

## FINDING OF EMERGENCY

### Executive Summary

The Russian River watershed is experiencing a drought emergency due to persistent dry conditions and an abnormally low amount of precipitation. The natural flows that ordinarily would supply much of the water right demand within the watershed have decreased significantly or disappeared entirely. Despite the lack of natural flow in the system, many water users have continued to divert releases of stored water that are intended to prevent the extinction of threatened or endangered fish species and which those water users do not have a legal right to divert. Continuing to meet instream flow requirements while releasing supplemental stored water to compensate for those unlawful diversions has drawn both of the major reservoirs that supply water to the watershed down to historic lows. One of those reservoirs—Lake Mendocino—is in danger of running completely dry by the end of 2021. Immediate action is needed to most effectively administer water rights and prevent the unreasonable use of water in the Russian River watershed.

The State Water Resources Control Board (State Water Board) is taking a suite of actions to address these emergency conditions to protect releases of stored water and to ensure that residents in the watershed continue to have reliable access to water supplies needed for minimum human health and safety. These actions include increased enforcement to prevent unlawful water diversions and water right permit modifications to reduce reservoir operators' minimum instream flow requirements for the benefit of endangered fish species to bare minimum levels.

The proposed emergency regulation described in this document is a crucial component of the State Water Board's strategy to prevent catastrophe resulting from drought conditions in the Russian River watershed. The regulation is necessary to immediately curtail water diversions to ensure that scarce water supplies will continue to be available to meet minimum human health and safety needs until the next major precipitation event. Additionally, the regulation is needed for the State Water Board to enforce the water right priority system most efficiently and effectively to ensure that water users stop diverting water when it is unavailable under their water rights.

### Governor Newsom's Drought Emergency Proclamations

On April 21, 2021, Governor Gavin Newsom declared a drought state of emergency under the provisions of the California Emergency Services Act (Gov. Code section 8550 et. seq.), in Mendocino and Sonoma counties due to drought conditions in the Russian River Watershed ([April 2021 Proclamation](#)). The April 2021 Proclamation provides specifically:

To address the acutely dry conditions in the Russian River Watershed, the Water Board shall consider:

- a. Modifying requirements for reservoir releases or diversion limitations in that watershed to ensure adequate, minimal water supplies for critical purposes.
- b. Adopting emergency regulations to curtail water diversions when water is not available at water rights holders' priority of right or to protect releases of stored water.

As it pertains to these emergency regulations, the April 2021 Proclamation suspends the California Environmental Quality Act (CEQA) for Sonoma and Mendocino counties to the extent necessary to allow drought emergency regulations and other actions to take place as quickly as possible.

On May 10, 2021, Governor Newsom expanded the drought proclamation to include counties within the Klamath River, Sacramento-San Joaquin Delta, and Tulare Lake watersheds ([May 2021 Proclamation](#)). The May 2021 Proclamation included the following direction to the State Water Board:

4. To ensure adequate, minimal water supplies for purposes of health, safety, and the environment, the Water Board shall consider modifying requirements for reservoir releases or diversion limitations-including where existing requirements were established to implement a water quality control plan-to conserve water upstream later in the year in order to protect cold water pools for salmon and steelhead, improve water quality, protect carry over storage, or ensure minimum health and safety water supplies. The Water Board shall require monitoring and evaluation of any such changes to inform future actions. For actions taken in the Sacramento-San Joaquin Delta Watershed Counties pursuant to this paragraph, Water Code Section 13247 is suspended.

### **Emergency Defined**

Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: “prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter’s priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.”

Emergency regulations adopted under Water Code section 1058.5 remain in effect for up to one year. The finding of emergency is not subject to review by the Office of Administrative Law.

Government Code section 11346.1, subdivision (a)(2), requires that, at least five working days prior to submission of the proposed emergency action to the Office of Administrative Law (OAL), the adopting agency provide a notice of the proposed emergency action to every person who has filed a request for notice of regulatory action with the agency. After submission of the proposed emergency to OAL, OAL must allow interested persons five calendar days to submit comments on the proposed emergency regulations as set forth in Government Code section 11349.6.

The information contained within this finding of emergency provides information to support the State Water Board's emergency rulemaking under Water Code section 1058.5 and also meets the emergency regulation criteria of Government Code section 11346.1 and the applicable requirements of section 11346.5.

### **Evidence of Emergency**

As of April 2021, the U.S. Drought Monitor classified 100% of California as at least abnormally dry, and almost the entire state of California as experiencing severe to exceptional drought conditions (National Drought Mitigation Center; U.S. Department of Agriculture; National Oceanic and Atmospheric Administration, 2021). As of May 18, 2021, most of the Russian River watershed was updated from Extreme Drought to Exceptional Drought (National Drought Mitigation Center; U.S. Department of Agriculture; National Oceanic and Atmospheric Administration, 2021).

These exceptionally dry conditions have resulted in unprecedented drawdown of the two main reservoirs that supply water for important economic and basic human beneficial uses within the watershed. In the reservoirs managed by Sonoma County Water Agency (Sonoma Water), storage levels are lower than they were during the drought in 2013/2014 (Sonoma Water, 2021). As of June 11, 2021, Lake Mendocino was at 38% of its target water supply curve and Lake Sonoma was at 55% of water supply capacity. For both reservoirs, these storage levels represent the lowest on record for this date.

The Sonoma County Board of Supervisors declared a local drought emergency on April 27, 2021, stating there is "...a real threat of [Lake Mendocino] going dry this year." (Sonoma County, 2021). Modeling projections prepared by Sonoma Water at the request of State Water Board staff show that, should current hydrologic conditions and typical losses from the river related to diversions, evaporation, and seepage persist until October 1, Lake Mendocino would empty at some point in the next year in 10 out of the 108 years of historical conditions used to simulate potential future conditions. This status quo presents an unacceptable risk given Lake Mendocino's role in supplying water necessary for both minimum human health and safety and protected fisheries along the Russian River upstream of the confluence with Dry Creek.



## State Water Board Planning and Response to Drought

In July 2020, the State Water Board began working with stakeholders in the Russian River watershed to raise awareness of continued dry hydrologic conditions and to identify potential local cooperative solutions to ensure adequate water supplies for critical uses without the need for curtailments. These discussions continued regularly through the fall and increased in frequency as conditions grew more dire. Although the State Water Board remains actively engaged in ongoing discussions with local stakeholder groups, the quantity of water stored in Lake Mendocino and the amount of natural and abandoned flows in the Russian River have diminished so rapidly that the opportunity for avoiding curtailments through voluntary water sharing agreements alone has greatly narrowed.

On March 22, 2021, the State Water Board mailed [Letters Regarding Ongoing Dry Conditions in Most California Watersheds](#) to all water right holders and agents regarding ongoing dry conditions in most California watersheds. This informational letter encouraged water right holders to plan and prepare for potential water shortages later this year. The letter also reminded water right holders that accurate and timely reporting of water use data will help to provide critical information needed to manage the state's water resources.

On May 25, 2021, the State Water Board issued [Notices of Water Unavailability for 2021](#) (Notice of WUA). The Notice of WUA advises that water is unavailable as of June 1, 2021 for junior water right holders with a post-1914 priority date in the Russian River Watershed upstream of the Dry Creek confluence. The Notice of WUA also warns more senior water right holders, including pre-1914 appropriative right holders and riparian right holders, to conserve water and that development of an emergency regulation is under consideration.

### **Need for the Regulation**

Immediate action is needed to prevent the unreasonable use of water in the Russian River watershed in light of severely limited water availability during the drought. The State Water Board will need to curtail water diversions in response to decreased natural or abandoned flows so that water is available for: (1) senior water right users; (2) water right permits' drought-adjusted minimum flow requirements for fish and wildlife, aligned with minimal flows for threatened and endangered fish species; and (3) minimum human health and safety needs. Where natural and abandoned flows are present but insufficient to satisfy all water rights, the State Water Board may need to curtail junior diversions to protect senior water right holders and to protect releases of stored water.

This section gives a brief overview of the system of water projects and diversions within the Russian River watershed and the regulatory framework under which the projects

operate. It then discusses the impact of the drought on this system, the response to these impacts that the proposed emergency regulation would authorize, and the considerable uncertainty and risks of allowing continued depletion of stored water releases.

Additional detail regarding the physical setting of the Russian River, the legally protected fish species within the watershed, and the methodology proposed for determining the availability of water for diversions in the Russian River watershed is contained in later sections within the Informative Digest.

## Overview of Russian River System

### *The Russian River Water Project*

Due to California's seasonal rainfall patterns – wet winters and dry summers – the Russian River watershed, like most others in the state, depends on storage reservoirs to provide water for year-round use. The two major reservoirs in the Russian River watershed are Lake Mendocino (Coyote Valley Dam) on the East Fork of the Russian River and Lake Sonoma (Warm Springs Dam) on Dry Creek. Lake Mendocino and Lake Sonoma are administered and operated by the U.S. Army Corps of Engineers for flood control releases, while Sonoma Water controls and coordinates water supply releases from both lakes pursuant to its water right permits and State Water Board Decision 1610.

The primary water rights held by Sonoma Water for water supply purposes are Permits 12947A, 16596, 12949, and 12950 in the Russian River watershed. In addition to its rights to collect up to 122,500 acre-feet of water per year for storage in Lake Mendocino under Permit 12947A and up to 245,000 acre-feet of water per year for storage in Lake Sonoma under Permit 16596, Sonoma Water's water rights also authorize direct diversion and rediversion from the Russian River at its Wohler/Mirabel diversion facilities and other locations of its customers (Sonoma County Water Agency, 2016). The combined amount of direct diversion and rediversion from the Russian River authorized under Sonoma Water's Permits 12947A, 16596, 12949, and 12950 is limited to no more than 180 cubic feet per second (cfs) and 75,000 acre-feet per year.

### *Lake Mendocino*

Lake Mendocino is a key project for supplemental flow in the Russian River to meet minimum instream flow requirements pursuant to Decision 1610 and Sonoma Water's permits. Additionally, Lake Mendocino's regulation of flows benefits the drinking water supplies of Ukiah, Hopland, Cloverdale, Geyserville, and Healdsburg, as well as agricultural water users along the mainstem of the Upper Russian River. Lake Mendocino has a storage capacity of 122,500 acre-feet, with a water supply pool between 68,400 acre-feet and 111,000 acre-feet, depending on time of year (Sonoma

County Water Agency, 2016). Lake Mendocino relies on rainfall and excess flows from the Pacific Gas and Electric Company (PG&E) Potter Valley Hydroelectric Project (PVP) to refill. (Sonoma County Water Agency, 2016) The water diverted through the PVP to generate electricity flows into the East Fork of the Russian River, where the released water is diverted for irrigation use by the Potter Valley Irrigation District (PVID), with the remaining water and any return flows entering Lake Mendocino. (Sonoma County Water Agency, 2016)

Sonoma Water shares access to storage in Lake Mendocino with the Mendocino County Russian River Flood Control and Water Conservation Improvement District (Flood Control District). The Flood Control District holds water right License 13898 authorizing diversion of up to 82,600 acre-feet per year by storage in Lake Mendocino and 28 cfs by direct diversion from the East Fork Russian River, as well as consumptive use of up to 7,940 acre-feet of water per year within its service area. The total amount of water diverted under License 13898 is inclusive of water collected to storage in Lake Mendocino and water taken from the source under Sonoma Water's Permit 12947A (State Water Board, License 13898).

#### *Russian River Water Reservation*

Sonoma Water's Lake Mendocino water rights require that it set aside, or "reserve," certain quantities of water stored in Lake Mendocino for diverters in Mendocino and Sonoma Counties. State Water Board Decision 1030 established an 8,000 acre-feet reservation for use within Mendocino County and a 10,000 acre-feet reservation for use by subsequent, junior appropriators within Sonoma County, prohibiting Sonoma Water from exporting water outside the Russian River watershed unless those uses were satisfied first. These reservations have been restated and clarified in subsequent State Water Board decisions governing Sonoma Water's water rights. Water use by the Flood Control District and its contractors falls under the 8,000 acre-feet reservation for use within Mendocino County.

Significantly, State Water Board Order WR 74-30 included a caveat that Sonoma Water need not set aside the 10,000 acre-feet reservation for use within Sonoma County to the extent that retention of stored water is needed to satisfy instream flow requirements. The 8,000 acre-feet reservation for use within Mendocino County is not subject to this same limitation.

#### *Lake Sonoma*

Lake Sonoma is roughly three times larger than Lake Mendocino and can store multiple years of water supply for about 600,000 residents of Sonoma and Marin Counties. Located northwest of the City of Healdsburg on Dry Creek, Lake Sonoma stores water behind Warm Springs Dam, with a design capacity of 381,000 acre-feet and a design

water supply pool capacity of 245,000 acre-feet (Sonoma County Water Agency, 2016). Permit 16596 authorizes Sonoma Water to store water in the water supply pool of Lake Sonoma (up to 245,000 acre-feet of water per year). Lake Sonoma relies solely on rainfall runoff within its watershed with a drainage area of about 130 square miles to fill (Sonoma County Water Agency, 2016). During the rainy season (November through April), natural drainage and stream flow (as opposed to reservoir releases) contribute most of the Dry Creek flow downstream of Lake Sonoma. During the dry season (May through October), releases from Lake Sonoma contribute the majority of Dry Creek flow downstream of Lake Sonoma (Sonoma County Water Agency, 2016).

### *State Water Board Instream Flow Requirements*

State Water Board Decision 1610, issued in 1986, modified Sonoma Water's water right permits to update applicable instream flow requirements for the Russian River and Dry Creek. Decision 1610 mandates that, during dry or critical water supply conditions like 2021, Lake Sonoma (Warm Springs Dam) shall release sufficient amounts of water to maintain 25 cfs flows in Dry Creek from April 1 through October 31 for protection of fish and wildlife. The appropriateness of these minimum flows was confirmed in a 2008 biological opinion by the National Marine Fisheries Service (NMFS), which found that a "continuous 25 cfs minimum bypass flow at Warm Springs Dam will likely avoid stranding and beaching of juvenile steelhead or coho salmon." (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008)

Similarly, Decision 1610 requires sufficient releases from Lake Mendocino (Coyote Valley Dam) to maintain a continuous streamflow of 25 cfs in the East Fork Russian River between the Coyote Valley Dam and the West Fork Russian River confluence.

The instream flow requirements applicable to Sonoma Water's water rights mean that it must maintain instream flows with storage releases when natural or abandoned flows are insufficient to meet those flow levels. Due to a combination of unlawful diversions and the difficulty that legal diverters have in discerning when water is unavailable under their basis of right, much of the stored water that Sonoma Water releases to satisfy instream flow requirements gets withdrawn from the mainstem of the river before it reaches the gages used to track compliance with applicable flow requirements.

In addition, although Sonoma Water manages the releases from both Lake Mendocino and Lake Sonoma and is required to maintain stream flows in the Russian River, most diverters along the river do not buy water from Sonoma Water. Instead, they divert water from the Russian River under their own water rights or contract with Flood Control District. Sonoma Water has no authority over these diverters and does not have control over the amount or timing of these diversions from the Russian River. This is problematic, especially in the Upper Russian River, when in dry years Lake Mendocino receives little runoff from rainfall within the watershed along with further reduced inflows

from the PVP. Sonoma Water frequently must compensate for downstream diverters taking its stored water releases by releasing even more water from storage, further drawing down reservoir levels.

### Drought Impacts and Risks in Russian River Watershed

Cumulative rainfall in the watershed, as measured at the Ukiah Municipal Airport since the beginning of the water year on October 1, 2020, is just 13.48 inches. This cumulative precipitation is the lowest recorded at this location in nearly a century, which has an average of approximately 35 inches of cumulative rainfall by June 1. As of June 10, 2021, Lake Mendocino held just 33,649 acre-feet of its authorized storage capacity of 122,500 acre-feet, its lowest storage level ever recorded at this time of year. As of June 10, 2021, Lake Sonoma, which has an approximate capacity of 381,000 acre-feet, also recorded its lowest storage level ever for this time of year at 135,825 acre-feet.

In light of the severe water deficit, Sonoma Water filed Temporary Urgency Change Petitions (TUCPs) to temporarily reduce the water right permit flow obligations that otherwise would apply in the Upper Russian River to the minimum possible levels to comply with Endangered Species Act requirements. The State Water Board approved the most recent TUCP on June 14, 2021. Although reducing these permit flow obligations slows the rate at which Sonoma Water must draw down Lake Mendocino to meet instream flow requirements, this change is of limited benefit so long as Sonoma Water must continue to release supplemental water to compensate for downstream water users diverting its storage releases.

Absent immediate and effective action to curtail unlawful and unreasonable water use, there remains a substantial risk that Lake Mendocino may empty entirely, even with these reduced flow requirements. Modeling projections prepared by Sonoma Water at the request of State Water Board staff show that, should current hydrologic conditions and typical losses from the river related to diversions, evaporation, and seepage persist until October 1, there is a roughly 10% chance (10 out of the 108 years of historical conditions used to simulate potential future conditions) that Lake Mendocino would empty at some point in the next year. Lake Mendocino running dry would be catastrophic; it would leave local residents with insecure access to water supplies for basic human needs and would likely dewater river reaches that are habitat for threatened and endangered fish species. Given the magnitude of harm in that scenario, this approximately 10% chance represents an unacceptable risk to the watershed.

In the Temporary Urgency Change Petitions (TUCPs) filed on May 14, 2021, Sonoma Water submitted evidence that preserving 20,000 acre-feet in storage by October 1 is the minimum storage level to best ensure adequate supply for human health and safety needs and to meet minimum instream flow requirements, should dry conditions persist through the end of the year. Meeting this storage target would reduce the risk of Lake

Mendocino emptying by more than half (down to four out of 108 years in the simulation). Although State Water Board Decision 1610 provides 30,000 acre-feet as the carry-over storage target below which Lake Mendocino is at risk of going dry following a subsequent dry year,<sup>1</sup> conditions within the Upper Russian River watershed already are dire enough that 20,000 acre-feet remaining in storage by October 1 is likely the highest feasible storage target to reduce the likelihood of Lake Mendocino emptying. Yet even with the requested changes in the TUCPs, Sonoma Water predicted that storage in Lake Mendocino still would decline below 10,000 acre-feet by October 1, 2021. Thus, the 20,000 acre-feet storage target—which is set to prevent emptying of the reservoir—could not be met without immediate curtailments authorized under this emergency regulation.

Although Lake Sonoma is not at a similar immediate risk of emptying, it serves a much larger population and, as noted above, is facing unprecedented shortages. The stakes of managing what stored water remains to ensure reliable access to water supplies for minimum human health and safety therefore are high. Given the low cumulative precipitation in the watershed, an emergency regulation to require that diversions cease when natural flows are insufficient to meet water right demands in the Russian River downstream of Dry Creek, and in the Dry Creek watershed, also is necessary to maintain water storage and to ensure protection of senior water right holders and public trust resources.

The extent of water scarcity in the Russian River watershed this year presents significant risks to residents' reliable access to water for basic human needs. Within the Upper Russian River watershed, there are twenty-five community water systems regulated by the State Water Board's Division of Drinking Water that serve a reported population of 61,000 users. Of these systems, twenty have domestic water sources on or within immediate proximity of the river's mainstem. Additionally, Sonoma Water acts as a wholesale water system that supplies domestic water to eight cities and districts serving over 600,000 people. Because water users do not have a legal right to divert releases of stored water, absent the emergency regulation, these community water systems would not have a legal right to divert even for minimum human health and safety needs due to the lack of natural flow in the Upper Russian River watershed.

The proposed emergency regulation also is necessary to ensure that the small amounts of natural flows and the abandoned flows from Eel River are available for minimum human health and safety needs this year and next year, should drought conditions continue. In normal circumstances, these natural and abandoned flows would be available for diversion by the most senior water right holders on the Upper Russian River for other beneficial uses, primarily irrigated agriculture. Natural flows within the Upper Russian River watershed are rapidly diminishing and are likely to be zero, if they

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<sup>1</sup> State Water Board Decision 1610, p. 14.

are not already.<sup>2</sup> The only other inflow to Lake Mendocino is from the Potter Valley Project comprising releases of water imported by PG&E from the Eel River Watershed into the East Fork of the Russian River. Absent these releases of abandoned flows from Eel River, there would be only nominal flows feeding the Upper Russian River watershed.

The abandoned flows from the Potter Valley Project, though small, could be enough to meaningfully mitigate the risk that Lake Mendocino may run dry and exhaust water supplies available for minimum human health and safety needs. Daily average flows measured by the USGS approximately one mile upstream from Lake Mendocino near Calpella (site ID 11461500) averaged 18.0 cfs over the week of June 4 to June 10, 2021, and have been steadily declining. Accounting for evaporation at the Lake, these inflows contributed an average of 7.5 cfs to Lake Mendocino during this period. The minimum human health and safety needs of just the 25 community water systems in the Upper Russian River are approximately 320 acre-feet per month,<sup>3</sup> which is approximately 5.2 cfs. Devoting these abandoned flows from the Potter Valley Project to meeting minimum human health and safety needs therefore will meaningfully extend the Upper Russian River watershed's capacity to ensure that those needs continue to be met until natural flows return and begin to refill Lake Mendocino.

In addition to drawing down stored water for human uses, persistent dry conditions threaten Sonoma Water's ability to ensure minimum instream flows to avoid jeopardizing the continued survival of fish species protected under the state and federal Endangered Species Acts. Under the extremely dry conditions this year, maintenance of minimum instream flows to protect threatened and endangered fish species is almost entirely dependent on releases from these two reservoirs. Because Sonoma Water must release more water from storage to compensate for downstream diverters taking water when natural flows are not available under their water rights, both reservoirs are drawing down rapidly—Lake Mendocino in particular.

As emphasized in a June 2, 2021 letter from NMFS, significant mortality of Endangered Species Act-listed fisheries would likely occur if Lake Mendocino is unable to maintain flows in the Upper Russian River. If the State Water Board is not able to curtail water users that are taking stored water in excess of their water rights more efficiently and effectively than current law allows, Lake Mendocino storage may fall below the elevation

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<sup>2</sup> Stream flow measurements conducted by the United States Geological Survey (USGS) on the Russian River the West Fork of the Russian River before its confluence with the East Fork (site ID 11461000), Big Sulphur Creek (site ID 11463200), and Maacama Creek (site ID 11463900) indicate daily average flows from major tributaries to the Russian River are less than two cfs as of June 12, 2021, and have been rapidly diminishing over the past several weeks.

<sup>3</sup> This water demand figure does not account for small water systems that may have fewer resources to meet conservation demands, individual diversions for domestic use, deliveries to tribal communities as discussed further below, or whether any community water systems are unable to meet minimum human health and safety needs based on an allowance of 55 gallons per capita per day.

of the outlet (otherwise known as “dead pool”) and prevent Sonoma Water from supporting streamflow in the Upper Russian River. If releases from Lake Mendocino cease, streamflow in the Upper Russian River would likely become intermittent in the alluvial reaches upstream of Healdsburg (minimal tributary inflow is expected as a result of drought conditions), causing water quality to degrade in isolated pools.

### Description and Effect of Proposed Regulation

The proposed emergency regulation will provide the State Water Board’s Division of Water Rights and users on the system with a clear methodology for determining the extent to which water is unavailable for diversion at water users’ priority of right. It also will authorize the Deputy Director to issue curtailment orders requiring recipients to cease diversions unless and until (1) they have authorization to continue diverting pursuant to one of the exceptions enumerated in the regulation, or (2) they receive notice that the curtailment order has been lifted. The emergency regulation will thus make the necessary curtailments during the drought emergency more effective and enforceable by defining when water is available under water right priorities—an issue of fact frequently contested in traditional curtailment enforcement proceedings—and by making the requirement to cease diversions in response to a curtailment order a regulatory requirement regardless of the curtailed user’s basis of right. The proposed regulation also will promote the human right to water codified in Water Code section 106.3 by establishing procedures for important exceptions to curtailments based on minimum human health and safety needs.

The intent of this regulation is to give the State Water Board the tools it needs to:

1. Protect senior water rights and releases of stored water;
2. Ensure continued access to water supplies for minimum human health and safety needs;
3. Preserve sufficient carry-over water stored in Lake Mendocino and Lake Sonoma to ensure continued water supplies for minimum human health and safety needs in the event of another dry year; and
4. Ensure that adequate water is available to meet instream flow requirements for the protection of endangered fish species and other public trust resources.

The regulation will simplify and expedite the Board’s ability to exercise its existing authority to prevent water right holders from diverting stored water releases when there is not natural or abandoned flow available under their priority of right. Enforcement of this authority will minimize the extent to which Sonoma Water must release more water from Lake Mendocino or Lake Sonoma to compensate for downstream water users diverting storage releases that are intended to meet instream flow requirements, thereby preserving scarce water supplies for minimum human health and safety needs. The regulation will facilitate the State Water Board’s implementation of the priority

system, obviating the need to rely on Sonoma Water's stored water releases to both meet instream flow requirements for the benefit of endangered species and compensate for downstream water users' diversions in excess of their rights. The regulation also will prevent the unreasonable use of stored water that is necessary for minimum human health and safety needs while such water supplies are in danger of being depleted within the year.

### **Proposed Emergency Regulation Section 877**

Proposed section 877 is reserved for future use.

### **Proposed Emergency Regulation Section 877.1**

Proposed section 877.1 defines several terms used throughout proposed Article 24, including administrative terms, terms pertaining to the hydrology and geography of the Russian River watershed, and the definition of minimum human health and safety needs. The definition for minimum human health and safety needs informs the procedure for obtaining authorization to divert under an exception to a curtailment order.

### **Proposed Emergency Regulation Section 877.2**

Proposed section 877.2 provides that the Deputy Director for the Division of Water Rights may issue curtailment orders in the Lower Russian River Watershed when flows are insufficient to support all diversions. The section identifies sources of sufficiently reliable information that will be considered in the Deputy Director's decisions to issue and rescind curtailment orders under this section. Curtailment orders will be sent to water right holders or their agent of record on file with the Division of Water Rights. Water supply forecasts, drought notices, and updates on curtailments will be posted on the State Water Board's drought announcement website and distributed to those who have signed up for the State Water Board's email list.

### **Proposed Emergency Regulation Section 877.3**

Proposed section 877.3 provides that the Deputy Director for the Division of Water Rights may issue curtailment orders in the Upper Russian River watershed when storage levels in Lake Mendocino are below storage targets specified in section 877.4 and Sonoma Water is releasing stored water to meet instream flow requirements and minimum human health and safety needs along the mainstem of the river. Those conditions signal the urgent need to preserve stored water for critical uses and that diversions for other purposes constitute an unreasonable use of water.

Curtailment orders will be sent to water right holders or their agent of record on file with the Division of Water Rights. Water supply forecasts, drought notices, and updates on curtailments will be posted on the State Water Board's drought announcement website and distributed to those who have signed up for the State Water Board's email list.

### **Proposed Emergency Regulation Section 877.4**

Proposed section 877.4 provides specific bimonthly storage level targets for Lake Mendocino. Curtailment orders will not be issued in the Upper Russian River so long as storage levels remain above these targets.

#### **Proposed Emergency Regulation Section 877.5**

Proposed section 877.5 establishes how curtailment orders issued under section 877.3 will be rescinded. The section identifies sources of sufficiently reliable information that will be considered in the Deputy Director's determination that water is available under a diverter's basis of right and that rescission of a curtailment order is therefore warranted. Notices rescinding curtailment orders will be posted on the State Water Board's drought announcement website and distributed to those who have signed up for the State Water Board's email list.

#### **Proposed Emergency Regulation Section 877.6**

Proposed section 877.6 establishes certain requirements upon redirection of water previously stored in Lake Mendocino pursuant to Mendocino County Russian River Flood Control and Water Conservation Improvement District's (Flood Control District) water right License 13898. Specifically, releases for redirection must be based on travel time along the mainstem of the Russian River and scheduled. This section also would require that Sonoma Water and the Flood Control District submit an agreement to the Deputy Director that specifies the amount of water stored in the reservoir under the agencies' respective water rights, the amount of water stored in Lake Mendocino for 2022, and a method for allocating future inflows to the respective water rights. Given the extremely low storage levels at Lake Mendocino, redirection in the absence of these requirements would be unreasonable because it would result in disruptions to Sonoma Water's releases and reservoir operation planning, potentially resulting in releases of more water than is necessary and further depleting storage. Additionally, the required accounting methodology will ensure clarity of ownership of stored water and the resulting operational decisions at Lake Mendocino should dry conditions persist beyond September 2021.

#### **Proposed Emergency Regulation Section 878**

Proposed section 878 provides that certain diversions for non-consumptive uses may continue after the issuance of a curtailment order, provided that a certification has been submitted to the Deputy Director. Such non-consumptive uses include direct diversions for hydropower and direct diversions dedicated for the benefit of fish and wildlife under Water Code section 1707. The proposed regulation also allows continued diversion when an approved substitution of stored water or groundwater pumping is released for the benefit of fish and wildlife that does not decrease net stream flow at the next downstream USGS gage.

### **Proposed Emergency Regulation Section 878.1**

Proposed section 878.1 describes the procedure for a water user subject to a curtailment order to divert under an authorized exception for minimum human health and safety needs. Diversions serving such needs at a rate of 55 gallons per capita per day or less may proceed without further approval from the Deputy Director and require submittal of a certification providing specified information to demonstrate necessity as well as diligence in reducing water demands and seeking out alternative water supplies.

Diversions serving minimum human health and safety needs at a rate greater than 55 gallons per capita per day, or which cannot be quantified on a per capita per day basis, cannot proceed until the diverter submits a petition containing the information specified in this section and receives approval from the Deputy Director. Diversions necessary to resolve immediate human health or safety threats may proceed while a petition is being prepared or pending.

### **Proposed Emergency Regulation Section 879**

Proposed section 879 sets forth the reporting requirements for water right holders that are subject to a curtailment order, including requirements applicable to diversions under an authorized exception to curtailment. The schedule or frequency of required reporting will be determined by the Deputy Director.

### **Proposed Emergency Regulation Section 879.1**

Proposed section 879.1 provides that compliance with proposed Article 24 is a condition of all water right permits, licenses, certificates and registrations for diversions in the Russian River Watershed.

### **Proposed Emergency Regulation Section 879.2**

Proposed section 879.2 clarifies the compliance obligations of a water right holder in the event it is subject to overlapping or conflicting requirements under proposed Article 24. It also clarifies authorities under which the State Water Board may pursue enforcement for violations of proposed Article 24.

## **Informative Digest**

### Summary of Existing Laws and Regulations

California has two primary methods for developing water rights – “appropriative” and “riparian,” and each has somewhat different attributes. California’s water right priority system establishes which users may divert, and how much, when there is insufficient water in the stream for all users. For appropriators, older water rights are more senior to, or have priority over, newer, more junior water rights. Senior water appropriators

know that they are more likely to be able to divert water at times of shortage than junior water right holders. However, once water is stored or imported, only the entity that stored or imported the water has a right to it, though other appropriators may acquire contingent junior rights to any abandoned or return flows. Riparian right holders, although generally senior to appropriative water right holders, are only entitled to divert natural flow. They are not entitled to divert water to storage or to divert storage releases, or the return flows from releases, to divert imported water, or the return flows from imports.

All water rights in California, both riparian and appropriative, are limited, usufructory rights constrained by underlying limiting principles, including: (1) the rule of reasonableness; and (2) the public trust doctrine. (*Stanford Vina Ranch Irrigation Co. v. State of California* (2020) 50 Cal.App.5th 976, 994; *United States v. State Water Resources Control Board* (1986) 182 Cal.App.3d 82, 100 [the “Racanelli Decision”].) The State Water Board has continuing authority under Water Code sections 100 and 275 to enforce the requirements of the California Constitution, Article X, section 2, which directs that the water resources of the state be put to beneficial use to the fullest extent, and that water not be wasted or unreasonably used. It further provides that rights to the use of water are limited to such water as is reasonably required for the beneficial use served, and does not extend to the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of the water. Additionally, under the public trust doctrine, all water users may only divert insofar as their use does not unreasonably harm fish and wildlife and other instream uses of water. Whether a use is reasonable under Article X, section 2 and the public trust doctrine depends heavily on the current situation and on competing demands for water. The reasonable use doctrine applies to the diversion and use of both surface water and groundwater, and it applies irrespective of the type of water right held by the diverter or user. (*Peabody v. Vallejo* (1935) 2 Cal.2d 351, 366-367.) What constitutes an unreasonable use, method of use, or method of diversion depends on the facts and circumstances of each case. (*People ex rel. State Water Resources Control Board v. Forni* (1976) 54 Cal.App.3d 743, 750.) Under the reasonable use doctrine, water right holders may be required to endure some inconvenience or to incur reasonable expenses. (*Id.* at pp. 751-752.)

When the amount of water available in a surface water source is not sufficient to support the needs of existing water right holders and instream uses, junior right holders must cease diversion in favor of higher-priority rights. However, in complex water systems it is not always clear to a junior diverter whether there is sufficient available flow in the system to support their diversion and senior water uses and instream needs downstream. Diverting water when it is unavailable under a diverter’s priority of right constitutes an unauthorized diversion and a trespass against the state. The State Water Board may subject such violations to an Administrative Civil Liability (ACL) of up to \$1,000 per day plus \$2,500 per acre-foot of water illegally diverted during a drought under the Water Code, or such diversions could be referred to the Attorney General’s

office for enforcement. The State Water Board may also issue administrative cease and desist orders and request court injunctions to require that diversions stop.

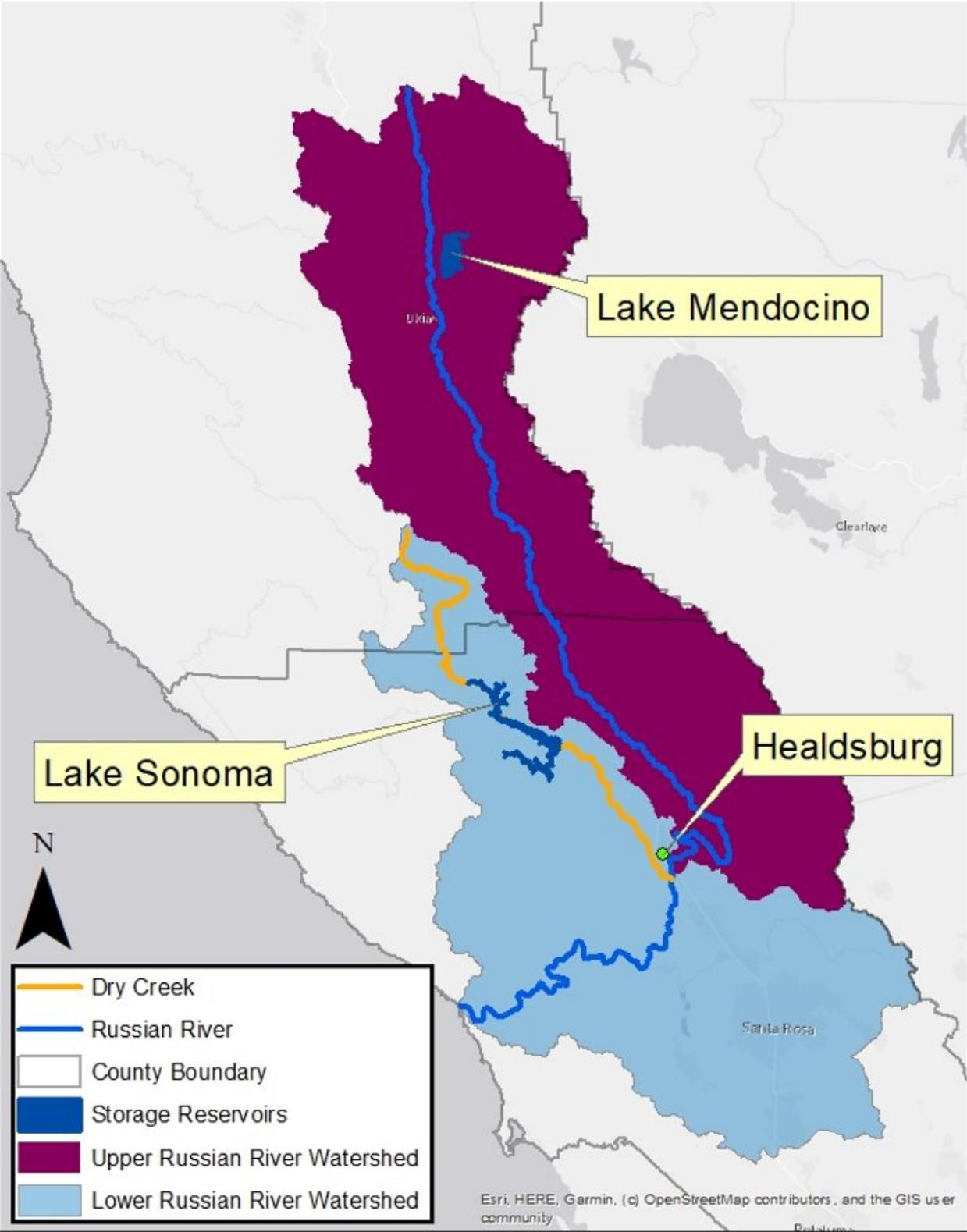
## Context Unique to the Russian River Watershed

### *Physical Setting*

The Russian River originates in Mendocino County roughly 15 miles north of Ukiah and continues south for about 90 miles through alluvium-filled valleys (Cardwell, 1965). The Russian River watershed drains an area of approximately 1,500 square miles, including much of Sonoma and Mendocino counties (Sonoma County Water Agency, 2016). The main channel of the river is approximately 110 miles long and the river valley ranges in width from 12 to 32 miles. (Sonoma County Water Agency, 2016). Near Forestville the river turns westward, crosses the Coast Ranges, and flows to the Pacific Ocean at Jenner (Sonoma County Water Agency, 2016). Around 5 miles from the outflow into the Pacific Ocean the river transitions into an estuary as ocean water and river water mix (Sonoma County Water Agency, 2016) .

The drainage area of the Russian River lies in a northern area of the California Coast Ranges section of the Pacific Border province. (Cardwell, 1965) “The northern Coast Ranges trend northwestward, parallel to the major structural features of the region” (USGS, Determining Water Availability in the Russian River Watershed, n.d.). On the West the Russian River valley is bounded by the Mendocino Range which ranges in altitude from 1,500 to 3,000 feet (Sonoma County Water Agency, 2016). East of the lower and middle Russian River valley areas at 2,000 to 6,000 feet of altitude are the Mayacamas Mountains (USGS, Determining Water Availability in the Russian River Watershed, n.d.). “The altitude of the mountains bordering the Russian River increases slightly from south to north.” (Cardwell, 1965).

The divide between the Upper and Lower Russian River begins at the confluence of Dry Creek and the Russian River just south of Healdsburg. This is the point at which water released from Lake Sonoma joins the Russian River. Thus, flow in the Upper Russian River is due to natural flow, flow abandoned from the Potter Valley Project, and releases from Lake Mendocino, whereas the Lower Russian River is fed by natural flow, flows from the Upper Russian River, and releases from Lake Sonoma. Figure 1 below illustrates the sections of the Russian River.



*Figure 1 Russian River Subregion Boundaries*

The principal tributaries of the Upper Russian River are the East Fork Russian River, Robinson Creek, Feliz Creek, Big Sulphur Creek, and Maacama Creek. The principal tributaries for the Lower Russian River are Dry Creek, Mark West Creek, and Austin Creek. (Sonoma County Water Agency, 2016) Table 1 below shows the drainage area for each major tributary.

*Table 1 Major Tributaries to the Russian River (Sonoma County Water Agency, 2016)*

<b>Tributary</b>	<b>Sub-watershed Drainage Area (sq. mi.)</b>	<b>Russian River River Mile (RM)</b>
East Fork Russian River	101	99
Robinson Creek	25	96
Feliz Creek	42	76
Big Sulphur Creek	86	62
Maacama Creek	70	41
Dry Creek	217	31
Mark West Creek	254	21
Austin Creek	70	6
Russian River at mouth	1485	0

Hills and valleys comprise 85% of the watershed, while the remainder lies within alluvial valleys (Sonoma County Water Agency, 2016). The Upper Russian River section is comprised of a series of northwest trending alluvial valleys separated by bedrock constrictions that form the Ukiah, Hopland and Alexander valleys (Sonoma County Water Agency, 2016). Near the Westward turn of the river by Healdsburg, just before the confluence with Dry Creek which delineates the Lower River, it flows through a sinuous bedrock canyon (Cardwell, 1965). The Lower Russian River emerges from a bedrock constriction near Wohler bridge, and flows through an alluvial valley until it reaches the estuary (Sonoma County Water Agency, 2016). Plates 1 and 2 of the Water-Supply Paper 1548 by the predecessor the USGS provide a more detailed depiction of the geology surrounding the Russian River.

*Climate and Hydrology*

Climate in the Russian River watershed is divided into wet and dry seasons. Approximately 93 percent of the annual precipitation normally falls during the wet season, October to May, with 90 percent occurring from November through April and ranging from 28 to 80 inches across the watershed (Sonoma County Water Agency, 2016). Climatic conditions differ among sections of the watershed. “Average annual precipitation is as high as 80 inches in the mountainous coastal region of the watershed,

and 20 to 30 inches in the valleys where the majority of the water users are located” (Sonoma County Water Agency, 2016). Precipitation varies significantly from season to season, which results in a large amount of variability in flows in the Russian River (Sonoma County Water Agency, 2016).

The Warm Springs Dam and Coyote Valley Dam have a notable normalizing effect on Russian River flows (Sonoma County Water Agency, 2016). For example, dry season flow in Dry Creek, one of the largest tributaries, consist almost entirely of water released from Lake Sonoma (Sonoma County Water Agency, 2016). Likewise, due to the lack of appreciable tributary inflows, the Upper Russian River relies nearly exclusively on releases from Lake Mendocino between May and October (Center For Western Weather and Water Extremes, n.d.) (Sonoma County Water Agency, 2015). The primary reason for the reliance on the reservoir is the drastic seasonal distribution of rainfall discussed above, with only 7% of the rainfall in the basin occurring between May and October. Prior to 1908 and the construction of Warm Springs Dam, Coyote Dam, and the Potter Valley Project, the river often nearly dried up in July, August and September (Kaplan, 1979).

#### *Public Water Systems in the Watershed*

The State Water Board’s Division of Drinking Water regulates public water systems and implements the Safe Drinking Water Act under primacy from the US Environmental Protection Agency. A public water system serves at least fifteen service connections or a population of at least 25 individuals. A community water system is a public water system that specifically serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents. (Cal. Code of Regs., tit. 22, § 64400.10) The State Water Board has identified twenty-five regulated community water systems in the Upper Russian River watershed whose drinking water supplies rely on, or likely rely on, flows in the Russian River. Twenty of these water systems have domestic water sources directly on or within immediate proximity to the mainstem of the Russian River. There are ninety regulated community water systems in the Lower Russian River watershed, including ten that are in immediate proximity to the Russian River or Dry Creek. Sonoma Water’s intakes in the Lower Russian River serve water to an additional five cities and districts beyond the Russian River watershed, where they serve a population of over 354,000 individuals.

Some of these public water systems may extend potable water service outside their immediate service areas by either direct interconnections to other community or noncommunity water systems, through extraterritorial water service agreements, or by making water available for bulk water hauling and delivery.

Tables 2 and 3<sup>4</sup>, below, indicate community water systems in the Upper Russian River that the State Water Board anticipates may rely on the regulation's exception to curtailment for minimum human health and safety needs. This list represents a conservative estimate: not all community water systems in the two tables divert from or are in proximity to surface waters of the Upper Russian River watershed, and some tributaries already have gone dry such that there is no flow to divert even under an exception.

*Table 2 Community Water Systems in Mendocino County, Upper Russian River*

<b>Public Water System ID</b>	<b>Public Water System Name</b>	<b>Service Connections</b>	<b>Population</b>
CA2300507	Calpella County Water District	176	548
CA2300731	City of 10,000 Buddhas	50	200
C2310010	Hopland Public Utility District	326	1,076
CA2300606	Lake View Mutual Water Co.	29	90
CA2310006	Millview County Water District	1,534	5,500
CA2310008	Redwood Valley County Water District	1,348	5,200
CA2300708	Ridgewood Water System	167	220
CA2300605	River Estates Mutual Water Company	82	250
CA2310002	Rogina Water Company Inc.	1,008	3,700
CA2310003	Ukiah, City of	4,781	16,105
CA2310005	Willow County Water District	1,070	3,797
CA2300837	Yokayo Tribe of Indians	23	75
CA4900608	Six Acres Water Company	22	66

*Table 3 Community Water Systems in Sonoma County, Upper Russian River*

<b>Public Water System ID</b>	<b>Public Water System Name</b>	<b>Service Connections</b>	<b>Population</b>
CA4900646	Alexander Valley Acres Water Company	16	30
CA4910024	California-American Geyserville (PUC)	307	1,014
CA4900736	Clear Creek Water Company	19	40
CA4910002	Cloverdale, City Of	3,269	9,157
CA4900521	Gill Creek Mutual Water Company	92	232
CA4910005	Healdsburg, City Of	4,900	12,104
CA4900570	Palomino Lakes Mutual Water Co.	113	250

<sup>4</sup> Information provided from State Water Board Division of Drinking Water databases and public water system boundary datasets, as accessed by the Office of Research, Planning and Performance on May 6, 2021.

CA4900611	Rains Creek Water District	63	208
CA4900577	Rio Lindo Adventist Academy	54	358
CA4900665	Russian River Mutual Water Co.	30	84
CA4910010	Sonoma County CSA 41-Fitch Mountain	337	1,108
CA4900510	South Cloverdale Water Company	39	90
CA4900893	West Water Company (PUC)	13	40

To provide a minimum human health and safety allowance of 55 gallons per capita per day (gpcd) to each of the community water systems in the Upper Russian River watershed, the State Water Board expects a minimum municipal water demand for human health and safety of 1,584 acre-feet for the period June through October 2021. 55 gpcd is the current standard for indoor residential water use, as established within Water Code, section 10609.4. Statewide, the median indoor residential water use is 48 gpcd. (Department of Water Resources, Water Use Efficiency, 2021)

Although Russian River indoor water use data suggests that per capita indoor use tends to be higher than 55 gpcd, the regulation’s use of 55 gpcd remains a reasonable allowance under these drought conditions. Based on monthly water production records submitted by the Upper Russian River community water systems referenced above, recent wet-year winter water production has ranged between 80 gpcd and 95 gpcd. (These figures represent the closest available approximation of indoor water use for these specific community water systems.) However, these wet-year winter water production figures do not reflect the kind of water conservation that local water suppliers already are requiring or encouraging under these drought conditions. Additionally, due to low water availability in the Upper Russian River and likely curtailment orders, the community water systems listed above will not have available water supplies to meet this indoor water use ceiling and significant water conservation measures will be required to reduce water demands to meet the minimum human health and safety allowances. Finally, to the extent any community water system is unable to meet its residents’ water demand with 55 gpcd, the regulation includes authority for the Deputy Director to approve a petition justifying diversion for minimum human health and safety needs based on a higher allowance.

*Tribal Lands*

The Russian River watershed includes tribal lands of eight California Native American Tribes.

*Table 4 California Native American Tribes in Mendocino County*

<b>California Native American Tribe</b>
Coyote Valley Band of Pomo Indians

Guidiville Rancheria
Hopland Band of Pomo Indians
Pinoleville Pomo Nation
Redwood Valley or Little River Band of Pomo Indian

*Table 5 California Native American Tribes in Sonoma County*

<b>California Native American Tribe</b>
Cloverdale Rancheria of Pomo Indians
Dry Creek Rancheria Band of Pomo Indians
Federated Indians of Graton Rancheria

The tribes within the Russian River generally do not have their own water sources. Most purchase water by connection or water hauling from local county water districts. Multiple tribes purchase water from Redwood Valley County Water District. Redwood Valley County Water District purchases additional water from Millview County Water District. The lack of independent water supplies appears to leave the tribes especially vulnerable to water shortages as there are multiple layers of external decision-making that impact what water might be available.

It remains unclear, especially when tribal lands are supplied water by means of hauled water from a public water system, if and where the tribal population is reflected in the population served by the public water system and whether the public water system considers the tribal population when reporting its population figures to the State Water Board.

### Russian River Fisheries

Historically, the Upper and Lower Russian River watersheds supported large wild populations of Central California Coast (CCC) coho salmon (*Oncorhynchus kisutch*) and CCC steelhead (*Oncorhynchus mykiss*). Native populations of CCC coho salmon, Chinook, and steelhead populations have been severely impacted by habitat and hydrologic modifications. Population declines have resulted in CCC salmonid populations being considered Evolutionarily Significant Units (ESU). An ESU is a distinct population or group of populations that is substantially reproductively isolated from other conspecific groups and represents a unique evolutionary history and worthy of conservation priority under the Endangered Species Act (NOAA, 2020).

### *Coho Salmon*

CCC coho salmon are at risk of extinction within the Russian River watershed and continued reservoir releases are required to maintain stream continuity and prevent stranding of juvenile coho salmon and other salmonids.

With considerations of declining CCC coho salmon populations and historical human impacts on their freshwater habitats in the Russian River watershed, the Biological Review Team formed by NMFS, issued a final ruling on June 28, 2005 confirming the state and federal endangered status of the CCC coho salmon and designated the species as an ESU. The Biological Review Team recognized coho salmon populations as being “in danger of extinction” (NMFS, Endangered and Threatened Species, 2005). This designation prioritizes the conservation of the CCC coho salmon which includes populations found in the Russian River watershed. Water Board Decision 1610 sets minimum instream flow requirements for the support of salmonids within the Russian River watershed.

The Central California Coast coho Salmon (CCC coho salmon) populations has experienced rapid decline over the past several decades and is considered to be highly vulnerable and in need of intervention to sustain a viable breeding population. CCC coho salmon have the highest risk of extinction relative to the CCC steelhead and CCC Chinook, which also inhabit and breed in the same regions (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008)

CCC coho salmon are at risk of extirpation due to their 3-year life cycle and relatively lengthy rearing period (Gustafson, et al., 2007). Coho salmon have a 3-year life cycle with adult coho migrating to natal streams from the ocean in late fall. Generally, the life cycle includes four to six months of incubation, fifteen months rearing in freshwater, and a sixteen-month maturation period in sea water (Sandercock, 1991). Additionally, CCC coho only spawn once before dying, which limits reproductive opportunities relative to steelhead, which may spawn for multiple years. Due to their 3-year life cycle, impacts of extreme environmental variations are more severe and can have a widespread effect on a particular year’s spawning cohort (Gustafson, et al., 2007). CCC coho are impacted by changes in flows that can alter migration patterns, strand juvenile fish in disconnected pools, entrap juveniles in improperly screened diversions, and alter water temperatures resulting in reduced growth rates (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008).

### *Steelhead*

The Russian River is situated at the northern extent of the CCC steelhead’s range and was considered to support the third largest steelhead population in California during the first half of the 20<sup>th</sup> century (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008). However, on August 18, 1997, CCC steelhead ESU were federally listed as a “threatened” species, and the listing was

reaffirmed on January 5, 2006 (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016)

The CCC steelhead ESU includes all steelhead populations from the winter-run populations in the Russian River basin south to Aptos Creek in Santa Cruz county; the CCC steelhead ESU does not include populations in the Sacramento-San Joaquin River system (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016). CCC steelhead are negatively impacted by many of the same environmental factors influencing CCC coho population viability (i.e., stream disconnection, water quality, water temperature, etc).

Similar to juvenile CCC coho, juvenile CCC steelhead spend the summer rearing period in Russian River tributaries<sup>5</sup>, with steelhead beginning their upstream migration in late fall (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016). Steelhead freshwater residence time ranges from one to four years and participate in year-round emigration to the ocean with noted surges in late fall/early winter and late spring/early summer. Steelhead may spend one to two years in the ocean before returning for their first spawning event. Steelhead differ from coho in that they are able to spawn multiple times in their lifecycle (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016).

### *Environmental Requirements of Salmonids*

Despite reductions in steelhead populations and viable habitat upstream in the watershed, small populations below the Coyote Valley Dam and Warm Springs Dam remain relatively persistent and thus the 2008 NMFS Biological Opinions considers CCC steelhead to be at a moderate risk of extinction (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008).

Juvenile salmonids typically seek out cold water refugia in pool habitats in the summer, which coincides with the natural seasonal low flows in the Russian River (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016). The temporal distribution of spawning ages reduces the risk that any singular event or environmental condition from harming an entire population as the temporal variation allows a smaller proportion of steelhead to be exposed to potentially lethal adverse environmental conditions (Bjorkstedt, et al., 2005).

Ideal refugia includes consistent stream flows throughout the summer rearing period and lowered stream temperatures. Minimum flows are required for habitat connectivity

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<sup>5</sup> As described on the following page, NMFS stated in its letter dated June 2, 2021, that due to the extreme dry conditions and lack of flow in Russian River tributaries this year, steelhead are rearing in the mainstem of the Upper Russian River this summer.

to provide juvenile fish passage into higher reaches of the watershed in early summer. Maintenance of instream flows benefit all salmonids and are required for providing adequate dissolved oxygen concentrations in the stream, reducing stream temperatures, and supplying invertebrate prey to young coho and steelhead (State Water Board, Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River, 2016)

These specific environmental variables and elaborations on how drought conditions exacerbate these requirements are discussed in more detail below.

### *Dissolved Oxygen*

Salmonids require sufficient amounts of dissolved oxygen throughout all life stages. Lowered levels of dissolved oxygen pose a significant threat to the viability of young salmonid populations. Insufficient dissolved oxygen levels can affect embryonic development, decrease fry size, and even affect swimming behavior of migrating adult salmonids (Carter, 2005). Severe drought conditions exacerbate dissolved oxygen levels through reductions in stream flow and in the extreme case of stream disconnection, can lead to stranding of juvenile salmonids in isolated pools. Lack of flowing water limits available dissolved oxygen for fish. Stranded salmonids are at higher risk of predation and may perish once oxygen levels are depleted within these disconnected pools. Reduced dissolved oxygen levels also harm spawning habitats and may be attributed to sediment transport. Sedimentation of gravel beds reduces the amount of oxygen-rich water exposed to fish eggs, affecting development and egg survival.

### *Stream Temperatures*

In periods of drought, reduced stream flows have less capacity to thermally buffer the longer, hotter summer days. In the previously mentioned scenario of stranded salmonids in disconnected pools, water temperatures can rapidly rise above habitable levels without a connected river introducing cold water. Temperature increases may also occur in shallow or drying stream reaches. Fish respond to increased water temperatures by investing more energy resources to thermally regulate their bodies. This energy expenditure comes at a cost of reduced growth rates and survivability. Increased water temperatures from low stream flow are also inversely correlated with dissolved oxygen concentrations. The combination of high water temperatures and low dissolved oxygen concentrations may be fatal for developing salmonids (Carter, 2005).

### *Drift and Food Source Availability*

Salmonids rely on aquatic invertebrates as a major food source and reduced stream flows due to drought will interfere with the supply of invertebrate prey for juvenile salmonids. Stream continuity is required to provide consistent supplies for salmonid food sources. Severe drought conditions will impair overall habitat quality and will result

in reduced growth rates during a particularly vulnerable life stage for the fish (Bradford & Heinonen, 2013).

#### *Flow Requirements for Hatchery Operations at Coyote Valley Dam*

With respect to the Upper Russian River Watershed, hatchery operations at the Coyote Valley Fish Facility (CVFF), located at the base of the Coyote Valley Dam (Lake Mendocino), are crucial to the maintenance of current salmonid populations. CVFF, in conjunction with Lower Russian River hatchery operations at the Don Clausen Fish Hatchery (DCFH) located at Warm Springs Dam (Lake Sonoma), support salmonid populations by collecting juveniles, rearing them to reproductive maturity, artificially spawning them with other captive fish (Coho at DCFH) or with wild populations in the case of Steelhead (at CVFF), for eventual release of hatchery raised fish into the Russian River and its tributaries. Both hatchery facilities were established to mitigate fish losses associated with dam operations at both reservoirs. Operations at CVFF and DCFH help support fish populations by controlling for previously discussed environmental variations that would otherwise be harmful to young salmonids when they are at their most vulnerable life stages. Each year, approximately 200,000 CVFF hatchery raised steelhead are released into the Russian River (NMFS, Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance, 2008).

The success of the hatchery stocks are dependent on stream continuity because hatchery raised salmonids returning to CVFF are released in the Ukiah and Cloverdale reaches of the main stem Russian River and need continuous flows to complete their spawning migrations.

#### *Need for Emergency Regulation in Russian River Watershed to Preserve Fisheries*

In a May 27, 2021 letter addressed to the State Water Board, NMFS communicated their agency support of Sonoma Water's May 13, 2021 Temporary Urgency Change Petition (TUCP) to modify Decision 1610 instream flow requirements in order to ensure sufficient summer supplies for fisheries and domestic demands. The TUCP is intended to (1) protect listed salmonid species, (2) ensure sufficient water supply for municipal distribution and (3) prevent Lake Mendocino water storage levels from declining beyond operational minimum levels. NMFS stated its strong support of adjusting minimum instream flow requirements according to Decision 1610 critical water year conditions to require a minimum instream flow of 25 cfs. The letter also outlines collaborative efforts on behalf of NMFS, CDFW, and the State Water Board to monitor and assess habitat conditions, flow connectivity, and fish presence at various reaches within the watershed at specified time intervals throughout implementation of the changes approved by the TUCP. The letter stressed the urgency for the State Water Board to approve of Sonoma Water's TUCP and supports the adoption of an emergency regulation to

sufficiently protect threatened fishery resources (NMFS, Response to Sonoma Water TUCP, 2021).

NMFS sent an additional letter on June 2, 2021 as a supplement to their May 27, 2021 correspondence, expressing their support for the emergency curtailment regulation under development by State Water Board staff. The agency communicated that failure to adopt an emergency regulation may result in a “dead pool” scenario in which reservoir water levels fall below the outlet elevation, preventing any further releases meant to sustain fisheries or municipal water supplies. Lack of Lake Mendocino releases may result in stream discontinuity and strand salmonids that can perish in isolated pools if fall rains are insufficient (NMFS, Response to Sonoma Water TUCP (Supplemental Letter), 2021). Reducing the risk of Lake Mendocino emptying completely is critical to ensuring a continuous flow in the Upper Russian River can be maintained into 2022 and avoiding the adverse effects on fisheries associated with the river becoming a series of disconnected pools.

#### Data and Methodology for Issuing and Rescinding Curtailments

The following subsections describe the data and methodologies that will be used to support the issuance of curtailment orders for the Lower Russian River pursuant to section 877.2 of the regulation and for the rescission of curtailment orders in both the Lower Russian River and the Upper Russian River under sections 877.2 and 877.5, respectively.

##### *Monthly Demand Projections*

Water right demand estimates will be based on information from annual reports of water diversion and use submitted to the State Water Board in the years 2017 through 2019 and stored in the eWRIMS database. Staff apply quality assurance efforts to correct for errors using the Standardized Demand QA/QC Methodology. This methodology was noticed and introduced in a Board workshop on April 16, 2021. Staff identified the water rights to include in the analysis using the “watershed” field in the eWRIMS database. The dataset was further refined by geospatially identifying each point of diversion (POD) associated with a water right within the Watershed Boundary Dataset Hydrologic Unit Code 8 boundary, representing the Russian River Watershed. The priority date for each water right was manually reviewed and assigned based on Division of Water Rights files and historical records. The calendar years 2017, 2018, and 2019 reflect the most current and complete information on which to base expected diversions. The sum of monthly reported direct diversion and diversion to storage values were averaged over the 2017, 2018, and 2019 calendar years to estimate monthly demands.

The reported water diversion and use data were assessed using selected data “flags” from the Division’s Standardized Demand QA/QC Methodology. A subset of data flags

from the Methodology representing the most important sources of error were selected for the Russian River watershed dataset to expedite the data review process. These related to excessive reported diversions, duplicate reporting, unit conversion errors, missing water use reports, confirming priority dates, and identifying primary beneficial use. Staff manually reviewed the flagged records and associated water rights records to identify probable data errors and apply corrections.

### *Water Availability Projections*

Watershed hydrologic modeling is the simplification of real-world water systems to better understand water availability. Quantitative hydrologic models can be used to solve complex water problem such as water availability, or to determine unimpaired flow estimates at various spatial points of interest. It also allows for the simulation of hydrologic process such as solar radiation, evapotranspiration, soil infiltration, runoff, groundwater, and streamflow.

The USGS has developed a generalized model named the Precipitation Runoff Modeling System (PRMS), which is an open source publicly available surface water model. PRMS is a spatially distributed physical-based model that simulates hydrological processes of a watershed such as surface and groundwater flow, evapotranspiration, soil moisture dynamics, and streamflow. Subbasins are sub drainage areas within the watershed boundary, and they are developed with defined outlet points. PRMS allows for subbasin development, which is important because it allows for tributary analysis and the separation of drainage areas for analysis of water availability at various spatial locations of interest.

A specific application of the PRMS model has been developed for the Russian River by the USGS, referred to as the Russian River PRMS model. The original Russian River PRMS model was developed and calibrated by the USGS for the wet months (Nov-Apr). A stepwise, multi-objective calibration approach was applied to make sure the model can simulate interdependent hydrologic processes such as solar radiation, evapotranspiration, streamflow volume, and streamflow timing/rate. State Water Board staff updated the model calibration to better capture the spring recession and summer streamflow timing and rate. Parameters that impact the hydraulic conductivity, groundwater and subsurface flow were calibrated and optimized to capture natural runoff and streamflow for the months of April to October, while still holding the calibration for the other months. The existing USGS model had a start and end time of 1/1/1990 to 12/31/2015, respectively.

State Water Board staff extended the climate observation data for the Russian River PRMS model from 1/1/2016 to 05/15/2021, using updated records from the same observation stations used originally in the existing model. Any data gaps in the observed stations were filled using Oregon State University's Parameter-elevation

Regressions on Independent Slopes (PRISM) datasets at the respective climate station locations. Finally, the model was ran from 1/1/1990 to 5/15/2021 to obtain updated water supply streamflow output estimates in the Russian River watershed. This method can be used to continue incorporating updated climate observation data throughout 2021, as described in subdivision (d) of section 877.2 and subdivision (c) of section 877.5.

The precipitation input used to forecast flows will be set to zero inches/mm from mid-May to September 2021, because both single month trends and long terms trends show severe drought conditions with 97% exceedance. The year 2014 shows similar temperature variability from January to April, so the 2014 temperature minimum and maximum daily values will be used from mid-May to September 2021. The model climate observation inputs can be updated monthly until precipitation at any of the meteorological stations at Cloverdale, CA US (USC00041838), Healdsburg, CA US (USC00043875) and/or Graton, CA US (USC00043578) exceeds 0.5 inches (12.7 mm). Exceeding this amount, all model climate observation stations will likely be updated weekly until rescission of curtailment orders per the regulation.

#### *Drought Water Rights Allocation Tool (DWRAT)*

The difficulty associated with water allocation becomes acute during times of shortage, and especially so during severe drought conditions. The thousands of water users and different priorities of right; spatially variable water availability; and a sparse stream gaging network present complex challenges when analyzing supplies available to meet water right demand. This complexity can be addressed by evaluating available supplies against water right demands at the downstream outlet of a watershed and determining what level of water right priority will be satisfied. This method of evaluating at the outlet of the watershed was applied when issuing the Notices of WUA in late May 2021 in the Upper Russian River watershed. However, advances in calculation speed and computer programming mean alternate approaches are possible.

Since the 2014 drought, State Water Board has provided funding to, and collaborated with, UC Davis to develop a drought curtailment framework to issue and rescind curtailments with greater precision. The Drought Water Rights Allocation Tool (DWRAT) as outlined in “Drought Water Right Curtailment Analysis for California’s Eel River,” (Lord, et al., 2014) takes demand and streamflow, and outputs optimal allocations of available water among diverters using a set of integrated mathematical equations that maximize diversions for each priority of water right based on available supply at their location. The tool is independent of any specific datasets or models.

The tool works by solving equations that maximize the allocation of water to diverters based upon their demand and priority of right, subject to streamflow mass balance equations and certain legal constraints of each water right. The stream network is

mathematically represented by a series of subbasins and a connectivity matrix, and the tool routes water through this network. Allocations are made at the subbasin level, ensuring that they are made where flow is physically available to the diverter. In the first module, allocations are made for riparian basin demands, based upon the principle of equal seniority, and sharing of any shortfall. If all riparian demand is satisfied, any remaining basin flow is then allocated to appropriative users according to their demand and priority of right, via a second independent module. Additional modules can be added to account for other types of water users or priorities. Water users may receive curtailments based on unavailability of flow, or due to a more senior downstream right.

### *Evaluation of Available Supplies against Demands*

The DWRAT has been refined by State Water Board staff since its 2014 creation to implement the tool in the Python programming language. The equations are modeled with the Numerical Python Package, and the PULP solver package is used for the optimizations.

Given that DWRAT has not been implemented previously in the Russian River watershed, Board staff are carefully refining and evaluating the program to ensure programming bugs or other unforeseen delays in application of DWRAT do not delay implementation. If DWRAT is available for application in the Russian River watershed in lieu of evaluating demands against supplies at the outlet of the Upper or Lower Russian River, the Upper and Lower Russian River watersheds will be divided into subbasins corresponding to the PRMS flow estimates described above. All water right holders who have reported water diversion within the years 2017 – 2019 will be assigned to a subbasin using the latitude and longitude location(s) of their point(s) of diversion found in eWRIMS. Diversers will be further subdivided by location between those with physical access to flow in the mainstem of the river and therefore all flow from upstream basins as well, and those without such physical access therefore only having access to flow from their assigned subbasin. User demand will be derived from historic monthly averages as described above.

The DWRAT may be relied upon to determine those users who will face curtailment based upon their priority of right, downstream senior demands, and flow conditions upstream of their POD. If riparian demand can be satisfied, then the tool will allocate flow that is available, as determined by flow forecasting described above, in order of seniority of right. It will output a priority date cutoff, after which all appropriative right holders would be curtailed. If flows are insufficient to meet riparian demand, then all appropriative users will be curtailed, and the tool will be used to equalize the proportion of riparian demand allocated in each basin, to the extent that flows are available to satisfy this proportion. These results may be used to inform final curtailment decisions for riparian users, and may be combined with other factors being evaluated, such as flows necessary to meet minimum human health and safety needs. Conversely, after

curtailments have been issued, DWRAT may be used in a similar fashion as above to rescind curtailments. If output from DWRAT indicates there is flow in excess of senior water right holders' demands, it may inform a determination that water is available under a diverter's priority of right.

### *Criteria for Issuance of Curtailment Orders in Upper Russian River Watershed*

Section 877.3 describes the circumstances under which curtailment orders may be issued for the Upper Russian River watershed. Section 877.3 describes a circumstance where Supplemental Storage Releases are occurring to meet Inbasin Uses, and defines those terms. Supplemental Storage Releases are amounts of water released from Lake Mendocino in excess of inflows to Lake Mendocino to meet Inbasin Uses. Inflows to Lake Mendocino are based on average daily flows in cfs measured at USGS stream monitoring site on the East Fork of the Russian River near Calpella (site ID 11461500). Amounts of water released from Lake Mendocino shall be the daily release rates in cfs reported to the California Data Exchange Center for Station ID COY (Coyote (Lake Mendocino)) and sensor number 23 (Reservoir Outflow). Inbasin Uses comprise minimum instream flows required in water right Permit 12947A, and as modified by Order WR 2021-0056-Exec, dated June 14, 2021; diversions for minimum human health and safety needs; and reach losses associated with meeting instream flow requirements and minimum human health and safety needs. Curtailment orders will not issue pursuant to section 877.3 unless Lake Mendocino storage levels fall below the targets specified in section 877.4.

## **Information Relied Upon**

State Water Resources Control Board, Decision 1030

State Water Resources Control Board, Order WR 74-30

State Water Resources Control Board, Decision 1610

State Water Resources Control Board, Orders dated February 11, 2021, and June 14, 2021 Approving Temporary Urgency Change Petitions filed by Sonoma County Water Agency

State Water Resources Control Board, Water production data from the Division of Drinking Water's Electronic Annual Report database

State Water Resources Control Board, May 25, 2021 Notices of Water Unavailability

State Water Resources Control Board, June 10, 2021 Public Workshop on Proposed Russian River Emergency Regulation and Recently Issued Notices of Water Unavailability for the Upper Russian River Watershed

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## **Mandate on Local Agencies or School Districts**

The State Water Board has determined the proposed sections and subdivisions do not impose a new mandate on local agencies or school districts. The regulation is generally applicable law.

## **Suspension of California Environmental Quality Act**

On April 21, 2021, Governor Gavin Newsom issued an Executive Order and Proclamation addressing the drought state of emergency in Mendocino and Sonoma counties, which, among other things, suspended the California Environmental Quality Act (CEQA) as applied to the State Water Board's adoption of emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water, to promote water recycling or water conservation, and to require curtailment of diversions when water is not available under the diverter's priority of right." CEQA is therefore suspended as to adoption of this regulation.

## **Cost Estimate**

Based on information prepared by economists at the State Water Board (and University of California, Davis), and using assumptions that show a higher projection of the potential range of costs, the State Water Board estimates that the total cost to local agencies and governments will be approximately \$729,340, including costs related to submittal of reports, preparation of an agreement, and lost revenue in water sales or switching to alternate water supplies. The proposed regulation is not anticipated to have a financial impact on state agencies or school districts or to result in costs or savings in federal funding to the State. Attachment 1 provides more background information on the proposed estimate.

The State Water Board is the only agency that can implement this emergency regulation. As required by Government Code section 11346.5, subdivision (a)(3)(D), the State Water Board has conducted an evaluation of this regulation and has determined that it is not inconsistent or incompatible with existing state regulations.

## **Fiscal Effect on Local and State Government**

The fiscal effects resulting from the proposed emergency regulation are the costs that would be incurred by state and local government agencies to respond to any requirements therein, pursuant to Government Code section 11346 et seq. This Fiscal Impact Statement has been prepared in accordance with State Administrative Manual 6600-6616.

The four fiscal effects incurred by state and local government agencies as a result of the proposed emergency regulation include the costs: (1) to complete and submit initial compliance certification and ongoing diversion reporting; (2) for the Mendocino County Russian River Flood Control and Water Conservation Improvement District (Flood Control District) and Sonoma County Water Agency to develop a water accounting agreement for stored water in Lake Mendocino; (3) for the City of Ukiah to replace curtailed surface water diversions with groundwater; and (4) to State agencies associated with the review of water substitutions under section 878.

The State Water Resources Control Board (State Water Board) estimates the total cost to all state and local (including city, county, schools and publicly owned water suppliers) agencies due to the emergency regulation as \$729,340. The total cost for all local and state agencies to complete and submit the initial compliance certification and biweekly reporting is \$39,500. The total cost for the Flood Control District and Sonoma County Water Agency to negotiate an agreement for Lake Mendocino stored water is \$25,000. The total cost for pre-1914 right holders to switch to their available groundwater supply is \$658,240. The cost to State agencies reviewing water substitution proposals is \$6,600. The resulting total cost to State agencies (initial compliance certification, biweekly reporting, and review of water substitution reviews) is \$9,350. The total cost for local agencies is \$719,990. No reimbursable expenses were identified.

### **Reporting Costs for State and Local Agencies**

The State Water Board expects there will be fiscal impacts on public agencies due to the costs of reporting and self-certification requirements, as proposed in section 879. There are two potential costs to state and local agencies: (1) the costs associated with submittal of the initial compliance certification which all public agency right holders in the Upper and Lower Russian River watersheds must complete upon being issued a curtailment order, and (2) the costs for public right holders to complete required reporting when continuing to divert for minimum human health and safety needs.

The State Water Board identified a total of 28 public water agencies that divert water in the Upper and Lower Russian River watersheds, with 16 of those agencies diverting in the Upper Russian River watershed. Public water suppliers who rely on groundwater supplies or on water from outside the watershed will not be subject to curtailment orders under the emergency regulation and therefore are excluded from this estimate.

## Attachment 1 - Fiscal Impact Statement

The potential fiscal impacts include the costs to local government agencies to complete and submit the online initial compliance certification and the regular diversion reporting. To conservatively estimate the cost of the regulation, the State Water Board determined the total number of state and local government agencies in the Russian River watershed and multiplied that number by an average time to complete the online form, multiplied by an estimated staff cost per hour. The estimated amount of time required to complete the forms will depend on whether each entity already has documentation regarding its diversion and use, or whether the entity will need to obtain such information. The State Water Board has estimated that completion of its online initial compliance certification is expected to take one hour. It is estimated that the total time for each state or local agency to complete the regular reporting will be 1.5 hours per report. The reporting frequency, while not prescribed in the regulation, is conservatively assumed to be biweekly for this analysis. The State Water Board recognizes that some agencies may have less frequent reporting requirements. The State Water Board conservatively estimates that curtailments could remain in place through 2021, therefore biweekly reporting would be required from July 15, 2021 through December 31, 2021, for a total of 12 reports. The State Water Board has used an estimate of \$125 per hour for staff time and overhead costs, conservatively representing a general manager role based on 2019 records from the California State Controller's Government Compensation in California database for local water agencies.

Using these values, the cost to the State of California to complete the one-time compliance certification is estimated to be \$3,500 (24 local agencies and 4 state agencies multiplied by \$125 per hour, multiplied by 1 hour) and the regular reporting from July 15, 2021 through December 31, 2021, is estimated to be \$36,000 (15 local agencies and one state agency multiplied by \$125 per hour, multiplied by 1.5 hours, multiplied by 12 biweekly reports). Therefore, the total cost to all local (including city, county, schools, and publicly owned water suppliers) for certification and reporting is conservatively estimated at \$36,750; the total cost to state agencies for certification and reporting is conservatively estimated at \$2,750.

**Specific Local Costs for an Agreement on Allocating Water Stored in Lake Mendocino**  
Section 877.6 requires the Flood Control District and Sonoma County Water Agency to jointly submit an executed agreement regarding stored water in Lake Mendocino. The State Water Board assumes that each of the two entities will appoint an attorney to develop the agreement, and thus will incur costs to fulfill this requirement. It is estimated that each attorney will spend 25 hours to prepare and draft the agreement. The State Water Board has used a conservative upper estimate of \$500 per hour in legal fees for each entity. Therefore, the total estimated impact for the Flood Control District and Sonoma County Water Agency to formalize an agreement is \$25,000.

### **Costs Carried by Local Agencies with Curtailed Pre-1914 Water Rights**

Water Right holders with a valid pre-1914 right subject to a Curtailment Order will be unable to divert what nominal natural or abandoned flows might otherwise be available

## Attachment 1 - Fiscal Impact Statement

to them and may increase pumping from available groundwater supplies to offset the curtailed surface water diversion. The State Water Board has identified one local agency that may bear costs in this circumstance: the City of Ukiah. The costs for replacing curtailed surface water diversions with groundwater have been calculated by assigning a value to each unit of water in excess of the minimum human health and safety need exemption provided for in the regulation. For this analysis, curtailments are assumed to be in place from July 15, 2021 through December 31, 2021, which is 169 days.

According to statements made by representatives of the City of Ukiah, their pre-1914 appropriative water right provides a diversion rate of 2.8 cubic feet per second (cfs). As reported to the State Water Board, the City of Ukiah public water system serves a population of 16,105 individuals; at 55 gallons per capita per day, the City of Ukiah might divert up to 1.4 cfs under an exemption to a curtailment order for minimum human health and safety needs. The State Water Board expects that the City could incur a range of costs or lost revenue depending on whether it seeks to offset the curtailed surface water diversions with increased groundwater pumping or to mitigate the curtailments with the implementation of a water conservation program. The costs could range from a nominal cost savings to the maximum cost estimated below.

The State Water Board has made a conservative assumption that the variable usage water rate component of a utility's water rate represents the unit cost for replacing curtailed surface water with groundwater. This water rate component typically is designed to recover costs that vary with the amount of water produced. Typical expenditures covered by the variable usage water rate component include utility pumping, treatment, and chemical costs. In this analysis, the State Water Board uses \$3.22 per hundred cubic feet for the utility's variable usage water rate component as described in a City of Ukiah water rate study showing the water rate in place during the summer of 2020.

The maximum range of costs for the local agency is conservatively estimated at \$658,240 (\$3.22 per hundred cubic feet, multiplied by 1.4 cubic feet per second, multiplied by 169 days).

### **State Agency Costs for Review and Approval of Water Substitutions**

Section 878(c) allows for certain direct diversions to continue after the issuance of a Curtailment Order when an approved substitution of stored water or groundwater into the Russian River or a tributary takes place. Such a substitution requires the approval of the Deputy Director for the Division of Water Rights, the Executive Director of the North Coast Regional Water Quality Control Board, and the California Department of Fish and Wildlife. The State Water Board expects there to be labor costs associated with these

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approvals. However, the Division of Water Rights will bear the cost, as with other costs, in preparing and implementing the regulation and the North Coast Regional Water Quality Control Board will process reviews and approvals through an existing fee-funded process for low-thread discharges. Expenses of the California Department of Fish and Wildlife (CDFW) are the sole expected unaccounted expense.

The total costs are determined from an hourly labor cost for CDFW, an estimate of the number of hours needed to review a proposal, and a conservative estimate of the number of proposals. The State Water Board has estimated the CDFW labor cost at \$165 per hour and that each review will take no more than eight hours. The substitutions are a new concept in the watershed and the State Water Board does not expect substantial participation in the year that the emergency regulation will be effective. At most, the State Water Board expects five proposals to require CDFW review. In total, the State agency costs associated with this section are estimated at \$6,600 (5 proposals, multiplied by \$165 per hour for 8 hours).