of less than 80 cfs occur with the same frequency under the No Project 1 and No Project 2 alternatives as Baseline Conditions during the recreation season (Table 4.5-12).

Table 4.5-12. The estimated percent occurrence that instream flows would be less than 80 cfs and potentially impact boating in the section of the Russian River from Wohler to the Pacific Ocean shown by month. When compared to Baseline Conditions, an increase in the amount of time that boating would be impacted is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	1%	<1%	0%	0%	0%	0%	<1%	1%	1%	1%	1%	1%
Proposed Project	3%	<1%	0%	0%	<1%	0%	<1%	3%	4%	4%	4%	4%
No Project 1	1%	<1%	0%	<1%	<1%	0%	<1%	1%	1%	1%	1%	1%
No Project 2	1%	<1%	0%	<1%	<1%	0%	<1%	1%	1%	1%	1%	1%

Based on the Russian River ResSim model results, flows of less than 80 cfs occur more often under the Proposed Project than under Baseline Conditions. During the recreational season, there is a 1 percent occurrence that instream flow at the USGS gage (no. 11467000) at Hacienda is below 80 cfs under Baseline Conditions according to the model. During the recreation season, there would be a 4 percent occurrence that instream flow at Hacienda would be below 80 cfs under the Proposed Project. This would be a 3% increase over Baseline Conditions in the amount of time that flow was below 80 cfs when implementing the Proposed Project according to the model. The increase in the frequency of flows that are less than 80 cfs in the Lower Russian River is related to the change in minimum instream flows associated with the Proposed Project. Minimum instream flows for the Lower Russian River under the Proposed Project under schedule 1 through schedule 3 are 70 cfs. The Russian River ResSim model uses a 14 cfs “5 day running average” buffer for the Proposed Project in the lower river. When operated with a 14 cfs buffer this would result in a flow of 84 cfs according to the model, which is sufficient for boating in the Lower Russian River. However when schedule 4 is implemented the minimum instream flow is 50 cfs for the Lower Russian River. With a 14 cfs operational buffer flow in the Lower Russian River would be approximately 64 cfs according to the model, which is lower than flows observed during the 2009 Russian River Recreation Assessment and may be insufficient for boating. Schedule 4 and schedule 5 only occur during the driest years. Schedule 4 has a 4 percent occurrence in June, July, August, and September. Under Baseline Conditions minimum instream flows are 125 cfs during a *Normal* water supply condition and the model uses a 34 cfs “instantaneous” operational buffer for Baseline Conditions. Under *Dry* water supply conditions minimum instream flows for Baseline Conditions would be 85 cfs and would still be sufficient for boating. *Critical* water supply conditions have a 35 cfs minimum instream flow for Baseline Conditions. This minimum instream flow along with a 34 cfs “instantaneous” operational buffer would result in 69 cfs according to the model, which may be insufficient to operate a boat in the Lower Russian River. *Critical* water supply conditions have approximately a 1 percent occurrence. Because the occurrence of flows below 80 cfs are infrequent (3 percent more often when compared to Baseline Conditions) changes in minimum instream flows would not result in significant impacts that substantially alter or inhibit access to recreational facilities or activities such as boating in the Russian River from Wohler to the Pacific Ocean. However

since this impact does occur slightly more often than Baseline Conditions it would be considered less than significant and no mitigation is required.

Impact 4.5-17. Changes in minimum instream flows related to the Proposed Project and the No Project 2 Alternatives could result in impacts that substantially alter or inhibit access for fishing in the Russian River. (No Impact)

Anglers primarily target hatchery steelhead in the Russian River from October through April and warm water species such as bluegill, striped bass, smallmouth bass, and catfish from May through September. Adult shad are in the Russian River from April through August (see section 4.3 Fisheries for more information about fish populations in the Russian River). Changes in flow could affect fishing conditions. Erosion which could lead to turbidity is discussed in Chapter 4.1 Hydrology. From October 1 through April 30 the Department of Fish and Wildlife will close the Russian River to fishing if flows are below 300 cfs (measured at the USGS gage (11467000) at Hacienda). There would be a 95 percent occurrence in October, 59 percent occurrence in November, 24 percent occurrence in December, 7 percent occurrence in January, 3 percent occurrence in February, 1 percent occurrence in March, and 5 percent occurrence in April that the Russian River would be closed to fishing, under Baseline Conditions (Table 4.5-13).

Table 4.5-13. The estimated percent occurrence that instream flows would be below than 300 cfs and the Department of Fish and Wildlife would close the Russian River to fishing, shown by month. When compared to Baseline Conditions, a decrease in the amount of time that fishing would be closed is shown in green while an increase is shown in orange.

Alternative	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Baseline	95%	59%	24%	7%	3%	1%	5%	-	-	-	-	-
Proposed Project	85%	59%	26%	10%	3%	2%	10%	-	-	-	-	-
No Project 1	95%	62%	25%	8%	3%	1%	6%	-	-	-	-	-
No Project 2	90%	59%	24%	8%	3%	1%	7%	-	-	-	-	-

Fishing in the Russian River would be closed a similar amount of time under the Proposed Project as under Baseline Conditions, however the timing of closures would differ by month. There would be a 85 percent occurrence for the month of October, 59 percent occurrence in November, 26 percent occurrence in December, 10 percent occurrence in January, 3 percent occurrence in February, 2 percent occurrence in March, and 10 percent occurrence in April that the Russian River would be closed to fishing, under the Proposed Project (Table 4.5-13). Under the Proposed Project the Russian River would be closed 10 percent less time than under Baseline Conditions in October, the same amount of time in November, 2 percent more time in December, 3 Percent more time in January, the same amount of time in February, 2 percent more time in March, and 5 percent more time in April. The increase in time that the Russian River is closed in December, January, March, and April (a total of 11 percent more often closed to fishing when compared to Baseline Conditions) is mainly offset by the decrease in time that

the river is closed in October (10 percent less often closed to fishing when compared to Baseline Conditions).

Fishing in the Russian River would be closed slightly less often under the No Project 2 alternative when compared to Baseline Conditions, however the timing of closures would differ by month. According to Russian River ResSim model results there would be a 90 percent occurrence in October, 59 percent occurrence in November, 24 percent occurrence in December, 8 percent occurrence in January, 3 percent occurrence in February, 1 percent occurrence in March, and 7 percent occurrence in April that the Russian River would be closed to fishing, under the No Project 2 alternative (4.5-13). Under the No Project 2 alternative the Russian River would be closed 5 percent less time than under Baseline Conditions in October, the same amount of time in November and December, 1 percent more time in January, the same amount of time in February and March, and 2 percent more time in April. The increase in time that the Russian River is closed in January and April (a total of 3 percent more often closed to fishing when compared to Baseline Conditions) is offset by the decrease in time that the river is closed in October (5 percent less often closed to fishing when compared to Baseline Conditions).

Fishing for warm water species would not be affected by the changes in minimum instream flow associated with the Proposed Project and the No Project 2 alternative. Warm water species such as bluegill, striped bass, smallmouth bass, and catfish tolerate a wide range of conditions. It is unlikely that the changes in minimum instream flows will affect fishing for these fish. For a detailed discussion of warm water fish populations in the Russian River see Chapter 4.3, "Fisheries Resources."

Under the Proposed Project the increase in the amount of time that the Russian River would be closed to fishing is small (1 percent overall for the season). Most of the time that adult shad are in the river occurs outside the time period that low flow fishing closures are in effect. Therefore most of the time that shad are targeted would not be affected by low flow fishing closures. The No Project 2 alternative decreases the amount of time that the Russian River would be closed to fishing. No affects from the change in minimum instream flows to fishing for warm water species are anticipated when implementing the Proposed Project or the No Project 2 alternative. Access to sport fishing in the Russian River would not be substantially altered or inhibited under the Proposed Project or under the No Project 2 alternatives. There would be no impact associated with these alternatives.

Impact 4.5-18. Changes in minimum instream flows related to the No Project 1 Alternative could result in impacts that substantially alter or inhibit access to recreational facilities or activities such as fishing in the Russian River. (Less Than Significant)

As discussed in Impact 4.5-17 there would be a 95 percent occurrence in October, 59 percent occurrence in November, 24 percent occurrence in December, 7 percent occurrence in January, 3 percent occurrence in February, 1 percent occurrence in March, and 5 percent occurrence in April that the Russian River would be closed to fishing, under Baseline Conditions (Table 4.5-13). Fishing in the Russian River would be closed more often under the No Project 1 alternative

when compared to Baseline Conditions. There would be a 95 percent occurrence in October, 62 percent occurrence in November, 25 percent occurrence in December, 8 percent occurrence in January, 3 percent occurrence in February, 1 percent occurrence in March, and 6 percent occurrence in April that the Russian River would be closed to fishing Under the No Project 1 alternative (Table 4.5-13). In total the No Project 1 alternative would be closed 6 percent more often according to the Russian River ResSim model.

Fishing for warm water species would not be affected by the changes in minimum instream flow associated with the No Project 1 alternative. Warm water species such as bluegill, striped bass, smallmouth bass, and catfish tolerate a wide range of conditions. It is unlikely that the changes in minimum instream flows will affect fishing for these fish. For a detailed discussion of warm water fish populations in the Russian River see Chapter 4.3 Fisheries.

While access to sport fishing in the Russian River would not be substantially altered or inhibited under the No Project 1 alternative there is a slight increase over Baseline Conditions in frequency that the Russian River would be closed to fishing. However, this increase is small (6 percent), therefore this would be a less than significant impact and no mitigation is required.

Dry Creek

Impact 4.5-19. Changes in minimum instream flow releases from Lake Sonoma could substantially alter or inhibit access to recreational facilities or activities in Dry Creek. (No Impact)

Conditions in Dry Creek differ significantly from the Russian River and affect the level of recreation that occurs in Dry Creek. As discussed in the environmental setting there is limited public access to Dry Creek. During the recreation season, water flowing in Dry Creek is released from deep within Lake Sonoma. This water is cold when compared to the mainstem Russian River. Relative to the size of the channel flow is high, and water velocity is swift in Dry Creek under Baseline Conditions and under the flow alternatives. Because of limited public access cold water temperatures, and swift velocity, relatively little recreation occurs in Dry Creek.

Dry Creek instream flows were modeled from Warm Springs Dam to the mouth of Dry Creek and used to evaluate the effects of the Proposed Project on recreation. Based on model results, instream flows in Dry Creek generally would not change substantially over Baseline Conditions from implementation of either the Proposed Project or the No Project 1 and 2 Alternatives. Model results indicate that during the recreational season monthly median instream flows in Dry Creek would be 93 cfs for Baseline Conditions. Under the Proposed Project, instream flows would range from 84 cfs to 112 cfs, for the No Project 1 Alternative instream flows range from 93 cfs to 125 cfs, and under the No Project 2 Alternative, instream flows would range 93 cfs to 110 cfs according to the model (Table 4.5-14). Chapter 4.1 Hydrology discusses river stage in detail. During the recreation season in Dry Creek stage would increase as much as 0.16 feet and decrease as much as 0.2 feet under the Proposed Project, for the No Project 1 alternative during the recreation season stage would increase from Baseline Conditions by 0 feet to 0.2 feet , For the No Project 2 alternative stage would increase 0.1 feet and decrease by as much

as 0.2 feet depending on the month, the stream gage and the exceedance value analyzed according to the model (see Chapter 4.1 Hydrology for more details). Pools used for swimming are several feet deep and these changes in stage would not inhibit swimming in these pools. Small changes in river stage as would occur in Dry Creek under the Proposed Project, No Project 1 and No Project 2 alternatives would not alter or inhibit access to recreational facilities or activities in Dry Creek such as canoeing, kayaking, and swimming. There would be no impacts to recreational activities in Dry Creek such as canoeing, kayaking, and swimming from implementation of the Proposed Project or the No Project 1 or No Project 2 alternatives.

Table 4.5-14. The median flows for the recreational season (June through October) for Baseline Conditions and anticipated for the Proposed Project, and No Project 1 and No Project 2 alternatives on Dry Creek. Flows are from the Russian River ResSim model at the mouth of Dry Creek.

Alternative	June	July	Aug	Sep	Oct
Baseline	93	93	93	93	93
Proposed Project	84	103	113	107	112
No Project 1	93	96	105	125	99
No Project 2	93	98	110	103	101

4.5.5 General Plan Consistency

The project area includes portions of Sonoma and Mendocino counties. The following section lists goals, policies, and objectives related to recreation from the general plans of these counties.

Mendocino County General Plan

The Mendocino County General Plan Development Element identifies the following goal and policies for meeting future outdoor recreational needs.

Goal DE-15: (Parks/Recreation) Diverse recreational, leisure and cultural opportunities and community spaces to serve regional, community and neighborhood needs.

Policy DE-176: Join with cities, school districts, agencies and organizations to effectively manage park and recreation facilities and services.

Policy DE-183: Protect parklands and recreational facilities from potential land use conflicts. Locate and design new recreational facilities for compatibility with surrounding land uses.

Sonoma County General Plan 2020

The Sonoma County General Plan 2020's Open Space and Resource Conservation Element identifies the following goals and policies for meeting future outdoor recreational needs.

GOAL OSRC-17: Establish a countywide park and trail system which meets future recreational needs of the County's residents while protecting agricultural uses. The emphasis of the trail system should be near urban areas and on public lands.

Policy OSRC-17d: The trails on Figure OSRC-3 [in the Sonoma County General Plan 2020] make up the County's designated plan for trails.

- Russian River Waterway Trail. The Russian River is a navigable waterway from Cloverdale to the coast and as such, public access is protected by Article [X], Section 2 of the California Constitution. This proposed waterway trail extends from the coast to Preston Bridge immediately north of Cloverdale.

The Fish Flow Project would be consistent with the Mendocino County and Sonoma County general plans. The Fish Flow Project would support the goals and policies listed above such as protect diverse recreational opportunities and they would not inhibit the goals to establish a county wide park and trail systems. Therefore, the Fish Flow Project would be consistent with Mendocino County General Plan Goal DE-15, and policies DE-176 and DE-183 and the Sonoma County General Plan 2020 Goal OSRC-17 and policy OSRC-17d listed above.

4.5.6 References

Bramlett, Nancy, interview by David Cuneo. 1994. *USACE* (April 29).

Burke's Canoe. 2016. *Burkes Canoe Trips*. Accessed June 15, 2016.
<http://www.burkescanoetrips.com/>.

California State Parks. 2016. *Sonoma Coast State Park* .
http://www.parks.ca.gov/?page_id=451.

CDFG. 2007. *California Steelhead Fishing Report-Restoration Card a Report to the Legislature*. Sacramento: California Department of Fish and Game.

CDFW. 2016. *California Freshwater Fishing Regulations 2016-2017*. Sacramento: California Department of Fish and Wildlife.

Condon, John, interview by Justin Smith. 2016. *Russian River Recreation & Park District Maintenance Supervisor* (June 27).

County of Mendocino. 2016. *Miscellaneous areas*.
<https://www.co.mendocino.ca.us/gs/parks/misc.htm>.

Dillabough, Mike, and Joel Miller, interview by Jessica Martini-Lamb. 2016. *USACE* (July 26).

Duncans Mills Camping Club. 2015. *Duncans camp club*. Accessed June 15, 2016.
<http://duncanscampclub.com/>.

Johnson, Corbin, interview by Justin Smith. 2016. "Sonoma County Regional Parks." *Email correspondence*. (June 14).

- Johnsons Beach. n.d. *Activates*. Accessed June 2015, 2016.
<http://johnsonsbeach.com/activities/>.
- Mendocino County. 2009. *Mendocino County General Plan 2009*. Ukiah: Mendocino County Planning and Building Department.
- Monte Rio Recreation and Parks District. 2016. *Russian River Beaches*.
<http://www.mrrpd.org/monterioibeach.html>.
- National Recreation Reservation Service. 2014d. *BOAT-IN SITES (LAKE SONOMA), CA*. Accessed June 29, 2016. <http://www.reserveamerica.com/camping/boat-in-sites-lake-sonoma/r/campgroundDetails.do?contractCode=NRSO&parkId=73091>.
- . 2014c. *BUSHAY RECREATION AREA, CA*. Accessed June 29, 2016.
<http://www.recreation.gov/camping/bushay-recreation-area/r/campgroundSeasonDates.do?contractCode=NRSO&parkId=73100>.
- . 2014b. *CHEKAKA RECREATION AREA LAKE MENDOCINO, CA*. Accessed June 29, 2016. <http://www.recreation.gov/camping/chekaka-recreation-area-lake-mendocino/r/campgroundSeasonDates.do?contractCode=NRSO&parkId=73541>.
- . 2014. *KYEN CAMPGROUND AND OAK GROVE DAY USE AREA, CA*. Accessed June 29, 2016. <http://www.recreation.gov/camping/kyen-campground-and-oak-grove-day-use-area/r/campgroundDetails.do?contractCode=NRSO&parkId=73240>.
- . 2014. *KYEN CAMPGROUND AND OAK GROVE DAY USE AREA, CA Season Dates*. Accessed June 29, 2016. <http://www.recreation.gov/camping/kyen-campground-and-oak-grove-day-use-area/r/campgroundSeasonDates.do?contractCode=NRSO&parkId=73240>.
- . 2014e. *Liberty Glen (Lake Sonoma), CA*. Accessed June 29, 2016.
<http://www.reserveamerica.com/camping/liberty-glen-lake-sonoma/r/campgroundDetails.do?contractCode=NRSO&parkId=73251>.
- NMFS. 2008. *Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement*. Santa Rosa: National Marine Fisheries Service.
- PRMD. 2013. *Sonoma County General Plan 2020*. Santa Rosa: Sonoma County Permit and Resource Management District.
- Rivers Edge. n.d. *Rivers Edge Kayak & Canoe trips*. Accessed June 15, 2016.
<http://riversedgekayakandcanoe.com/alex-self-guided-trip/>.
- Russian River Adventures. n.d. *Russian River Adventures*. Accessed June 15, 2016.
<http://russianriveradventures.com/our-trips/>.

- Russian River Recreation and Parks Districts. 2013. *Facilities*.
<http://russianriverrecpark.org/facilities/>.
- Schooley, Chris, interview by Justin Smith. 2016. *Supervising Park Ranger at Lake Mendocino* (June 1).
- SCWA. 2009. *Russian River Recreation Assessment 2009 Related to Russian River Flow Changes Associated with the Temporary Urgency Change in Russian River Flows July 1, 2009 through October 2, 2009 as authorized by The State of California Environmental Pr...* Santa Rosa: Sonoma County Water Agency.
- SCWA. 1984. *Supplemental Environmental Impact Report covering proposed coordinated use of water supply of Lake Mendocino and Lake Sonoma Russian River Project*. Santa Rosa: Sonoma County Water Agency.
- Sonoma County. 2016a. *Cloverdale River Park*.
http://parks.sonomacounty.ca.gov/Get_Outdoors/Parks/Cloverdale_River_Park.aspx.
- . 2016d. *Guerneville River Park*.
http://parks.sonomacounty.ca.gov/Get_Outdoors/Parks/Guerneville_River_Park.aspx.
- . 2016b. *Healdsburg Veterans Memorial Beach*.
http://parks.sonomacounty.ca.gov/Get_Outdoors/Parks/Healdsburg_Veterans_Memorial_Beach.aspx.
- . 2016c. *Wohler Bridge*.
http://parks.sonomacounty.ca.gov/Get_Outdoors/Parks/Wohler_Bridge.aspx.
- SWRCB. 2009. *Order WR 2009-0034-EXEC in the matter of permits 12947A, 12949, 12950, and 16596 (applications 12919A, 15736, 15737, 19351)*. Sacramento: State Water Resources Control Board.
- USACE. n.d.b. *Hunting at Lake Sonoma*. Accessed June 30, 2016.
<http://www.spn.usace.army.mil/Missions/Recreation/Lake-Sonoma/Hunting/>.
- . n.d.a. *Liberty Glen Drive-In Camping*. Accessed June 30, 2016.
<http://www.spn.usace.army.mil/Missions/Recreation/Lake-Sonoma/Camping-at-Lake-Sonoma/>.
- USFWS. 1978. *Methods for Assessing Instream Flows for Recreation Instream Flow Information Paper No. 6*. Fort Collins: US Fish and Wildlife Service Cooperative Instream Flow Group.
- Water Treks. n.d. *Rentals*. Accessed November 5, 2015. <http://watertreks.com/rentals.php>.