

PROPOSED EMERGENCY REGULATION AND INFORMATIVE DIGEST

Establishment of Minimum Instream Flow Requirements, Curtailment Authority, and Information Order Authority in the Klamath Watershed

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In Title 23, Division 3, Chapter 2, add Article 23.5, Sections 875, 875.1, 875.2, 875.3, 875.4, 875.5, 875.6, 875.7, 875.8 and 875.9 to read:

Article 23.5. Klamath River Watershed Drought Emergency Requirements

§ 875 Emergency Curtailment Where Insufficient Flows are Available to Protect Fish in Certain Watersheds

- (a) To prevent the diversion of water that would unreasonably interfere with an emergency minimum level of protection for commercially and culturally significant fall-run Chinook salmon and threatened Southern Oregon/Northern California Coast coho salmon, surface water and groundwater shall not be diverted from the watersheds listed below at a diversion point or for the benefit of a place of use that is subject to a curtailment order, during the effective period of the curtailment order under this article, except as provided under sections 875.1, 875.2, or 875.3.

- (b) The Deputy Director for the Division of Water Rights (Deputy Director) may issue a curtailment order upon a determination that without curtailment of diversions, flows are likely to be reduced below the drought emergency minimum flows specified in subdivision (c), within the constraints detailed in this article. Curtailment orders shall be effective the day after issuance. Where flows are sufficient to support some but not all diversions, curtailment orders shall be issued, suspended, reinstated, and rescinded in order of water right priority provided in section 875.5. In determining which diversions should be subject to curtailment, the Deputy Director shall consider the need to provide reasonable assurance that the drought emergency minimum flows will be met. If maintaining the flows described in subdivision (c) would require curtailment of uses described in section 875.2 or 875.3, then the Executive Director may determine whether or not those diversions should be allowed to continue based on the most current information available regarding fish populations, health and safety needs, livestock needs, and the alternatives available to protect both public health and safety, livestock, and fish populations.

- (c) Drought Emergency Minimum Flows are as specified below.
 - (1) Scott River. The Scott River enters the Klamath River at United States Geological Survey River Mile 145.1.

(A) As measured in cubic feet per second at United States Geological Survey gage 11519500 located downstream of the city of Fort Jones at the northern end of Scott Valley (Scott River Mile 21):

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<u>200</u>	<u>200</u>	<u>200</u>	<u>150</u>	<u>150</u>	<u>125</u>	<u>50</u>	<u>30</u>	<u>33</u>	<u>40</u>	<u>60</u>	<u>150</u>

(B) The California Department of Fish and Wildlife or the National Marine Fisheries Service may notify the Deputy Director that the pertinent life stage(s) of the pertinent species the flows are crafted to protect is not yet, or is no longer present at the time anticipated, or the California Department of Fish and Wildlife, after coordination with the National Marine Fisheries Service, may notify the Deputy Director that lower, alternative flows at the Fort Jones gage or that alternative flows at a different point or points in the watershed provide equal or better protection for the pertinent species' relevant life stage. Using this information, as well as other information that could affect the need for curtailments to meet minimum flow needs for fisheries purposes, including weather forecasting, the need for flows to ramp up or down, the contributions of voluntary flow measures, and future flow needs, the Deputy Director may determine not to issue curtailment orders, to issue curtailment orders to a smaller priority grouping described in section 875.5, or to suspend curtailment orders already issued in order of priority as described in section 875.5, as applicable.

(2) Shasta River. The Shasta River enters the Klamath River at United States Geological Survey River Mile 179.5, at the junction of State Routes 263 and 96.

(A) As measured in cubic feet per second at United States Geological Survey gage 11517500 located near Yreka:

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<u>135</u>	<u>135</u>	<u>135</u>	<u>70</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>125</u>	<u>150</u>	<u>150</u>

(B) The California Department of Fish and Wildlife or the National Marine Fisheries Service may notify the Deputy Director that the pertinent life stage(s) of the pertinent species the flows are crafted to protect is not yet, or is no longer present at the time anticipated, or the California Department of Fish and Wildlife, after coordination with the National Marine Fisheries Service, may notify the Deputy Director that lower alternative flows at the Yreka gage, or that alternative flows at a different point or points in the watershed provide equal or better protection for the pertinent species' relevant life stage. Using this information, as well as other information that could affect the need for curtailments to meet minimum flow needs for fisheries purposes, including weather forecasting, the need for flows to ramp up or down, the contributions of voluntary flow

measures, and future flow needs, the Deputy Director may determine not to issue curtailment orders, to issue curtailment orders to a smaller priority grouping described in section 875.5, or to suspend curtailment orders already issued in order of priority as described in section 875.5, as applicable.

(3) Compliance with the drought emergency minimum flows will be determined by the Deputy Director.

(d) (1) Initial curtailment orders will be sent to each water right holder, agent of record on file with the Division of Water Rights, or landowner, as applicable. The water right holder, agent of record on file with the Division of Water Rights, or landowner is responsible for immediately providing notice of the curtailment order(s) to all diverters exercising the water right(s) covered by the curtailment order(s).

(2) The State Water Board has established the “Scott-Shasta Drought” email subscription and distribution list that water right holders, landowners, and other parties may join to receive drought-related notices and updates regarding curtailments in the Scott River and Shasta River watersheds. Notice provided by email or by posting on the State Water Board’s drought web page shall be sufficient for all purposes related to drought notices and updates regarding curtailment orders. The State Water Board’s drought web page is: https://www.waterboards.ca.gov/drought/scott_shasta_rivers/

(e) Suspension, reinstatement, or rescission of curtailment orders shall be announced using the email subscription and distribution list and web page described in subdivision (d)(2).

(f) (1) Local cooperative solutions by individuals or groups may be proposed by petition to the Deputy Director as an alternative means of reducing water use to meet or preserve drought emergency minimum flows, or to provide other fishery benefits (such as cold-water refugia, localized fish passage, or redd protection), in lieu of curtailment as described in this section.

(A) Petitions to implement local cooperative solutions that coordinate diversions, share water, strategically manage groundwater and/or surface water for fisheries benefits, reduce annual water use, or engage in similar activities may be submitted to the Deputy Director at any time.

(B) The Division of Water Rights and the Executive Director may coordinate with the California Department of Fish and Wildlife, National Marine Fisheries Service, the Scott River and Shasta River Watermaster District,

the developers of any model or other information used as part of the petition, and others in evaluating local cooperative solutions.

(C) After approval of a petition, the Deputy Director shall not issue curtailment orders or shall suspend, rescind or modify, as applicable, such orders already issued, affecting those rights relevant to the proposed cooperative solution so long as the Deputy Director finds that any continued diversions under the local cooperative solution are reasonable and do not result in unreasonable harm to other legal users of water.

(D) Deputy Director approval of a petition for cooperative solution may be subject to appropriate conditions, including monitoring and reporting requirements, to assure that no unreasonable injury to users of water will occur and that the terms of the petition or the associated underlying binding agreement will be met.

(E) The Deputy Director may rescind approval of a cooperative solution and issue or reinstate curtailment orders for the relevant water rights in the order described in section 875.5, notwithstanding approval of the cooperative solution, if monitoring or other reliable information indicates that parties are not meeting their obligations under the cooperative solution or the agreement is not providing the benefits to anadromous fish outlined in the cooperative solution, or based on an objection filed under (f)(2).

(2) Diversions covered by an agreement approved by the Deputy Director pursuant to this section are subject to this article and violations of such an approved agreement shall be subject to enforcement as a violation of this article. Notice of petitions and decisions under this section will be posted as soon as practicable on the State Water Board's drought webpage. The Deputy Director may issue a decision under this article prior to providing such notice. Any interested person may file an objection to the petition or decision. The objection shall indicate the manner of service upon the petitioner. The State Board will consider any objection, and may hold a hearing thereon, after notice to all interested persons.

(3) The Division of Water Rights, California Department of Fish and Wildlife, or National Marine Fisheries Service may install and maintain additional gages in the Scott River and Shasta River watersheds, and may evaluate compliance with the flow requirements defined in subdivisions (c)(1) and (c)(2) on a watershed or tributary scale using these gages, as needed. Diverters may also request to install and maintain a gage to support new flow requirement compliance points by submitting a written request with supporting data and information to the Deputy Director for approval.

(4) The Deputy Director may approve a petition to implement cooperative solutions under this article as follows:

- (A) For watershed-wide cooperative solutions: The Executive Director determines that a watershed-wide cooperative solution will provide sufficient assurance that the flows in subdivision (c)(1) or (c)(2) are achieved for a specific time period, considering the amount of flow anticipated and the level of assurance that flows made available by agreements will be protected.
- (B) For tributary-wide cooperative solutions: Regardless of whether the flows identified in subdivision (c)(1) and (c)(2) are being met, the Deputy Director may approve the petition submitted under this article if either:

 - (i) Sufficient information allows the Deputy Director to identify the appropriate contribution of the tributary to the flows identified in subdivision (c)(1) or (c)(2), and the Executive Director makes a finding that a local cooperative solution is sufficient to provide the pro-rata flow for that tributary; or
 - (ii) The California Department of Fish and Wildlife finds that the in-tributary benefits for anadromous fish are equal to or greater than the anticipated contribution to protections provided by the flows in subdivision (c)(1) or (c)(2).
- (C) For individual cooperative solutions: In the absence of watershed-wide or tributary-specific cooperative solutions, the Deputy Director may approve a petition submitted under this article:

 - (i) Where the watershed-wide flows in subdivision (c)(1) and (c)(2) and tributary-specific pro-rata flows established by the Deputy Director cannot be guaranteed, a binding agreement under which water users have agreed to cease diversions in a specific timeframe. Such binding agreement may be made with a coordinating entity with the expertise and the ability to evaluate and require performance of the agreement, for example with the California Department of Fish and Wildlife, the National Marine Fisheries Service, the Scott Valley and Shasta Valley Watermaster District, a non-profit organization with expertise and experience in water-saving transactions, or similar qualified entity. Where the diverter or coordinating entity submits a petition under this subdivision that includes a certification that diversion under a specified right has ceased for a certain time period, the Deputy Director shall approve the petition unless there is evidence that the diversion is nonetheless occurring.
 - (ii) Where an individual diverter or sub-tributary group of diverters has entered into a binding agreement with the California Department of Fish and Wildlife or the National Marine Fisheries

Service to perform actions for the benefit of anadromous salmonids, and the California Department of Fish and Wildlife makes a recommendation for an exemption to curtailment based on an assessment that the benefits to anadromous fish that the actions in a specific time period are equal to or greater than the protections provided by their contribution to flow described in section 875, subdivision (c)(1) and (c)(2) for that time period.

- (D) For overlying or adjudicated groundwater diversions for irrigated agriculture described under in section 875.5, subdivision (a)(1)(A)(ix) [Scott River] or section 875.5, subdivision (b)(1)(C) [Shasta River] the Deputy Director may approve a groundwater-basin-wide, groundwater-sub-basin-wide, or any number of individual local cooperative solutions totaling at least 400 irrigated acres where:
- (i) The proposal is based on a binding agreement. Such binding agreement may be made with a coordinating entity with the expertise and the ability to evaluate and require performance of the agreement, for example with the California Department of Fish and Wildlife, the National Marine Fisheries Service, the Scott Valley and Shasta Valley Watermaster District, a non-profit organization with expertise and experience in water-saving transactions, or similar qualified entity.
 - (ii) For the Scott River: The proposal provides at least:
 - 1. A net reduction of water use of 30 percent throughout the irrigation season (April 1 – October 31), as compared to the prior irrigation season; and
 - 2. A monthly reduction of 30 percent in the July 1 through October 31 time period, as compared to the prior year or to 2020.
 - (iii) For the Shasta River: The proposal provides at least:
 - 1. A net reduction of water use of 15 percent throughout the irrigation season (March 1 – November 1), as compared to the prior irrigation season; and
 - 2. A monthly reduction of 15 percent in the June 1 through September 30 time period, as compared to the prior year or to 2020.

Such reduction may be demonstrated by evidence that provides a reasonable assurance that the change in farming practice or other action results in at least the relevant proportionate reduction. Such evidence may include but is not limited to: pumping reports; actions that will be taken to reduce water use; estimation of water saved from conservation measures or changes in irrigation or planting decisions; and electric bills.

(E) Where a diverter receives a curtailment order for fewer water rights than are used on his or her property, the Deputy Director may approve a petition for a comparable reduction in use of a more senior right in favor of continuing diversion under the more junior right otherwise subject to curtailment under the following circumstances:

- (i) The change does not injure other legal users of water, including by reducing the contribution to flows described in subdivision (c) that other users would rely on;
- (ii) The change does not result in an increased consumptive use of water; and
- (iii) The change does not result in elevation of water temperatures above that which would occur from curtailing the original source.

The petition must provide reliable evidence sufficient to support these findings.

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art X, Sec. 2; Sections 100, 104, 105, 109, 186, 275, 1011, 1011.5, 1051.1, 1058.5, 5106, Water Code; *Environmental Defense Fund v. East Bay Muni. Util. Dist.* (1980) 26 Cal.3d 183; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463; *City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224; *Stanford Vina Ranch Irrigation. Co v. State of California* (2020) 50 Cal.App.5th 976.

§ 875.1 Non-Consumptive Uses

(a) Diversion and use described in this section under any valid basis of right may continue after issuance of a curtailment order under this article without further approval from the Deputy Director, subject to the conditions set forth in this section. Diversions described in this section may not be required to curtail in response to a curtailment order under this article if their diversion and use of water does not decrease downstream flows. Any diverter wishing to continue diversion under this subdivision must submit to the Deputy Director a certification, under penalty of perjury, which describes the non-consumptive use and explains, with supporting evidence, how the diversion and use do not decrease downstream flows in the applicable watershed. The Deputy Director may request additional information or disapprove any certification if the information provided is insufficient to support the statement or if more convincing evidence contradicts the claims. If a certification submitted pursuant to this section is disapproved, the diversions are subject to any curtailment order issued for that basis of right. This section applies to:

- (1) Direct surface diversions solely for hydropower if discharges are returned to the stream from which they are withdrawn, and water is not held in storage.

- (2) Direct surface water or groundwater diversions from the Scott River or Shasta River watersheds and groundwater basins dedicated to instream uses for the benefit of fish and wildlife pursuant to Water Code section 1707, including those diversions that divert water to a different location for subsequent release. This subsection only applies where the location of release is hydraulically connected to the Scott River watershed or Shasta River watershed from which it was withdrawn.
- (3) Direct surface water or groundwater diversions where the Deputy Director, the California Department of Fish and Wildlife, and the Executive Officer of the North Coast Regional Water Quality Control Board have approved a substitution of releases of either stored water or groundwater into the Scott River or Shasta River or a tributary thereof for the benefit of fish and wildlife such that there is not anticipated to be a measurable net decrease in stream flow as a result of the diversion at the confluence of the tributary with the mainstem of the Scott River or Shasta River, or the next downstream United States Geological Survey gage, as applicable. The release of water does not have to be conducted by the owner of the water right proposed for the continued diversions, provided an agreement between the water right holder and the entity releasing the water is included in the proposal. The party proposing the substitution of releases shall provide documentation supporting no measurable decrease in stream flow is anticipated as a result of the release of water. The Deputy Director may require reporting and monitoring as part of any approval.
- (4) Other direct diversions solely for non-consumptive uses, if those diverters file with the Deputy Director a certification under penalty of perjury demonstrating that the diversion and use are non-consumptive and do not decrease downstream flows in the Scott River or Shasta River watersheds.

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art. X, § 2; Sections 100, 187, 275, 348, Water Code

§ 875.2 Minimum Health and Safety Needs

- (a) Definition: For the purposes of this article, “minimum human health and safety needs” refer to the amount of water necessary for prevention of adverse impacts to human health and safety, for which there is no feasible alternate supply. “Minimum human health and safety needs” include:

- (1) Indoor domestic water uses including water for human consumption, cooking, or sanitation purposes. For the purposes of this article, water provided outdoors for human consumption, cooking, or sanitation purposes, including but not limited to facilities for unhoused persons or campgrounds, shall be regarded as indoor domestic water use. As necessary to provide for indoor domestic water use, water diverted for minimum human health and safety needs may include water hauling and

bulk water deliveries, so long as the diverter maintains records of such deliveries and complies with the reporting requirements of section 875.6, and so long as such provision is consistent with a valid water right.

- (2) Water supplies necessary for energy sources that are critical to basic grid reliability, as identified by the California Independent System Operator, California Public Utilities Commission, California Energy Commission, or a similar energy grid reliability authority.
 - (3) Water supplies necessary to prevent tree die-off that would contribute to fire risk to residences, and for maintenance of ponds or other water sources for fire fighting, in addition to water supplies identified by the California Department of Forestry and Fire Protection or another appropriate authority as regionally necessary for fire preparedness or post-fire recovery and reforestation efforts. Water supplies identified by the California Air Resources Board, a local air quality management district, or other appropriate public agency with air quality expertise, as necessary to address critical air quality impacts to protect public health.
 - (4) Water supplies necessary to address immediate public health or safety threats, as determined by a public agency with health or safety expertise.
 - (5) Other water uses necessary for human health and safety which a state, local, tribal, or federal health, environmental, or safety agency has determined are critical to public health and safety or to the basic infrastructure of the state. Diverseters wishing to continue diversions for these uses must identify the health and safety need, include approval or similar relevant documentation from the appropriate public agency, describe why the amount requested is critical for the need and cannot be met through alternate supplies, state how long the diversion is expected to continue, certify that the supply will be used only for the stated need, and describe steps taken and planned to obtain alternative supplies.
- (b) Diversions for human health and safety may be authorized to continue after receipt of a curtailment order as described in Article 24, section 878.1.

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art. X, § 2; Sections 100, 100.5, 104, 105, 106.3, 275, 1058.5, Water Code; *Environmental Defense Fund v. East Bay Muni. Util. Dist.* (1980) 26 Cal.3d 183; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463; *Stanford Vina Ranch Irrigation Co. v. State of California* (2020) 50 Cal.App.5th 976.

§ 875.3 Minimum Diversions for Livestock Watering

- (a) Limited diversions for minimal stockwatering, through means that do not result in seepage losses, may be authorized to continue after receipt of a curtailment order as specified in this section. Such diversions may include, but are not limited to, pipes, wells, or lined ditches.
- (b) Limited stockwatering diversions may be authorized to continue after receipt of a curtailment order upon submission of self-certification to the Deputy Director, under penalty of perjury, that the diversion: (1) is necessary to provide adequate water to livestock, (2) is conveyed without seepage through a means specified in the certification, and (3) either, shall not, on average, exceed the reasonable livestock watering quantities set forth in Article 5, section 697 for livestock addressed in that section, or, for livestock not addressed in Article 5, section 697, shall not, on average, exceed the closest analogous livestock in Article 5, section 697 or a minimum water amount set forth in the certification with reference to supporting evidence regarding the particular livestock needs. The self-certification shall also include the number of livestock being provided with water, diversion location, water source information, the anticipated daily amount diverted to provide water for livestock, and whether the water source is an alternate source used to comply with the emergency regulation. The Deputy Director may request additional information or disapprove any self-certification if the information provided is insufficient to support the statement or if more convincing evidence contradicts the claim(s). If a self-certification submitted pursuant to this section is disapproved, the diversions are subject to any applicable curtailment order issued for that basis of right.
- (c) Limited diversions may be temporarily increased to up to twice the amount in Article 5, section 697 to support minimum livestock water needs during an excessive heat warning at the location where the livestock are watered as declared by the National Weather Service. If minimum livestock water needs are temporarily increased beyond the quantities set forth in Article 5, section 697 due to an excessive heat warning, the affected livestock diverter shall submit a self-certification to the Deputy Director, under penalty of perjury, no later than five days from the onset of the excessive heat warning that the diversion: (1) is necessary to provide adequate water to livestock, (2) is conveyed without seepage through a means specified in the certification, and (3) either, shall not, on average, exceed up to twice the reasonable livestock watering quantities set forth in Article 5, section 697 or other amount in the prior-submitted certification under (b)(3) for the duration of the excessive heat warning. The self-certification shall also include the number of livestock being provided with water, diversion location, water source information, the anticipated daily amount diverted to provide water for livestock during the excessive heat warning, and whether the water source is an alternate source used to comply with the emergency regulation. The Deputy Director may request additional information or disapprove any self-certification if the information provided is insufficient to support the statement or if more convincing evidence contradicts the claim(s). If

a self-certification submitted pursuant to this section is disapproved, the diversions are subject to any applicable curtailment order issued for that basis of right.

(d) To the extent that a diversion for minimum livestock water needs requires more than the reasonable livestock watering quantities set forth in Article 5, section 697, the continued diversion of water after issuance of a curtailment order for the diversion requires submission of a petition demonstrating compliance with the requirements of subdivisions (d)(1)-(5), below, and approval by the Deputy Director. The Deputy Director may condition approval of the petition on implementation of additional conservation measures, monitoring, or reporting requirements. Any petition to continue diversion to meet minimum livestock watering needs greater than the reasonable livestock watering quantities set forth in Article 5, section 697 must:

- (1) Describe the specific circumstances that make the requested diversion amount necessary to meet minimum livestock watering needs, if a larger amount is sought.
- (2) Estimate the total amount of water needed.
- (3) Certify that the supply will be used only for the stated need.
- (4) Describe any other additional steps taken to reduce diversions and consumption.
- (5) Provide the timeframe in which the petitioner expects to reduce usage to no more than the reasonable livestock watering quantities specified in Article 5, section 697, or why minimum livestock needs will continue to require more water.

Authority: 1058, 1058.5, Water Code

Reference: Cal. Const., Art. X, § 2; Sections 100, 100.5, 104, 105, 275, 1058.5, Water Code; *Environmental Defense Fund v. East Bay Muni. Util. Dist.* (1980) 26 Cal.3d 183; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463; *Stanford Vina Ranch Irrigation Co. v. State of California* (2020) 50 Cal.App.5th 976.

§ 875.4 Emergency Curtailments Due to Lack of Water Availability in the Klamath River Watershed

- (a) This section applies to water diversions in the California portions of the Klamath River watershed.
- (b) After the effective date of this regulation, when flows in the Klamath River watershed as a whole or in the individual tributaries to the Klamath River are insufficient to support all water rights, the Deputy Director may issue curtailment orders to water right holders, requiring the curtailment of water diversion and

use, under the same procedures as set forth in section 875, subdivisions (d) and (e).

- (c) In determining the extent to which water is available under a diverter's priority of right, as set forth in section 875.5, for the purposes of issuing, suspending, reinstating, or rescinding curtailment orders, the Deputy Director shall consider:
- (1) Monthly water right demand projections based on reliable relevant information, including but not limited to: reports of water diversion and use for permits and licenses; statements of water diversion and use; judicial determinations concerning water rights, State Water Board decisions and orders, and other information regarding water needs and use contained in the Division of Water Rights files;
 - (2) Water availability projections, based on best available information, including but not limited to, one or more of the following:
 - (A) Forecast estimates of precipitation and streamflow;
 - (B) Historical periods of comparable conditions with respect to daily temperatures, precipitation, or surface flows;
 - (C) Stream gage data, where available; or
 - (D) Information in Division of Water Rights files on the extent to which flows are protected under Water Code section 1707.
 - (3) The Deputy Director may also consider additional pertinent and reliable information when determining water right priorities, water availability, and demand projections, including hydrologic models (as applicable and available), water allocation models, available information on crop needs, well logs and related information, and demand projections provided in response to information orders or other sources.
 - (4) Evaluation of available supplies against demands may be performed at a watershed-wide level, or at a smaller sub-watershed scale.

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art. X, § 2; Sections 100, 100.5, 104, 105, 275, 1058.5, Water Code; *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419; *Stanford Vina Ranch Irrigation Company v. California* (2020) 50 Cal.App.5th 976.

§ 875.5 Priority for Curtailments in the Scott River and Shasta River Watersheds

(a) Scott River

- (1) Regarding curtailment orders in the Scott River watershed:

- (A) Curtailment orders in the Scott River watershed to meet drought emergency minimum fisheries flows in the Scott River shall be issued taking into account water right priority, in groupings from lowest to highest priority as follows:
- (i) All post-Scott River Adjudication appropriative water rights.
 - (ii) Surplus Class Rights in all schedules of the Scott River Adjudication.
 - (iii) All Post-1914 Appropriative water rights in the Scott River Adjudication, Shakleford Adjudication, and French Creek Adjudication, collectively.
 - (iv) Diversions in Schedule D4 of the Scott River Adjudication.
 - (v) Diversions in Schedule D3 of the Scott River Adjudication.
 - (vi) Diversions in Schedule D2 of the Scott River Adjudication.
 - (vii) Diversions in Schedule D1 of the Scott River Adjudication.
 - (viii) Diversions in French Creek Adjudication, the Shakleford Adjudication, and Schedule B of the Scott River Adjudication, collectively.
 - (ix) Diversions in Schedule C of the Scott River Adjudication, and overlying groundwater diversions not described in the Scott River Adjudication.
- (B) Surface diversions from the Scott River, Big Slough, Etna Creek, or Kidder Creek and described in Scott River Adjudication Schedules D2, D3, D4, B18, B23, and B26 that have moved from surface water to groundwater diversions as permitted under Scott River Adjudication, Paragraph 44, will be curtailed in priority grouping (a)(1)(A)(ix), rather than under (a)(1)(A)(iv), (a)(1)(A)(v), (a)(1)(A)(vi), or (a)(1)(A)(viii).
- (C) Domestic and Livestock Water Uses during the non-irrigation season by diverters in Scott River Adjudication Schedules A, B, C, and D, under paragraph 36 shall follow the priority groups under (a)(1)(A)(iv) through (a)(1)(A)(viii), as applicable.
- (D) To the extent that curtailment of fewer than all diversions in the groupings listed in (a)(1)(A)(i) and (a)(1)(A)(iii) through (a)(1)(A)(viii) would reliably result in sufficient flow to meet drought emergency minimum fisheries flows, the Deputy Director shall maintain the authority to issue, suspend, reinstate, or rescind curtailment orders for partial groupings based on the priorities in the applicable adjudication or through the appropriative right priority date, as applicable. Any partial curtailment of groups (a)(1)(A)(ii) and (a)(1)(A)(ix) shall be correlative, except that the Deputy Director may issue curtailments to groundwater diverters in (a)(1)(A)(ix) first to diversions closest to surface waterbodies, or using other reliable

information to determine which diversions have the highest potential impact on surface flows.

- (E) Diversions under Paragraph 39 of the Scott River Adjudication shall be curtailed with the group defined in (a)(1)(A) that corresponds to the schedule in which the diversion would be placed if the right were defined in the adjudication. If partial curtailment of the group is issued, suspended, reinstated, or rescinded under (a)(1)(D), these rights will be subordinated to the other rights in that schedule.
 - (F) Diversions under paragraph 41 of the Scott River Adjudication shall be curtailed with the group defined in (a)(1)(A) that corresponds to the schedule in which the diversion would be placed if the right were defined in the adjudication. If partial curtailment of the group is issued, suspended, reinstated, or rescinded under (a)(1)(D), these rights shall be treated as subordinate to first priority rights in the schedule, and senior to second priority rights in that schedule.
 - (G) Diversions under paragraph 42 of the Scott River Adjudication shall be curtailed with the group defined in (a)(1)(A) that corresponds to the schedule in which the diversion would be placed if the right were defined in the adjudication. If partial curtailment of the group is issued, suspended, reinstated, or rescinded under (a)(1)(D), these rights shall be treated as first priority rights compared to downstream rights in that schedule, and subordinate to all upstream rights in that schedule.
 - (H) Diversions under paragraph 43 of the Scott River Adjudication shall be curtailed with the group defined in (a)(1)(A) that corresponds to the schedule in which the diversion would be placed if the right were defined in the adjudication. If an order for partial curtailment of the group is issued, suspended, reinstated, or rescinded under (a)(1)(D), these rights shall be treated as first priority rights in that schedule.
 - (I) Diversions under paragraphs 49 and 61 of the Scott River Adjudication shall be curtailed with the group defined in (a)(1)(A)(viii). If an order for partial curtailment of the group is issued, suspended, reinstated, or rescinded under (a)(1)(D), these rights will be treated as first priority rights in the schedule for the appropriate tributary.
- (2) Curtailment orders in the Scott River watershed for lack of water availability at a diverter's priority of right shall be issued:
- (A) First to appropriative rights that were initiated after the relevant adjudication, in the Shakleford Creek watershed, the French Creek watershed, and the Scott River Stream System as defined in paragraph 2 of the Scott River Adjudication,
 - (B) Then in accordance with the priorities set forth in the Scott River, Shakleford Creek, and French Creek Adjudications, as applicable, and
 - (C) Then correlatively to unadjudicated overlying groundwater diversions.

(b) Shasta River

(1) Curtailment orders in the Shasta River Watershed to meet drought emergency minimum fisheries flows shall be issued taking into account water right priority, in groupings from lowest to highest water right priority, as follows:

(A) Appropriative diversions initiated after the Shasta Adjudication. Appropriative surface water diversions obtained after the Shasta Adjudication in priority of the issuance date specified in the permit or license by the State Water Board. Groundwater appropriations have a priority date from when the well was constructed and water first used. For the purposes of this article, an appropriative groundwater right is distinguished from an overlying groundwater right when the diverter: 1) does not own land overlying the basin, 2) owns overlying land but uses the water on non-overlying land, or 3) sells or distributes the water to another party.

(B) Post-1914 and pre-1914 water rights under the priorities and quantities set forth in the Shasta Adjudication. Groundwater appropriations initiated prior to the Shasta Adjudication in priority of when the well was constructed and water first used.

(C) Riparian diversions and overlying groundwater diversions. The Deputy Director may limit overlying groundwater curtailment orders to larger diversions or diversions with the highest potential impact on surface flows.

(i) If there is insufficient natural flow to furnish all rights of equal priority, then the available natural flow in excess of the minimum instream flow established in section 875, subdivision (c)(2) shall be distributed proportionally among the rights of the priority in question.

(ii) Water released from storage or bypassed pursuant to a Water Code section 1707 Order is not available to downstream users.

(c) Definitions: For the purposes of this section:

(1) "Scott River Adjudication" shall refer to the Decree entered on January 30, 1980 in Siskiyou County Superior Court Case No. 30662, *In the Matter of Determination of the Rights of the Various Claimants to the Waters of Scott River Stream System, Except Rights to Water of Shackleford Creek, French Creek, and all Streams Tributary to Scott River Downstream from the U.S. Geological Survey Gaging Station, in Siskiyou County, California*, and all supplements thereto.

(2) "Shakleford Adjudication" shall refer to the Decree entered on April 3, 1950 in Siskiyou County Superior Court Case No. 13775. *In the Matter of the Determination of the Rights of the Various Claimants to the Waters of Shakleford Creek and its Tributaries in Siskiyou County, California*, and all supplements thereto.

- (3) “French Creek Adjudication” shall refer to the Judgement entered on July 1, 1959 in Siskiyou County Superior Court Case No. 14478, *Mason v. Bemrod*, and all supplements thereto.
- (4) “Shasta Adjudication” shall refer to the Judgement and Decree entered on December 29, 1932 in Siskiyou County Superior Court Case No. 7035, *In the Matter of the Determination of the Relative Rights, Based Upon Prior Appropriation, of the Various Claimants to the Waters of Shasta River and its Tributaries in Siskiyou County, California*, and all supplements thereto.

Authority: Sections 101, 103,174, 186, Water Code

Reference: Sections 1058, 1058.5, Water Code; *Hudson v. Dailey* (1909) 156 Cal. 617; *Shasta River Adjudication*; *Shakleford Adjudication*; *French Creek Adjudication*; *Scott River Adjudication*; *Stanford Vina Ranch Irrigation. Co v. State of California* (2020) 50 Cal.App.5th 976.

§ 875.6 Curtailment Order Reporting

- (a) All water users or water right holders issued a curtailment order under this article are required, within seven calendar days, to submit under penalty of perjury a certification of one or more of the following actions taken in response to the curtailment order, certifying, as applicable, that:
 - (1) Diversion under the identified water right(s) has ceased;
 - (2) Any continued use is under other water rights not subject to curtailment, specifically identifying those other rights, including the basis of right and quantity of diversion;
 - (3) Diversions under the identified water right(s) continue only to the extent that they are non-consumptive, for which a certification for continued diversion has been submitted as specified in section 875.1;
 - (4) Diversions under the identified water right(s) continue only to the extent that they are necessary to provide for minimum human health and safety needs as identified in section 875.2, a certification has been filed as authorized under Article 24, section 878.1, subdivision (b)(1), and the subject water right authorizes the diversion in the absence of a curtailment order;
 - (5) Diversions under the identified water right(s) continue only to the extent that they are necessary to provide for minimum livestock watering needs and a certification has been filed as identified in section 875.3, and the subject water right authorizes the diversion in the absence of a curtailment order.
 - (6) Diversions under the water right(s) continue only to the extent that they are consistent with a petition filed under Article 24, section 878.1, subdivision (b)(2) or (d) or under section 875.3, subdivision (d) and diversion and use will comply with the conditions for approval of the petition; or

(7) The only continued water use is for instream purposes.

(b) All persons who are issued a curtailment order and continue to divert out of order of the priority established in section 875.5, as authorized under sections 875.1, 875.3, or Article 24, section 878.2, are required to submit, under penalty of perjury, information identified on a schedule established by the Deputy Director as a condition of certification or petition approval. The required information may include, but is not limited to, the following:

- (1) The water right identification number(s), well information, or, if not applicable, other manner of identifying the water right under which diversions continue. For wells, this includes the location (GPS coordinates) and depth to groundwater.
- (2) How the diverter complies with any conditions of continued diversion, including the conditions of certification under section 875.3 or Article 24, section 878.1, subdivision (b)(1).
- (3) Any failures to comply with conditions, including the conditions of certification under section 875.3 or Article 24, section 878.1, subdivision (b)(1), and steps taken to prevent further violations.
- (4) Conservation and efficiency efforts planned, in the process of implementation, and implemented, as well as any information on the effectiveness of implementation.
- (5) Efforts to obtain alternate water sources.
- (6) If the diversion is authorized under an approved petition filed pursuant to section 875.3 or Article 24, section 878.1, subdivision (b)(2), progress toward implementing the measures imposed as conditions of petition approval.
- (7) If the diversion is authorized under section 875.3, or Article 24, section 878.1, subdivision (d):
 - (A) The rate of diversion if it is still ongoing;
 - (B) Whether the water has been used for any other purpose; and
 - (C) The date diversion ceased, if applicable.
- (8) The total water diversion for the reporting period and the total population served for minimum human health and safety needs. The total population must include actual or best available estimates of external populations not otherwise reported as being served by a diversion, such as individuals receiving bulk or hauled water deliveries for indoor water use.
- (9) The total water diversion for the reporting period and the total population of livestock watered to meet minimum livestock watering needs identified in section 875.3.
- (10) Diversion amounts for each day in acre-feet per day, maximum diversion rate in cubic feet per second, pumping rate in gallons per minute, and anticipated future daily diversion amounts and diversion rates.

- (c) The Deputy Director, or delegee, may issue an order under this article requiring any person to provide additional information reasonably necessary to assess their compliance with this article. Any person receiving an order under this subdivision shall provide the requested information within the time specified by the Deputy Director, but not less than five (5) days.

Authority: Sections 1058, 1058.5, Water Code

Reference: Sections 100, 187, 275, 348, 1051, 1058.5, 1841, Water Code

§ 875.7 Inefficient Livestock Watering

- (a) During the fall migration season for fall-run Chinook and coho salmon, from September through January, inefficient surface water diversions in the Scott River and Shasta River watersheds for livestock watering, which result in excessive water diversion for a small amount of water delivered for beneficial use are not reasonable in light of the alternatives available and needs of the fishery. For the purposes of this regulation, inefficient surface water diversions for livestock watering are those that divert, as measured at the point of diversion, more than ten times the amount of water needed to support the number of livestock and reasonable water quantities set forth in Article 5, section 697.
- (b) When there are no active curtailment orders in the relevant watershed, the Deputy Director shall suspend operation of this provision upon a finding that suspending the provision will not result in a decrease in flows that would either require curtailment or inhibit salmonid migration. Such a finding will include consideration of information that could affect the need for curtailments to meet minimum flow needs for fisheries purposes, including weather forecasting, the need for flows to ramp up or down, the contributions of voluntary flow measures, and future flow needs.

Authority: Cal. Const., Art. X, § 2; Sections 100, 100.5, 104, 105, 275, 1058.5, Water Code; *Environmental Defense Fund v. East Bay Muni. Util. Dist.* (1980) 26 Cal.3d 183; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463; *Stanford Vina Ranch Irrigation Co. v. State of California* (2020) 50 Cal.App.5th 976.

Reference: Sections 1058, 1058.5, Water Code

§ 875.8 Information Orders

- (a) The Deputy Director may issue information orders to some or all landowners, diverters, or other water right holders in the Scott River and Shasta River watersheds, requiring them to provide additional information related to water use as relevant to implementing this article. The Deputy Director will prioritize information orders for larger diverters and landowners or water right holders with the highest potential to impact surface flows. The Deputy Director, in

determining whether and the extent to which to impose information orders under this subdivision, will consider the need for the information and the burden of producing it, and will take reasonable efforts to avoid requiring duplicative reporting of information that is already in the State Water Board's possession. Information orders shall follow the same procedures set forth in section 875, subdivision (d).

Information required in an order may include, but is not limited to:

(1) For wells:

- (A) Location of the well;
- (B) Age of well, including date of installation and first use;
- (C) Maximum pump rate and volume pumped per month;
- (D) Place of use and purpose of use (beneficial uses of water);
- (E) Projected estimate of pumping volumes at a frequency of no more than weekly; and
- (F) Estimates of past use.

(2) For surface water diversions:

- (A) Place of use and purpose of use (beneficial uses of water);
- (B) Type of water right;
- (C) Source of water;
- (D) Volume of storage;
- (E) Diversion rate; and
- (F) Projected estimate of diversion at a frequency of no more than weekly.

The orders may additionally request other information relevant to forecasting use, impacts to the surface streams in the current drought year, assessing compliance with this article, or in contingency planning for continuation of the existing drought emergency.

- (b) Any party receiving an order under this subdivision shall provide the requested information within the time specified by the Deputy Director, but not less than five (5) days. The Deputy Director may grant additional time for the submission of information regarding diversion and use of water upon a showing of good cause. Each landowner is responsible for immediately providing notice of any information order(s) to all water users associated with the parcel of land related to the information order.

- (c) New Diversions. For purposes of this subdivision, a new diversion means a diversion initiated after issuance of a general information order to landowners in the watershed in which the new diversion is located. The owner of any new diversion must submit to the Deputy Director any information required by a general information order issued under section 875.8 prior to commencement of the new diversion, unless the Deputy Director approves commencement of the diversion based on substantial compliance or one of the exemptions outlined in sections 875.2 or 875.3.

Authority: Sections 1058, 1058.5, Water Code

Reference: Article X, Section 2, California Constitution; Sections 100, 102, 104, 105, 109, 174, 275, 1051, 1052, 1058.5, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

§ 875.9 Penalties

- (a) A diverter must comply with a curtailment order issued under this article, any conditions of certification or approval of a petition under this article, and any water right condition under this article, notwithstanding receipt of more than one curtailment order. To the extent of any conflict between applicable requirements, the diverter must comply with the requirements that are the most stringent.
- (b) Failure to meet the requirements of this article or of any order issued thereunder constitutes:
- (1) a violation subject to civil liability pursuant to Water Code section 1846, and
 - (2) an infraction pursuant to Water Code section 1058.5, subdivision (d).
- Each of these can carry a fine of up to five hundred dollars (\$500) for each day in which the violation occurs.
- (c) Nothing in this section shall be construed as limiting the enforceability of or penalties available under any other provision of law.

Authority: Sections 1058, 1058.5, Water Code

Reference: Cal. Const., Art. X, § 2; Sections 275, 1052, 1055, 1058.5, 1825, 1831, Water Code; *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419.

FINDING OF EMERGENCY

Executive Summary

California and the entire western United States are facing a significant drought in the wake of one of the driest periods on record, driven by climate change and extreme hydrologic conditions over the past two years. Water supply in many parts of California, including the Klamath River watershed, is insufficient to meet a significant portion of water demands, including ecological needs. The water supply shortage is a particular concern in the Scott River and Shasta River watersheds (Scott and Shasta watersheds), which are tributaries to the Klamath River. Addressing the severe water shortage in the Scott and Shasta River watersheds requires urgent action to ensure water supplies are and will remain available to meet minimum instream flows for fish, human health and safety needs, and minimum livestock watering needs.

The Scott and Shasta Rivers are crucial sources of water for Siskiyou County and have immense economic, ecological, and cultural importance. The Scott and Shasta watersheds provide water for agriculture, domestic users, the environment, fire protection, municipalities, Tribal Nations, and recreation. These watersheds are also home to fish that are listed as threatened under the state and federal Endangered Species Act (ESA), as well as fish that hold significant cultural importance to California tribes and that are vital to the commercial and recreational fishing economy. Maintaining minimum instream flows for fish requires immediate action. Ensuring water is available to meet minimum human health and safety and livestock needs, notwithstanding the shortage conditions, is also of the utmost importance. Additional efforts are needed in this drought to ensure that water right holders and claimants in these watersheds without other means of accessing water supplies for basic health and safety and livestock watering needs can continue to divert water, even under critical drought conditions.

It is imperative that water right holders and claimants, who do not have water available at their priority of right and do not provide water for minimum human health and safety or minimum livestock watering needs, cease diversions of water that is needed for minimum instream flows to protect fish and more senior water rights, or implement other actions designed to provide equivalent or better protection to the fishery. Specifically, immediate action is needed to ensure the reasonable use of water in the Scott and Shasta watersheds – two high priority tributaries to the Klamath River that provide critically important habitat for the commercially significant and culturally important fall-run Chinook salmon (Trihey & Associates, 1996; SWRCB 2020) and the Southern Oregon/Northern California Coast (SONCC) coho salmon (coho salmon). The SONCC coho salmon is listed as a threatened species under both the federal and state ESAs and is identified as being at high and moderate risk of extinction in the Shasta River and Scott River, respectively (NMFS, 2014). The State Water Resources Control Board (State Water Board or Board) will need to curtail water diversions when flows decrease below the California Department of Fish and Wildlife (CDFW) drought emergency minimum flow recommendation (detailed below) so that water is available for minimum flows for migration, rearing, and spawning of fall-run Chinook and SONCC coho salmon

in the Shasta River and Scott River, and also to curtail diversions when water is not available under a diverter's priority of right. The State Water Board also needs to ensure adequate water supplies remain available for minimum health and safety needs and minimum livestock watering use. An emergency regulation will enable the State Water Board to enforce the water right priority system with respect to all water right holders and claimants in a timely manner and to protect critical water supply needed for the protection of important fish species, minimum health and safety needs, and minimum livestock watering.

This document makes findings and provides evidence of the emergency, drought conditions in the Scott and Shasta watersheds, the State Water Board and North Coast Regional Water Quality Control Board's (North Coast Regional Water Board) response to the drought conditions in these watersheds and proposed regulation outreach, and status of SONCC coho and fall-run Chinook salmon. It further makes findings and provides evidence regarding, the need for the emergency regulation, which includes an overview of the water rights legal framework, the need for emergency protective minimum fishery flows, descriptions of the watersheds, interconnectedness of the groundwater and surface water, and information on livestock watering efficiency. The document's informative digest section summarizes existing laws and regulations, consistency with existing state and federal regulations, and provides a policy overview and discussion of the effect of the proposed regulation. Additionally, this document provides more in-depth information on the data and methodology for issuing and lifting curtailment orders under proposed Sections 875 and 875.4. The document concludes with a list of information relied on, statements on local mandates and CEQA exemption, a list of funding opportunities that could support cooperative agreements and livestock watering efficiency, and a summary of fiscal costs. The Fiscal Impact Statement is included as Attachment 1.

As such, the document meets the requirements for a digest described in Government Code section 11346.5, subdivision (a)(3).

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](#))(Newsome, 2021a). The April 21, 2021 proclamation also directed state agencies to take immediate actions to bolster drought resilience across the state. 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](#))(Newsome, 2021b). The May 2021 Proclamation directed the State Water Board to consider emergency regulations to curtail water diversions when water is not available at water right holders' priority of right or to protect releases of stored water in the Delta watershed. Additionally, to ensure critical instream flows for species protection, the

proclamation directs the State Water Board and CDFW to evaluate minimum instream flows and other actions to protect salmon, steelhead, and other native fishes in critical systems in the state and work with water users and other parties on voluntary measures to implement those actions. To the extent voluntary actions are not sufficient, the State Water Board, in coordination with CDFW, is to consider emergency regulations to establish minimum drought instream flows. For purposes of approving these emergency regulations, the May 2021 Proclamation suspended the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) (CEQA).

On July 8, 2021, Governor Newsom further expanded the emergency proclamation to include nine additional counties (Inyo, Marin, Mono, Monterey, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, and Santa Cruz) ([July 2021 Proclamation](#))(Newsome, 2021c). Currently, a total of 50 of the state's 58 counties are under a drought state of emergency. Governor Newsom also signed Executive Order N-08-21 on July 8, 2021 urging all Californians to voluntarily reduce their water use by 15 percent compared to 2020 levels ([July 2021 Executive Order](#))(Newsome, 2021d). The July 2021 Executive Order encourages Californians to take actions to conserve water, such as irrigating landscapes more efficiently, fixing leaks, and installing water-efficient showerheads. The July 2021 Executive Order also directs the State Water Board to monitor progress on voluntary conservation in the coming months.

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.” Section 1058.5 applies to regulations “adopted in response to conditions which exist, or are threatened, in a critically dry year immediately preceded by two or more consecutive below normal, dry, or critically dry years or during a period for which the Governor has issued a proclamation of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions.” As described above, the May 2021 Proclamation declared a state of emergency covering the Klamath River watershed based on drought conditions.

Emergency regulations adopted under Water Code section 1058.5 remain in effect for up to one year and may be renewed if the Board finds that drought conditions as defined remain in effect. Section 1058.5, subdivision (b) provides that, notwithstanding Government Code sections 11346.1 and 11349.6, the Board's finding of emergency in connection with an emergency regulation promulgated under section 1058.5 is not subject to review by the Office of Administrative Law (OAL).

Government Code section 11346.1, subdivision (a)(2), requires that, at least five working days prior to submission of the proposed emergency action to 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 the necessary information and factual basis to support the State Water Board’s emergency rulemaking under Water Code section 1058.5 and also meets the applicable requirements of Government Code sections 11346.1 and 11346.5.

Evidence of Emergency

Water year 2021 is the second of two very dry years, directly following a similarly dry water year in 2020. Precipitation levels to date are approximately half of the normal levels across much of the Klamath Basin. As noted above in Governor Newsom’s Drought Emergency Proclamations Governor Newsom declared a drought emergency in the Klamath Basin on May 10, 2021. The Scott and Shasta watersheds are experiencing one of the most severe droughts on record. The Scott River is experiencing one of the three driest years on record, with flows in the lowest four percent of the historical record. Data collected by the North Coast Regional Water Board in 2020 and 2021 show the Scott River disconnected between Eller Lane and Island Road on July 18, in 2020, and July 8, in 2021 (i.e., 10 days earlier this year). Flows in the Scott River are expected to remain at record low levels through the fall. The current water year is the driest on record for the Shasta River. Flows are in the lowest one percent of the historical record. Flows in the Shasta River are also expected to remain at these record low levels through the fall.

The following discussion provides a detailed review of hydrologic conditions in the Scott and Shasta watersheds broken out as: (A) Precipitation and Snowpack; and (B) Instream Flows – Current and Projected.

(A) Precipitation and Snowpack

The Scott and Shasta watersheds have had two consecutive years of below-average precipitation. Comparisons to the 35-year average for both the April 1st snow water equivalent values and annual precipitation for Water Year (WY) 2019-2020 and WY 2020-2021 are summarized in the Table 1 and Table 2, respectively, below. April 1 generally represents the best approximate date of annual maximum snowpack extent in California.

Table 1. Scott River: Percent of Average Snow Water Equivalent and Annual Precipitation

Scott River	Percent of Average April 1 Snow Water Equivalent		Percent of Average Annual Precipitation	
	Scott Mountain	Middle Boulder	Callahan	Fort Jones
2019-2020	7%	67%	52%	49%
2020-2021	62%	80%	54%	50%

Table 2. Shasta River: Percent of Average Snow Water Equivalent and Annual Precipitation

Shasta River	Percent of Average April 1 Snow Water Equivalent	Percent of Average Annual Precipitation
Water Year	Parks Creek Snow Course	Yreka Gage
2019-2020	45%	51%
2020-2021	81%	51%

(B) Instream Flows

Scott River at Fort Jones Gage

Current Flow. The United States Geological Survey (USGS) Scott River near Fort Jones gage (USGS gage no. 11519500) is about 10 miles upstream of the outlet of the Scott River watershed and represents the observed (impaired) flow of the watershed. On average, 98 percent of the total flow in the WY occurs in October to July (Oct-Jul) based on the long term (1941-present) flow measurements at the Fort Jones gage.

As mentioned above, the current WY (2020-2021) represents one of the severest droughts on record for the Scott River watershed. The current WY Oct-Jul average monthly flow is 180 cubic feet per second (cfs), which is about 25 percent of the long-term average Oct-Jul flow. It is also one of the three driest years on record, with flows in the lowest four percent of the historical record (Figure 1).

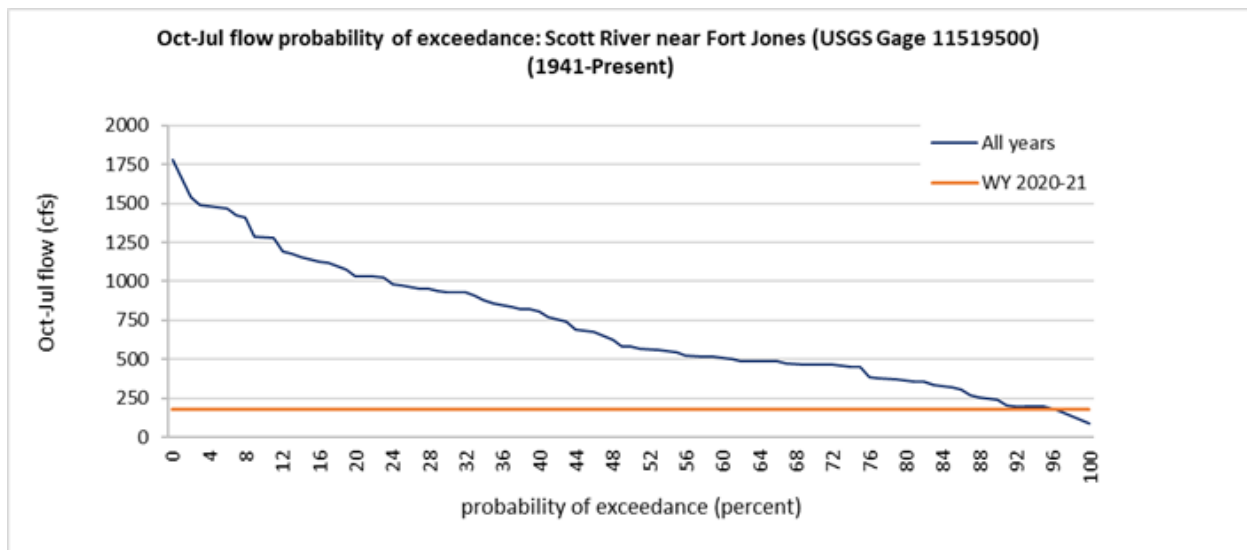


Figure 1. Probability of Exceedance of Oct-Jul Impaired Flow at Scott River Gage near Fort Jones (USGS Gage 11519500) and WY 2020-21 Oct-Jul Flow.¹

¹ Raw data retrieved August 3, 2021 from: https://waterdata.usgs.gov/nwis/dv/?site_no=11519500&agency_cd=USGS&referr ed_module=sw

Forecasted Flows. Observed Fort Jones gage information from the three most recent dry WYs (2013-14; 2014-15; and 2020-21) was used to create an impaired flow forecast for the period of September 2021 to August 2022. The three water years used for the forecast represent a combination of hydrology and water use in the watershed during recent dry conditions. Figure 2 shows all three dry years, but for forecasting purposes in Table 3, WY 2020-2021 is used to forecast impaired flows for September through December 2021, and the average of the three recent dry years is used to forecast impaired flow for January through August 2022. The analysis was split into these two time periods because there is significant flow variability in Scott River flows during the September through December timeframe depending on when the first significant rainstorms arrive. The State Water Board used WY 2020-2021 flows as a conservative scenario of what may occur during the September through December 2021 time period if significant rainfall is late to arrive. There is less variability in January through August flows over the three dry years; therefore, the average of the three recent dry WYs (2013-14; 2014-15; and 2020-21) was used to forecast the January through August 2022 time period.

As shown in Figure 2, forecasted impaired (i.e., with diversions) flows are not likely to meet the CDFW drought emergency minimum flows until the end of December 2021, if rainfall patterns this water year track those of 2020-2021. However, if rains arrive earlier as in other dry years, the flows would be met as early as October. Forecast impaired flows are also not likely to meet the CDFW drought emergency minimum flows after June 2022. Accordingly, curtailment of diversions is needed to achieve the CDFW drought emergency minimum flows.

Table 3 shows the expected number of days where forecasted impaired flows are below the CDFW drought emergency minimum flow recommendations. The timing of when flows increase in the Scott River during the fall is dependent on groundwater levels at the end of the irrigation season and fall precipitation. In dry years, groundwater levels are lower, and it takes more fall precipitation to recharge groundwater in the basin and see sustained increases in flow in the Scott River and its tributaries. Decreased groundwater pumping (Harter, 2021a), as well as earlier precipitation, would provide for earlier reconnection of the stream system.

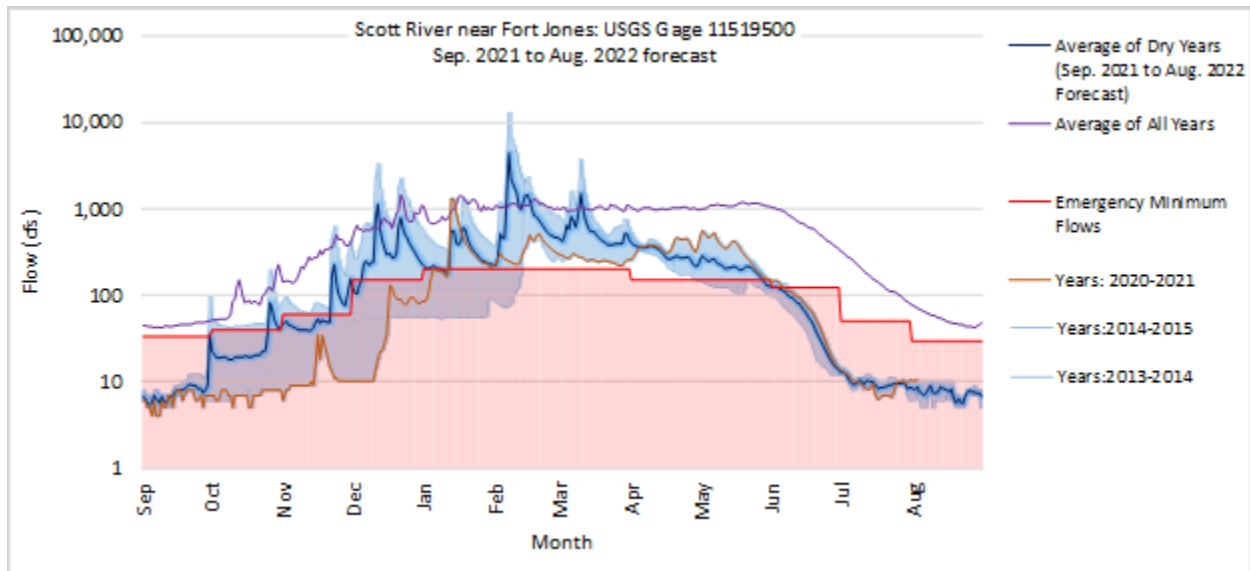


Figure 2. Scott River Average Daily Impaired Flow at Fort Jones Gage for Three Recent Dry Water Years (2013-14, 2014-15, and 2020-2021). (Note: Recent dry years used to forecast potential flows over the coming water year compared to CDFW drought emergency minimum flows. The flows in three dry water years fall within boundary of blue cloud, and the average of the three dry water years is shown with a dark blue line. WY 2020-2021 is used to forecast impaired flow in September through December 2021, and the average of the three recent dry years is used to forecast impaired flow during January through August 2022. The vertical scale (y-axis) is logarithmic.).

Table 3. Number of Days in September – December 2021 with Forecasted Flows below CDFW Drought Emergency Minimum Flow Recommendations at USGS Scott River Gage near Fort Jones, Based on Water Year 2020-2021.

Month	Sep.	Oct.	Nov.	Dec.
Number of Days with Forecasted Impaired Flows Below CDFW Flow Recommendations	30	31	30	31
Percent of Time Forecasted Impaired Flows are Below CDFW Flow Recommendations	100%	100%	100%	100%

Shasta River at Yreka Gage

Current Flow. The USGS Shasta River gage near Yreka (USGS gage no. 11517500) is at the outlet of the Shasta River watershed and represents the impaired flow of the entire watershed. On average, 95 percent of the total flow in the WY occurs in October to July (Oct-Jul) based on long-term (1988-present) flow measurements at the Yreka gage. The current WY (2020-2021) represents one of the severest droughts on record for the Shasta River watershed. The current WY Oct-Jul average monthly flow is 93 cfs, which is 50 percent of the long-term average Oct-Jul flow. It is also the driest year on record, with flows in the lowest one percent of the historical record (Figure 3).

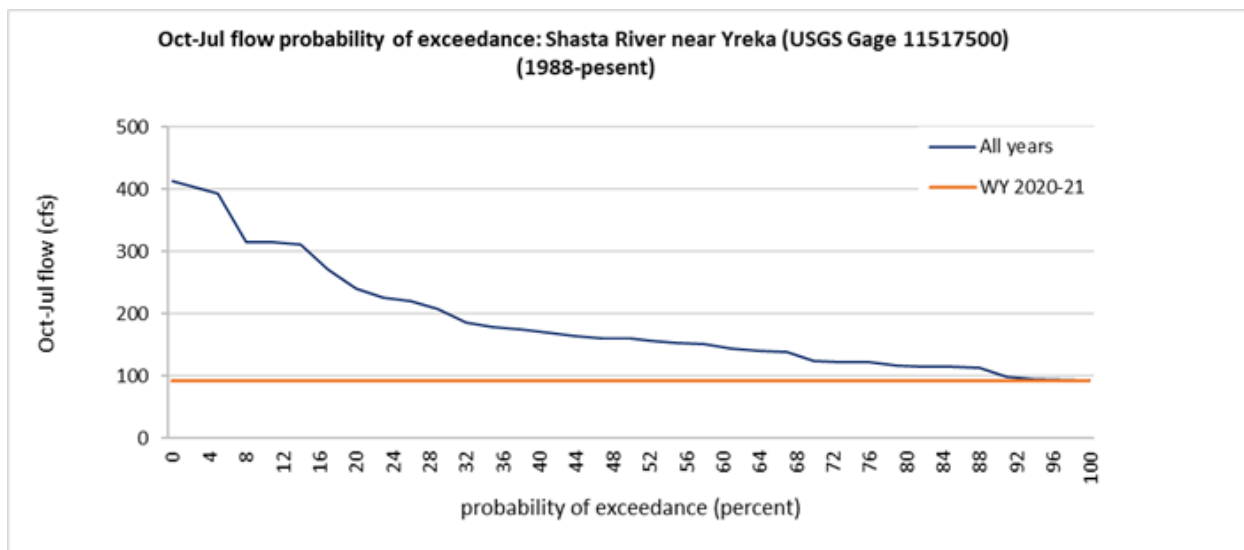


Figure 3. Probability of Exceedance of Oct-Jul Impaired Flow at Shasta River Gage near Yreka (USGS Gage no. 11517500) and WY 2020-21 Oct-Jul Flow.²

Forecasted Flows. Historical flow data from past years (which includes depletions from diversions) were used to create flow projections for the remainder of calendar year 2021. Three recent dry WYs (2013-14; 2014-15; and 2020-21) were used to create three impaired flow forecasts for September 2021 through August 2022. Those WYs represent a combination of hydrology and water use in the watershed during recent drought events. The average flow of the three recent dry years is used to represent the forecast impaired flow at the Yreka gage for September 2021 through August 2022. The Shasta River is fed by large spring sources and is less dependent on heavy rains to increase flows in the fall season as compared to the Scott River. Typically, when the irrigation diversions end around October, the flows at the Yreka gage of the Shasta River increase in a pattern not dependent on rainfall timing. For this reason, the average of the impaired flows for the three dry years was used for the entire September 2021 through August 2022 time period instead of using the 2020-2021 flows for the September through December 2021 timeframe, as was done on the Scott River.

As shown in Figure 4, forecasted impaired flows (average of three recent dry years) are not likely to meet the CDFW drought minimum flows until mid-December 2021. Forecasted impaired flows are also not likely to meet the CDFW drought emergency minimum flows after April 2022. Accordingly, curtailment of flows is needed to achieve the CDFW drought emergency minimum flows.

While the projections indicate impaired flows may exceed the CDFW recommendation in December 2021, there is a chance that actual flows will not match the projections since the river is experiencing the lowest flows on record. Table 4 shows the expected

² Raw data retrieved August 3, 2021 from:
https://waterdata.usgs.gov/nwis/uv?cb_00060=on&cb_00065=on&format=gif_stats&period=30&site_no=11517500

number of days where projected flows are below CDFW drought minimum flows, as caveated.

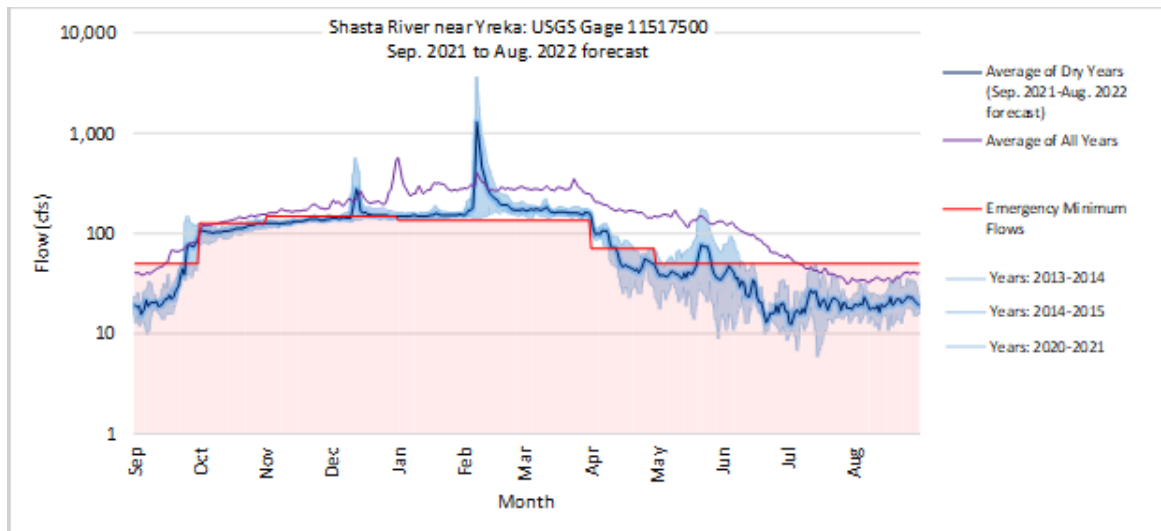


Figure 4. Shasta River Average Daily Impaired Flow at Yreka Gage for Three Recent Dry Water Years (2013-14, 2014-15, and 2020-2021). (Note: Recent dry years used to forecast potential flows over the coming water year compared to CDFW drought emergency minimum flows. The three dry water years fall within the boundary of blue cloud, and the average of the three dry water years is shown with a dark blue line. The dark blue line is used to represent the forecast flow. The vertical scale (y-axis) is logarithmic.)

Table 4. Number of days in September – December 2021 with Projected Impaired Flows (historical flows with diversions) below CDFW Flow Recommendations at USGS Shasta River near Yreka Gage.

Month	Sep.	Oct.	Nov.	Dec.
Number of days with projected impaired flows below CDFW flow recommendations.	24	28	30	14
Percent of time projected impaired flows are below CDFW flow recommendations	80%	90%	100%	45%

(C) State Water Board and North Coast Regional Water Board Planning and Response to Drought, and Emergency Regulation-Related Public Outreach

On March 12, 2020, NMFS staff contacted North Coast Regional Water Board staff out of concern for low flows in the Scott River watershed. Snow pack conditions at this time were poor (73% of average and 5% of average at the Middle Boulder and Scott Mountain snow gages, respectively) and indicative of drought conditions. In response to these conditions, North Coast Regional Water Board, NMFS, CDFW, and Division of Water Rights staff organized an ongoing bi-weekly drought response call to coordinate agency actions around voluntary instream flow efforts. These bi-weekly calls expanded to include additional interests in the watershed, including local and tribal government

representatives, non-profit organizations, the Scott River and Shasta River Watermaster District, and interested individuals are ongoing and have resulted in on-the-ground actions to mitigate localized effects of drought with an eye towards coho salmon juvenile survival and fall-run Chinook and coho salmon migration. Despite these efforts, fall-run Chinook salmon were unable to reach spawning grounds in the Scott watershed and coho salmon nearly suffered the same fate.

On March 22, 2021, the State Water Board sent Letters Regarding Ongoing Dry Conditions in Most California Watersheds to all water right holders and claimants in the state regarding ongoing dry conditions in most California watersheds. This information letter encouraged water right holders and claimants to plan and prepare for potential water shortages later this year. The letter also reminded water right holders and claimants that accurate and timely reporting of water use data will help to provide critical information needed to manage the state's water resources. On April 20, 2021, the Deputy Director and CDFW representatives presented at the Siskiyou County Board of Supervisors regularly scheduled meeting regarding current dry conditions in the Scott River watershed, fisheries and water management concerns, and funding opportunities to help address these challenges. Additionally, on July 6, 2021, the State Water Board began distributing an informational flyer encouraging conservation throughout the Klamath watershed, with a focus on the Scott and Shasta watersheds.

On June 1, 2021, the State Water Board sent notices of water unavailability to 102 water right holders, accounting for 158 of the 803 water rights in the Scott River watershed, urging them to stop diverting amid worsening hydrologic conditions. The same day, State Water Board staff circulated a Press Release titled: [Extremely Dry Conditions Prompt Restrictions for Some Water Right Holders in the Scott River](#).

On July 1, 2021, State Water Board and CDFW staff hosted a public meeting on potential drought actions for the Shasta and River watersheds. Staff presented information on the drought conditions, potential drought response actions in the Scott and Shasta watersheds, and solicited to comments. A full recording of the July 1, 2021 meeting is available online here: <https://youtu.be/fx3x4eB8LG8>. Presentation slides from the July 1, 2021 meeting are available online here: https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/scott_shasta_drought_presentation_070121.pdf.

On July 14, 2021, State Water Board staff met with representatives from local environmental organizations to discuss the emergency drought regulation.

On July 16, 2021, State Water Board staff issued a [Notice of Public Meeting and Opportunity for Comment: Draft Drought Emergency Regulation for Scott River and Shasta River Watersheds](#) that announced the release of draft drought emergency regulations for public comment and advertising a July 20, 2021 public meeting. During the public meeting on July 20, 2021, State Water Board and CDFW staff described the draft drought emergency regulations, presented responses to past comments on the CDFW flow recommendations, answered audience questions, and listened to comments. A full recording of the July 20, 2021 public meeting is available at: <https://www.youtube.com/watch?v=DgEs3GEJ-f0>. Presentation slides from the meeting

are available at:

https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/scott_shasta_e_reg_presentation_072021.pdf

The public comment period extended from July 16, 2021 to July 23, 2021, and the State Water Board received more than 100 written comments.

State Water Board staff have met with members of the agricultural community, approximately five times in July through August 2021 (July 8, 2021, July 15, 2021, July 22, 2021, July 30, 2021, and August 10, 2021) to solicit additional input on drought response actions and emergency regulation development and provide support for development of voluntary/collaborative actions to enhance flow and habitat for SONCC coho salmon and fall-run Chinook salmon.

(D) Status of Species: Coho Salmon and Chinook Salmon

The Scott and Shasta watersheds are important salmon producing streams in the Klamath River Basin and support numerous fisheries including SONCC coho and culturally and commercially significant fall-run Chinook salmon. The SONCC coho salmon is listed as a threatened species under both the federal and state ESAs and are identified as being at high and moderate risk of extinction in the Shasta River and Scott River, respectively (NMFS, 2014). The species spawns, hatches, and rears in tributaries to the Klamath River, including the Scott River and Shasta River, and then travels to the ocean. The fish then typically return to the same tributary, three years after hatching. The Scott River and Shasta River coho salmon are both “core, functionally independent” populations of the SONCC Evolutionarily Significant Unit under the federal ESA, indicating that the Scott River and Shasta River have a critical role in the continuation and recovery of SONCC coho salmon. The SONCC coho recovery plan identifies increasing instream flows as one of the highest priority recovery actions in the Scott River and Shasta River watersheds. (NMFS, 2014).

On May 3, 2021, CDFW submitted a letter to the State Water Board expressing concern with the recent pattern of critically dry years and low flow conditions in the Scott River and the United States Drought Monitor prediction of an ongoing drought in Siskiyou County. Dry conditions have led to extreme events that threaten the species’ survival in these watersheds. For example, in the fall and winter of 2020, adult coho and Chinook salmon were unable to pass above the confluence of Oro Fino Creek on the mainstem Scott River, resulting in significant migration delays and almost complete cohort failure, which is a loss of that year’s run of salmon (also known as a brood year). CDFW notes that cohort failure represents loss of a significant component of the population, increases the potential for extirpation, and greatly impedes natural recovery. The May 3 CDFW letter further identified the best available scientific information for assessing long-term flow needs, and priority actions, for the protection of coho and Chinook salmon in the Scott River. On June 15, 2021, with drought conditions worsening and the May 2021 Proclamation, CDFW sent a letter to the State Water Board recommending drought emergency minimum flows for the Scott and Shasta River watersheds urging the State Water Board to adopt flows in the current drought emergency.

The following discussion provides a detailed review of fisheries conditions in the Scott and Shasta watersheds.

Scott River Watershed

In the Scott River, fall-run Chinook salmon migration and spawning typically occurs from late-September through December. SONCC coho salmon migration and spawning typically occurs from mid-October to early January (CDFW, 2020a). Fall-run Chinook salmon fry emergence occurs during the winter and spring, and a majority of the juveniles out-migrate from April through June. SONCC coho salmon fry emerge from February to June and rear in the stream for approximately one year. The following spring and early summer juvenile coho salmon out-migrate to the ocean.

Table 5. Salmonid Periodicity in Scott River Watershed (NCRWQCB, 2005)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fall Chinook												
Coho												

=Migration

=Spawning

=Incubation

=Emergence

=Rearing

=Out Migration

SONCC coho salmon populations are generally tracked as three separate brood years, with cohorts returning every three years. In the Scott River, brood year strength has been tracked for multiple decades, and the difference in brood year strength in this watershed is notable. When conditions are good during successive brood generations, coho salmon populations can respond quickly, as brood year 2 and year 3 have seen roughly order of magnitude increases in populations since 2008. Likewise, populations can suffer order of magnitude decreases following poor river conditions. Brood year 1 reduced in population size by over 90 percent following the 2013 drought, from 2,644 fish in 2013 to 250 fish in 2016. The 2019 return of brood year 1 increased to an estimated 365 fish, an improvement that remains far below the population prior to the 2013 drought (CDFW, 2021b).

The spatial distribution of annual spawning in the Scott River is an important metric as there is a lower risk of catastrophic loss due to potential redd scour when eggs are deposited throughout the watershed (i.e., eggs are deposited in the tributaries rather than the mainstem). The tributaries and upstream floodplain provide refuge, cover, and

feeding opportunities for juvenile salmonids that is not available in the downstream canyons. In other words, access to more rearing habitat increases potential production, which can in turn increase adult returns. Since 2008, an average of 65 percent of the Chinook salmon have spawned *upstream* of the Scott River Fish Counting Facility (location in the watershed is indicated in Figure 5, below). However, in three of the last five years (2015, 2018, and 2020) more than 68 percent of the Chinook salmon spawning occurred in mainstem canyon reaches *downstream* of the Scott River Fish Counting Facility (82%, 68%, and 69%, respectively), which corresponds with the three lowest October flow years to date (CDFW, 2021b).

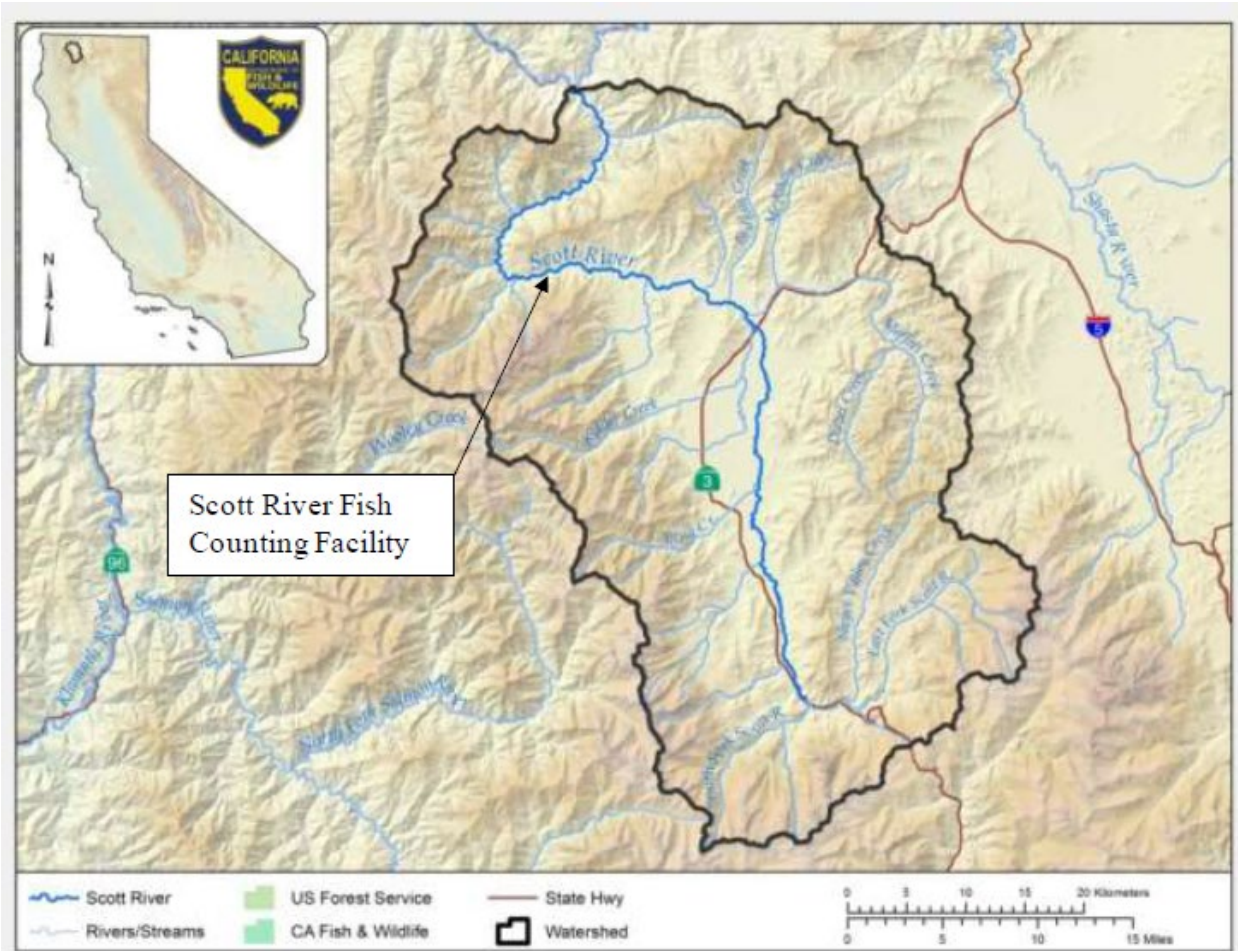


Figure 5. Location of the Scott River Fish Counting Facility

Timing of flow also has an important role in salmonid migration. Coho salmon respond almost instantaneously to fall flow increases in the Scott River, indicating that these fish are staging downstream of the Fish Counting Facility in the canyon reaches, waiting for a flow increase to migrate upstream. An annual average of 99.2 percent of coho salmon in the Scott River watershed spawn upstream of the Fish Counting Facility. However, if the increase in flow occurs too late in the spawning season, coho salmon are forced to spawn in the mainstem reaches of the Scott River. This occurred in the fall and winter of 2013/2014, when daily mean flows at the Fort Jones gage were less

than 60 cfs (flow needed to reconnect the mainstem Scott River to the key spawning tributaries) for the entire coho salmon migration period (mid-September through January), and 97 percent of coho salmon spawning occurred in the mainstem (CDFW, 2021b).

Additionally, in the fall of 2020, a lack of adequate flow in the Scott River during November and December prevented approximately 1,700 coho salmon from accessing spawning tributaries. CDFW believes that some coho eventually managed to access a portion of available spawning habitat after a mid-December rain event, and narrowly avoided complete spawning failure of the cohort for that year. It will not be known whether this spawning effort was successful until Spring 2022, when coho salmon offspring out-migrate to the ocean (coho juveniles typically rear in freshwater for a year before out-migrating to the ocean the following spring/summer). Chinook salmon were also impeded or prevented from accessing spawning tributaries during the second half of October 2020 due to inadequate flows. This is very concerning to CDFW because there has been a 65 percent reduction in the Scott River fall-run Chinook salmon run from 2015 to 2020 compared to the period of record from 1978 to 2020 (from an average of 4,977 fish per year, to 1,738 per year) and the fall-run Chinook salmon run in the Scott watershed is declining at a faster rate than the Klamath River watershed as a whole (a population decline of 43% as compared to the period of record from 1978 to 2020) (CDFW, 2021b).

In July 2021, the National Marine Fisheries Service (NMFS) conducted a fish relocation effort on Sugar Creek, a tributary to the Scott River, in response to severely limited habitat exacerbated by declining flows (NMFS, 2021a). Fish were relocated to an adjacent off-channel pond with reliable cold-water inputs from groundwater sources. A total of 473 juvenile coho salmon were relocated. Due to fish health risks associated with relocation efforts, they are only attempted in the Scott River watershed when a significant number of juvenile fish are threatened by decreasing flows and have no natural path to refugial waters. Fish relocation efforts are also planned on the mainstem of the Scott River in mid-August based on observations of stranded fish. The last time a large-scale fish rescue operation was conducted in the Scott River was in 2014, another significantly dry year. Coho salmon smolts ratios (as compared to the number of returning adult females) in the year of the rescue were quite low, suggesting that the survivability of the smolts was severely reduced despite these efforts (CDFW, 2020a).

Shasta River

In the Shasta River, fall-run Chinook salmon migration and spawning typically occurs from September through December. SONCC coho salmon migration and spawning occurs from mid-October to early January. Fall-run Chinook salmon fry emergence occurs during the winter and spring, and juveniles out-migrate to the ocean from April to June. Coho salmon fry emerge from February to May and rear in the stream for approximately one year. The following spring and early summer juvenile coho salmon out-migrate to the ocean.

Table 6. Salmonid Periodicity in Shasta River Watershed (NCRWQCB, 2006)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fall Chinook									Migration	Migration	Migration	
									Spawning	Spawning	Spawning	Spawning
	Incubation	Incubation							Incubation	Incubation	Incubation	Incubation
	Emergence	Emergence	Emergence								Emergence	Emergence
	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing
		Out Migration	Out Migration	Out Migration	Out Migration	Out Migration	Out Migration					
Coho				Historic (misc yrs 1930-1957)					Migration	Migration	Migration	Migration
	Migration							Current	Migration	Migration	Migration	Migration
	Spawning									Spawning	Spawning	Spawning
	Incubation	Incubation	Incubation								Incubation	Incubation
	Emergence	Emergence	Emergence	Emergence								
	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing	Rearing
		Out Migration	Out Migration	Out Migration	Out Migration	Out Migration	Out Migration					

■ =Migration ■ =Spawning ■ =Incubation
■ =Emergence ■ =Rearing ■ =Out Migration

The Shasta River watershed, including the Big Springs Complex, mainstem Shasta River, and other key tributaries, has supported roughly 10 to 30 percent of the natural Klamath River watershed (including the Trinity River) fall-run Chinook salmon population over the last decade (CDFW, 2020c). The Shasta River watershed is also key to supporting spawning and rearing habitat for Klamath Basin coho salmon. In the last two years, out-migration conditions for fall-run Chinook and coho salmon in the Shasta River watershed have been critically impaired. May/July 2021 flows were as low as 5.8 cfs at the Montague gage (lowest record of 2001-2021) and 6.9 cfs at the Yreka gage (third lowest record of 1988-2021).

It is important to note the high correlation of low flows in the Shasta watershed with temperatures that impair salmon, at both sublethal and lethal levels (Figure 6).

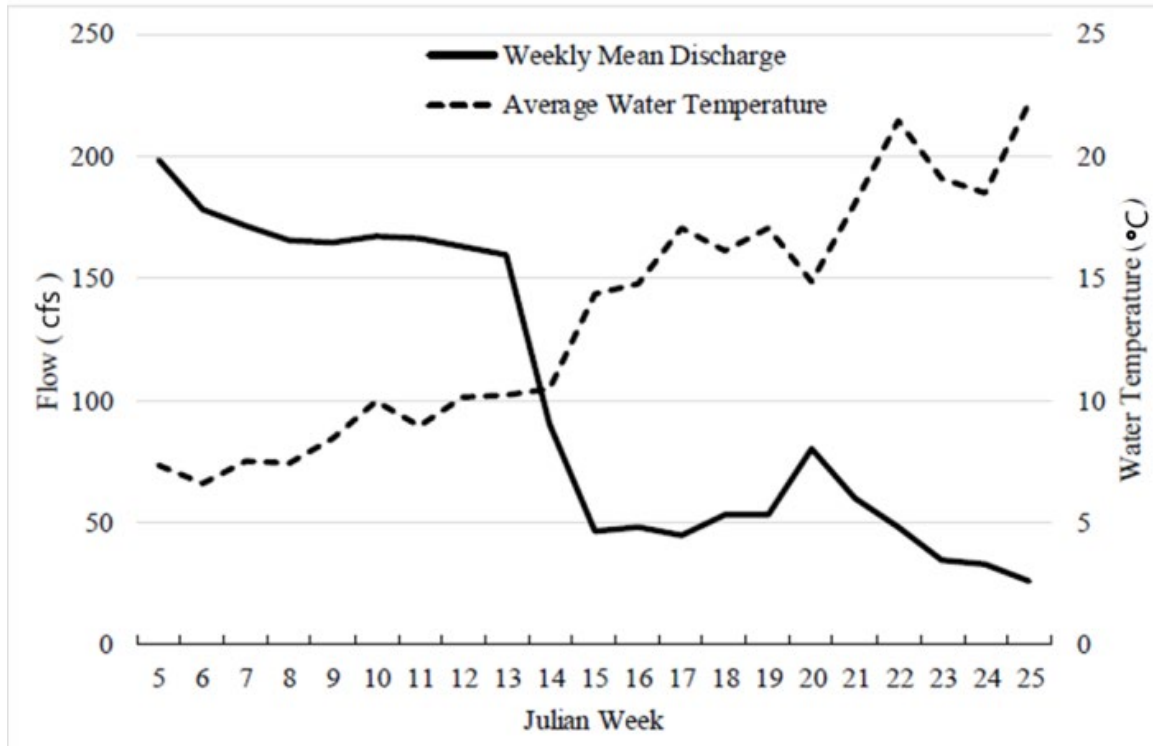


Figure 6. Average weekly flow in cfs and average water temperature in C° on the Shasta River in 2020. Flow measurements are from the Yreka gage and temperatures recorded at the Shasta rotary screw trap, near confluence with Klamath River (CDFW, 2020b)

Lethal temperatures are defined for Chinook and coho salmon in the Shasta River as occurring at 25°C, for a period of 7 days. Elevated but sublethal water temperatures can have myriad detrimental impacts on the survival of salmon including stress, increased susceptibility to parasites and disease, altered metabolic rates, decreased growth rates, inhibition of smoltification, and altered competitive dominance. The stressful impacts of temperature on salmon are cumulative, and positively correlated to the duration and severity of exposure (NCRWQCB, 2006).

This spring, CDFW recorded unprecedented temperatures at its rotary screw trap, which is located near the Yreka gage. CDFW only operates the rotary screw trap when water temperatures are below 21 degrees Celsius (70 degrees Fahrenheit) in order to protect fish from additional stress. In 14 years of the 20 year-rotary screw trap record, Shasta River water temperatures have allowed CDFW to operate the trap until the end of June. This year, this temperature threshold was reached in mid-May. In the 20-year record of operation, the previous earliest day this threshold was reached was June 17.

Fishery managers have been concerned with flow and temperature conditions in the Shasta River during the early weeks of the fall migration during many years. As a result, resource agencies and local landowners have been coordinating a range of voluntary efforts for the last decade to try and ensure adequate flows in the Shasta River for the fall migration of Chinook salmon during the critical month of September.

Data from 2020 represents the second consecutive year that the Shasta River fall-run Chinook salmon spawning migration population has fallen below the average population (6,632) for the period of record (1978-2020) (CDFW, 2020c).

Need for the Regulation

Immediate action is needed to establish drought emergency minimum fisheries flows in the Scott and Shasta watersheds, and to effectively and efficiently administer and enforce the State's water rights system to meet those flows in light of severely limited water availability in the Scott and Shasta watersheds during the current drought. Immediate action is also needed to ensure reasonable use of water in light of limited water availability during the drought. Current regulations do not provide for bare minimum fisheries flows in Scott and Shasta watersheds. The State Water Board will need to curtail water diversions when it determines flows are likely to be reduced below the CDFW emergency drought flow recommendations so that water is available for minimum flows for migration, rearing, and spawning of fall-run Chinook and SONCC coho salmon in the Shasta River and Scott River. Additionally, the State Water Board will need to curtail water diversions for which water is not available at their water right priority to protect senior diversions and instream flows and stored water in the Klamath River basin. The emergency regulation is also needed to provide for minimum health and safety needs and minimum livestock watering needs.

In order to more effectively implement the water rights priority system in the Scott and Shasta watersheds under current drought conditions, the State Water Board needs access to better and more current information regarding water rights, water use, water needs, and procedures that allow the State Water Board to obtain and use the best available information quickly. The State Water Board needs an enforceable mechanism to collect information related to surface water and groundwater diversions and uses of water in the Scott and Shasta watersheds to inform water demand estimates and the curtailment process. Additional information is also needed regarding the basis of right and priority date for some water rights and claims to inform curtailment decisions.

Water Rights Framework

A very generalized overview of water rights is provided here to help understand the need for the regulation and how it will be applied.

Two main types of surface water rights constitute the vast majority of surface water diversions in California: riparian rights and appropriative rights. A riparian water right (riparian right) generally provides a right to use the natural flow of a water body to which the land is riparian. Broadly speaking, riparian land is land that touches a lake, river, stream, or creek. Water can only be diverted under a riparian right when that water is used on the riparian parcel on land that drains back to the lake, river, stream, or creek from which the water was taken. Riparian rights remain with the property when it changes hands, although parcels severed from the adjacent water source generally lose their right to the water. Only the natural flow of water can be diverted under a riparian right. Water that is imported into a watershed from another river, stream, or creek cannot be used under a riparian right. Water cannot be stored during a wet time for use

during a drier time under a riparian right. Neither can water released from an upstream storage reservoir be used by a downstream user under a riparian right. Riparian rights generally have a senior (higher relative priority) right to natural flows as against appropriative rights, and water must be available to fulfill the needs of all riparian rights before an appropriator may divert. This is not always the case, however, depending on whether an appropriation that predates the patent date of riparian lands was initiated on public or private land, and whether the appropriative diversion was upstream or downstream of the relevant riparian parcel. The priorities of riparian right holders are correlative vis-à-vis each other; during a drought all share the shortage among themselves. Because a riparian right only allows the use of natural flow, it is possible to have water available under a riparian right during wetter years or months and not during drier years or months when natural flows are no longer available, including cases where stream flow is being supported by releases of previously stored water. This is particularly the case in dry years such as the current drought.

On the other hand, an appropriative water right is generally needed for water that is diverted for use on non-riparian land or to store water for use when it would not be available under natural conditions. An appropriative water right holder can use natural flow, and non-natural flows like imported water from other watersheds, or irrigation return flows. Prior to 1914, appropriative water rights were acquired by putting water to beneficial use. The exact priority date of a pre-1914 appropriation can vary depending on the circumstances, but depends on either posting notice under the then applicable procedures of the Civil Code or otherwise clearly initiating the means necessary to divert or actually diverting. An appropriative water right that was acquired before 1914 is called a pre-1914 appropriative water right and is not subject to the permitting authority of the State Water Board. Appropriative water rights obtained after 1914 require a water right permit and subsequently a license issued by the State Water Board or its predecessors. Similar to pre-1914 water rights, the seniority of post-1914 water rights is based on a first-in-time concept with the date of seniority typically established by the date of the application for the permit. A water right permit confers the State Water Board's (or its predecessor's) authorization to develop a water diversion and use project. The right to use water is obtained through actual beneficial use of water within the limits described in the permit. A water right license is issued once full beneficial use of water has been made and other conditions of a water right permit are met and constitutes the confirmation by the State Water Board (or its predecessor) of the water right. As between appropriators, junior water right holders may only divert where there is sufficient water to completely fulfill the needs of more senior appropriators.

When the amount of water available in a surface water source is not sufficient to support the needs of existing water right holders, junior appropriators must cease diversion in favor of more senior rights. However, it is not always clear to a junior diverter whether there is sufficient flow in the system to support their diversion and senior water uses downstream. It can also be difficult to determine whether releases of stored water are abandoned flows that may be diverted or whether those flows are not available for diversion because they are being released for downstream purposes. Similarly, it can be difficult for a riparian to know if water is natural flow or stored or imported water and whether, when and to what extent correlative reductions in water

use are needed due to the need to share limited supplies amongst riparians. As part of administrating water rights, the State Water Board may curtail water diversions based on California's water rights priority system.

For groundwater diversions, case law recognizes overlying and appropriative rights to groundwater, analogous to riparian and appropriative rights to surface water. (*City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224, 1240; see also *Katz v. Walkinshaw* (1903) 141 Cal. 116, 135-136.) An overlying groundwater right is analogous to a riparian right to surface water. (*City of Pasadena v. City of Alhambra*, 33 Cal.2d 908, 925.) An overlying right attaches to land overlying a groundwater basin and is correlative to the rights of other overlying users to the safe yield of the groundwater basin. A water right permit from the State Water Board is not required to exercise an overlying right to groundwater, and like a riparian right, an overlying right to groundwater is not lost for non-use. The rights of overlying groundwater users are correlative, consisting of an equitable share of the available supply.

Like appropriative rights to surface water, appropriative rights to groundwater are governed by the principle of first in time, first in right, and allow use of water outside of the groundwater basin. The State Water Board does not have permitting jurisdiction over groundwater, so an appropriative groundwater right can be obtained simply by extraction and beneficial use and does not require a permit from the state. Water may be appropriated for beneficial uses subject to the rights of those who have a lawful priority. Any water not needed for the reasonable beneficial uses of those having prior rights is excess or surplus water. Surplus water can be appropriated for non-overlying uses such as public use or exportation beyond the groundwater basin or watershed. (*City of Pasadena v. City of Alhambra, supra*, 33 Cal.2d, 925-926.)

Where groundwater and surface waters are interconnected, such as in the Scott and Shasta watersheds, the "common source" doctrine applies, integrating the water rights and applying priorities without regard to whether the diversion is from surface water or groundwater. (*Hudson v. Dailey* (1909) 156 Cal. 617, 627-628.) "[I]t has been recognized by California decisions that a percolating groundwater supply, although not part of the flow of a stream, may nevertheless be hydrologically connected with it, with the result that the extraction of water from either source diminishes the amount of water in the other. In such a situation, the percolating groundwater and the stream are regarded as one common water supply" (*United States v. Fallbrook* (S.D.Cal. 1958) 165 F.Supp. 806, 847 [internal citations omitted].) "Because these basins are interconnected, some of the surface inflow to one basin is outflow from another. The groundwater and surface water within the entire Mojave River Basin constitute a single interrelated source. (*City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224, 1234.)

Article X, section 2 of the California Constitution requires that all water in the state be used reasonably and not wasted, and that it be put to beneficial uses to the fullest extent possible, in light of the importance of water to the state. 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. 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.

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 a reasonable 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.) In applying the reasonable use doctrine, the Board must consider the demands of both instream uses (such as fisheries habitat, navigation, and recreation) and off-stream uses (such as irrigation, domestic use, and commercial use). (*National Audubon Society v. Superior Court* (1983), 22 Cal.3d 419, 443-444.) The State Water Board may determine particular uses not to be reasonable by regulation, including by exercising the emergency authority under Water Code section 1058.5 to adopt minimum drought emergency flows to protect critical fisheries, and to establish that diversions for most uses that interfere with meeting such flows are unreasonable. (*Stanford Vina Ranch Irrigation. Co v. State of California* (2020) 50 Cal.App.5th 976)

Need for Emergency Flows in Scott River and Shasta River Watersheds

In this particular case, application of the reasonable use doctrine requires consideration of the benefits of continued diversions of water from the identified waterbodies for current uses and the potential for harm to SONCC coho salmon and fall-run Chinook salmon from such diversions under the current drought conditions.

The purpose of the proposed regulation is to protect commercially significant and culturally important fall-run Chinook salmon (See Trihey & Associates, 1996; SWRCB 2020) and the ESA-listed, as threatened, SONCC coho salmon during this drought in the Scott and Shasta watersheds by maintaining minimum streamflow for adult salmon migration, rearing, spawning, and out-migrating juvenile fish.

Emergency Minimum Instream Flows for Fall-Run Chinook and SONCC Coho Salmon in Scott River and Shasta River Watersheds

Need for Scott River Watershed Salmon Flows

In CDFW's June 15, 2021 letter, CDFW provided emergency drought minimum flow recommendations for the Scott River to support salmon survival through the current drought emergency. The flow recommendations were developed in consultation with NMFS, pertain specifically to hydrologic conditions in the Klamath River basin that triggered the May 10, 2021 drought declaration, and provide minimum flows to support all life stages of fall-run Chinook and SONCC coho salmon during the current drought emergency. CDFW notes the flow recommendations are not intended to set the stage for long-term management considerations, nor are they to be construed to provide

adequate protections for salmon over extended periods of time. They only provide drought emergency minimum flow recommendations for all life stages of salmon during the current drought emergency. The drought emergency minimum flows are intended to enable salmon in the Scott and Shasta Rivers to survive this dire situation. The minimum flows are also informed by the experiences of fall 2020 salmon runs where, as mentioned previously, the entire year’s cohort of migrating coho salmon nearly failed to reach key spawning areas in the Scott River watershed.

The drought emergency minimum salmon flows provided by CDFW for the Scott River are shown below in Table 7. The Scott River Adjudication assigned first priority instream flow rights to the United States Forest Service that are intended to provide bare minimum protections for fish during dry years in the mainstem’s Klamath National Forest (KNF) reach, as measured at the USGS gage at Fort Jones. CDFW’s Scott River minimum flow recommendations are strongly influenced by the KNF first priority adjudicated right. The Scott River Adjudication deemed the first priority KNF flow amounts necessary *“to provide minimum subsistence-level fishery conditions including spawning, egg incubation, rearing, downstream migration, and summer survival of anadromous fish and can be experienced only in critically dry years without resulting in depletion of fisheries resources”*.

Table 7. Scott River Drought Emergency Daily Minimum Flow Recommendations.

(Note: The ***bold italicized*** numbers represent deviations from the Klamath National Forest’s (KNF) adjudicated water right based on CDFW’s subject matter experts’ consideration of other environmental variables.)

River Gage	Daily Minimum Emergency Flow Recommendations (cfs)											
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Fort Jones USGS 11519500	30	<i>33</i>	40	<i>60</i>	<i>150</i>	200	200	200	150	150	125	50

In its letter recommending flows, CDFW notes that implementation of these bare minimum flows may be adjusted if CDFW and NMFS subject matter experts agree that the reference minimum drought emergency flows are more than may be necessary to benefit relevant life stages (e.g., migration ends early).

The CDFW drought emergency minimum flow recommendations deviate from referenced values (as noted by ***bold italicized*** text) only when CDFW considered other factors such as the current emergency drought conditions, field notes, and the professional judgment of CDFW and NMFS subject matter experts. In all but one month (September), the recommended drought emergency minimum flows in the Scott River are equal to or lower than what would be required per the applicable KNF adjudicated water right. In September, the CDFW recommended flow of 33 cfs (rather than the 30 cfs in the KNF adjudicated right) is based on its analysis of recent dry year information and the need for slightly higher flows during this month.

Gage information from 2020 supports the emergency flow recommendations deviating from this adjudicated water right based on the following observations:

- September: CDFW notes that prolonged and extensive groundwater extraction throughout the irrigation season combined with surface water diversion for livestock watering beginning October 1 has further exacerbated low flow barriers during adult fall-run Chinook migration. CDFW compares critically dry water years before and after the 1980 Scott River decree. From 1942 to 1979, four water years could be classified as “critically dry” based on flow exceedance analysis. The average September flows during these for years was 33.1 cfs. After 1980, the Scott River watershed experienced a total of 11 years that could be classified as “critically dry”. Among those 11 years, the average September flow was 9.7 cfs. Fall-run Chinook salmon begin their migration into the Scott River watershed in September. As noted previously, fall-run Chinook salmon are declining at a faster rate in the Scott River watershed than in the greater Klamath River watershed. 33 cfs is recommended to ensure adequate water to remove low-flow barriers for returning adult fall-run Chinook salmon.
- November: November flows at the Fort Jones gage ranged from 7 to 37 cfs in 2020. Shackleford Creek connected to the mainstem Scott River for several days when flows peaked at 19 to 37 cfs, and coho are believed to have accessed Shackleford Creek, the most downstream tributary within the alluvial portion of the Scott River Valley that is known to host both spawning and rearing life stages of coho salmon, during that time. 60 cfs is recommended to ensure migration of coho salmon into the tributaries so they can spawn and rear until they out-migrate the following spring.
- December: Coho salmon accessed French Creek between December 17 and December 21 when flows ranged between 86 and 131 cfs at the Fort Jones gage in 2020. This exceeds the 60 cfs flow at the Fort Jones gage noted in Yokel (2014) that is believed to provide minimal access to some Scott River tributaries. 150 cfs is recommended to ensure the tributaries are connected such that coho salmon can migrate to critical spawning grounds in French Creek, which is farther upstream of Shackleford Creek and requires greater flows to provide connectivity and allow migration.
- January: Coho salmon were able to access Sugar Creek and the South Fork and East Fork of the Scott River, tributaries at the upper end of the watershed that are located upstream of the “tailings” reach of the Scott River, around January 4 and 5, 2021 when flows exceeded 149 cfs. 200 cfs is recommended to ensure suitable access to spawning habitat in Sugar Creek, the South Fork, and the East Fork of the Scott River for coho salmon and is consistent with the KNF water right.

These observations of coho salmon migration throughout the Scott River system during 2020 and early 2021, taken in combination with established adjudicated water rights set specifically for the support of subsistence-level survival of the salmon fishery in the Scott River provides the justification for the minimum emergency flow recommendations prepared by state and federal fisheries agencies as transmitted in CDFW’s June 15, 2021 letter (CDFW, 2021c) and related supporting information (CDFW, 2021b and 2021d).

Need for Shasta River Watershed Salmon Flows

While adequate flows are necessary to support fish, another vital component of the aquatic habitat necessary to protect fall-run Chinook and SONCC coho is cold water. It is important to note the correlation of low flows with lethal water temperatures for salmon. This spring, CDFW recorded unprecedented high temperatures at its rotary screw trap, which is located near the Yreka gage. In order to ensure fish are not harmed, CDFW only operates the rotary screw trap when water temperatures are below 21 degrees Celsius (70 degrees Fahrenheit). In 14 of the 20-year rotary screw trap record, Shasta River water temperatures have allowed CDFW to operate the screw trap until the end of June. This year, the temperature threshold was reached in mid-May, approximately a month earlier than ever before. In the 20 years of records prior to this year, the earliest day the temperature threshold was met was June 17. In addition, fishery managers have been concerned with flow and temperature conditions in the Shasta River during the early weeks of the fall migration during many prior years. As a result, over the past decade, resource agencies and local landowners have tried to coordinate to provide adequate flows in the Shasta River during the critical month of September to support fall-run Chinook salmon migration. Data from 2020 represents the second consecutive year that the Shasta River Chinook salmon spawning migration population has fallen below the average population for the period of record.

As noted above, CDFW's June 15, 2021 letter also provided minimum flow recommendations for the Shasta River to support salmon survival through the current drought emergency. The flow recommendations were developed in consultation with NMFS, pertain specifically to hydrologic conditions in the Klamath River basin that triggered the May 10, 2021 drought declaration, and provide minimum flows to support all life stages of fall-run Chinook and SONCC salmon during the current emergency. CDFW notes the flow recommendations are not intended to set the stage for long-term management considerations, nor should they be construed to provide adequate protections for salmon over extended periods of time. They only provide drought emergency minimum flow recommendations for all life stages of salmon during the current drought emergency. The drought emergency minimum flows are intended to enable salmon in the Scott and Shasta Rivers to survive this dire situation.

The salmon flows provided by CDFW for the Shasta River are shown below in Table 8. The Shasta River flow recommendations are informed by recommended flow for dry conditions from McBain and Trush (2014), and CDFW's understanding of available base flows and historical water use. The recommendations deviate from referenced values only when CDFW considered other factors such as the current emergency drought conditions, field notes, and the professional judgment of CDFW and NMFS subject matter experts. The recommended flows for Shasta River are equal to or lower than the flows recommended for dry conditions in the 2014 McBain and Trush study.

Table 8. Shasta River Drought Emergency Daily Minimum Flow Recommendations. The *bold italicized* numbers represent deviations from referenced standards when subject matter experts considered other environmental variables.

River Gage	Daily Minimum Emergency Flow Recommendations (cfs)											
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Yreka USGS 11517500	50	50	125	150	150	135	135	135	70	<i>50</i>	<i>50</i>	50

In its letter recommending drought emergency minimum flows, CDFW notes that implementation of these bare minimum flows may be adjusted if CDFW and NMFS subject matter experts agree that the reference minimum drought emergency flows are more than may be necessary to benefit relevant life stages (e.g., migration ends early).

Watershed Descriptions

Scott River

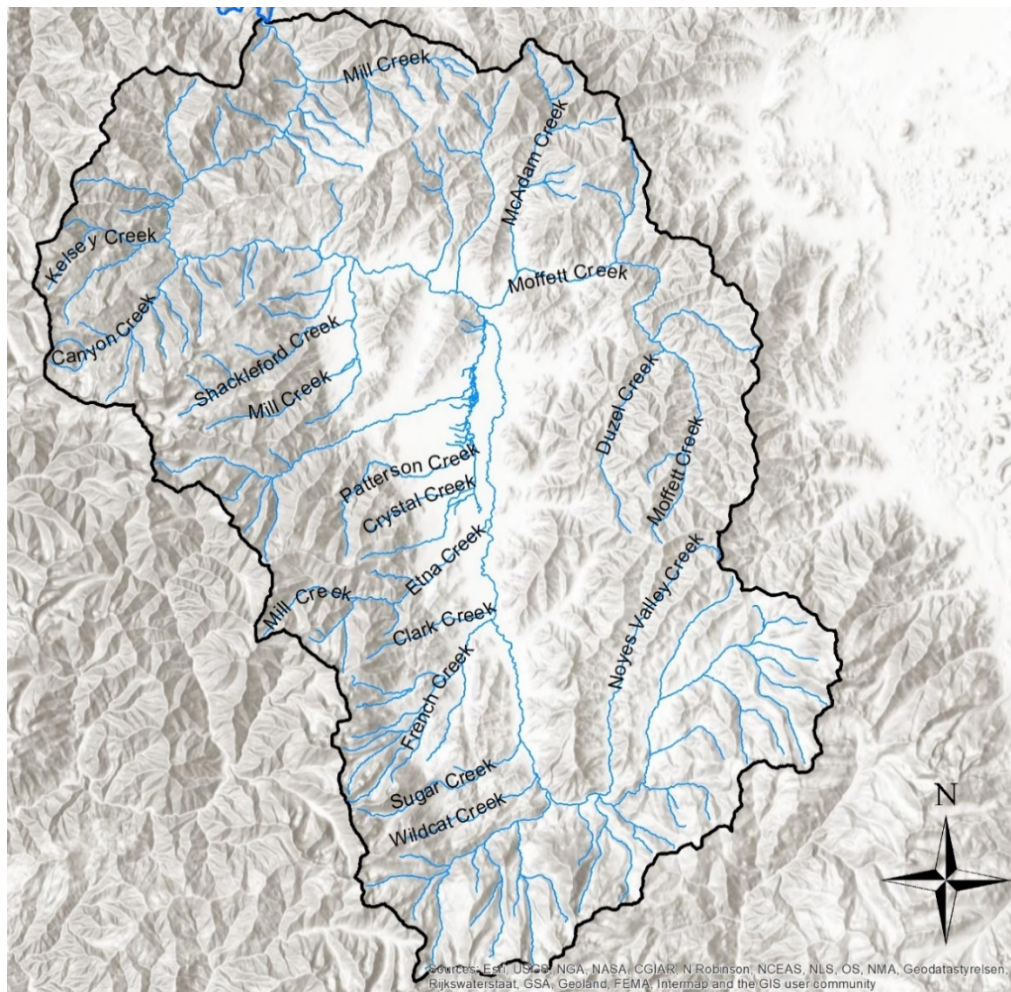


Figure 7. Scott River Watershed

The Scott River watershed (Figure 7) is approximately 813 square miles (NCRWQCB, 2005). The mainstem Scott River can be divided into two major reaches. The Canyon Reach stretches from the confluence of the Scott River and the Klamath River at river mile (RM) 0 to RM 21 and flows mostly on bedrock, confined in a steep-sided, rocky canyon with a gradient that ranges from 45-55 feet/mile (ft/mi). The Valley Reach stretches from RM 21 to about RM 50 and flows through the relatively flat, open, agricultural valley floor of Scott Valley with a river gradient ranging from 4-8 ft/mi. The upstream end of the Valley Reach is dominated by remnant tailings from past placer gold mining operations, where flow seasonally disconnects in most years. Upstream of the Valley Reach, the East Fork of the Scott River and the South Fork of the Scott River flow from the Scott Mountains and join to form the mainstem Scott River just upstream of the tailings, near the town of Callahan. Elevations in the Scott Valley range from 8,532 feet above mean sea level (msl) at China Mountain at the south end of the Scott Valley down to 2,500 to 3,000 feet above msl at the floor of the Scott Valley. Downstream of Scott Valley, the Scott River joins the Klamath at 1,600 feet above msl (NCRWQCB, 2005).

Scott Valley hydrology depends largely on precipitation stored as snow at higher elevations in the mountains to the south and west of Scott Valley, where annual total precipitation, including rain fall and snow water equivalent depth, ranges from 60-80 inches (NCRWQCB, 2005). Streams leaving the mountains from the west enter the valley and recharge the high-capacity aquifer of sand and gravel that underlies the valley at a thickness of up to 400 feet. These west-side tributaries (including Shackleford Creek, Kidder Creek, Patterson Creek, French Creek, Miner's Creek, Crystal Creek, Sugar Creek), as well as the East Fork Scott River and the South Fork Scott River provide critical cold-water habitat that facilitates rearing of juvenile salmonids. The Scott River populations of SONCC coho and fall-run Chinook salmon in the Klamath Basin relies on spawning grounds in the Scott River and its tributaries – including French Creek, Miner's Creek, Shackleford Creek, Crystal Creek, Sugar Creek, the South Fork Scott River, and the East Fork Scott River (NMFS, 2014). In particular, Scott River population of coho salmon is considered a core, functionally independent population by NMFS and is important to the overall survival of the species (NMFS, 2014). Functionally independent populations are those with a high likelihood to persist in isolation over a 100-year time scale and are not substantially altered by exchanges of individuals with other populations.

Predominant land use in the Scott Valley includes cow-calf production, alfalfa production, grain production, timber, and forest resources (NCRWQCB, 2005). Surface water is diverted from the Scott River and its tributaries primarily to support agricultural and municipal uses. Groundwater is extracted primarily for domestic and agricultural uses. Surface water rights in the Scott River watershed were adjudicated in three separate adjudications: Shackleford Creek Adjudication (Siskiyou County Superior Court, 1950), French Creek Adjudication (Siskiyou County Superior Court, 1958), and the Scott River Adjudication (Siskiyou County Superior Court, 1980). In addition to surface water rights, the Scott River Adjudication also included some groundwater rights that are within a geographic boundary defined in the Scott River Adjudication. Water rights in the Scott River Adjudication are divided into 48 schedules, and the Scott River

Adjudication lists the relative priorities of the surface water rights in each schedule. Currently, only water rights in French Creek and Wildcat Creek are under watermaster service. Oro Fino Creek, Sniktaw Creek, and Shackelford Creek were previously under watermaster service but are no longer watermastered. The rest of the Scott River watershed (including the mainstem Scott River) has never been watermastered. Thirty-seven percent of the watershed is owned by federal resource management agencies (NMFS, 2014).

Surface water and groundwater diversion can result in insufficient flows for adult salmon migration to suitable spawning habitat, particularly during drought years (NMFS, 2014). Insufficient flows can also affect the ability for salmon juveniles to emerge and redistribute into refugial streams that can support their development. Enhancing instream flows and limiting diversions are both identified by NMFS in its recovery strategy as being among the highest priority recovery actions for the Scott River watershed (NMFS, 2014). Various other actions are described in the recovery plan to support increases in instream flow, including but not limited to securing additional water code section 1707 instream flow dedications, improving irrigation efficiency, lining and piping ditches, increasing water-mastering service to better manage surface water diversion, studying instream flow needs and establishing instream flow targets, and developing and implementing groundwater recharge plans focused on increasing summer base flow and connectivity. Adequate streamflow during salmon migration periods will support the survival of adult coho and fall-run Chinook salmon by increasing critical passage riffle depth and reducing water temperatures in the Scott River.

Scott River Temperature and Sediment TMDLs Summary

The Scott River watershed has been listed as impaired with relation to sediment since 1992, and impaired with relation to temperature since 1998, pursuant to Section 303(d) of the Clean Water Act (NCRWQCB, 2005). On December 7, 2005 the North Coast Regional Water Board adopted the *Action Plan for the Scott River Sediment and Temperature Total Maximum Daily Loads* (TMDLs), which was subsequently approved by the United States Environmental Protection Agency (USEPA) on September 8, 2006 (NCRWQCB, 2018). The TMDLs identify the following sensitive beneficial uses impacted by excessive sediment loads and elevated temperatures:

- cold freshwater habitat;
- rare, threatened, and endangered species;
- migration of aquatic organisms; and
- spawning, reproduction, and/or early development of fish.

In the TMDL for temperature, five factors were identified that have affected or have the potential to affect stream temperatures. These factors include:

1. stream shade,
2. stream flow via changes in groundwater accretion,
3. stream flow via changes in diversion,
4. channel geometry, and
5. microclimate.

According to the TMDL, groundwater accretion affects temperature by both directly supplying cold water instream and by changing flow volume and transit time. Extraction of groundwater can reduce these accretions by lowering the water table relative to stream bed elevation and reducing the amount of surface water gained instream through groundwater-surface water interactions. Similarly, surface diversions of tributary stream flow can lead to adverse temperature conditions that impact beneficial uses when the diverted volume is large relative to total tributary stream flow. Many of these smaller tributaries with surface diversions host high densities of spawning coho and Chinook salmon (NMFS, 2014). The remaining factors relate to physical, non-flow processes that impact temperature conditions.

Shasta River

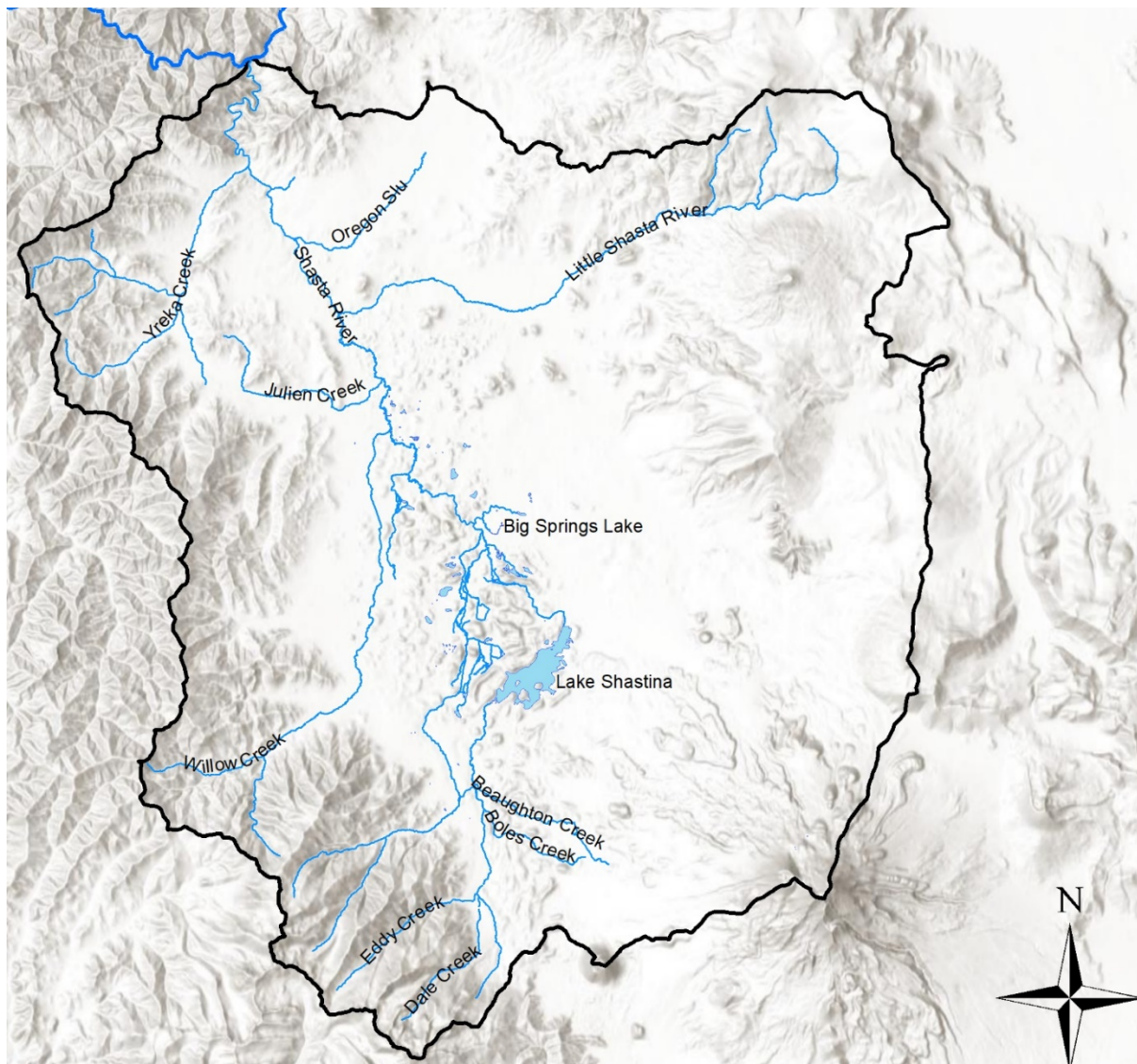


Figure 8. Shasta River Watershed

The Shasta River watershed (Figure 8) spans approximately 795 square miles. The Shasta River begins on the north slope of Mt. Eddy in the southwestern part of the watershed and flows mostly northward until meeting the Klamath River. The Shasta River has a canyon reach that ends at the confluence of the Shasta River and Klamath River. The canyon reach extends seven miles upstream, with an average gradient around 52 ft/mi (NCRWQCB, 2006). Legacy impacts from historic mining operations in the canyon reach continue to negatively impact habitat quality in the canyon reach (NMFS, 2014). Upstream of the canyon reach, the Shasta River flows northward for 33 miles through the low-gradient Shasta Valley, a groundwater basin comprised of alluvial and volcanic aquifers (NCRWQCB, 2006; Siskiyou County, 2021a). At RM 40.6, Dwinnell Dam impounds the Shasta River, forming Lake Shastina. The lower Shasta River is an approximately 40-mile reach of the river that begins below Dwinnell Dam and ends at the confluence with the Klamath River. Major tributaries to the Shasta River are Parks Creek (RM 35), Big Springs Creek (RM 34), Willow Creek (RM 26), Little Shasta River (RM 16), and Yreka Creek (RM 8) (USFWS, 2013; SWRCB, 2018). The Shasta Valley contains hillocks that were deposited during a massive avalanche and debris flow over 300,000 years ago (NCRWQCB, 2006). Mountains surround the Shasta Valley on four sides, with the Klamath Range on the west, the Siskiyou Range to the north, the Cascade Range to the east, and Mt. Shasta and Mt. Eddy to the south. Elevations in the Shasta River watershed vary from 14,200 feet above msl at the summit of Mt. Shasta to 2,020 feet above msl at the confluence of the Shasta River with the Klamath River (NCRWQCB, 2006).

The Shasta River watershed is predominantly a low rainfall, high desert environment characterized by cool winters and hot dry summers (SWRCB, 2018). The Shasta Valley is in the rain shadow of the Klamath Mountains and receives little precipitation, about 12-18 inches per year (NMFS, 2014). Shasta Valley hydrology depends on surface flow from precipitation driven streams in the southwest, south, and east areas of the watershed and significant cold-water springs in the central Shasta Valley (NCRWQCB, 2006; SWRCB, 2018). Annual mean precipitation in the watershed ranges widely from 8 to 125 inches, though average precipitation in the mountains can range from 45 or 85 inches to 125 inches (NCRWQCB, 2006; PRISM Climate Group, 2015; SWRCB, 2018). Precipitation falling below 5,000 feet is usually rain, while snow usually accumulates above this elevation. Most precipitation falls between October and March, providing rainfall runoff or snowmelt to streams in the western and southwestern headwater tributaries to the Shasta River. Due to the watershed's volcanic geology, precipitation that falls in the watershed's volcanic uplands infiltrates and enters the Shasta Valley's volcanic aquifers (SWRCB, 2018). In the southern and eastern watershed, groundwater springs emanating from volcanic aquifers provide continuous discharge to the Shasta River and its tributaries (NMFS, 2014).

Development of water resources in the Shasta River watershed has led to changes in the hydrologic behavior of the river (Jeffres et al., 2010), and to reductions in the quantity and quality of cold-water habitats available to rearing coho salmon throughout the Shasta River watershed (Willis et al. 2013, Stenhouse et al. 2012; SWRCB, 2018). In its recovery plan for coho salmon, NMFS ranks impaired water quality and altered hydrologic function as 'very high' key limiting stresses to juvenile coho salmon and

ranks agricultural practices and dams/diversions as 'very high' key limiting threats (NMFS 2014; SWRCB, 2018). Excess tailwater from flood irrigation can discharge hot water into the Shasta River and tributaries (NCRWQCB, 2006; Aqua Terra Consulting, 2011; SWRCB, 2018).

Surface water diversions in the Shasta watershed were subject to a statutory adjudication that resulted in a judgment and decree approved by the Superior Court of the State of California in Siskiyou County in 1932 (*In the Matter of the Determination of the Relative Rights Based on Prior Appropriation, of the Various Claimants to the Use of the Water of the Shasta River and its Tributaries in Siskiyou County, California, Case No. 7035*) (Siskiyou County Superior Court, 1932). The court recognized at that time that the water supply of the stream system is inadequate for all agricultural needs throughout the irrigation system. At the time the watershed was adjudicated, there were approximately 40,000 acres of irrigated agriculture. Today, there are over 50,000 acres of agriculture under irrigation, presumably from additional diversions under riparian rights and groundwater pumping, which are not subject to the Shasta River Adjudication. The Shasta River Adjudication contains no requirements for the protection of instream beneficial uses (SWRCB, 2018).

The Shasta River watershed includes numerous dams, wells, and diversions from the Shasta River and its major tributaries. Water use in the watershed consists principally of agricultural supply for crop irrigation and livestock watering, but municipal, industrial, fish and wildlife also play substantial roles in the overall water resources development and use (Willis 2013; SWRCB, 2018). Agricultural water demands are met with direct diversion of surface water from the Shasta River and its tributaries, diversion of surface water stored in Lake Shastina and other reservoirs, pumping from groundwater, and re-use of applied irrigation water (Willis et al. 2013). Four irrigation districts make up the primary water rights holders in the watershed, with approximate irrigation season diversions totaling 227 cfs (USFWS, 2013; SWRCB, 2018). Primary municipal water users in the watershed include the communities of Yreka, Montague, and Weed, along with several small hamlets with populations of less than 100 (SWRCB, 2018).

The Shasta Valley is a 217,980-acre groundwater basin comprised of alluvial deposit and volcanic rock aquifers. The Shasta Valley's aquifers are the watershed's primary source of groundwater. The volcanic aquifers are comprised of lava flows from the High Cascades and Western Cascades volcanic series. The lava flows exhibit an internal complexity originating from how the lava flows erupted, flowed, and solidified. Some groundwater wells tap productive lava tubes, underground voids that once insulated and channelized flowing lava and now feature flowing water. Other groundwater wells tap pockets of water and sediment that fill cracks or crevices in the lava rock (Mack, 1960; Siskiyou County, 2021a). In the southeastern Shasta Valley, near Big Springs, groundwater pumping from the Pluto's Cave basalt, a volcanic formation in the High Cascades volcanic series, produces water for irrigation, stock, and domestic uses. In the eastern Shasta Valley, groundwater pumping from lava flows of the Western Cascades volcanic series, supply water for irrigation, livestock, and domestic uses (Mack, 1960; Siskiyou County, 2021a).

In the southern and central parts of the Shasta Valley, numerous productive groundwater springs emerge from the highly permeable basalt flows of the High Cascades volcanic series, especially the Pluto's Cave basalt. In the spring, once snowmelt and rainfall precipitation end for the season, groundwater springs become the primary source of baseflow to the Shasta River and its tributaries for the remainder of the spring, summer, and fall (Nichols, 2008; Nichols et al., 2010; Jeffres et al., 2008). During dry seasons, groundwater springs in the Big Springs Complex provide an estimated 95 percent of baseflow to the lower Shasta River via the Big Springs Creek tributary (Nichols et al., 2010). Jeffres et al. (2009) reported that during the irrigation season, irrigation diversions and groundwater pumping reduce baseflows in Big Springs Creek by 35 percent. Following the end of the irrigation season, baseflows in Big Springs Creek rapidly rebound (Nichols et al., 2010). Another study found that during April 1 to April 12, 2008 streamflow at the Shasta River Montague gage decreased by approximately 70 percent, from 143 cfs to 43 cfs. The authors concluded that the onset of surface water diversions and groundwater pumping for irrigation caused the swift and significant reduction of groundwater-fed baseflows throughout the Shasta River basin (Nichols et al., 2010).

Shasta River Temperature TMDL Summary

Elevated water temperatures and low dissolved oxygen levels in the Shasta River watershed have impaired designated beneficial uses of water and the non-attainment of water quality objectives, primarily associated with cold-water fish. Impaired beneficial uses include the migration, spawning, and early development of cold-water fish such as coho salmon and Chinook salmon (*O. tshawytscha*). The Shasta River watershed was listed as impaired with relation to organic enrichment and low dissolved oxygen in 1992 and temperature in 1994, pursuant to Section 303(d) of the Clean Water Act (NCRWQCB, 2006). In 2005, the North Coast Regional Water Board adopted the *Action Plan for the Shasta River Dissolved Oxygen and Temperature TMDL*, which was subsequently approved by USEPA in 2006. Water quality modeling conducted during development of the Shasta River TMDL found depletion of streamflow to be a primary cause of high summer water temperatures in the Shasta River and its tributaries.

The North Coast Regional Water Board relied on the Tennessee Valley Authority's River Modeling System (RMS) as its primary analytical tool to develop the temperature TMDL. The RMS depicts inflows from Big Springs Creek, Parks Creek, and Yreka Creek to the Shasta River as discrete inputs. The compliance scenario modeled by the RMS relied on modifying the boundary conditions associated with inputs from Parks Creek and Big Springs Creek to account for reductions in stream temperature that could occur based on increased shade. In addition to shade, the RMS was used to analyze six different flow scenarios by systematically increasing flow by 50 percent at six locations in the Shasta River: Dwinnell Dam, downstream of Big Springs Creek, Grenada Irrigation District, Highway A12, Montague-Grenada Road, and Anderson Grade Road. The temperature assigned to the increased flow was equal to the baseline temperatures at the corresponding river location. These flow increases were modeled using observed atmospheric conditions between August 29, 2002 and September 4, 2002. Compliance points were set at three locations in the Shasta River where juvenile salmon rearing was known to occur: Highway A-12 (RM 24.1), Montague-Grenada

Road (RM 15.5), and an area known as Salmon Heaven in the Shasta River Canyon (RM 5.6). The modelling effort resulted in the following conclusions:

- Maximum stream temperatures are reduced from baseline condition at all locations downstream of where the flow increases were applied for all six modelled scenarios.
- The largest reduction in maximum stream temperature is associated with a 50 percent flow increase downstream of the Big Springs Creek confluence.
- The temperature of water (e.g. warm tailwater compared to cold spring water) associated with the 50 percent flow increase greatly influences the stream temperature results.
- The Big Springs Creek 50 percent flow increase simulation resulted in maximum stream temperature reductions of approximately 1°C to 2°C, with the largest reduction of 2.2°C at Yreka Agar Road (RM 10.9). At RM 5.6, an important location for summer rearing, the maximum stream temperature is reduced by approximately 1.8°C from baseline.
- The Big Springs Creek 50 percent flow increase simulation resulted in minimum stream temperature increases of approximately 0.2°C to 2°C

The 50 percent flow increase downstream of the Big Springs Creek confluence is attributed to a 45 cfs increase in flow from the Big Springs Creek Complex, resulting in a total flow of 112 cfs from Big Springs Creek. This total flow is within estimates of pre-diversion flow from the Big Springs complex. As such, the temperature TMDL recommends an additional 45 cfs of cool water to improve water temperature conditions (NCRWQCB 2006; SWRCB, 2018). In total, the water quality compliance scenario in the temperature TMDL includes the following:

- Increased riparian shade according to modeled site potential riparian conditions.
- Modified temperature regime of irrigation tailwater return flows such that the return flows do not cause heating of the receiving waters.
- Big Springs Creek temperatures reduced by 4°C from baseline.
- Parks Creek temperatures reduced by 2°C from baseline.
- 50 percent increase in Shasta River flows downstream of the Big Springs Creek confluence, which is an increase of 45 cfs of cold water, and provides for a total flow of approximately 112 cfs from Big Springs Creek.

Interconnectedness of Surface Water and Groundwater

Surface water and groundwater have varying degrees of connection. As noted above in the “Water Rights Framework” section, closely connected surface and groundwater are managed under the “common source” doctrine. As further discussed below, the surface water and groundwater in the Scott and Shasta watersheds is strongly connected.

Scott River

Scott Valley has two major geologic components, the alluvial deposits in the valley that comprise the aquifer, and the underlying impermeable or semipermeable bedrock. The aquifer is recharged by infiltration from Scott River and its tributaries, snowmelt,

precipitation, and water used for irrigation. Recharge affects the groundwater levels and determines if sections of the Scott River are gaining or losing streams (Siskiyou County, 2021b). The draft Scott River Groundwater Sustainability Plan (GSP) (Siskiyou County, 2021b) acknowledges this interconnectness of surface water and groundwater, stating that:

because the water table in many parts of Scott Valley can be relatively shallow, the Scott River surface water network contains many miles of stream channel that are connected to groundwater. The direction of flow exchange (i.e., gaining vs losing stream reaches) varies over both space and time, and simulated rates of stream leakage or groundwater discharge can vary by orders of magnitude ... Summer baseflow levels are, in part, related to groundwater levels and storage which determine the net groundwater contributions to streamflow.

The interconnectedness of surface water and groundwater in the Scott River watershed has also been legally recognized. For example, Water Code section 2500.5, subdivision (b), which defines groundwater as part of the Scott River stream system:

The Legislature finds and declares that by reasons of the geology and hydrology of the Scott River, it is necessary to include interconnected ground waters in any determination of the rights to the water of the Scott River as a foundation for a fair and effective judgment of such rights, and that it is necessary that the provisions of this section apply to the Scott River.

Other reports that indicate interconnectedness of surface water and groundwater in the Scott watershed include, but are not limited to: Foglia et al, 2013a and 2013b; Foglia et al, 2018; Harter 2021a; Kouba, 2021; and Tolley et al, 2019.

Shasta River

The Shasta Valley aquifer is a hydrogeologically complex system of alluvial and volcanic formations. Volcanic aquifer formations include lava tubes, porous volcanic deposits, and sediment-filled pockets within the volcanic deposits. The juxtaposition of these differing aquifer formations creates preferential pathways for groundwater discharge. Springs occur where groundwater discharges to the surface rather than into less-conductive aquifer materials or where head levels are close to or exceed the ground level (Siskiyou County, 2021b).

Interconnectedness of surface and groundwater in the Shasta River basin is acknowledged in the Shasta Valley GSP (Siskiyou County, 2021b):

Interconnected surface water has [been] largely assumed based on historic reports (Mack, 1960) as well as continued summer baseflow within the Shasta River. Spring discharge has been

observed in the Shasta Valley and is used to determine locations of interconnected surface water.

The historic report referred to in the Shasta Valley GSP (Siskiyou County, 2021b) is the USGS Water-Supply Paper 1484 (Mack, 1960). In this report, it is noted that groundwater discharge in Shasta Valley occurs principally by seepage into streams, including discharge from springs.

Little Shasta River and other streams along the east side of Shasta Valley derive most of their flow from springs and seeps issuing from the volcanic rocks of the high Cascades. From about Weed northward the contours intersect the channels of the major streams, indicating that ground-water discharge supplements the surface-water flow in the Shasta River system. In Little Shasta Valley the water table locally intersects the land surface and ponds and meadows occupy the depressions.

Water-Supply Paper 1484 estimated groundwater discharge from Shasta Valley for the 1953 water year. Included in these estimates were 70,000 acre-feet discharged into the Shasta River plus 30,000 acre-feet discharged from Big Springs.

Other reports that indicate interconnectedness of surface water and groundwater in the Shasta Watershed include, but are not limited to: SWRCB, 2018; Watercourse Engineering, 2007; and Willis et al, 2013.

Supporting Technical and Cost Information Related to Limitation on Inefficient Livestock Watering

What follows is a brief description of livestock watering, ditch losses, and factors that cause ranchers to divert much more water than livestock can drink.

Irrigation generally ceases in the Scott and Shasta watersheds in October, although specific dates vary depending on weather, water source, crop type, water right, and business practices. When irrigation ceases for the growing season, some ranchers continue to divert surface water to provide water for livestock. When the surface water is conveyed using gravity-fed earthen ditches, ranchers have to divert much more water than their livestock can drink due to seepage, freezing (more water in the ditch helps prevent the water from freezing), and to ensure hydraulic function of the ditch. Staff estimates that at ranches with the largest livestock diversions, less than one percent of the water diverted is ultimately consumed by livestock, as described below.

Division of Water Rights staff analyzed the Reports of Water Diversion and Use of the eight largest November 2020 diversions in the Scott River watershed. It is assumed that these November diversions are solely for the purpose of livestock watering, as they occur outside the irrigation season. These eight diversions reported approximately 758 acre-feet of water was diverted for livestock watering for 3,100 to 4,100 cows. Using a 15 gallon per day per cow estimate, cows drank approximately 5.7 acre-feet of the 758 acre-feet of water diverted in November 2020. This equates to 0.75% of the water

diverted being consumed by livestock. These diversions occurred when water was not broadly available in the Scott River and when coho salmon were unable to access spawning grounds due to insufficient flow.

Less data is available on livestock watering diversions in the Shasta Watershed because most large diversions in the Shasta River watershed are watermastered, and diversions that are watermastered are reported in less resolution than diversions that are not watermastered. The conveyance systems and livestock watering practices in the Shasta Watershed are similar to the practices in the Scott Watershed, so it is expected that losses due to inefficient livestock watering are similar.

A 1975 Division of Water Rights study measured irrigation ditch losses in 66 different ditches in the Scott Valley. Losses varied from 6 percent to 97 percent (generally smaller ditches had the largest percentage of losses), while the median and mean ditch losses were 52 percent and 50 percent. Figure 9 shows the distribution of these losses (SWRCB, 1974).

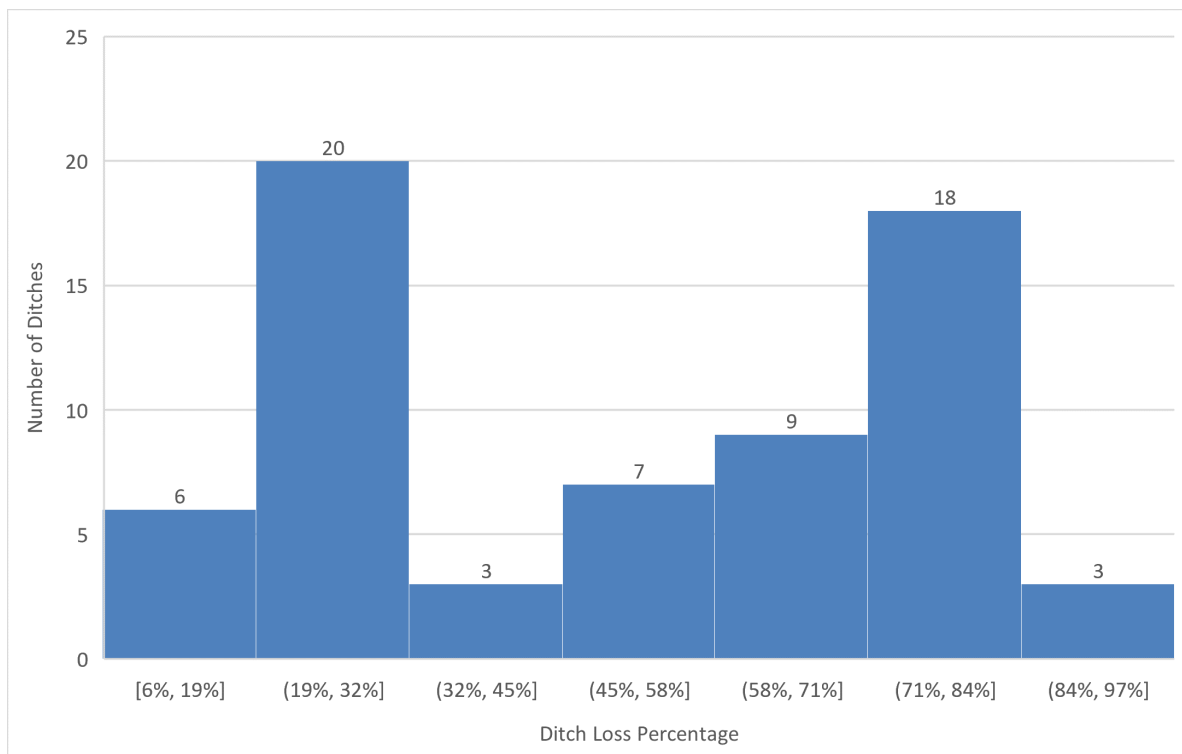


Figure 9. Scott Watershed Ditch Losses

While ditch losses can be immense, some ranchers choose to divert surface water because it avoids energy costs required to pump the water from a well, the water is always available to the livestock, and running water typically does not freeze.

For properties issued curtailments or when the operation of an inefficient ditch is unreasonable and not allowed during the critical fall migration period for salmon, there are several alternatives available. Permanent troughs can be installed that are

connected to small solar powered wells that continuously maintain water levels in the trough. These types of solutions can cost \$20,000 to \$40,000 (NMFS, 2021b).

For properties that do not have or do not wish to install permanent troughs, aluminum or plastic troughs can be purchased for \$400-\$600 (Tractor Supply Company, 2021). If a property has a well on site, then the well can be used to source water to fill the troughs. Additional costs may occur due to purchasing conduits to convey water from the well to the troughs or portable tanks that can help transport the water to the troughs. With this type of setup, the rancher would need to check on the troughs at least daily to fill and or ensure that the troughs have water in them and that the water surface is not frozen. When ice forms, the rancher would need to break up the ice or install a heating element. If a property has multiple pastures with cattle on them, each pasture would need access to troughs.

There are a large number of wells in the area, and reliance on groundwater for some water uses is common. Properties that do not have access to wells or cannot divert from surface water in reasonable quantities, water may need to be purchased and delivered. Water hauling costs are estimated to be \$200 per delivery (ABC 30 Action News, 2014) (CNBC, 2015). A delivery could be between 3500-5000 gallons of water (CNBC, 2015). The frequency, number, and duration of deliveries required depends on the number of livestock that must be watered. A property with 100 cattle may require 34 deliveries (assuming a 4,000 gallon capacity water truck) over a three month period. The cost of these deliveries could amount to \$6,750.

Grant funding is available for alternative livestock watering systems, installing pipe, and reimbursement of costs associated with transporting water to livestock due to drought, as further detailed in the “Funding Resources” section at the end of this document.

The emergency regulation finds that it is unreasonable to divert water for livestock at loss rates of greater than 10 times the amount needed for livestock. Diversions of greater than an order of magnitude more than the presumptively reasonable amount set forth in California Code of Regulations, title 23, section 697 are unreasonable because: the need for the additional flow is high in this drought emergency; and more efficient alternatives are available and commonly used in the area. The availability of grant funding provides additional support for the unreasonableness finding of the emergency regulation and associated limitation on inefficient livestock watering practices.

Informative Digest

Summary of Existing Laws and Regulations

A general description of the following is set forth above, in Water Rights Framework: existing law governing water rights; the water right priority system; and the constitutional prohibition against the waste, unreasonable diversion, unreasonable method of diversion, or unreasonable use of water. More specifically regarding water rights in the Scott and Shasta watersheds, both of these watersheds are adjudicated, meaning that a court has issued a far-reaching decree establishing the rights of various claimants to

water in the watershed. These adjudications are the: Shasta River Adjudication³, Shackleford Adjudication⁴, French Creek Adjudication⁵, and the Scott River Adjudication.⁶ These adjudications form the backbone of understanding the water rights in each watershed – including information on the priorities, uses, points of diversions, seasons of diversion, places of use, and water rights holders.

However, none of the adjudications address all water use in the Scott and Shasta watersheds. The Shasta Adjudication does not address riparian diverters or groundwater use. The Shackleford and French Creek Adjudications do not address groundwater, and the Scott River Adjudication addresses groundwater diversions only in part. None of these adjudications set forth the reasonable flow minimums necessary to protect the critical needs of SONCC coho and fall-run Chinook salmon in a drought emergency, or establishes the mechanism to curtail diversions when such flows are not being met. The Shasta, Shackleford and French Creek adjudications do not assign any instream flow determinations. The Scott River Adjudication does determine that the United States Forest Service holds certain instream flow rights for fisheries protection purposes, including flows in the mainstem reach near the Fort Jones gage that are very close to the emergency instream flows set forth in the emergency regulation. However, the Scott River Adjudication specifically notes that it does not make reasonableness determinations regarding the instream flows or other allocations. Further, because it sets forth tributary, upstream mainstem and groundwater diversion schedules as generally as independent from lower mainstem flows, the Scott River Adjudication does not establish a legal mechanism from which to address diversions that unreasonably interfere with these lower mainstem minimum flows. It is also worth noting that, while adjudicated water users in the Shasta River watershed and French Creek and Wildcat Creek have enrolled the services of the Scott River and Shasta River Watermaster District, many adjudicated areas have elected not to engage watermaster services, and watermaster services are not available for these or for unadjudicated areas. Thus,

³ The Judgement and Decree entered on December 29, 1932 in Siskiyou County Superior Court Case No. 7035, *In the Matter of the Determination of the Relative Rights, Based Upon Prior Appropriation, of the Various Claimants to the Waters of Shasta River and its Tributaries in Siskiyou County, California*, and all supplements thereto.

⁴ The Decree entered on April 3, 1950 in Siskiyou County Superior Court Case No. 13775. *In the Matter of the Determination of the Rights of the Various Claimants to the Waters of Shackleford Creek and its Tributaries in Siskiyou County, California*, and all supplements thereto. Shackleford Creek is a tributary to the Scott River.

⁵ The Judgement entered on July 1, 1959 in Siskiyou County Superior Court Case No. 14478, *Mason v. Bemrod*, and all supplements thereto. French Creek is a tributary to the Scott River.

⁶ The Decree entered on January 30, 1980 in Siskiyou County Superior Court Case No. 30662, *In the Matter of Determination of the Rights of the Various Claimants to the Waters of Scott River Stream System, Except Rights to Water of Shackleford Creek, French Creek, and all Streams Tributary to Scott River Downstream from the U.S. Geological Survey Gaging Station, in Siskiyou County, California*, and all supplements thereto.

there is not an existing entity with the authority to effectively manage all diversions in this extreme drought in the Scott and Shasta watersheds.

Under existing law, the State Water Board may take enforcement action to prevent unauthorized diversions of water or violations of the terms and conditions of water rights permits and licenses. Diverting water when it is unavailable under a water right holder's priority of right, or in violation of water right permit and license terms, constitutes an unauthorized diversion and a trespass against the state. Violations are subject to an Administrative Civil Liability (ACL) under the Water Code. (Wat. Code, § 1052.) An ACL order for an unauthorized diversion may impose liability of up to \$1,000 a day, plus \$2,500 per acre foot of water that is illegally diverted for violations during the current drought. Administrative cease and desist orders and court injunctions may also be issued to require that diversions stop. (Wat. Code, § 1831.) For the State Water Board to require cessation of diversions of water when it is unavailable under a water right holder's priority of right, each diversion may be investigated and charged, generally on the basis of a complaint, and water right holders may request a full evidentiary hearing on issues that include availability of water under the water right holder's priority. This process is not well suited to drought management, as it does not afford interim relief, and an enforcement hearing would extend past any single irrigation season.

Under existing law, the State Water Board also may initiate administrative proceedings to prevent the waste or unreasonable use of water. (Wat. Code, § 275.) The State Water Board lacks authority, however, to take direct enforcement action against the waste or unreasonable use of water. The State Water Board must first determine whether a given diversion or use is unreasonable, either in a State Water Board order or decision or in a regulation, and direct the diverter or user to cease the unreasonable diversion or use. In the event that the State Water Board has issued an order or decision, the State Water Board may issue a cease and desist order to enforce the order or decision. (Wat. Code, § 1831, subd. (d)(3)). If the cease and desist order is violated, the State Water Board may impose an ACL. (Wat. Code, § 1845, subd. (b)(1).) This process is also not well suited to drought management, as it does not afford interim relief, and an enforcement hearing would extend past any single irrigation season. In the event that the State Water Board has adopted a regulation under section 1058.5, the State Water Board may issue a cease and desist order and simultaneously impose an ACL in response to violations of the regulation. (Wat. Code, §§ 1058.5, subd. (d), 1846, subd. (a)(2).)

Currently, the Water Code provides for measurement and periodic reporting for surface water diversions (and limited groundwater diversions), but this reporting is not at the level of specificity necessary in a severe drought to adequately track usage and project water availability. For example, diverters file, on an annual basis by April 1 or July 1 based on the water right type, their aggregated monthly water use for the prior calendar year. Moreover, with limited exceptions not applicable in the Scott and Shasta watersheds, these requirements are for surface water diversions, which are insufficient in these watersheds in which groundwater and surface water are closely interconnected.

Water Code section 106.3, establishes a human right to sufficient, affordable water to meet basic needs for human consumption and sanitation. Penal Code, section 597 establishes a requirement for livestock owners to provide sufficient water for their animals. Neither of these statutes articulates a specific amount of water for meeting these needs. However, California Code of Regulations, section 697, sets forth general reasonable quantities for a range of water uses in the state, for the purposes of assisting the public in determining how much water is reasonable to seek in a water right application. The uses described include for various domestic uses, and livestock watering.

Comparable Federal Statutes and Regulations

There is no comparable federal statute or regulation. The proposed regulation is not inconsistent or incompatible with existing state regulations.

Policy Overview and Effect of Proposed Regulation

The proposed emergency regulation will set drought emergency minimum flows for fall-run Chinook salmon and SONCC coho salmon protection in the Scott and Shasta watersheds. Under the proposed regulation, the State Water Board would curtail diverters in these watersheds in the order of priority as necessary to maintain a reasonable assurance of meeting the minimally protective flows, and where water is not available at a diverter's priority of right. The proposed regulation also establishes procedures for important exceptions to priority-based curtailments in order to protect public health and safety and minimum livestock watering needs.

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

1. Establish emergency drought minimum flow requirements to protect the threatened SONCC coho salmon and the culturally and commercially significant fall-run Chinook salmon;
2. Ensure that adequate water is available to meet instream flow requirements for the protection of SONCC coho and fall-run Chinook salmon;
3. To implement the water rights priority system (including in systems with closely interconnected surface and groundwater);
4. Provide a path for local cooperative solutions to more effectively support flow needs;
5. Ensure continued access to water supplies for minimum human health and safety needs;
6. Ensure minimum water supplies for livestock watering needs;
7. Prohibit inefficient conveyance of water for livestock watering needs;
8. Provide allowances for non-consumptive uses;
9. Require curtailment order reporting; and
10. Authorize information gathering related to implementing the regulation for the above purposes.

Proposed Emergency Regulation Section 875

The State Water Board has determined that the drought emergency minimum flows recommended by CDFW in consultation with NMFS are the bare minimum flows supported with a scientific basis that are necessary to provide a minimum level of protection for salmon in the Scott and Shasta watersheds during this drought emergency. The proposed emergency regulation adopts the drought emergency minimum flows for fall-run Chinook and SONCC coho salmon species protection in the Scott and Shasta watersheds. The description and rationale for the flows is detailed above in the section titled Emergency Minimum Instream Flows for Fall-Run Chinook and SONCC coho salmon in Scott River and Shasta watersheds. The drought emergency minimum flows are intended to enable salmon in the Scott and Shasta watersheds to survive this dire situation, but do not represent optimal flows for salmon.

Proposed Section 875 then provides for the Deputy Director to issue enforceable curtailment orders in order of water right priority to ensure that these emergency minimum flows are met. In order to allow for rapid communication and the ability to act dynamically as conditions change, changes to curtailment orders after the initial order will be noticed electronically.

Recognizing the dynamic, and at times, localized and context-specific nature of information development and the variation in fish behavior and population over different years, this regulation provides for CDFW, in coordination with NMFS, to provide the Deputy Director with information regarding fish presence and/or alternative flow needs, based on new scientific information. The Deputy Director can then use that information in issuing or lifting curtailment orders.

Section 875 also provides for alternative methods of compliance with the emergency regulation through local cooperative solutions that provide benefits to fisheries resources or develop alternative methods to contribute to fishery flows. Significant efforts in prior years have established that voluntary efforts on an individual or group level in the watershed can result in benefits to the fishery through more flexible means than straightforward implementation of the water rights priority system.

The Scott River and Shasta River watersheds have a long history of voluntary efforts aimed at improving fisheries conditions. Voluntary actions in the Scott River watershed have included temporary and long-term water leasing through CalTrout and the Scott River Water Trust, safe harbor agreements, and coordination with private landowners, the watermaster, CDFW, and NMFS to provide targeted flows to protect redds and juvenile fish in critical spawning and rearing watersheds. Some of these efforts have resulted in, or are in the process of becoming, dedicated instream flows pursuant to Water Code 1707. Note that instream flow dedications are often specifically intended to contribute flows in addition to any required flows, at the discretion of the petitioner. A water diverter may elect to have 1707 flows contribute to a required flow.

Voluntary efforts have produced some measurable success, but have also been thwarted to some extent due to a lack of comprehensive management of water

diversions in these watersheds. Often, flows increased in one reach are simply diverted farther downstream, limiting the effectiveness of flow efforts to a small, localized area. Water use in the Shasta River is particularly difficult to manage due to the number of riparian diversions and groundwater pumping that are not accurately represented in the outdated Shasta River Adjudication. The emergency regulation provides a more comprehensive framework for managing water transactions and incentivizing more participation in voluntary efforts. Section 875, subdivision (f) provides the regulation's framework to build on existing efforts.

The regulation is developed to allow for alternative compliance methods at the watershed, tributary, and individual level that establish binding, enforceable alternative methods to meeting the minimum flow requirements, or to other fishery protection goals that provide equivalent or greater fishery benefits. Such measures have the potential to increase certainty for planting, hiring, and other resource determinations for farmers, and have the potential to generate voluntary efforts that will improve community resilience and response to drought in this and future dry years.

Section 875, subdivision (f) provides that local cooperative solutions by individuals or groups may be proposed by petition to the Deputy Director as an alternative means of reducing water use to meet or preserve drought emergency minimum flows, or to provide other fishery benefits (such as cold-water refugia, localized fish passage, or redd protection), in lieu of curtailment. Petitions to implement local cooperative solutions may be submitted to the Deputy Director at any time. The Deputy Director may approve a petition to implement cooperative solutions for: (A) a watershed-wide cooperative solution that will provide sufficient assurance that the flows in subdivision (c)(1) or (c)(2) are achieved; (B) tributary-wide cooperative solutions in two situations – first, if sufficient information allows the Deputy Director to identify the appropriate contribution of the tributary to the flows identified in subdivision (c)(1) or (c)(2), and the Executive Director makes a finding that a local cooperative solution is sufficient to provide the pro-rata flow for that tributary or second, if the trustee fisheries agencies find that the cooperative solution provides benefits to anadromous fish are equal to or greater than the protections provided by their contribution to flow; (C) individual cooperative solutions for any type of diversion in two situations – first, if there is binding agreement under which water users have agreed to cease diversions in a specific timeframe or second, if fisheries agencies recommend an exemption to curtailment based on an assessment that the benefits to anadromous fish are equal to or greater than the protections provided by their contribution to flow; (D) binding agreements for overlying groundwater diversions for irrigated agriculture that results in a net reduction of 30 percent in the Scott River watershed and 15 percent in the Shasta River watershed; and (E) comparable reduction in use of a users' more senior right in favor of continuing diversion under her more junior right otherwise subject to curtailment under certain circumstances.

After approval of a petition for a local cooperative solution, the Deputy Director will not issue curtailment orders or shall suspend, rescind or modify, as applicable, such orders already issued, affecting those rights relevant to the proposed cooperative solution, so long as the Deputy Director finds that any continued diversions under the local cooperative solution are reasonable and do not result in unreasonable harm to other legal users of water. Approval of a petition may be subject to appropriate conditions, including monitoring and reporting requirements, and approval may be rescinded if monitoring or other reliable information indicates that parties are not meeting their obligations under the cooperative solution, if the agreement is not providing the benefits to anadromous fish outlined in the cooperative solution, or based on an objection filed under (f)(2).

Under Section 875(f)(4)(B), in the Scott River watershed, information to determine a tributary pro-rata tributary contribution could include but is not limited to instream flow measurement information, Foglia et al 2013a, Foglia et al 2013b, Foglia et al 2018, [The Nature Conservancy California Natural Flow Database](#), information developed for the SGMA process, and available hydrologic models. In the Shasta River watershed, information to determine a tributary pro-rata tributary contribution could include but is not limited to instream flow measurement information, Watercourse Engineering 2007, The Nature Conservancy California Natural Flow Database, information developed for the SGMA process, and available hydrologic models.

Under Section 875(f)(4)(D), a cooperative solution that allows overlying or adjudicated groundwater diverters to reduce water use by 30 percent in the Scott River watershed and 15 percent in the Shasta River watershed were determined to be reasonable for this voluntary option based on the information described below.

The Scott Valley Integrated Hydrologic Model (SVIHM) developed by UC Davis (Foglia et al, 2018, and personal communication UC Davis) indicates that ceasing groundwater pumping for alfalfa irrigation by July or August within the Scott River groundwater basin in dry years would result in improved instream flow conditions at the Fort Jones gage during October through December. As shown in the SVIHM, during the dry season when stream reaches are dry due to low groundwater levels, stream flows cannot recover until groundwater levels rise due to reduced groundwater pumping or significant rain. In evaluating forecasted shortfalls, State Water Board determined that there may be a need to curtail all priorities of surface water diversions and some or all water pumped by groundwater users in order to achieve the drought emergency minimum flows. As shown in the Fiscal Impact Statement, groundwater pumping for irrigation during August through December is approximately 30 percent of the annual groundwater pumping for irrigation. For the voluntary pathways in the regulation described above, the volume of the 30 percent reduction of groundwater pumping may be allowed to be spread over the entire irrigation season instead of full pumping curtailment during August through December.

For the Shasta River, projected curtailments do not indicate the same level of curtailment impact to overlying groundwater pumping primarily because the lower priority demands are typically large enough to cover the projected curtailments. However, curtailments may need to be higher than what can be estimated from available supply and demand information because of uncertainty in the Shasta River watershed related to reported and unreported surface water demand, streamflow depletion losses, and potential dry stream segments in some parts of the watershed and wet stream segments in other parts of the watershed. It is anticipated that overlying groundwater curtailments needed to meet the drought emergency minimal flows would be much lower in the Shasta River watershed compared to the Scott River watershed. Governor Newsom's July 2021 Executive Order N-10-21 calls on Californians to voluntarily reduce their water use by 15 percent. Therefore, for the groundwater voluntary pathways in the Shasta River watershed the water use reduction target is 15 percent if water overlying groundwater users decide to pursue the voluntary pathway.

Proposed Emergency Regulation Section 875.1

Proposed section 875.1 provides an exception to curtailment in order of priority for non-consumptive diversions. Because such uses do not decrease downstream flows, curtailing such diversions would not help achieve minimum flows or provide additional water for senior rights. In order to provide sufficient information on the diversions to demonstrate that they are truly non-consumptive, and can continue without harming other diverters of equal or more senior priority, diverters must provide the Deputy Director with evidence that the diversion and use would not decrease downstream flows. The regulation specifically identifies certain types of non-consumptive uses to provide clarity for diverters who may qualify.

Proposed Emergency Regulation Section 875.2

Proposed section 875.2 provides that diversions for minimum human health and safety needs may be authorized to continue after receipt of a curtailment order. This provision recognizes that certain water diversions provide directly for individual human health needs, such as those typically provided through indoor domestic water use. It also recognizes that water plays a more indirect, but still vital, role in providing for human health and safety, such as uses for fire protection and recovery, air quality protection, and electrical grid reliability. When providing water for any of these purposes is not feasible with an alternate supply, and when the water is not being used for non-health and safety needs, continued use under a water right that has received a curtailment order is permitted. This is a narrow exception to the order of priority that protects human health and safety and furthers the human right to water expressed in Water Code section 106.3 and adopted as a core value in State Water Board Resolution No. 2016-0010.

The section adopts the process for certification and petitions for health and human safety uses provided in Article 24, section 878.1.

Proposed Emergency Regulation Section 875.3

Proposed section 875.3 allows for limited diversions to occur for minimal livestock watering, after receipt of a curtailment order. This limited exception to the order of priority is established in light of several factors: the limited amount of water required for livestock watering; the inability of livestock to withstand long periods without drinking water; state law requirements regarding humane treatment of animals; and the important role that livestock – particularly cow-calf operations – play in the economy of the Scott and Shasta Valleys specifically and the larger Klamath region as a whole. Necessary minimum diversions that meet the reasonable livestock-watering amounts described in California Code of Regulations, title 23, section 697, and are conveyed without seepage loss, may continue under self-certification to the Deputy Director.

In recognition of livestock's increased water needs during heat waves, limited diversions may be increased up to twice the amount in section 697 to support minimum livestock water needs during conditions of excessive heat, as declared by the National Weather Service (Section 875.3(c)) with additional documentation.

For situations in which livestock require more water than the amounts described in section 697 (for example, for pregnant or nursing livestock), diverters may file a petition supporting the increased need.

The Deputy Director may deny certificates or petitions that fail to demonstrate that the meet the requirements of certification or the requirements for increased water use.

Proposed Emergency Regulation Section 875.4

Proposed section 875.4 provides the authority for curtailments of diversions to occur in any California portion of the Klamath River watershed if there are insufficient flows to support diversions under that right, in light of the watershed-wide drought emergency. Such curtailment could occur based on the water availability and demand analysis on the level of individual tributaries to the Klamath River, or based on the needs of the mainstem Klamath River. The curtailment orders could be issued based on the need to protect more senior rights, based on lack of natural flows for riparian rights, or based on the need to protect instream flows dedicated under Water Code section 1707. The procedures for and exceptions to these curtailments are the same as those established in Sections 875, 875.1, 875.2 and 875.3.

The regulation establishes certain information as reliable sources that the Deputy Director shall consider in evaluating water right demand, water supply, water rights priority and water availability projections, and also provides for consideration of additional information that provides the best available information for the particular determination at issue. Several models are under development that will ultimately assist in determining water demand and availability projections, but at this point, they have not been completed. The regulation indicates that these models may be used to supplement the existing information, if the models constitute the best available information. The availability of information to inform curtailment decisions is inconsistent throughout the watershed, with some areas being data-rich with gages and

consistent reporting, and others being less so. In this context it is helpful to clarify what sources the Deputy Director shall consider, while leaving open the potential to consider additional information where available. This provision allows for more expedited curtailment of diversions than the existing cease and desist order process, in light of the drought emergency.

Proposed Emergency Regulation Section 875.5

Proposed section 875.5 sets forth categories of water right holders in order of priority for curtailments in the Scott and Shasta watersheds. Curtailment orders, as required to meet drought emergency minimum fisheries flows, would be issued in groupings, according to water right priority, from lowest to highest priority, including groundwater.

For the Scott River, the priority groupings are based primarily on those set forth in the Scott River Adjudication. The Scott River Adjudication itself incorporates the French Creek and Shackelford Adjudications, placing their priorities along those of other tributaries to the Scott River, with a seniority second only to groundwater diversions. The priorities also account for appropriative surface water and groundwater rights developed after the Scott River Adjudication, and for overlying groundwater rights developed outside the adjudicated zone or after completion of the Scott River Adjudication. In the Shasta River watershed, curtailment orders would be issued first for appropriative diversions initiated after the Shasta Adjudication (inclusive of surface water and groundwater appropriations), then for post-1914 and pre-1914 appropriative water rights in accordance with the priority set forth in the Shasta Adjudication or based on appropriative groundwater use date, then last for riparian and overlying groundwater diversions.

For the curtailment orders based on water right priority, rather than fisheries flows at the mainstem, the regulation revises the process to follow the French Creek, Shackelford Creek and Scott River Adjudication priorities individually, rather than integrating them. This difference is because all users in the system are not required to contribute to adjudicated rights, unlike to flows adopted under the reasonable use doctrine.

Proposed Emergency Regulation Section 875.6

Proposed section 875.6 establishes the reporting requirements for water users or water right holders that are issued a curtailment order. This provision requires water users or water rights holders to provide information that will allow the State Water Board to understand who has curtailed water use and who continues to use water under an exception provided for in the regulation or under a different water right. This information will help the State Water Board prioritize its efforts to oversee implementation of the regulation and better understand where and how much water is being used outside of the water rights priority system. This includes minimum water needs allowed for in the regulation, including minimum amounts of water for human health and safety and livestock. Subdivision (a) requires that all water users or water right holders who are issued a curtailment order are required, within seven (7) calendar days, to submit, under penalty of perjury, a certification of the actions they are taking in response to the

curtailment order. Subdivision (b) describes that water users and water right holders who are issued a curtailment order and continue to divert out of order of priority established in section 875.5, as authorized in sections 875.2, 878.1, or 875.3, must submit, under penalty of perjury, information to the State Water Board on a schedule established by the Deputy Director as a condition of certification or petition approval. Examples of information that may be required include but are not limited to: water right information, well information, how the diverter complies with any conditions of continued diversion, planned conservation and efficiency efforts, efforts to obtain alternate water sources, diversion amounts and other related information. Subdivision (c) provides the Deputy Director with authority to request additional information that is reasonably necessary to assess compliance. Any person receiving an order under subdivision (c) must provide the requested information within the time specified by the Deputy Director, which shall not be less than five (5) days. This provides recipients with a minimum timeframe for compliance, but allows for additional time to provide information that is less time-sensitive or more difficult to provide.

Proposed Emergency Regulation Section 875.7

Proposed section 875.7, subdivision (a) limits inefficient livestock watering during the fall migration season for fall-run Chinook and SONCC coho salmon. September to January is a critical period when fall-run Chinook and coho salmon must migrate from the mainstem Klamath River into the Scott and Shasta River watersheds to find safe places to spawn and rear. Most of this period coincides with reduced irrigation requirements, but flow remains a limiting factor in dry years, and is anticipated to be so in this drought emergency. As described in *Supporting Technical and Cost Information Related to Limitation on Inefficient Livestock Watering*, there are several alternatives to inefficient livestock watering that are commonly employed in the Scott and Shasta watersheds, including use of groundwater and pipes, as well as the potential to haul water on a temporary basis. Cessation of highly inefficient livestock watering has the potential to significantly address the anticipated shortfalls in the fall migration season of this drought emergency. As such, during September through January, use of surface water for extremely inefficient livestock watering is not reasonable in light of available alternatives and fishery needs. For purposes of this regulation, inefficient surface water diversions for livestock watering are those that divert, as measured at the point of diversion, more than 10 times the amount of water needed to support the number of livestock, as established by the reasonable water quantities set forth in California Code of Regulations, Article 5, section 697.

Additional information is provided in the section titled “*Supporting Technical and Cost Information Related to Limitation on Inefficient Livestock Watering*” above.

Subdivision (b) of proposed section 875.7 authorizes the Deputy Director to suspend the limitations in this section upon a finding that suspending the provision will not result in a decrease in flows that would either require curtailment of diversions or inhibit salmon migration. This allows the regulation to be lifted if and when it becomes clear that the immediate competing needs for the water that provide the reason for the

declaration that the inefficiency is unreasonable no longer present a conflict with the use.

Proposed Emergency Regulation Section 875.8

Proposed section 875.8 establishes the methodology and requirements for information orders. In order to more effectively implement the water rights priority system in the Scott and Shasta watersheds under current drought conditions, the State Water Board needs access to better and more current information regarding water rights, water use, water needs, and procedures that allow the State Water Board to obtain and use the best available information quickly. The State Water Board needs an enforceable mechanism to collect information related to surface water and groundwater diversions and uses of water in the Scott and Shasta watersheds to inform water demand estimates and the curtailment process. Additional information is also needed regarding the basis of right and priority date for some water rights and claims to inform curtailment decisions.

In more detail, subdivision (a) of the proposed section establishes that the Deputy Director may issue information orders to some or all landowners, diverters, or other water right holders in the Scott and Shasta watersheds, requiring them to provide additional information related to water use. The subdivision describes that information orders will be prioritized, and efforts will be taken to reduce duplicative collection of information. The subdivision establishes the types of information that may be requested. Subdivision (b) establishes that any party receiving an information order will have at least five (5) days to respond, and requests for additional time will be considered. Subdivision (c) defines new diversions for purposes of their applicability to the proposed section.

Proposed Emergency Regulation Section 875.9

Proposed section 875.9 describes the penalties for failure to comply with a curtailment order issued under this regulation. It is important that the public understand that the State Water Board has enforcement authority to ensure the emergency regulation is implemented in accordance with its provisions and can take appropriate enforcement actions for failure to comply with the regulation. It is also important for diverters with multiple rights to understand how to comply with receipt of multiple curtailment orders.

Subdivision (a) addresses a situation in which a diverter receives more than one curtailment order and is subject to more than one set of requirements either under separate curtailment orders or under multiple conditions for approval of petitions for continued diversion. This subdivision clarifies that the diverter is to comply with the most stringent requirements, to the extent of any conflict. Subdivision (b) describes the enforcement mechanisms and associated potential penalties. Subdivision (c) clarifies that subdivision (b) is explanatory, rather than limiting.

Data and Methodology for Issuing and Rescinding Curtailments

The following subsections describe the data that may be used to support the issuance of curtailment orders pursuant to sections 875 and 875.4 of the regulation and for the suspension, reinstatement, or rescission of curtailment orders.

Summary of Water Supply Information

The regulation establishes the CDFW drought emergency minimum flows as requirements at the USGS Shasta River gage near Yreka and USGS Scott River gage near Fort Jones. These gages will be used to determine compliance with the flow requirements except as otherwise specified in the proposed emergency regulation.

When issuing curtailments, other water supply information may be considered. Knowing whether or not water is physically available for specific diversions helps inform how deep in the water rights priority system curtailments must be made to achieve the minimum drought flows at the gages. Understanding when and where there is water available, or not, for specific diversions can be informed by using multiple sources of available information as listed below. Uncertainty regarding supply, demand, and groundwater losses may also support issuing and rescinding curtailments as an iterative process, meaning that curtailments can be issued to diverters in a more junior grouping of water right priorities, and if the minimum flows are still not achieved at the compliance gage, then additional curtailments would be required for the next, more senior priority grouping of water right holders. Water supply information used to inform curtailments may include but is not limited to:

- Forecast estimates of precipitation and streamflow;
- Historical information from periods of comparable flow conditions and hydrology;
- Historic reported water use during similar dry years;
- Streamflow gage data;
- Information in Division of Water Rights records on the extent to which flows are protected under Water Code section 1707;
- Groundwater levels;
- Reservoir levels;
- Hydrologic models;
- Visual observations of stream reaches being dry versus wet; and
- Other sources of water supply data

Projections of flow at the Yreka gage and Fort Jones gage are more certain for the remainder of calendar year 2021 (until the onset of the rainy season), than they are for calendar year 2022. Projections of flow after the onset of the rainy season in 2021 and the January through August 2022 time period is less certain due to the uncertainties in the timing and amount of precipitation and associated stream flow response. For the analysis in the digest and fiscal impact statement, the State Water Board used similar dry water years to forecast what is likely to happen for the remainder of 2021. Going into 2022, it is possible that the winter season will receive substantial precipitation and transition conditions out of a drought. To be conservative however, the State Water Board has assumed that 2022 will be another dry year similar to recent dry years. As

the winter of 2021/2022 progresses, the State Water Board will monitor conditions and use the best available information to forecast expected conditions which can help with planning decisions.

Summary of Water Demand and Water Right Priority Information

Water Rights Priority

Implementing curtailments requires information on water rights priorities and projected water demands. The water rights priority groups in the Scott and Shasta River watersheds are outlined in section 875.5 of the proposed emergency regulation. Within each water rights priority group there can be relative priorities that are based on the priority date of each specific water right or other determination methods for priorities set forth in an adjudication. The information used to develop relative priorities for unadjudicated surface water come from the State Water Board's Division of Water Rights records.

In California, groundwater rights have right categories similar to surface water rights. Overlying groundwater rights have a priority equivalent to surface water riparian rights. Groundwater appropriations have a priority date from when the well was constructed and water first used. An appropriative groundwater right is distinguished from an overlying groundwater right when the diverter: 1) does not own land overlying the basin; 2) owns overlying land but uses the water on non-overlying land; or 3) sells or distributes the water to another party. Some water rights in the Scott watershed have been adjudicated, and these rights have a priority as set forth in the Scott River Adjudication. For other groundwater diversions in the Scott and Shasta watersheds, information on when wells were first constructed and water first used for groundwater appropriations is typically obtained from the California Department of Water Resources (DWR) or Siskiyou County. Siskiyou County reviews, permits, and inspects agricultural, domestic, and monitoring groundwater wells, and exploratory borings, to maintain a safe water supply. Siskiyou County maintains a record of well permits and well completion reports that were issued in the county since 1991. The DWR Northern Region office maintains records for well permits issued before 1991 and maintains well information that Siskiyou County transmits to DWR for post-1991 records.

Water Rights Demand

Water demand factors into the process of issuing curtailments. For example, knowing if the most junior water rights priority grouping in the watershed is diverting 1 cfs, 10 cfs, or 100 cfs factors in to how many water right priority groupings need to be curtailed if there is a flow shortfall of 23 cfs at the gage, for example. There are different sources of demand data. For example, permitted, licensed or adjudicated water rights generally have a maximum volume or rate of water that is allowed to be diverted, which is referred to as the face value of the water right. Additionally, water users with all types of surface water diversions are required to report their monthly water use to the Division of Water Rights on an annual basis. However, not all water right holders provide their annual water use data, and the data are often incorrect (e.g., incorrect units, etc.). When reported water use data is available, it is often more useful than the maximum allowable

diversion (face value) for determining how much water that right holder could be expected to divert during a similar dry year. A potentially better source of demand information can be gathered from the information orders described in the proposed emergency regulation. Using information provided through responses to information orders, the State Water Board can better understand projected water use for individual water users, which can be useful to determine with more precision how deep curtailments need to go into the water rights priority system to achieve the minimum flow requirement under different water supply conditions. What can create challenges for curtailment purposes, is that in some cases a water right holder may report accurate data, and in other cases a different water right holder may report less accurate and unreliable data. Therefore, multiple sources of data are useful as no single source of information may be considered the most reliable source.

For purposes of this drought emergency regulation, the State Water Board will make use of the following sources of water demand information, if available, for surface water rights. They are listed in order of what is typically most useful.

- Surface Water Right Demand Data:
 - Information Order reported water use or projected water use;
 - Annual water use reporting by water right holders and watermaster, and Division of Drinking Water reporting; and
 - Adjudication and other legal records establishing the face value of individual water rights.

Other sources of information like remote sensing of crop water use can be used to validate demand information related to water rights records and water use reporting.

Groundwater rights are not licensed and permitted by the State Water Board the same way that surface water rights are, and this leads to different types of groundwater right records. For groundwater rights in the Scott and Shasta watersheds, the information that is available is listed below in order of what is typically most useful.

- Groundwater Rights Demand Data:
 - Water supplier information reported to the Division of Drinking Water;
 - County and DWR records of wells; and
 - Studies that delineate which fields are irrigated by groundwater and related remote sensing data that estimates how much water those fields use.

Each of the available data sources contain uncertainty. Therefore, no single source of data can be used for every situation. When issuing curtailments, the State Water Board will use the priority groups as described in the proposed emergency regulation, as well as available records as described above. The State Water Board will also use the best available demand information to inform how many water rights need to be curtailed to achieve the minimum flow requirements.

Stream Flow Gains and Losses

Stream systems are dynamic and contain losing and gaining reaches. Gaining stream reaches gain water from inflow of groundwater through the streambed. Losing stream reaches lose water to groundwater through the streambed. The losing or gaining nature of a stream reach can be influenced by geology, groundwater levels, evaporation, and evapotranspiration. These potential gains and losses affect the ability to curtail exactly the right amount of water to achieve the minimum flow requirements. For this reason, the issuance, suspension, reinstatement, or rescission of curtailment orders may be an iterative process. Additionally, it is important to consider that curtailing 10 cfs of water may not translate to exactly 10 cfs of flow at the gage. In some cases, more water will need to be curtailed than what is needed at the compliance gage to achieve the minimum flow requirements.

Because of uncertainty related to reported and unreported surface water demand, natural streamflow losses, streamflow losses due to groundwater diversions, and potential dry stream segments in some parts of the watershed and wet stream segments in other parts of the watershed, curtailments may need to be higher than what can be estimated from available supply and demand information.

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Mandate on Local Agencies or School Districts

The proposed emergency regulation does not impose a mandate on local agencies or school districts because it does not mandate a new program or a higher level of service of an existing program. The regulation is generally applicable to public and private entities and is not unique to local government. No state reimbursement is required by part 7 (commencing with section 17500) of Division 4 of the Government Code.

Suspension of California Environmental Quality Act

On May 10, 2021, Governor Gavin Newsom issued a Proclamation addressing the drought state of emergency for counties in the Klamath River Basin. Among other things, the Proclamation suspended the California Environmental Quality Act (CEQA) as applied to the State Water Board's adoption of an emergency regulation to curtail diversions in the Klamath River Watershed when water is not available under the diverter's priority of right, to protect releases of stored water, and to ensure critical instream flows for species protection through emergency minimum drought instream flow regulations. CEQA is therefore suspended as to adoption of this regulation.

Fiscal Cost Estimate

The fiscal effects incurred by state and local government agencies as a result of the proposed emergency regulation include the following: (1) revenue losses for municipal water supply agencies; (2) revenue losses for non-municipal water supply agencies (water for agriculture); (3) state and county tax revenue losses; and (4) reporting costs to complete and submit initial compliance certification forms and ongoing diversion reporting in response to a curtailment order; (5) reporting costs to complete and submit the information required by an information order, including supporting documentation.

The State Water Resources Control Board (State Water Board) estimates the total cost to all state and local (including city, county, schools and publicly owned water suppliers) agencies due to the proposed emergency regulation as \$3,013,945. The total revenue loss for municipal water supply agencies is estimated to be \$2,466,490. Total revenue losses for non-municipal water supply agencies is estimated to be \$369,105. Total county and state agricultural tax revenue losses are estimated to be \$119,458. The total reporting costs for all state and local agencies to complete and submit initial compliance certification forms, ongoing diversion reporting for the curtailment order, and complete and submit the information required by an informational order is estimated to be \$58,892.

Funding Resources

The following funding opportunities provide funding for habitat restoration, water efficiency, ditch lining, instream flow dedications, fish passage, and other project types. Examples of project types eligible for funding are included in this listing and are included in this digest because the funding could be used to support local cooperative solutions (referenced in multiple sub-sections of section 875) or improve the efficiency of livestock water conveyances (referenced in section 875.7)

- **Environmental Lab Accreditation Program – Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program**
 - Example Project Types:
 - Costs of transporting water to livestock due to drought
 - Honeybee feed and hive losses
 - Can cover eligible costs associated with wildfire and other weather events
 - Webpage: fsa.usda.gov/ELAP
- **CDFW Proposition 68 Grant Program**
 - Example Project Types:
 - Habitat enhancement or restoration
 - Water conservation, temporary water transfers, water acquisition
 - Rotational fallowing, ditch lining, etc.
 - Webpage: <https://wildlife.ca.gov/Organization/WRGB>
- **CDFW Fisheries Restoration Grant Program (FRGP)**
 - Example Project Types: fish passage, instream habitat or upslope watershed restoration, bank stabilization, fish screens for diversions, water conservation measures, flow monitoring, water diversion measuring devices, project design, etc.
 - Webpage: <https://wildlife.ca.gov/Grants/FRGP>
- **Wildlife Conservation Board Proposition 1 Funding**
 - Example Project Types:
 - Water Transactions: instream flow dedications, forbearance agreements, conservation easements, purchase or long-term transfer of water
 - Water Conservation Projects: off-channel water storage, changes in timing or rate of diversion, livestock watering systems, agricultural tailwater management systems
 - Other Project Types: changing points of diversion, groundwater storage and conjunctive use, habitat restoration to enhance stream flow, streamflow gaging, scientific studies, etc.
 - Webpage: <https://wcb.ca.gov/Programs/Stream-flow-Enhancement>
- **CDFW Proposition 1 Restoration Grant Program**
 - Example Project Types:
 - Modernizing stream crossings, culverts, and bridges
 - Installing or improving fish screens
 - Fish passage improvement
 - Acquisitions from willing sellers
 - Webpage: <https://wildlife.ca.gov/conservation/Watersheds/Prop-1>

Attachment 1. Fiscal Impact Statement

Fiscal Effect on Local and State Government

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

The fiscal effects incurred by state and local government agencies as a result of the proposed emergency regulation include the following: (1) revenue losses for municipal water supply agencies; (2) revenue losses for non-municipal water supply agencies (water for agriculture); (3) state and county tax revenue losses; and (4) reporting costs to complete and submit initial compliance certification forms and ongoing diversion reporting in response to a curtailment order; (5) reporting costs to complete and submit the information required by an information order, including supporting documentation.

The State Water Resources Control Board (State Water Board) estimates the total cost to all state and local agencies (including city, county, schools and publicly owned water suppliers) due to the proposed emergency regulation as \$3,013,945. The total revenue loss for municipal water supply agencies is estimated to be \$2,466,490. Total revenue losses for non-municipal water supply agencies is estimated to be \$369,105. Total county and state agricultural tax revenue losses are estimated to be \$119,458.¹ The total reporting costs for all state and local agencies to complete and submit initial compliance certification forms, ongoing diversion reporting for the curtailment order, and complete and submit the information required by an informational order is estimated to be \$58,892.

Water Demand and Supply Data for Fiscal Impact Analysis

The State Water Board used best available water supply and demand data to inform the fiscal impact statement as described below for the Scott River and Shasta River watersheds.

Scott River Watershed

The United States Geological Survey (USGS) Scott River gage near Fort Jones (USGS gage no. 11519500) is located approximately 10 miles upstream of the outlet of the Scott River watershed and represents the observed (impaired) stream flow of the watershed. To forecast impaired flows, observed stream flows at the Fort Jones gage were used from the three driest water years (2013-14, 2014-15, and 2020-21) over the last 20 years of record to represent a combination of stream flow and water use in the

¹ Total revenue loss for agricultural crop sales is not a component of the fiscal analysis, but it was calculated in order to develop state and local tax revenue losses and was conservatively estimated to be \$1,541,396. Please refer to the section below titled Siskiyou County and State Estimated Tax Revenue Loss for more information on how the revenue loss for agricultural crop sales was calculated.

watershed during recent dry conditions. Because of the wide variability of fall flows in the three driest years, water year 2020-2021 was used as the most conservative (worst-case) scenario of the three to forecast impaired flows for September 2021 through December 2021. The average of the three recent dry years was used to conservatively forecast impaired flow for January 2022 through August 2022 to address uncertainties in the timing and amount of precipitation and associated stream flows during the January through August 2022 time period.

As shown in Figure A, conservatively forecasted impaired flows from 2020-2021 are not projected to meet the drought emergency minimum flows until the end of December 2021, and the forecasted impaired flows based on the average of dry years are projected to fall below the flow requirement again in June 2022.

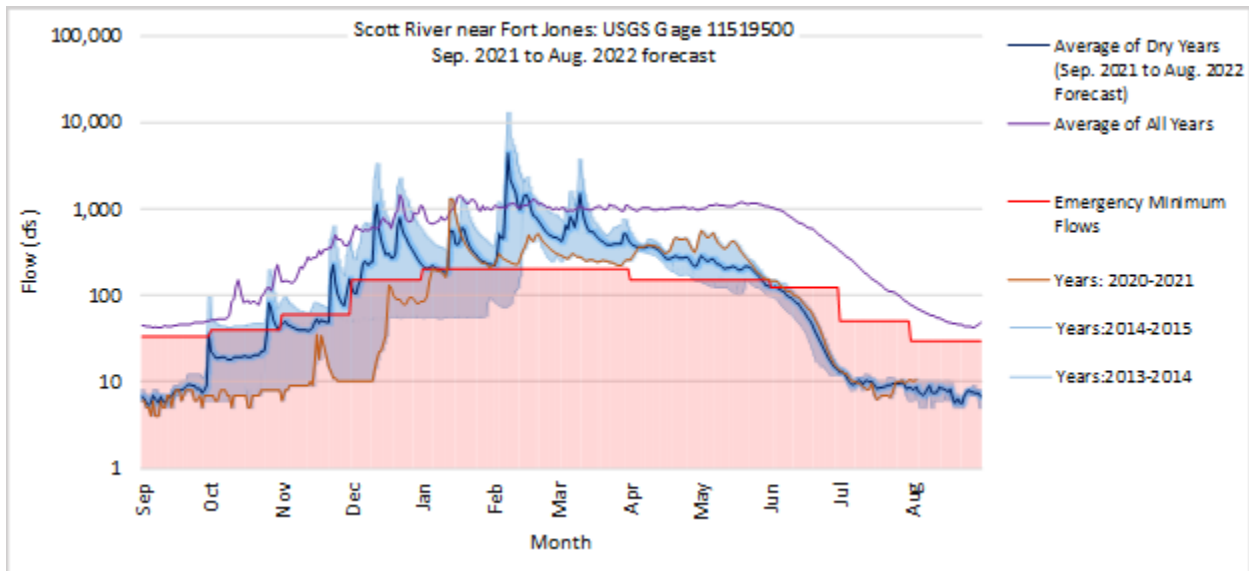


Figure A. Scott River Average Daily Impaired Flow at Fort Jones Gage for Three Recent Dry Water Years (2013-14, 2014-15, and 2020-2021). (Note: Recent dry years used to forecast potential flows over the coming water year compared to CDFW drought emergency minimum flows. The flows in three dry water years fall within boundary of blue cloud, and the average of the three dry water years is shown with a dark blue line. WY 2020-2021 is used to forecast impaired flow in September through December 2021, and the average of the three recent dry years is used to forecast impaired flow during January through August 2022. The vertical scale (y-axis) is logarithmic.).

Table A shows the Scott River forecasted average daily impaired flows, drought emergency minimum flows, and the expected shortfall needed to meet the drought emergency minimum flows for the period of September 2021 to August 2022, as calculated under the assumptions above. Shortfall is calculated as the difference between daily forecasted flows and the drought emergency minimum flows and is reported as monthly averages of the daily calculations.

Table A. Average Daily Forecasted Flow, Drought Emergency Minimum Flows, and Expected Shortfall as Compared to Drought Emergency Minimum Flows for Period of September 2021 to August 2022 at Fort Jones Gage, Scott River. (Note: Forecasted shortfalls (negative values only) are calculated each day and then averaged for the month, and the forecasted flow is shown as a daily average for the month. Therefore, the difference between the monthly forecasted average daily flow and the drought emergency minimum flow does not always equal the average daily forecasted shortfall. In January for example, you see there is an average daily forecasted shortfall even though it looks like the average daily forecasted flows are greater than the drought emergency minimum flow.)

Year	2021	2021	2021	2021	2022	2022	2022	2022	2022	2022	2022	2022
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Drought Emergency Minimum Flow (cfs)	33	40	60	150	200	200	200	150	150	125	50	30
Average Daily Forecasted Flow (cfs)	6	7	13	53	305	1,020	564	310	210	66	11	8
Number of Shortfall Days	30	31	30	31	4	0	0	0	3	29	31	31
Average Daily Forecasted Shortfall (cfs)	-27	-33	-47	-97	-1	0	0	0	-2	-59	-39	-22

Table B, below, compares the Scott River forecasted shortfall with reported water demand. Estimated surface water demand was calculated by combining information from the electronic Water Rights Information Management System (eWRIMS) database with information from the Scott River Adjudication. After removing ineligible water right records (cancelled, inactive, pending, rejected, revoked, and state filing) from the eWRIMS data, the data were checked for duplicates, unit errors, and unrealistically high diversion values. The surface water demand is an average of Water Year (WY) 2017-2018 and WY 2019-2020 reported water use, which represents the two most recent dry water years with

reported water use data. Groundwater demand is based on land use estimations from the Scott Valley Integrated Hydrologic Model (SVIHM) developed by UC Davis (Foglia et al, 2018, and personal communication UC Davis).

Table B. Scott River Watershed Demand Compared to Forecasted Shortfall for September 2021 to August 2022 Flows at Fort Jones Gage, Scott River.

Year	2021				2022							
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Average Daily Forecasted Shortfall (cfs)	-27	-33	-47	-97	-1	0	0	0	-2	-59	-39	-22
Average Daily Surface Demand (cfs)¹	44	24	12	20	24	28	37	139	160	140	80	55
Average Daily Irrigation Groundwater Demand (cfs)²	32	8	0	0	0	0	5	51	114	185	197	170
Average Daily Total Demand (cfs)³	76	32	12	20	24	28	42	190	274	325	277	225

¹ Total surface demand = average 2017-2018 and 2019-2020 reported water use from eWRIMS and watermaster reporting (this does not account for unreported surface water use); ² Land use-based irrigation groundwater demand from SVIHM;

³ Total of surface and groundwater demands.

Curtailments may need to be higher than what can be estimated from available supply and demand information because of uncertainty related to reported and unreported surface water demand, streamflow depletion losses, and potential dry stream segments in some parts of the watershed and wet stream segments in other parts of the watershed. In the Scott River specifically, curtailments have the potential to extend to adjudicated and overlying groundwater users during approximately July through October when groundwater demand is high and supply is limited because the mainstem Scott River is known to have reaches that go dry during this time period due to low groundwater levels and once the surface flows become disconnected, attainment of the minimum

flows is highly reliant on precipitation events to reconnect the river and provide the needed flows to support salmon. Because surface water flows can go subsurface during the dry season when groundwater levels are low, there may be a need to curtail all priorities of surface water diversions and some or all water pumped by groundwater users in order to achieve the drought emergency minimum flows.

Shasta River Watershed

The USGS Shasta River gage near Yreka (USGS gage no. 11517500) is near the outlet of the Shasta River watershed and represents the observed (impaired) flow for the watershed. To forecast impaired flows, observed Yreka gage stream flow was used from the three driest water years (2013-14, 2014-15, and 2020-21) over the last 20 years of record to represent a combination of stream flow and water use in the watershed during recent dry conditions. The average of the three recent dry years was used to conservatively forecast impaired flows for September 2021 through August 2022. Unlike the Scott River, the Shasta River is fed by large spring sources and is less dependent on heavy rains to increase flows in the fall season. Typically, around October when diversions for irrigation cease, the flows at the Yreka gage increase. For this reason, the average stream flow for the three dry years was used for the entire forecasted time period (as opposed to using the WY 2020-2021 stream flows for the September through December 2021 time period, as was done for the Scott River).

As shown in Figure B, forecasted impaired flows are not projected to meet the drought emergency minimum flows until mid-December 2021 (and for a short time in September 2021) and will fall below the flow requirement again in April 2022.

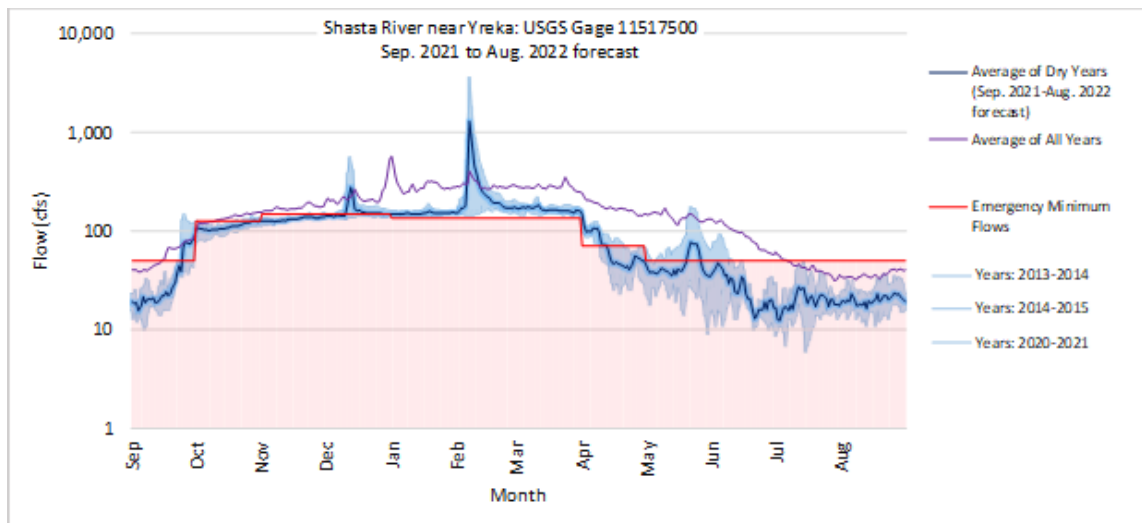


Figure B. Shasta River Average Daily Impaired Flow at Yreka Gage for Three Recent Dry Water Years (2013-14, 2014-15, and 2020-2021). (Note: Recent dry years used to forecast potential flows over the coming water year compared to CDFW drought emergency minimum flows. The three dry water years fall within the boundary of blue cloud, and the average of the three dry water years is shown with a dark blue line. The dark blue line is used to represent the forecasted flow. The vertical scale (y-axis) is logarithmic.

Table C shows the average daily forecasted flows, drought emergency minimum flows, and the expected shortfall needed to meet the drought emergency minimum flows for the period of September 2021 through August 2022. Shortfall is calculated as the difference between the daily forecasted flows and the drought emergency minimum flows and is reported as monthly averages of the daily calculations.

Table C. Average Daily Forecasted Flow, Drought Emergency Minimum Flows, and Expected Shortfall as Compared to Drought Emergency Minimum Flows for Period of September 2021 to August 2022 at Yreka Gage, Shasta River. (Note: Forecasted shortfalls (negative values only) are calculated each day and then averaged for the month and the forecasted flow is shown as a daily average for the month. Therefore, the difference between the monthly forecasted average daily flow and the drought emergency minimum flow does not always equal the average daily forecasted shortfall. In December for example, you will see there is an average daily forecasted shortfall even though it looks like the average daily forecasted flows are greater than the drought emergency minimum flows.)

Year	2021				2022							
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Drought Emergency Minimum Flows (cfs)	50	125	150	150	135	135	135	70	50	50	50	50
Average Daily Forecasted Flow (cfs)	34	111	132	159	151	277	165	69	46	27	19	20
Number of Shortfall Days	24	28	30	14	0	0	0	18	25	30	31	31
Average Daily Forecasted Shortfall (cfs)	-21	-14	-18	-3	0	0	0	-13	-8	-23	-31	-30

Table D, below, compares the forecasted shortfall with reported water demand. Surface water demand was calculated by combining information from the eWRIMS database, the Shasta River Adjudication (Siskiyou County Superior Court, 1932),

and the Scott Valley and Shasta Valley Watermaster District Annual Statement of Diversion and Water Use (2017-2018 and 2019-2020 as reported to the State Water Board by the watermaster). Similar to the Scott River, surface water demand was calculated by removing ineligible water right records. This included removing rights that are labeled as cancelled, inactive, pending, rejected, revoked, and state filings from the eWRIMS data. The data was then checked for duplicates, unit errors, and unrealistically high diversion values. The surface water demand is an average of WY 2017-2018 and WY 2019-2020 reported water use, which represents the two most recent dry water years with reported water use data. The adjudication data are from the annual watermaster statements for the following eight streams under watermaster service: Beaughan, Boles, Carrick, Parks, Jackson creeks, Little Shasta, Lower Shasta, and the Upper Shasta rivers. The water demand under the adjudication for Willow, Yreka, and Julian creeks and other miscellaneous springs, which do not have watermaster service, was estimated based on the Shasta River Adjudication. Estimated water demand for these streams was adjusted to reflect actual adjudicated water use instead of the full face-value of the decreed water rights, which are not representative of actual water use. As part of the Siskiyou County Sustainable Groundwater Management Act (SGMA) effort, Larry Walker Associates and Davids Engineering modified the Department of Water Resources' (DWR) 2010 land use map to reflect existing conditions and developed remote sensing-based estimates of crop evapotranspiration and applied water for fields in the Shasta River basin for 1989 to 2018 (Davids Engineering, 2020). This Davids Engineering data were used to estimate groundwater demands.

Table D. Shasta River Watershed Demand Compared to Forecast Shortfall for September 2021 to August 2022 at Yreka Gage, Shasta River.

Year	2021				2022							
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Average Daily Forecast Shortfall (cfs)	-21	-14	-18	-3	0	0	0	-13	-8	-23	-31	-30
Average Daily Surface Demand (cfs)¹	207	114	88	112	100	98	248	364	354	307	232	200

Year	2021				2022							
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Average Daily Ground-water Demand (cfs)²	98	65	36	4	4	11	9	21	62	98	109	102
Average Daily Total Demand (cfs)³	305	179	124	116	104	109	257	385	416	405	341	302

¹ Total surface demand = averaged 2017-2018 and 2019-2020 reported water use from eWRIMS and watermaster reporting (this does not take in account unreported surface water use); ² Land use-based groundwater demand from Siskiyou County SGMA effort; ³ Total of surface and groundwater demands.

Curtailments may need to be higher than what can be estimated from available supply and demand information because of uncertainty related to reported and unreported surface water demand, streamflow depletion losses, and potential dry stream segments in some parts of the watershed and wet stream segments in other parts of the watershed.

Methodology for Estimating Projected Curtailments to Water Supply Agencies

Forecasted shortfall data were used as described above to estimate total potential curtailments volumes. To translate the total forecasted curtailment volumes to specific water supply agencies, additional information was needed about the water rights priority system, including how the water suppliers fit into the priority system relative to other water rights and what their water demands are.

To estimate projected curtailments to specific water suppliers resulting from the proposed emergency regulation in the Scott and Shasta watersheds, the State Water Board additionally used: DWR groundwater well completion reports; the watermaster yearly narrative reports (2014-2017) (“Summary of Watermaster Services”, Scott Valley and Shasta Valley Watermaster District); and Division of Drinking Water (DDW) Electronic Annual Reports (EAR).

Potential curtailments were estimated based on the forecasted water supply shortfall to meet the emergency minimum flows, and water rights priorities and related demand. For water right priority dates, the State Water Board used water right priority dates in the eWRIMS database and priority dates in the watermaster Field Schedules notes for the Shasta Adjudication water rights. For water rights in eWRIMS, the average of WY 2017-2018 and WY 2019-2020 reported water use was used to represent the forecasted demand, instead of face-values. For Shasta Adjudication water rights without detailed reported water use, potential curtailments were estimated based on past curtailments as indicated in the watermaster annual narrative reports.

Groundwater appropriations have a priority date from when the well was constructed, and water first used. For agencies that use groundwater and have more than one well, the latest well construction date was used as a priority date for the agency’s groundwater appropriative water right. For example, if a public water supply agency has two wells with priority dates of May 15, 1985 and January 31, 1967, the later date of May 15, 1985 would be used as the priority date for the water supply agency’s groundwater appropriative right as a way to conservatively estimate potential curtailments for the purposes of the fiscal analysis. For public municipal water suppliers, the monthly estimated water supply reductions are limited to maintain the minimum human health and safety allowance of 55 gallons per capita per day (gpcd).

Revenue Losses for Agencies that provide Municipal Water Supplies

In addition to the water demand and supply data described above, the State Water Board also used data from the DDW EAR for information on the number of individuals served, amount of water supplied, and the water rate charged to customers. The current standard for indoor residential use is 55 gpcd, as established in Water Code, section 10609.4. Statewide, the median indoor residential water use is 48 gpcd. (DWR, 2021a.) Sixteen agencies supply drinking water in the Scott and Shasta watersheds. This section only analyzes suppliers whose primary function is as a municipal drinking water supplier that charge fees to customers for water use. The municipal water supply agencies that were analyzed are listed in Table E, below. A fiscal analysis was not performed on the agencies listed in Table F because they do not sell municipal drinking

water to customers. Based on individuals served and the indoor residential use standard of 55 gpcd, the State Water Board estimates municipal suppliers' minimum water demand for human health and safety in the Scott and Shasta watersheds to be 1,147 acre-feet. Based on the proposed emergency regulation, and accounting for minimum human health and safety needs, it is estimated that potential curtailments in the Scott and Shasta watersheds could reduce available water supply to municipal water suppliers by a total of 519 acre-feet. See Table G (Public Drinking Water Systems in Scott and Shasta River Watersheds Included in the Fiscal Impact Analysis) below for shortages for individual municipal water suppliers.

The State Water Board used a conservative water rate estimate of \$65.46 per 600 cubic feet of water. This was the water rate for the City of Montague in 2019 and was the highest rate charged to customers in the DDW EAR reports that were available for the Scott and Shasta watersheds. The water rate was converted to \$4,752.39 per acre-foot of water to develop a cost estimate.

Municipal water systems included in this fiscal impact analysis serve a population of 18,610 individuals in the two watersheds. The public water systems not included in this analysis serve a population of 2,572 individuals. The estimated loss in revenue (income before expenses are subtracted) to municipal water suppliers from the proposed regulation is estimated to be \$2,466,490. This was calculated as \$4,752.39 per acre-foot of water multiplied by 519 acre-feet.

Table E. Public Drinking Water Systems in Scott and Shasta Watersheds Included in Fiscal Impact Analysis.

(Note: Information provided from State Water Board Division of Drinking Water database.)

Basin	Public Water System ID	Public Water System Name	Service Connections	Population	Water Source
Shasta	CA4710011	City of Yreka	2,993	7,651	Surface water
Shasta	CA4710007	City of Montague	503	1,495	Surface water
Shasta	CA4710009	City of Weed	1,110	2,963	Surface water and groundwater
Shasta	CA4710013	Lake Shastina CSD	1,272	4,191	Groundwater
Shasta	CA4700523	Grenada Sanitary District	92	289	Groundwater
Scott	CA4710004	City of Etna	410	737	Surface water
Scott	CA4700503	Callahan Water District	34	70	Recycled water and surface water
Scott	CA4710003	Town of Fort Jones	366	1214	Surface water and groundwater

Table F. Public Drinking Water Systems Not Included in Fiscal Impact Analysis in Scott and Shasta Watersheds.

(Information provided from State Water Board Division of Drinking Water Database.)

Basin	Public Water System ID	Public Water System Name	Service Connections	Population	Water Source
Shasta	CA4700591	Delphic Elementary School	No record	No record	No record
Shasta	CA4700577	Big Springs Union Elementary School	1	240	No record

Basin	Public Water System ID	Public Water System Name	Service Connections	Population	Water Source
Shasta	CA4700521	Siskiyou County Service Area #5/Carrick	58	142	No record
Shasta	CA4700582	Gazelle School	95	315	No record
Shasta	CA4700559	Butteville Union School	No record	165	No record
Shasta	CA4700557	California Department of Transportation: Weed Rest Stop	2	1,000	Groundwater
Shasta	CA4700558	California Department of Transportation: Grass Rest Stop	1	600	Groundwater
Scott	CA4710800	California Department of Forestry and Fire Protection: Deadwood Conservation Camp	11	110	Groundwater

Table G. Public Drinking Water Systems in Scott and Shasta River Watersheds Included in the Fiscal Impact Analysis.

Public Water System Name	Population	Water Source	Annual Total Demand* (AF)	Annual Health and Safety Demand** (AF)	Estimated Water Supply Reduction (AF)
City of Etna	737	SW	182	45	42
Callahan Water District	70	SW	78	4	57
Town of Fort Jones	1,214	SW	7	76	0
City of Yreka	7,651	SW	796,748	471	48
City of Montague	1,495	SW	60,219	92	0

Public Water System Name	Population	Water Source	Annual Total Demand* (AF)	Annual Health and Safety Demand** (AF)	Estimated Water Supply Reduction (AF)
City of Weed	2,963	SW & GW	249,934	183	22
Lake Shastina Community Services District	4,191	GW	246,255	258	312
Grenada Sanitary District	289	GW	27,635	18	38

*Note: AF = acre-feet; * The most recent reported annual total demand is used; ** Minimum human health and safety demand of 55 gpcd is used.*

Revenue Losses for Agencies that provide Non-Municipal Water Supplies (primarily for agriculture)

Eight agencies provide water for agriculture or irrigation in the Scott and Shasta watersheds. Of these eight agencies, two agencies were not included in this fiscal impact analysis because they are not an irrigation supplier that charges fees to customers for water use. The agencies included in this fiscal impact analysis are listed in Table H. Agencies that were not included are listed in Table I.

It is estimated that the proposed regulation would result in an unmet demand to non-municipal water suppliers of 6,711 acre-feet from September 2021 to August 2022. A water sales price of \$55/per acre-foot was used to calculate losses in water sales in the Scott and Shasta watersheds. The water sales price estimate was obtained from the Montague Water Conservation District's website (MWCD, 2021), which is an irrigation district is located in the Shasta River watershed. The estimated loss in water sales revenue for non-municipal water suppliers from the proposed regulation is estimated to be \$369,105. Water sales losses were calculated as \$55 per acre-foot multiplied by 6,711 acre-feet of unmet water demand. See Table J (Public Irrigation Systems in Scott and Shasta Watersheds Included in the Fiscal Impact Analysis) below for shortages for individual non-municipal water suppliers.

Table H. Public Irrigation Districts in Scott and Shasta Watersheds Evaluated in the Fiscal Analysis.

Basin	Public Water System Name	Beneficial Use (Permit Status)	Face Value or Adjudication (AF)	Most Recent Reported Annual Diversion (AF)	Water Source
Scott	Callahan Water District	Irrigation (License)	12.90	0.42	Surface Water
Scott	Scott Valley Irrigation District	Irrigation (License)	31,131	7,844	Surface Water
Shasta	Big Springs Irrigation District	Irrigation	30 cfs (summer)	N/A	Ground-water
Shasta	Greenhorn Water District	Irrigation (License)	15.00	3.93	Surface Water
Shasta	Greenhorn Water District	Irrigation (Claim)	N/A	0.00	Surface Water
Shasta	Grenada Irrigation District	Irrigation (Adjudication/ License)	14,599	2,822	Surface Water
Shasta	Montague Water Conservation District	Irrigation (Adjudication/ Permit)	49,000	22,683	Surface Water
Shasta	Montague Water Conservation District	Domestic (Permit)	1,665	247	Surface Water
Shasta	Montague Water Conservation District	Irrigation (Claim)	N/A	246	Surface Water

Note: AF = acre-feet; For Diverters with multiple water rights of the same type and beneficial use group, the Face Values and Most Recent Reported Annual Diversions are summed.

Table I. Public Irrigation Systems in Scott and Shasta Watersheds Not Evaluated in the Economic Analysis.

Basin	Public Water System Name	Beneficial Use (Permit Status)	Face Value or Adjudication (AF)	Most Recent Reported Annual Diversion (AF)	Water Source
Scott	California Department of Forestry and Fire Protection	Irrigation (License)	14.00	13.32	Surface Water
Scott	California Department of Forestry and Fire Protection: Deadwood Camp	Irrigation (License)	26.10	1.16	Surface Water
Shasta	California Department of Fish and Wildlife	Irrigation (License)	14,887	2,538	Surface Water
Shasta	California Department of Fish and Wildlife	Irrigation (Adjudication)	8,104	0	Surface Water

Table J. Public Irrigation Systems in Scott and Shasta Watersheds Included in the Fiscal Impact Analysis.

Basin	Public Water System Name	Estimated Water Supply Reduction (AF)
Scott	Callahan Water District	2
Scott	Scott Valley Irrigation District	2,791
Shasta	Montague Water Conservation District	799
Shasta	Grenada Irrigation District	10
Shasta	Greenhorn Water District	2
Shasta	Big Springs Irrigation District	3,107

Notes: AF = acre-feet

Siskiyou County and State Estimated Tax Revenue Loss

Potential Siskiyou County and state tax losses are based on the loss in sales taxes associated with a reduction in crop sales due to the proposed emergency regulation. The State Water Board used information from the following sources to calculate tax loss estimates: water rights data from the State Water Board eWRIMS database, Annual Statements of Diversion and Water Use for 2019 and 2020 from the watermaster (Scott Valley and Shasta Valley Watermaster District), DWR groundwater well completion reports, DDW EAR Reports, DWR 2018 seasonal crop soil water balance data for the Scott and Shasta watersheds (DWR 2021b), DWR 2010 Land Use Maps, a land use and water use analysis conducted by Davids Engineering (Davids Engineering, 2020), SVIHM (Foglia et al, 2018 and personal communication UC Davis), Siskiyou County 2019 Annual Crop and Livestock Report (Siskiyou County, 2020), University of California Cooperative study on Irrigation Cut-Off Dates in the Shasta Valley (Wilson et. al 2015), and the tax rate for the cities of Yreka and Dunsmuir (the maximum tax rate found for Siskiyou County)(CDTFA, 2021).

Potential sales tax losses were based on State Water Board calculations of the estimated annual reduction in water supply for agriculture, the estimated amount of crop acreage and yield affected by the reduction in water supply due to the proposed emergency regulation, the estimated crop value per acre, the resulting revenue loss from the affected crop acreage, and a 7.75% tax (0.5% local tax and 7.25% state tax) on the revenue loss from the affected crop acreage and yield. Estimated reductions in crop yields are different for 2021 and 2022. Table K (Siskiyou County and State Estimated Tax Revenue Loss) provides an overview of the calculations discussed below. It was assumed the proposed drought emergency regulation will become effective in September 2021 and water curtailments will begin at that time. For the fall of 2021 it was assumed that the fourth crop cut of alfalfa would be affected by a reduction in available irrigation supply for agriculture due to the proposed emergency regulation. The total acreage of alfalfa for the Scott and Shasta watersheds obtained from the DWR 2018 seasonal crop soil water balance data for the Scott and Shasta watersheds is 17,221 acres. Twenty-five percent of the total alfalfa acreage (4,305.25 acres) was used to represent the fourth crop cut of alfalfa. Based on the yield indicated in the UCCE study on fall forage, which included alfalfa, in the Shasta Valley (Wilson et. al,2015) and alfalfa deficit irrigation studies by Orloff and others (2003, 2005, 2014), it was assumed that there would be an 11 percent reduction in yield during the September to October 2021 period. The State Water Board used the calculated value of alfalfa from the Siskiyou County 2019 Annual Crop and Livestock Report (Siskiyou County, 2020) of \$1,130 per acre for this analysis. It was assumed all other irrigated crops will be at the end of their growing season and in the process of being harvested during this time and will require little to no irrigation compared to the rest of the growing season. The State Water Board therefore assumed there would not be a fiscal impact on all other crops in 2021 from the proposed drought emergency regulation. It was also assumed cattle ranchers will irrigate less pasture but will move cattle to pastures where irrigation has not been curtailed or purchase additional supplemental feed. The estimated amount of alfalfa crop acreage used to represent the fourth crop cut of alfalfa affected by reduction in water supply due to the proposed emergency regulation is

4,305.25 acres and the associated loss in revenue for alfalfa in 2021 is estimated to be \$535,143 (affected acres x \$1,130 per/acre x 11 percent reduction in yield). The estimated tax revenue loss to Siskiyou County from lost alfalfa sales is estimated to be \$2,676 and an estimated tax revenue loss to the state of \$38,798.

The estimated reduction in agricultural irrigation supply due to proposed emergency regulation in January through August 2022 is 12,012 acre-feet of water. This reduction represents a four percent reduction in agricultural irrigation supply. The percent reduction in water supply was multiplied by total the amount of acres (71,638 acres) of irrigated agriculture in the two watersheds to estimate the affected acreage and reduction in crop yield. The estimated reduction in crop acreage harvested in 2022 due to the proposed emergency regulation is therefore estimated to be 2,866 acres of the annual total crop production. This is based on the assumption that the proposed drought emergency regulations will be in effect during the entire 2022 growing season. The crop categories of Field Crops, Seed Crops, Vegetable Crops, and Nursery Crops were used to calculate the total crop revenue (\$267,961,821) and total crop acreage (763,214.60 acres) from the Siskiyou County 2019 Annual Crop and Livestock Report (Siskiyou County, 2020). Based on this information the average crop value per acre used in this analysis was calculated as \$351.10. The loss in crop sales revenue in 2022 is estimated to be \$1,006,253. This results in an estimated \$5,031 loss in tax revenue for Siskiyou County and \$72,953 loss in tax revenue for the state in 2022. The total loss in crop revenue due to the emergency regulation for 2021 and 2022 for the county and the state is estimated to be \$1,541,396. The total estimated tax revenue loss due to the emergency regulation is \$7,707 for Siskiyou County and \$ 111,751 for the state.

Table K. Siskiyou County and State Estimated Tax Revenue Loss

Siskiyou County and State Estimated Tax Revenue Loss due to the proposed drought emergency regulation			
	2021	2022	Total
Estimated Agricultural Irrigation Demand	186,120 acre-feet	186,120 acre-feet	372,240 acre-feet
Estimated Reduction in Agricultural Irrigation Supply due to proposed emergency regulation	7,445 acre-feet	12,012 acre-feet	19,457 acre-feet
Estimated amount of crop acreage affected by reduction in water supply due to proposed emergency regulation	474 acres (alfalfa reduced irrigation in Fall 2021)	2,866 acres (all crops reduced irrigation for 2022)	3,339 acres

Estimated crop value per acre	\$1,130 (alfalfa calculated value)	\$351.10 (calculated value for all crops)	Not applicable
Estimated revenue loss from the affected crop acreage	\$535,143	\$1,005,798	\$1,540,940
Tax Losses to Siskiyou County and the State 7.75% tax rate.	\$41,474	\$77,949	\$119,423

Fiscal Costs of Reporting Requirements for State and Local Agencies

The State Water Board expects there will be fiscal impacts on public agencies due to the costs of reporting and self-certification requirements, under the proposed emergency regulation. There are three potential reporting costs to local agencies: (1) the costs associated with submittal of the initial compliance certification, which all public agency right holders in the Scott and Shasta watersheds must complete upon being issued a curtailment order per proposed section 875.6; (2) the costs for public right holders to complete required reporting when continuing to divert for non-consumptive uses (proposed section 875.1), minimum health and safety needs (proposed section 875.2), livestock needs (proposed section 875.3); and (3) the costs associated with completion and submittal of the information required by an information order issued pursuant to proposed section 875.8, including supporting documentation.

The State Water Board identified a total of three (3) state agencies, sixteen (16) local public agencies, and five (5) schools that divert surface water or use groundwater in the Scott and Shasta watersheds. To conservatively estimate the cost of the emergency regulation, the State Water Board multiplied the total number of local government agencies and schools in the two watersheds by the total average time to complete all three reporting tasks, and then multiplied by an estimated staff cost per hour. The estimated amount of time required to complete the forms will depend on whether each entity already has documentation regarding its diversion and use, or if the entity will need to obtain such information. The State Water Board estimates that completion of its initial compliance curtailment certification would take one hour. It is estimated that the total time for each state agency, local agency, or school to complete the regular reporting would be 1.5 hours per report and the reporting frequency is monthly for 12 months for a total of 18 hours per agency. The State Water Board estimates that the total time to complete and submit information required by an information order will be 6 to 25 hours (between 5 to 24 hours to collect the requested documentation plus one hour to fill out the form and submit the data). Inasmuch as agencies are required to exercise due diligence prior to using public funds to purchase property, it is estimated that at least half of the agencies will have partial or complete records. The remaining agencies will likely have incomplete records. Thus, the average time is expected to be 15.5 hours to gather and submit the information for the information order. The State Water Board has used a conservative estimate of \$67 per hour (hourly rate includes

wages plus retirement and health care benefits) for local agency staff time, representing a Deputy Director position in Siskiyou County. A conservative estimate of \$100 per hour (hourly rate includes wages plus retirement and health care benefits) was used for state government staff time, representing an Environmental Program Manager I position. The hourly rate information for these estimates was based on 2019 records from the California State Controller's Government Compensation in California database for local and state agencies.

Using the values above, the estimated cost to state agencies is \$10,350, local agencies is \$36,984 and local schools is \$11,558. The estimated costs are calculated as follows: the total number of state agencies (3), local agencies (16), or schools (5) affected by the emergency drought regulation multiplied by the amount of time to complete the reporting tasks of 34.5 hours (1 hour for initial compliance certification, 18 hours for monthly reporting for any exceptions claimed for human health and safety, livestock, or non-consumptive uses, and 15.5 hours to gather and submit the information for the information order) multiplied by the staff pay rate. This results in a total cost to local and state agencies of \$58,892 due to the proposed drought emergency regulation.

References contained in the Fiscal Impact Statement are listed within the Information Relied Upon section of the Proposed Emergency Regulation and Informative Digest.