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. Over the past year, most water users in the Russian River watershed have been forced to reduce their diversions to comply with State Water Board emergency regulations intended to ensure that scarce water supplies are sufficient to meet minimum human health and safety needs until the next major precipitation events. Despite water users throughout the watershed making significant sacrifices to reduce their diversions, the driest January to March in California's recorded history will likely require that the watershed again draw on reservoir storage to meet minimum human health and safety needs and instream flow requirements, putting reservoir storage once again dangerously low at the start of the 2022 irrigation season. Should dry conditions persist through Spring 2022, one of those reservoirs—Lake Mendocino—is again in danger of low carryover storage levels, creating a risk of running completely dry in 2023. Continued 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) has taken 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 update is a crucial component of the State Water Board's strategy to prevent catastrophe resulting from drought conditions in the Russian River watershed. The extension of the emergency regulation is necessary to continue to 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.

On July 8, 2021 Governor Newsom expanded the drought proclamation to include the counties of Inyo, Marin, Mono, Monterey, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, and Santa Cruz (July 8, 2021 Proclamation). On this date, the Governor also signed Executive Order N-10-21 to call on Californians to voluntarily reduce their water use by 15 percent compared to 2020.

On October 19, 2021 Governor Newsom further expanded the drought proclamation to cover the entire state of California (October 19, 2021 Proclamation).

On March 28, 2022 Governor Newsom signed Executive Order N-7-22 to encourage greater conservation to combat the drought. Among other items, this Executive Order directed the State Water Board to i.) consider emergency regulations to increase conservation by Urban Water Suppliers; ii.) consider a ban on non-functional

commercial, industrial, and institutional turf irrigation; and iii.) to waive certain requirements for petitions.

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 2022, the U.S. Drought Monitor classified 100% of California as at least moderately dry, and almost the entire state of California as experiencing severe or extreme drought conditions (National Drought Mitigation Center; U.S. Department of Agriculture; National Oceanic and Atmospheric Administration, 2022). As of April 8, 2022, most of the Russian River watershed is in Severe or Extreme Drought (National Drought Mitigation Center; U.S. Department of Agriculture; National Oceanic and Atmospheric Administration, 2022).

The cumulative effects of exceptionally dry conditions spanning multiple years resulted in unprecedented drawdown and inadequate storage recovery of the two main reservoirs that supply water for important economic and basic human beneficial uses within the watershed. 2022’s January through March was the driest in recorded state

history, resulting in diminishing snowpack and storage after early season storms (Statewide Snowpack Falls Well Below Average Following Consecutive Dry Months (ca.gov)). In the reservoirs managed by Sonoma County Water Agency (Sonoma Water), storage levels were the lowest on record for much of 2021. The current combined storage of Lake Mendocino and Lake Sonoma is similar to this date last year (Sonoma Water 2022).

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).

Precipitation events in October and December of 2021 allowed for temporary suspensions of curtailment orders in the Russian River watershed. However, dry conditions returned in January, February, and March of 2022. Above average temperature and below average precipitation are anticipated to continue for much of California through June due to a continuing La Niña pattern; this deficit will offset the above average precipitation received at the start of the Water Year (Fan, 2022; Climate Prediction Center, 2022; Pugh, 2022). As of March 17, 2022, the U.S. Drought Monitor classified California as 35.22 percent extreme drought and 93.23 percent classified as at least severe drought (National Drought Mitigation Center; U.S. Department of Agriculture; National Oceanic and Atmospheric Administration, 2022). The Russian River watershed is nearly entirely classified as extreme drought, the second highest category of drought intensity.

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 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 2021 and into 2022. The rapidly deteriorating conditions in 2021 limited the opportunity for avoiding curtailments through voluntary water sharing agreements, but ongoing coordination and discussion with local stakeholder groups has created the potential for voluntary water sharing agreements in 2022.

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 advised that water was 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 warned 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 was under consideration.

The State Water Board adopted the Russian River Emergency Regulation at a board meeting on June 15, 2021. The Office of Administrative Law (OAL) approved the emergency regulation on July 10, 2021. The Upper Russian River Curtailment Orders were issued on August 2, 2021, followed by Lower Russian River Curtailment Orders issued on August 10, 2021.

On March 21, 2022, the State Water Board again issued a Dry Year 2022 Letter urging approximately 20,000 water right holders in certain watersheds to prepare for water supply shortages due to ongoing dry conditions.

Need for Continued Emergency Regulation

The current Russian River Emergency Regulation will expire on July 12, 2022, one year from the date of approval by OAL. Without action by the State Water Board to update and readopt the Russian River Emergency Regulation, the State Water Board would lose authorities relied upon to effectively respond to the drought emergency and lower the risk of catastrophic loss of access to water. There is also a desire to amend the regulation based on feedback received from stakeholders and lessons learned through

implementation over the past year. Re-adopting the regulation this spring will allow water users in the Russian River watershed to plan for the future dry season and enable the State Water Board to effectively respond to ongoing and cumulative drought conditions.

Further 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 continue curtailment of water diversions in response to ongoing 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 will 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 Finding of Emergency.

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. In their June 15, 2021, resolution adopting the 2021 Regulation, the State Water Board found that the 10,000 acre-feet reservation was unavailable due to the low storage levels in Lake Mendocino.

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 of March 9, 2022, as measured at the Ukiah Municipal Airport since the beginning of the water year on October 1, 2020, is approximately 29.8 inches. This cumulative precipitation is the lowest recorded at this location in nearly a century, which has an average of approximately 37 inches per year. As of March 31, 2022, Lake Mendocino held just 44,289 acre-feet of its authorized storage capacity of 122,500 acre-feet, its second lowest storage level ever recorded at this time of year. As of March 31, 2022, 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 145,097 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 filed by Sonoma Water on December 10, 2021; this Order will expire on June 9, 2022. 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 effective action to curtail unlawful and unreasonable water use, there remains a substantial risk that Lake Mendocino may draw down to levels that risk emptying in 2023 should drought conditions continue. Modeling projections prepared by Sonoma Water in 2021 at the request of State Water Board staff show that, had then-current hydrologic conditions and typical losses from the river related to diversions, evaporation, and seepage persisted until October 1, there was a roughly 10% chance (10 out of the 108 years of historical conditions used to simulate potential future conditions) that Lake Mendocino would have emptied at some point in 2022. 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.

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,[1] conditions within the Upper Russian River watershed already were dire enough that 20,000 acre-feet remaining in storage by October 1 was likely the highest feasible storage target to reduce the likelihood of Lake Mendocino emptying.) Reach losses observed during 2021 in combination with maintenance of the instream flow obligations resulted in a drawdown of approximately 25,000 acre-feet of Lake Mendocino storage, resulting in a storage low-point well below the 20,000 acre-feet storage target. Given that storage in Lake Mendocino is currently only 44,706 acre-feet, there remains a significant risk that an appropriate level of carryover storage may not be available to address the risk of continued dry conditions in 2023.

Lake Sonoma serves a much larger population and, as noted above, is facing significant 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

[1] State Water Board Decision 1610, p. 14.

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 redivert 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 anticipated lack of natural flow in the Upper Russian River watershed, particularly if the amounts of water transferred from the Eel River through the Potter Valley Project are again drastically reduced.

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 will be drawn down to the detriment of future storage conditions that may be necessary should drought conditions persist.

As emphasized in a June 2, 2021, letter from NMFS, significant mortality of Endangered Species Act-listed fisheries would likely occur if Lake Mendocino were 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 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 improve upon the State Water Board's 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 continue and issue curtailment orders requiring recipients to cease or limit diversions unless and until (1) they have authorization to continue diverting pursuant to one of the exceptions enumerated in the regulation, or (2) their curtailment status has been changed. The emergency regulation thus will 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.

The proposed amended emergency regulation will improve the existing regulation to clarify requirements, refine analyses, and address stakeholder feedback received over the past year. Notable changes include:

1. Expanding use of the Water Right Allocation Tool (Allocation Tool) to the entire Russian River watershed and repealing the use of storage targets as the determiner of curtailments for the Upper Russian River Watershed
2. Formal recognition of a voluntary conservation program that will function as an alternative to ceasing diversions due to curtailments and incorporation of that program into the regulation

3. A methodology to assign water budgets for water users based on prior reported diversions and for those users to petition to potentially change their assigned budget
4. Addition of an exception for small ponds under 10 acre-feet for which the corresponding water right does not include bypass requirements
5. Improvements to the definition of “minimum human health and safety needs”
6. Administrative improvements

The goal of the proposed amendments is to create a regulation that better serves the needs of both the environment and the water users in the Russian River using feedback based on last year’s regulation and lessons learned by the Division of Water Rights. The amendments to the 2021 emergency regulation will help ensure a more consistent and sustainable approach to managing curtailments in the watershed. The expansion of the Allocation Tool will help the regulation reflect what is needed from each water user during the drought emergency while also helping ensure minimum health and safety needs continue to be met. The amended regulation also helps establish a predictable demand from riparian users which will aid in modeling and analysis of the watershed, resulting in a more equitable and realistic implementation of the correlative sharing legally required of riparian water right holders during shortages of natural flows. Updates to the definition of “minimum human health and safety needs” and the added exception for small ponds will aid in ensuring clarity and confidence for those continuing use under exceptions to curtailment.

Existing Emergency Regulation Section 877
Existing section 877 is reserved for future use.

Proposed Amended Emergency Regulation Section 877.1
Existing section 877.1 defines terms used throughout Article 24 such as different geographic areas and watersheds, administrative terms, and the definition of “minimum human health and safety needs”.

Proposed amendments to section 877.1 include an update to the definition of “curtailment order” to clarify that a curtailment order may require the recipient to comply with regular updates to a curtailment status list. Proposed amendments also include removal of some definitions no longer needed in proposed amended sections. The definition of “minimum human health and safety needs” is also updated to clarify domestic water use and water use by urban water systems.

Proposed Amended Emergency Regulation Section 877.2
The existing elements of section 877.2 that will remain identify sources of sufficiently reliable information that will be considered in the Deputy Director’s decisions to update curtailment status in the Russian River Watershed. Water supply forecasts, drought notices, and updates on curtailments will be posted on the State Water Board’s drought

announcement website and will be distributed to those who have signed up for the State Water Board's email list.

Proposed amendments to section 877.2 include applying this methodology to the entire Russian River Watershed—both the Upper Russian River and the Lower Russian River—not just the Lower Russian River. Amendments also include allowing curtailment orders to establish a maximum allowable diversion in the form of an assigned water budget for certain water rights. Additionally, it is proposed that the Deputy Director will publish and update a curtailment status list showing all water rights for which diversions must cease or be reduced correlatively. The section is also updated to specify that any diversion of surface water where augmented stream flows are occurring in a priority tributary as part of a Voluntary Drought Initiative would constitute an unreasonable use of water. Four priority tributaries to the Russian are identified: Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek.

Proposed Amended Emergency Regulation Section 877.3
Proposed amendments to section 877.3 delete text regarding curtailment methodology specifically for the Upper Russian River and replace it with text about curtailments affecting riparian water rights throughout the Russian River Watershed. The amended section provides that riparian water users may be issued curtailment orders and must cease or reduce diversions in accordance with the order and the updated curtailment status list. The section provides that riparian right holders who disagree with the assigned water demand identified in their curtailment order may submit their actual planned diversions to the Deputy Director who may then accept, accept with revisions, or reject the submission. The section further provides that riparian water users who have failed to report their diversions in prior years and also fail to inform the Deputy Director of their planned diversion shall be subordinated to a junior-most priority while this regulation remains in effect.

Proposed Amended Emergency Regulation Section 877.4
Proposed amendments delete the existing text regarding storage level targets for Lake Mendocino and replace it with text holding the section in reserve for potential regulation text necessary for the support of regional voluntary conservation agreements in the Russian River Watershed.

Proposed Amended Emergency Regulation Section 877.5
Proposed amendments to Section 877.5 repeal the section and make it available for other use. The existing section covers rescinding curtailments in the Upper Russian River, but these requirements now are covered by the proposed revisions to section 877.2.

Proposed Amended Emergency Regulation Section 878
Existing section 878 provides that 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. It also allows continued diversion when an approved substitution of stored water or groundwater pumping is released that does not decrease stream flow downstream.

Proposed amendments to section 878 consist of minor refinements to the language needed because of updates to other sections and to the definition of non-consumptive uses.

Proposed Amended Emergency Regulation Section 878.1
Existing section 878.1 describes the procedure for a water user subject to curtailment to continue limited diversions 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 amendments to section 878.1 clarify that petitions to continue diversions are required for requested diversions that cannot be quantified on the basis of gallons per person per day in addition to those that are greater than 55 gallons per capita per day. The proposed amendments also specify that for continued diversions for fire protection or critical hydropower substantiating documentation may be requested by the Deputy Director. The amended section also provides for a reduced $250 filing fee for temporary urgency change and temporary transfers petitions solely for minimum human health and safety.

Proposed Amended Emergency Regulation Section 879
Existing 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 amendments to section 879 remove the requirement for all water users who receive a curtailment order to submit a certification. Proposed amendments also specify that public water systems that continue to divert must provide their public water system identification number in addition to the existing information required.

Proposed Amended Emergency Regulation Section 879.1
Existing 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 amendments to section 879.1 add that diversions may continue after issuance of a curtailment order for water right permit, license, stockpond certificate, or registration not exceeding a face value of ten acre-feet per year if that permit, license, certificate, or registration does not include a bypass condition.

Proposed Amended Emergency Regulation Section 879.2
Existing 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.

Proposed amendments to section 879.2 clarify and consolidate applicable enforcement authorities and remove separate subdivisions specific to the Upper Russian River and Lower Russian River. The amended section also adds that, in cases where consent is withheld for an inspection to assess compliance with Article 24, the board may obtain an inspection warrant pursuant to the procedures in Title 13.

Proposed Emergency Regulation Section 880
This section provides express authorization for the redelegation of authorities granted to the Deputy Director to aid the Division of Water Rights in carrying out the duties created by Article 24 in a more timely fashion.

Informative Digest

Summary of Existing Laws and Regulations

California has two primary methods for obtaining water rights – “appropriative” and “riparian,” and each has somewhat different attributes. California’s water right priority system establishes which users may divert, how much they may divert, and when there is insufficient water in the stream. 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, usufructuary 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.

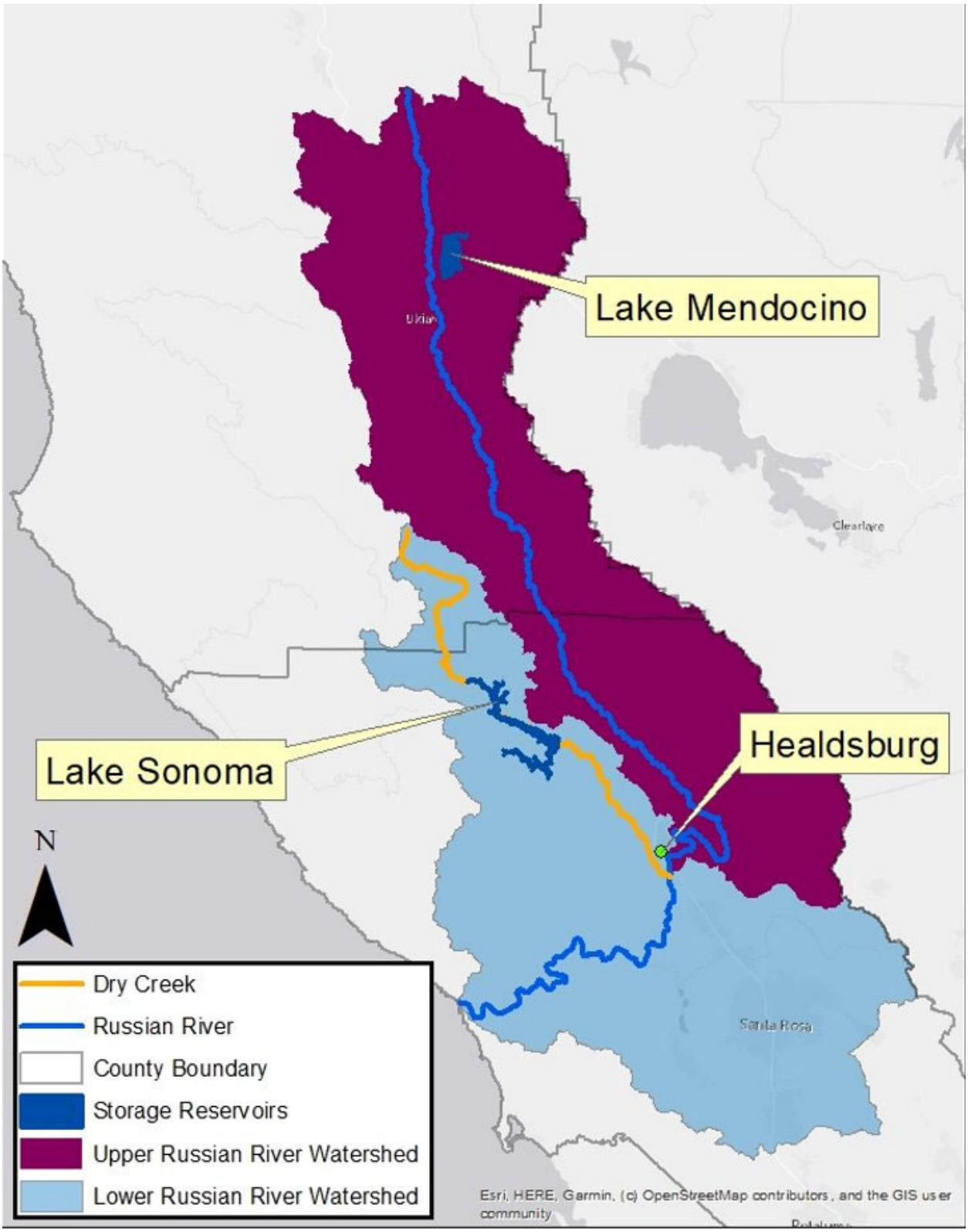

Figure 1 Russian River Subregion Boundaries

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)

Tributary	Sub-watershed Drainage Area (sq. mi.)	Russian River River Mile (RM)
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 to the United States Geological Survey (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[2], 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

[2] 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.

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

Public Water System ID	Public Water System Name	Service Connections	Population
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

Public Water System ID	Public Water System Name	Service Connections	Population
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
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 Efficency, 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

California Native American Tribe
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

California Native American Tribe
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 20th 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[3], 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 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)

[3] 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.

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 continues to be critical to ensuring a continuous flow in the Upper Russian River can be maintained and avoiding the adverse effects on fisheries associated with the river becoming a series of disconnected pools.

Voluntary Drought Initiative Program

Section 877.2, subdivision (c), describes the circumstances under which the curtailment status of water right holders in four priority tributaries to the Russian River (Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek) may be changed to require cessation of diversions to protect augmented stream flows or releases made as part of Voluntary Drought Initiative projects.

The California Voluntary Drought Initiative (VDI) is a collaborative venture between NOAA's National Marine Fisheries Service (NMFS) and CDFW to support protection of salmonids during drought. The VDI provides a framework to develop temporary, voluntary water conservation and in-stream flow agreements with water users in high-priority salmon and steelhead streams in exchange for short-term relief from certain Endangered Species Act provisions. This is a strictly voluntary program with the objective to improve the likelihood of ESA-listed fish survival throughout the drought.

In 2014, CDFW coordinated with NMFS to evaluate minimum flow conditions for juvenile coho and steelhead in these tributaries with the goal of determining subsistence flow, which is defined as the amount of flow required to maintain hydraulic connectivity to support habitat conditions, temperature, and dissolved oxygen levels that provide a reasonable probability of survival during the summer low flow period.

Each agreement under the VDI targets stream and river flows in danger of falling below this level. Activities undertaken per agreements reached under the VDI to augment flows may warrant curtailments to ensure the intended VDI benefits of protecting critical salmonids are achieved. If NMFS and CDFW inform the Deputy Director flow protection measures have commenced per VDI agreements, it would be an unreasonable use of water to divert any augmented flows, and the curtailment status list will be modified to require diversions to cease as needed.

<u>Data and Methodology for Issuing, Suspending and Rescinding Curtailments</u>

The following subsections describe the data and methodologies that will be used to support the determination of curtailment statuses and correlative sharing for the Russian River pursuant to sections 877.2, 877.3 and 877.4 of the regulation.

The regulation would authorize the Deputy Director to rely upon the Drought Hydrologic Modeling Methodology Using the Precipitation Runoff Modeling System (PRMS); the Water Rights Demand Data Analysis Methodology; and the Allocation Tool, or comparable tools to inform curtailment decisions. A summary of each is provided below.

An overview of the Water Rights Demand Data Analysis Methodology, as well as detailed instructions and standard operating procedures are available at:

https://www.waterboards.ca.gov/drought/drought_tools_methods/demandanalysis.html

The Allocation Tool user instructions, formulations, codebase, and other resources are available on the California Water Board Data Center GitHub page at:

https://github.com/CAWaterBoardDataCenter/DWRAT.

Monthly Demand Projections

Water right demand estimates are based on total diversion amounts in annual reports of water diversion and use (annual water reports) submitted through the State Water Board's Report Management System (RMS). Staff applied the Water Rights Demand Data Analysis Methodology (Methodology) as noticed and discussed at a workshop held on April 16, 2021. The Methodology relies on water rights information within the Division's Electronic Water Rights Management System (eWRIMS). It was developed to standardize the Division's attempts at improving water rights data, and to guide staff through the process of correcting and verifying reported data values to estimate demand amounts. The process first involves identifying or flagging records of reported diversions that are potentially incorrect. A series of flags representing logical checks and derivate calculations are applied, and records identified by each flag are verified or corrected.

The list of Russian River water rights to include in the analysis was identified by selecting records with Points of Diversion (PODs) within the Russian River Watershed boundaries, whose status is active—i.e., cancelled, revoked, and inactive water right records were excluded. The PODs coordinates were evaluated and adjusted as necessary per the Methodology. The annual reports associated with this subset of water rights were restricted to calendar years 2017, 2018, and 2019 to reflect the most current and complete information on which to base diversion estimates. If seniority of a water right or priority date was missing, one was assigned by reviewing other relevant dates reported in eWRIMS, the Division's files, or water rights license, permits, and historical records when necessary.

Estimates of Unimpaired Flow

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. Sub-basins are sub drainage areas within the watershed boundary with defined outlet points. PRMS allows for sub-basin development

allowing for the separation of drainage areas for analysis of water availability at various spatial locations of interest.

The original Russian River PRMS model was developed and calibrated by for the wet months (Nov-Apr). State Water Board Division of Water Rights staff updated the model calibration to better capture the spring recession and summer streamflow timing and flow rate. For recession flows, parameters that impact the hydraulic conductivity, groundwater and subsurface flow were calibrated to capture natural runoff and streamflow for the months of April to October. The calibration involved a trial and error process to vary parameters related to groundwater and subsurface flow consistent with the procedures documented by USGS per the PRMS user manual (https://www.usgs.gov/software/precipitation-runoff-modeling-system-prms). The predictive skill of the model was assessed by comparing modeled, or simulated, results against observed, or measured, flows using the Nash-Sutcliffe model efficiency coefficient (NSE), the R-Squared coefficient of determination (RSR), and the percent bias statistical measures (PBIAS). These measures are widely used reliable statistics for assessing goodness of fit of hydrologic models and results indicate acceptable levels of model performance, based on commonly accepted industry practice and per the PRMS user manual and the Model Evaluation Guidelines for Systematic Quantification of Accuracy in Watershed Simulations (https://elibrary.asabe.org/abstract.asp?aid=23153). In general, model simulation can be judged as satisfactory if NSE is greater than 0.50, RSR is less than or equal to 0.80, and if PBIAS is plus or minus 25 for streamflow. The assessment demonstrated that the calibrated model outputs had a performance rating of “Very good” based on the guidelines described above (see table below), which is the highest rating, suggesting that model outputs are appropriate for use as a tool for estimating availability of natural flows.

Table 4. General performance ratings for recommended statistics for a monthly time step.

Performance Rating	RSR	NSE	PBIAS (%)		
			Streamflow	Sediment	N, P
Very good	0.00 ≤ RSR ≤ 0.50	0.75 < NSE ≤ 1.00	PBIAS < ±10	PBIAS < ±15	PBIAS< ±25
Good	0.50 < RSR ≤ 0.60	0.65 < NSE ≤ 0.75	±10 ≤ PBIAS < ±15	±15 ≤ PBIAS < ±30	±25 ≤ PBIAS < ±40
Satisfactory	0.60 < RSR ≤ 0.70	0.50 < NSE ≤ 0.65	±15 ≤ PBIAS < ±25	±30 ≤ PBIAS < ±55	±40 ≤ PBIAS < ±70
Unsatisfactory	RSR > 0.70	NSE ≤ 0.50	PBIAS ≥ ±25	PBIAS ≥ ±55	PBIAS ≥ ±70

Figure 2 General performance ratings for recommended statistics for a monthly time step.

The existing USGS model produced a time-series of unimpaired flow estimates for 1/1/1990 through 12/31/2015 for 22 sub-basins within the Russian River Watershed. With a calibrated model, climate data inputs (precipitation and temperature) are the dynamic variables that impact continuous streamflow time-series outputs. Updating the model required collecting daily time series inputs for precipitation, maximum air temperature, and minimum air temperature. Division of Water Rights staff extended the

modeled streamflow estimates from 1/1/2016 to 04/05/2022, using updated records from the same meteorological observation stations used originally in the existing model. The hydrologic model is regularly updated with observed and forecasted meteorological data on a monthly interval or as otherwise needed. Data gaps were filled using Oregon State University's Parameter-elevation Regressions on Independent Slopes (PRISM) datasets at the respective climate station locations.

The Santa Rosa Plain is a subarea of the lower Russian River, located on the southeast portion of the Russian River Watershed outside of the 22 sub-basins referenced above. The USGS in cooperation with Sonoma County Water Agency (SCWA), the cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, the town of Windsor, California American Water Company, and the County of Sonoma developed a fully coupled surface and groundwater hydrologic model, known as the Santa Rosa Plain Hydrologic Model (SRPHM) to better understand and manage the hydrologic resources of the Santa Rosa Plain watershed. Division of Water Rights staff extended the climate inputs of the SRPHM by updating the model meteorological precipitation and temperature stations using spatial interpolation and PRISM 4k daily climate values. The existing Santa Rosa Plain Hydrologic model includes groundwater pumping demand through December 31, 2018. Updating groundwater pumping in the entire watershed model could not be completed with the emergency drought timelines. An alternative approach was developed to extend the model from 2019 to 2021 with the impact of groundwater pumping demand taken into consideration by running the model with groundwater pumping demand on and off, and calculating the percent reduction in streamflow.

To provide advanced notice of potential curtailments, thus allowing water right holders to plan future water use based on projected water availability, Division of Water Rights staff have developed a method of forecasting supply flows where feasible. While hydrologic conditions can vary substantially during winter and spring, based on climate conditions such as minimum and maximum daily temperatures and precipitation, assessment of historic climate records suggest that meteorologic inputs remain relatively consistent during the dry season of dry years. To produce forecasted flow timeseries data, Division of Water Rights staff compile up-to-date observed climate station data, California Nevada River Forecast Center 6-day gridded forecast precipitation and temperature data, and lowest historical precipitation and hottest temperature data (based on Standardized Precipitation Index drought indices). These data are used as inputs to the USGS Russian River PRMS model to generate forecasted timeseries data that represent relatively conservative supply flow values.

For the dry season, it is anticipated that supply flows can be reasonably forecasted for multiple months, assuming no precipitation takes place and observed daily minimum and maximum temperatures are similar to historic climate conditions. During the wet season, incorporating the CNRFC 6-day forecast data provides the Division of Water Rights with the ability to lift curtailments in anticipation of major storm events, potentially

allowing water right holders to capture surface water runoff and maximize beneficial use of water while still providing protection to senior water right holders.

Estimates of Evaporative Losses

A known limitation of the USGS PRMS hydrologic model is the inability to account for additional evaporative and evapotranspiration losses of surface water flows once they become channelized in the model. Once the model characterizes runoff as channelized flow, it is routed through the stream network to the outlet of the watershed without sustaining any further losses, regardless of distance to the outlet. This has the potential effect of estimating more surface water flow than may actually be present during hotter and dryer periods. In an effort to mitigate overestimation of supply flows available for diversion, evaporative and evapotranspiration losses along the mainstem of the Russian River are estimated separately from the model and are subtracted first from the natural water supplies, and if evaporative deficits remain, from the foreign water supplies along the mainstem of the Russian River.

Buffer zones were mapped around the mainstem corridor of the Russian River. A 15-meter buffer was used to represent the surface water area of the river channel itself, and a separate 35-meter buffer extends from, but does not include, the 15-meter buffer to capture the surface area of the riparian vegetation along the riparian corridor.

Corresponding evapotranspiration rates will be used to estimate total evaporative losses by Allocation Tool sub-basin for the mainstem of the Russian River. Evaporation rates were calculated using the Cal-SIMETAW Unit Values dataset containing cumulative monthly unit values per acre of crop evapotranspiration coefficients for “Water Surface” and “Riparian” land cover types. (https://data.cnra.ca.gov/dataset/cal-simetaw-unit-values) Monthly values from 2021 will be used to project anticipated evaporative losses during 2022 and 2023; values will be updated to reflect current conditions should observations indicate significant deviations from 2021, such as due to precipitation during the months of June through September.

Potter Valley Project Supplies

The extent of flows originating from the Potter Valley Project are governed by 1) Reasonable Prudent Alternatives associated with Pacific Gas & Electric’s (PG&E) 2004 Federal Energy Regulatory Commission (FERC) License that define minimum flows for the East Branch of the Russian River, and 2) PG&E’s contractual obligations to deliver up to 50 cfs to Potter Valley Irrigation District (PVID). A combination of the minimum flows, which are abandoned into the East Branch of the Russian River by PG&E, and return flows following delivery to and use by PVID constitute the available supply of foreign water available to appropriative users along the mainstem of the Upper Russian River. Flows that do not originate from within the Russian River watershed, such as from the Potter Valley Project’s diversion and transfer of water from the Eel River, are not available to riparian water right holders in the Russian River watershed.

The availability of Potter Valley Project flows can be calculated via a combination of estimated average monthly PVID requested deliveries (derived from PG&E nightly reports), estimated average monthly Potter Valley total demands (derived from 2000-2013 daily average demands used in the Sonoma Water Fish Flow Draft EIR modeling), observed flows as measured by the USGS 11461500 East Fork Russian River near Calpella gage (Calpella gage), Lake Mendocino inflow (as reported by the USACE), and the natural surface water runoff as modeled by the USGS Russian River PRMS hydrologic model. For the purposes of the regulation, Potter Valley Project flows will be calculated by subtracting the amount of daily average natural flow estimated using PRMS from the daily average flow measured at the Calpella gage. Flows at the Calpella gage reflect return flows following contractual deliveries to PVID, evaporative losses of flows in the East Branch of the Russian River, and any other streamflow losses, and thus reflect a more accurate representation of flows available for the majority of users in the watershed, who are located downstream of Lake Mendocino. Projections of Potter Valley Project flows will be based evaluating the data sources described above to select data from the historical record, for example monthly volumes, where requested PVID deliveries and FERC requirements were similar to the forecasted period.

Staff evaluated water rights in the East Fork of the Russian River watershed (Allocation Tool sub-basin 2) using claimed water source data from eWRIMS, as well as geographic location data, in an attempt to identify which water rights that have physical access to divert Potter Valley Project and/or abandoned flows originating from the Eel River. These rights are considered to be part of the “mainstem” of sub-basin 2 and have access to both the natural runoff produced by the watershed, as estimated by the Russian River PRMS hydrologic model, as well as the Potter Valley Project flows. The remaining water rights in the sub-basin are assumed to be limited to the natural runoff produced by the watershed. After allocating natural flows to riparian water rights, the estimated Potter Valley Project supply flows are added to the “mainstem” of sub-basin 2 and allocated to appropriative water rights (including downstream users) along the mainstem of the upper Russian River in order of priority using the Allocation Tool.

Evaluation of Available Supplies against Demands

The best estimates of available supply flows, diversion demand, and priority of right provide the quantitative basis to inform curtailment decisions. Once these datasets are developed, evaluating whether available supplies are insufficient to meet demands is ultimately an arithmetic process, albeit a computationally intensive one. During the drought beginning in 2014, the State Water Board funded the development and initial iteration of an approach to optimizing allocations by the UC Davis Center for Watershed Sciences. The result was the Drought Water Rights Allocation Tool (DWRAT) as outlined in “Drought Water Right Curtailment Analysis for California’s Eel River,” (Lord, et al., 2014). Division staff built upon DWRAT to develop the Water Rights Allocation Tool (Allocation Tool) formulations and Python code-base. The Allocation Tool works by

solving equations that maximize the allocation of water to diverters based upon their demands and priority of right, subject to water availability mass-balance equations and legal constraints applicable to each water right. The stream network is mathematically represented by a series of sub-basins and matrices that encode physical connectivity among sub-basins and diverters. Unimpaired flow is estimated for each sub-basin, and water allocations are made at the sub-basin level ensuring that allocated flow is locally available. Allocations are determined in two separate modules. The first module allocates to riparian users who share connectivity based upon the principle of equal seniority and correlative sharing of any shortfall. In the second module, any remaining sub-basin flow is then determined and allocated to appropriative users according to their demand and priority of right. Water users may receive curtailments based on unavailability of flow, or due to a more senior downstream right. The Allocation Tool was tested and successfully implemented to issue curtailments in the Russian River Watershed during the 2021 drought.

The Allocation Tool was implemented in the Russian River according to the general User Instructions, using the scripts in the Python code-base that implement the formulations, cited above and available on GitHub. The equations, data inputs, and results are quantitative and transparent. There are additional considerations and management decisions for processing and potentially modifying the input data depending on the particular geographic, management, or legal context where the Allocation Tool is being implemented. For example, certain permits and licenses have specific terms or conditions that affect a water right's priority relative to others, or ability to divert.

The demand input data may warrant certain minor modifications. One of the key assumptions in the original DWRAT framework, and as applied in the Allocation Tool, is that all water users have access to all of the available flow at the sub-basin outlet. In practical terms, this may be unreasonable depending on the location PODs, and the size, or resolution, of delineated sub-basins and flow data. The sub-basins used by USGS in the Russian River model are relatively coarse, so certain sub-basins were subdivided into 1) areas where users only have access to sub-basin inflow—"headwater areas", and 2) areas where users have physical access to flow originating in their sub-basin (their headwater areas) and any accumulated flows from upstream sub-basins—"mainstem areas". This requires data processing described in the User Instructions. Secondly, many water right holders fail to submit their annual reports, or report zero diversion. When the Tool is used in a curtailment decision context such as the case to support the Russian River drought emergency regulations, Division of Water Rights staff will discern whether an allocation is zero due to zero demand, or whether there is zero water availability. Zero demand amounts were replaced with 0.00099 to facilitate this. Users who have water available received this negligible allocation, whereas users who face water unavailability will not, and would be curtailed. Lastly, water rights with a

current status of Pending were excluded from the analysis because they do not have a legal right to divert.

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, 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.